

Altran Corporation
Technical Report No. 96227-TR-01
Revision 3

Appendix E - Test Results

Number of pages including this sheet = 204

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Appendix E

Calculation of column closure waterhammer pressure pulse:

$$\Delta P(p, C, V) := \frac{1}{2} \cdot p \cdot C \cdot V \cdot \left(\frac{1}{g} \right) \quad g := 32.2 \frac{ft}{sec^2} \quad C := 2300 \frac{ft}{sec} \quad p := 62.5 \frac{lb}{ft^3}$$

conservatively high water density

For WCNOG the B train column closure waterhammer will occur in the 10" sch 40 discharge piping with an impact velocity equal to the summation of the forward and reverse velocities:

$$V_{forward} := 10.32 \frac{ft}{sec} \quad [reference 21]$$

$$V_{reverse} := 2.1 \frac{ft}{sec} \quad [reference 21]$$

$$V_{Bimpact} = V_{forward} + V_{reverse}$$

$$V_{Bimpact} = 12.42 \frac{ft}{sec}$$

The B train column closure waterhammer is then calculated as:

$$\Delta P_B = \Delta P(p, C, V_{Bimpact})$$

$$\Delta P_B = 192.678 \frac{lb}{in^2}$$

The A train column closure waterhammer will occur in the 14" discharge piping which is common to both the A and C coolers. The volumetric flow rate is higher at closure than the B train but there is more flow area available than the B train. The impact velocity and resultant column closure waterhammer on the A train is then:

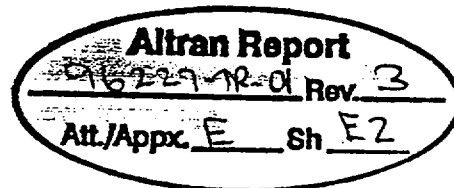
$$A_{10} := 0.5475 \cdot ft^2 \quad A_{14} := 0.9394 \cdot ft^2$$

$$V_{Aimpact} = V_{Bimpact} \cdot 2 \cdot \left(\frac{A_{10}}{A_{14}} \right)$$

$$V_{Aimpact} = 14.477 \frac{ft}{sec}$$

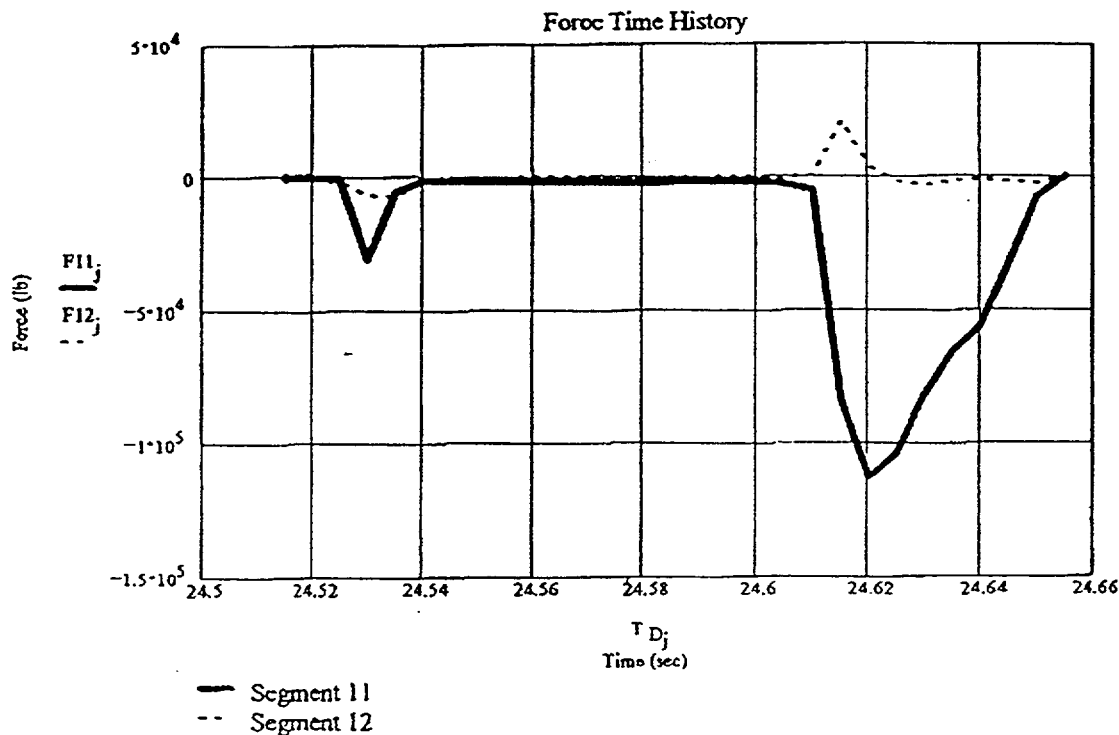
$$\Delta P_A = \Delta P(p, C, V_{Aimpact})$$

$$\Delta P_A = 224.593 \frac{lb}{in^2}$$



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Column closure on the return side of the B cooler occurs after column closure on the D cooler. The load increases to a larger magnitude and for longer period of time than the load on the B cooler piping since segment 11 is so long. The figure below shows the RELAP generated forcing functions on segment 11 and 12.



The pressure pulse magnitude is then at least as large as the maximum force divided by the flow area:

$$\Delta P(F, A) := \frac{F}{A}$$

$$F_{\max} := F_{11,21} \cdot \text{lb} + 2000 \cdot \text{lb}$$

$$F_{\max} = -8.13 \cdot 10^4 \cdot \text{lb}$$

2000lb added since the load on the pipe segment is approximately 2000 lb when pulse starts. The load at j=21 is used since there is a slope change in the load at the next time step which could have been caused by loads on an adjacent segment.

$$A := 0.5475 \cdot \text{ft}^2$$

$$\Delta P_{\min} := |\Delta P(F_{\max}, A)|$$

$$\Delta P_{\min} = 1.03 \cdot 10^3 \cdot \frac{\text{lb}}{\text{in}^2}$$

The RELAP generated pressure pulse was at least this large.

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94100-C-01 described two reasons to reduce the pressure pulse (and subsequently the load). First, the RELAP model overpredicted the water velocity at closure. The final time history loads were recommended to be corrected by dividing by 1.4 (the loads are directly proportional to the pressure pulse). Second, the RELAP model could not accommodate the mitigating effects of air in water (sonic velocity reduction, density reduction, and cushioning effects). The final pulse was recommended to be corrected by multiplying by 50%. The recommended corrected pulse was then:

$$\text{Correction} := \frac{0.5}{1.4} \quad \text{Correction} = 0.36$$

$$\Delta P_{\text{sgl1}} := \text{Correction} \cdot \Delta P_{\text{min}} \quad \Delta P_{\text{sgl1}} = 368.39 \cdot \frac{\text{lb}}{\text{in}^2}$$

The Joukowski equation is used to calculate the magnitude of the column closure pulse:

$$\Delta P(\rho, V, C, g) := \frac{1}{2} \rho V C \cdot \left(\frac{1}{g} \right) \quad g := 32.2 \cdot \frac{\text{ft}}{\text{sec}^2} \quad \text{constant gravitational acceleration}$$

$$\rho := 60.1 \cdot \frac{\text{lb}}{\text{ft}^3} \quad \text{approximate per page 18 of 94100-C-01}$$

Page 19 of 94100-C-01 describes that the RELAP model predicts a closure velocity in the 10" return piping of 14.36 ft/sec. It is assumed that the velocity referred to here is the forward velocity only, not a relative velocity. RELAP probably calculated a reverse direction flow during closure since the CCW flow path was included in the model. The forward velocity used in development of the loads was then:

$$V_{\text{forward}} := \frac{14.36 \cdot \frac{\text{ft}}{\text{sec}}}{1.4} \quad V_{\text{forward}} = 10.26 \cdot \frac{\text{ft}}{\text{sec}}$$

The forward flow velocity compares favorably with the forward velocity used from reference 21 (10.32 ft/sec). Since the reference 21 forward flow velocity matched the RELAP velocity, it is assumed that the reverse flow velocity from reference 21 is also applicable.

$$V_{\text{reverse}} := 2.1 \cdot \frac{\text{ft}}{\text{sec}} \quad V_{\text{total}} := V_{\text{reverse}} + V_{\text{forward}} \quad V_{\text{total}} = 12.36 \cdot \frac{\text{ft}}{\text{sec}}$$

The sonic velocity used to calculate the loads is then determined:

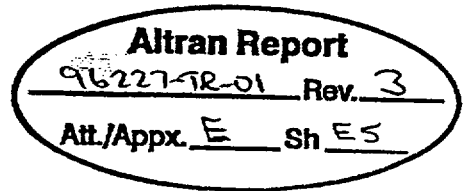
$$C := \frac{2 \cdot \Delta P_{\text{sgl1}} \cdot g}{\rho V_{\text{total}}}$$

$$C = 4.6 \cdot 10^3 \cdot \frac{\text{ft}}{\text{sec}}$$

4600 ft/sec is the expected sonic velocity without correcting for non-condensibles and piping compliance. This provides a check of the recommended reductions in the RELAP model loads. It also demonstrates that even the corrected pulse was conservative by a factor of two since a sonic velocity of 2300 ft/sec is more appropriate.

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A sonic velocity of 2300 ft/sec is more appropriate. The loads and pressure pulses recommended by 94100-C-01 are conservative by a factor of:

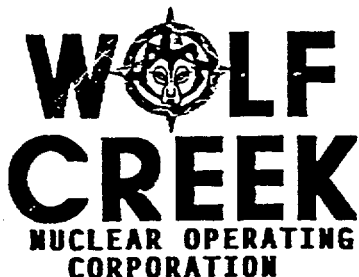
$$\text{Conservatism} := \frac{C}{2300 \cdot \frac{\text{ft}}{\text{sec}}} \quad \text{Conservatism} = 2$$

94100-C-02 describes on page 7 and in section 5.1.5 that a 50% reduction of the loads from 94100-C-01 was applied to account for the air issues described above. 94100-C-02 does not reduce the loads for the flow issue described above. As a result the 94100-C-02 analysis is even more conservative:

$$\text{Conservatism} := \text{Conservatism} \cdot 1.4$$

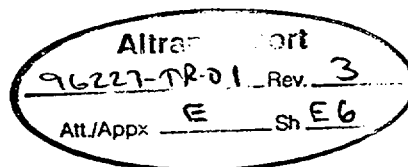
$$\text{Conservatism} = 2.8 \quad \frac{1}{\text{Conservatism}} = 0.36$$

Loads of approximately 36% of those used in the 94100-C-02 analysis are more appropriate.



INTEROFFICE CORRESPONDENCE

TO: K. W. Montgomery (WC-RE) TS 91-1044
FROM: R. W. Wollum (WC-IC)
DATE: December 12, 1991
SUBJECT: CTMT Cooler Pressure Spike Data



On 11-12-91 and 11-14-91, data was collected to quantify the magnitude of pressure spikes reaching the containment coolers.

The data collection setup, based on your request, was as follows:

- * pressure sensor connection at GNV071 (D CTMT Cooler)
- * rosemount transmitter (Model 1151GP) scaled to 0-1000 PSIG/
4 mA - 20 mA \pm 0.5%
- * data acquisition using Gould DASA and VIEW II software
- * signal to A/D converter was 1-5 VDC developed across a
250 ohm, 1% resistor in a 4 - 20 mA current loop

Data was recorded during the actuation sections of STS KJ-001B. Each data run is numbered for the step of STS KJ-001B controlling pump actuations and trips. Each data run includes:

- * a brief note describing the actuation or trip
- * specifics of the data acquisition setup
- * a small chart of the actuation or trip
- * a full page chart of the actuation or trip
- * actual data represented by the chart

For test sequences and specifics, please refer to STS KJ-001B.

If you have any questions, please call me at extension 4728.

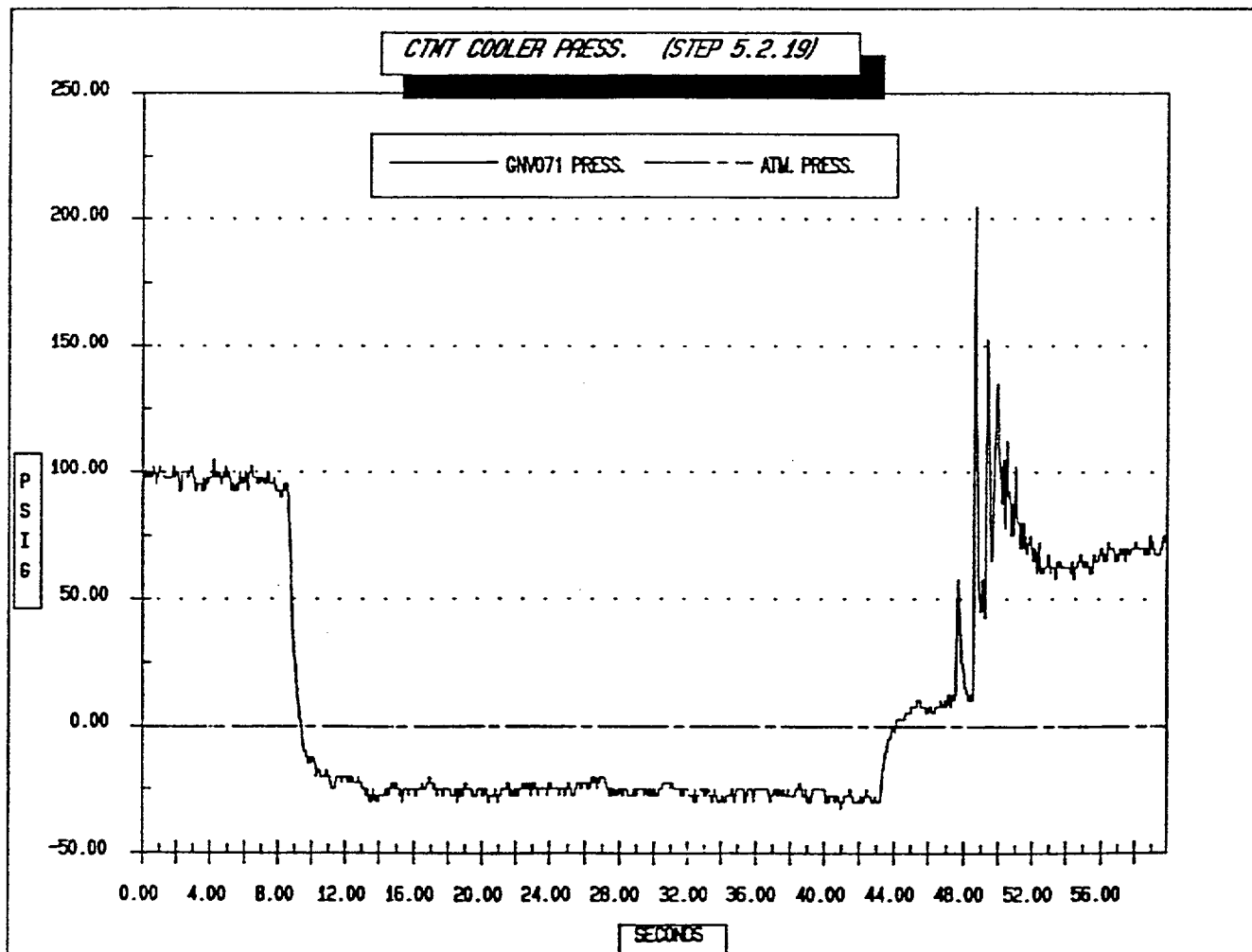
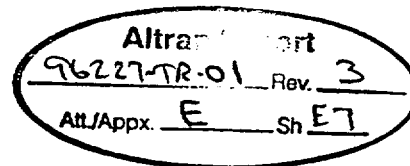
RWW/tlm

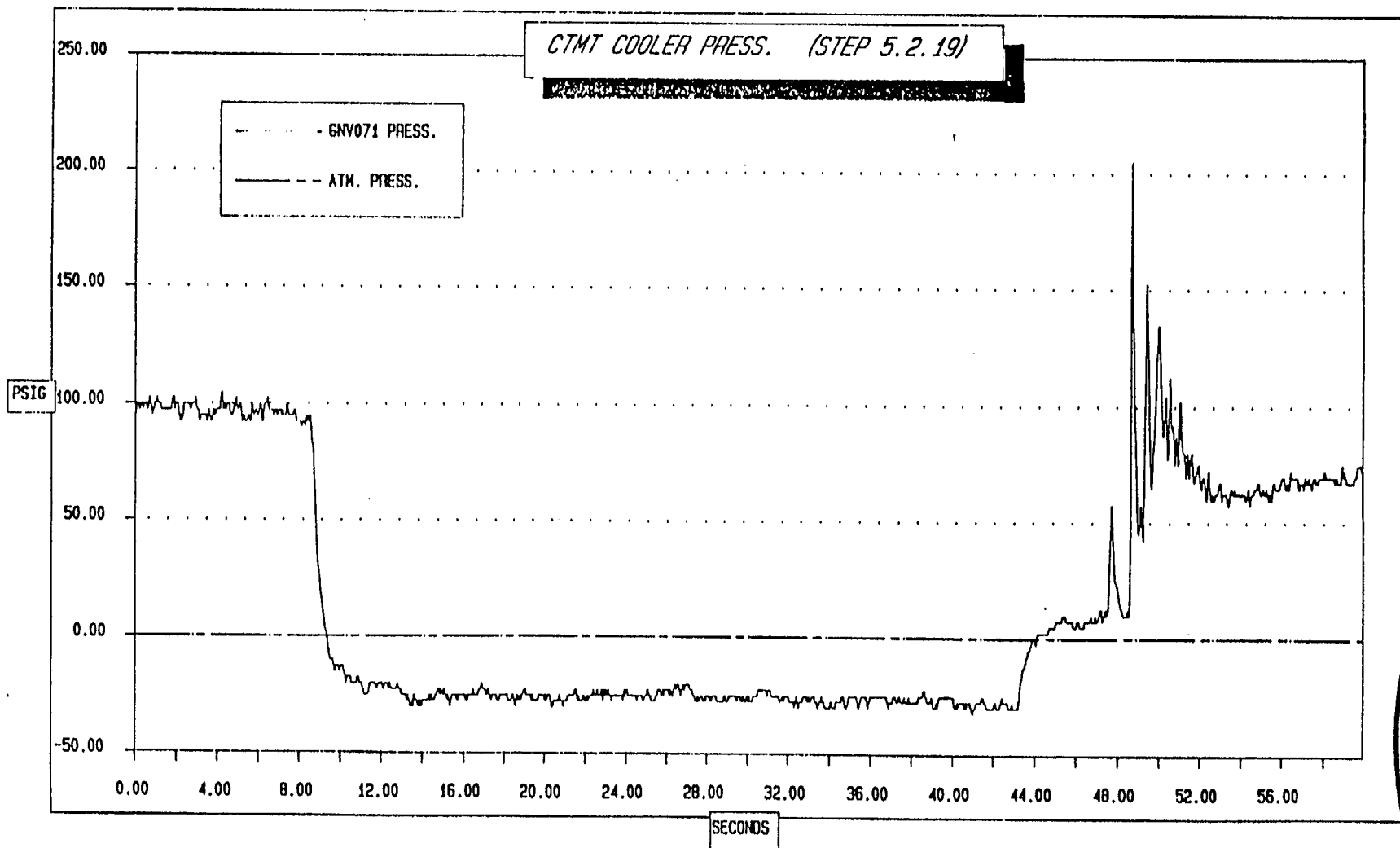
Attachment

cc: C. W. Fowler (WC-IC) w/o
D. E. Gerrelts (WC-IC) w/o
W. B. Norton (WC-AD) w/o
Records Management (WC-DS) w/o

Data collected during step 5.2.19, SI with loss of offsite power. Data shows ESW pump shutdown during load shed and restarted by the LOCA Sequencer. Service water was NOT cross connected with ESW during this section of test.

Test: STS KJ-001R STEP 5.2.19	
Run:	0.00
Device:	MB16
Channel:	1
Event:	1
First Sample:	820.00
Last Sample:	2320.00
Trigger Date:	11-12-1991
Trigger Time:	04:34:56.70
X-Axis Units at First Sample:	32.76
Sample Separation:	0.04
X-Axis Units:	SECONDS
Y-Axis Upper Limit:	5.00
Y-Axis Lower Limit:	-5.00
Y-Axis Max Value:	1.82
Y-Axis Min Value:	0.87
Y-Axis Units:	VOLTS



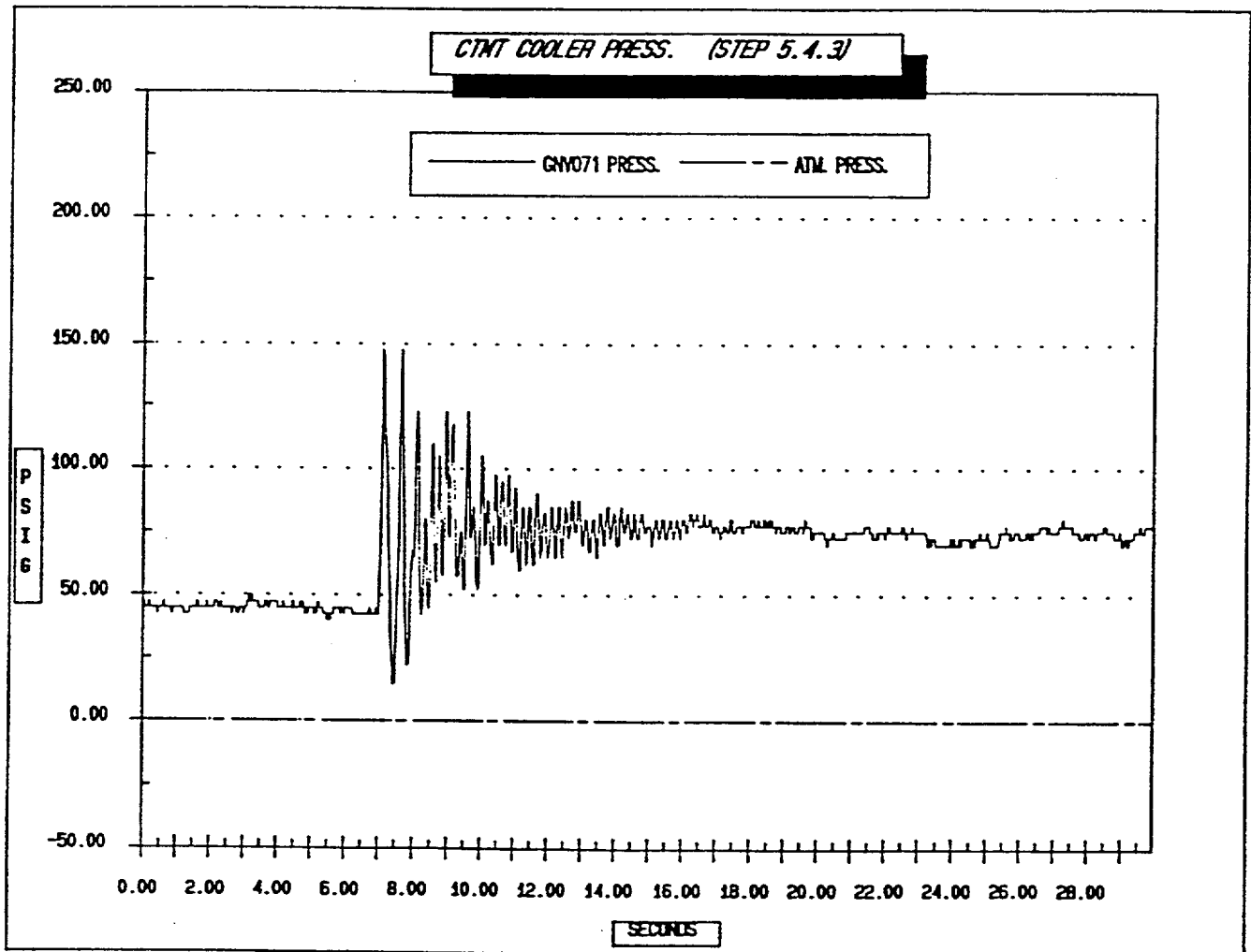


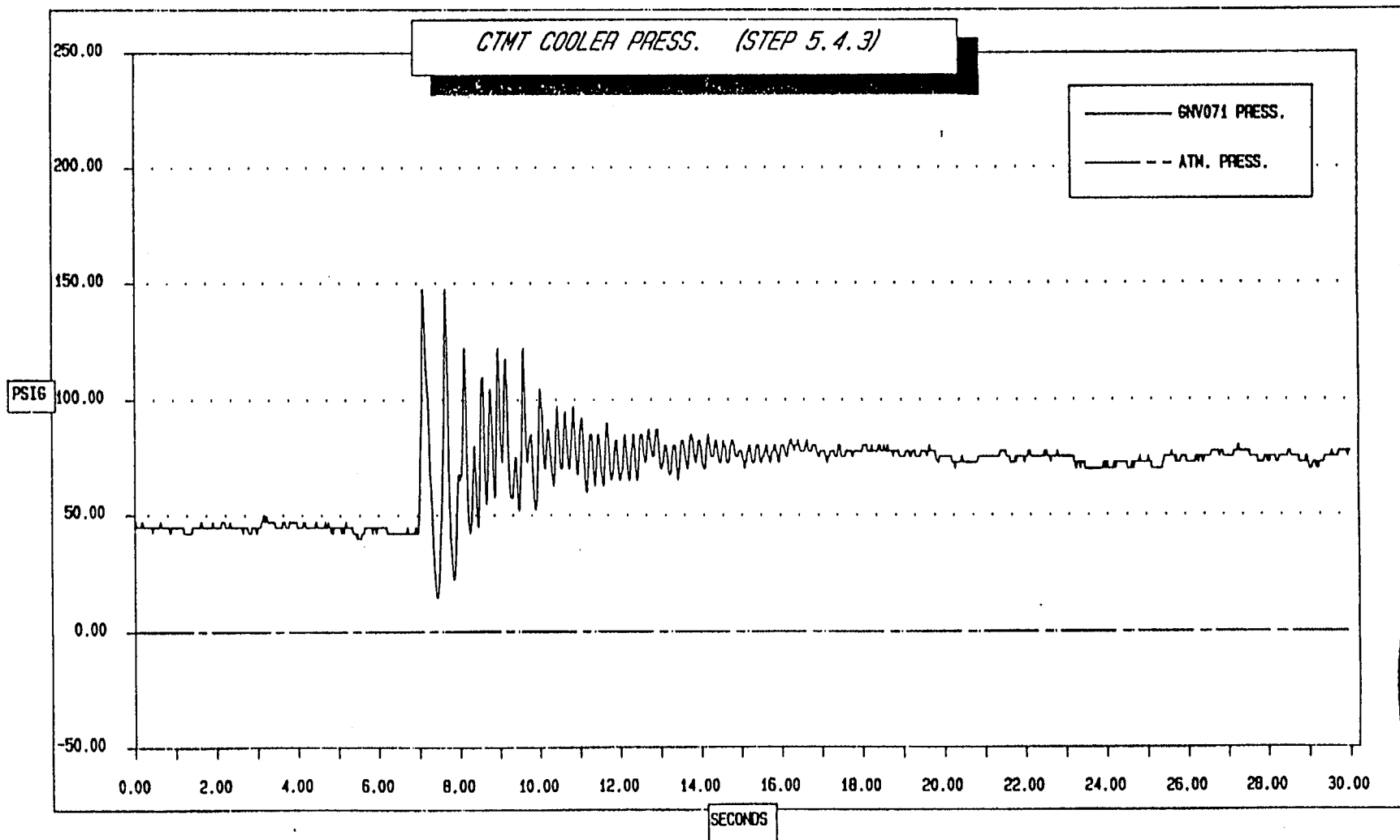
Altman Report
96227MR-01 Rev. 3
ANALYST: E Sh EE8

2
Data collected during ESM Pump start, step 5.4.3, system line-ups. Data shows initial pressure spikes during ESM pump start with service water cross connected to maintain system fill and pressure.



Test: STS KJ-001R STEP 5.4.3	
Run:	0.00
Device:	MB16
Channel:	1
Event:	1
First Sample:	7372.00
Last Sample:	8872.00
Trigger Date:	11-14-1991
Trigger Time:	00:08:11.91
X-Axis Units at First Sample:	147.40
Sample Separation:	0.02
X-Axis Units:	SECONDS
Y-Axis Upper Limit:	5.00
Y-Axis Lower Limit:	-5.00
Y-Axis Max Value:	1.59
Y-Axis Min Value:	1.06
Y-Axis Units:	VOLTS

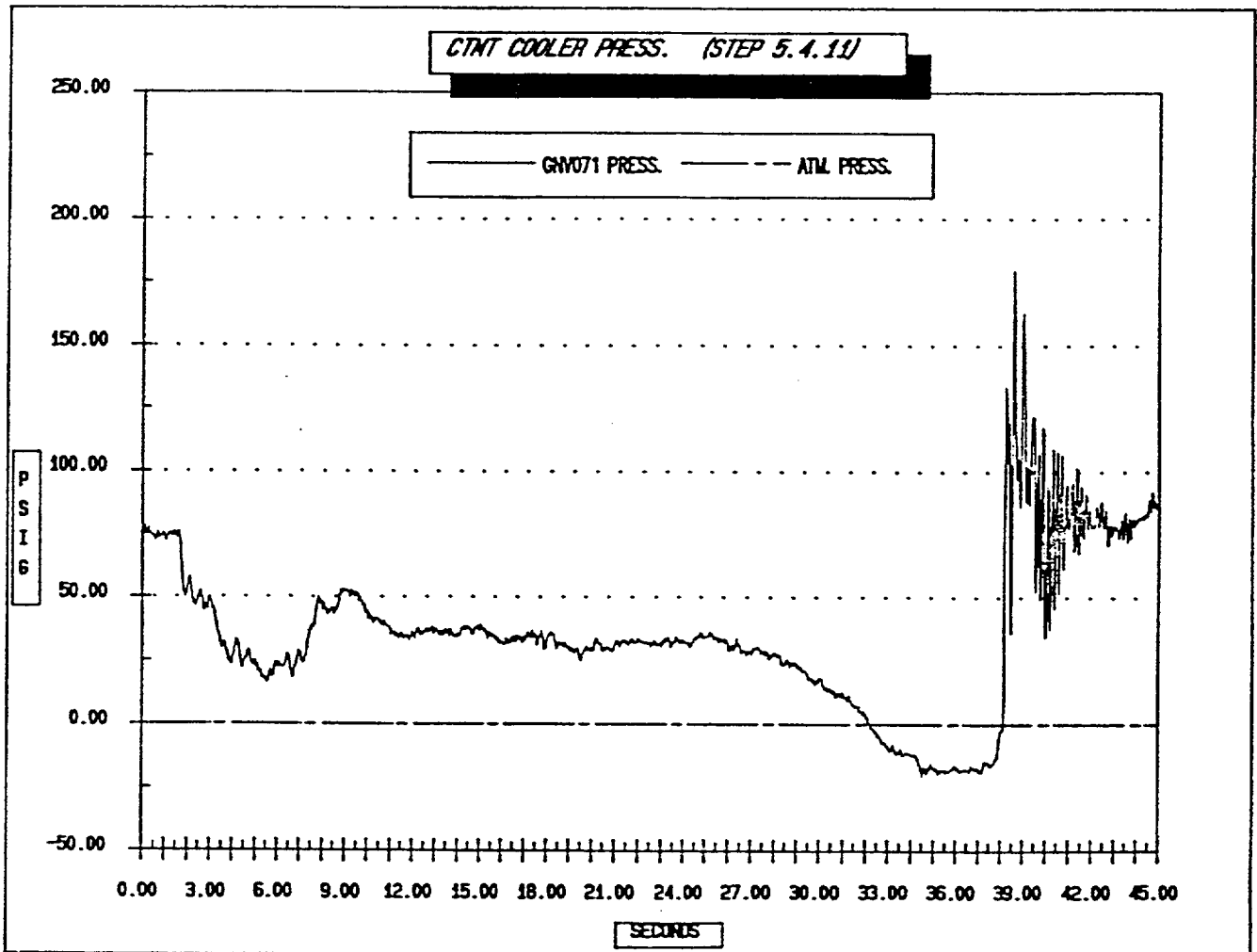
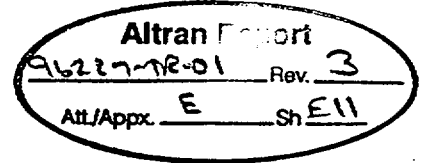


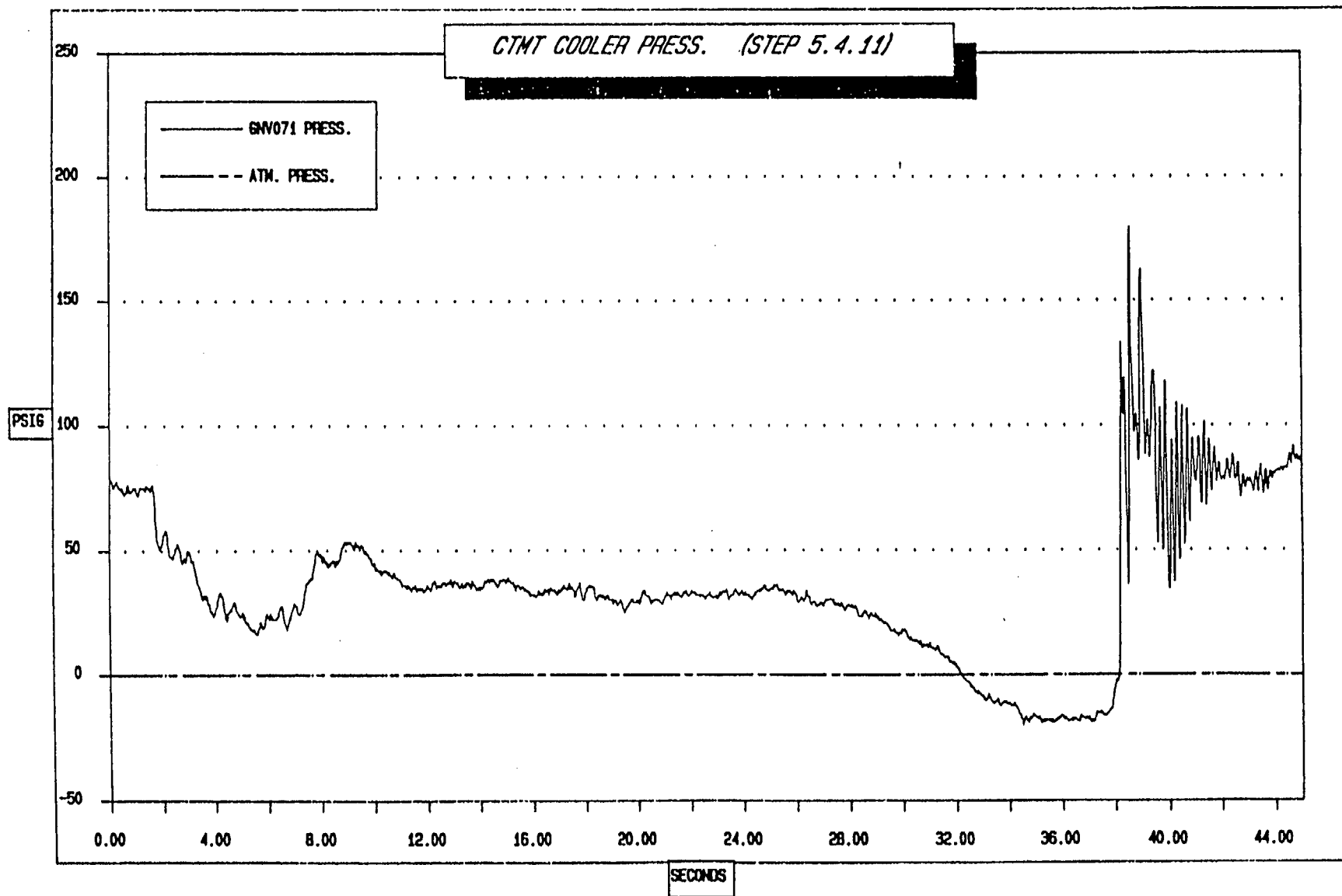


Altman Report 3
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Alt/Approx. E Sh E10

3
Data collected during step 5.4.11, loss of offsite power without SI. Data shows ESW pump shutdown during load shed and restarted by the Shutdown Sequencer. Service water is cross connected to maintain system fill and

Test: STS KJ-001B STEP 5.4.11	
Run:	0
Device:	MB16
Channel:	1
Event:	1
First Sample:	10024
Last Sample:	12274
Trigger Date:	11-14-1991
Trigger Time:	00:08:11.91
X-Axis Units at First Sample:	200.5
Sample Separation:	0.02
X-Axis Units:	SECONDS
Y-Axis Upper Limit:	5
Y-Axis Lower Limit:	-5
Y-Axis Max Value:	1.718
Y-Axis Min Value:	0.9194
Y-Axis Units:	VOLTS





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Alt/Appx E Sh EV2

Data collected during step 5.4.17.1, ESM pump load reject. Data shows ESM pump shutdown by placing the handswitch in PTL. Service water is cross connected to maintain system fill and pressure.

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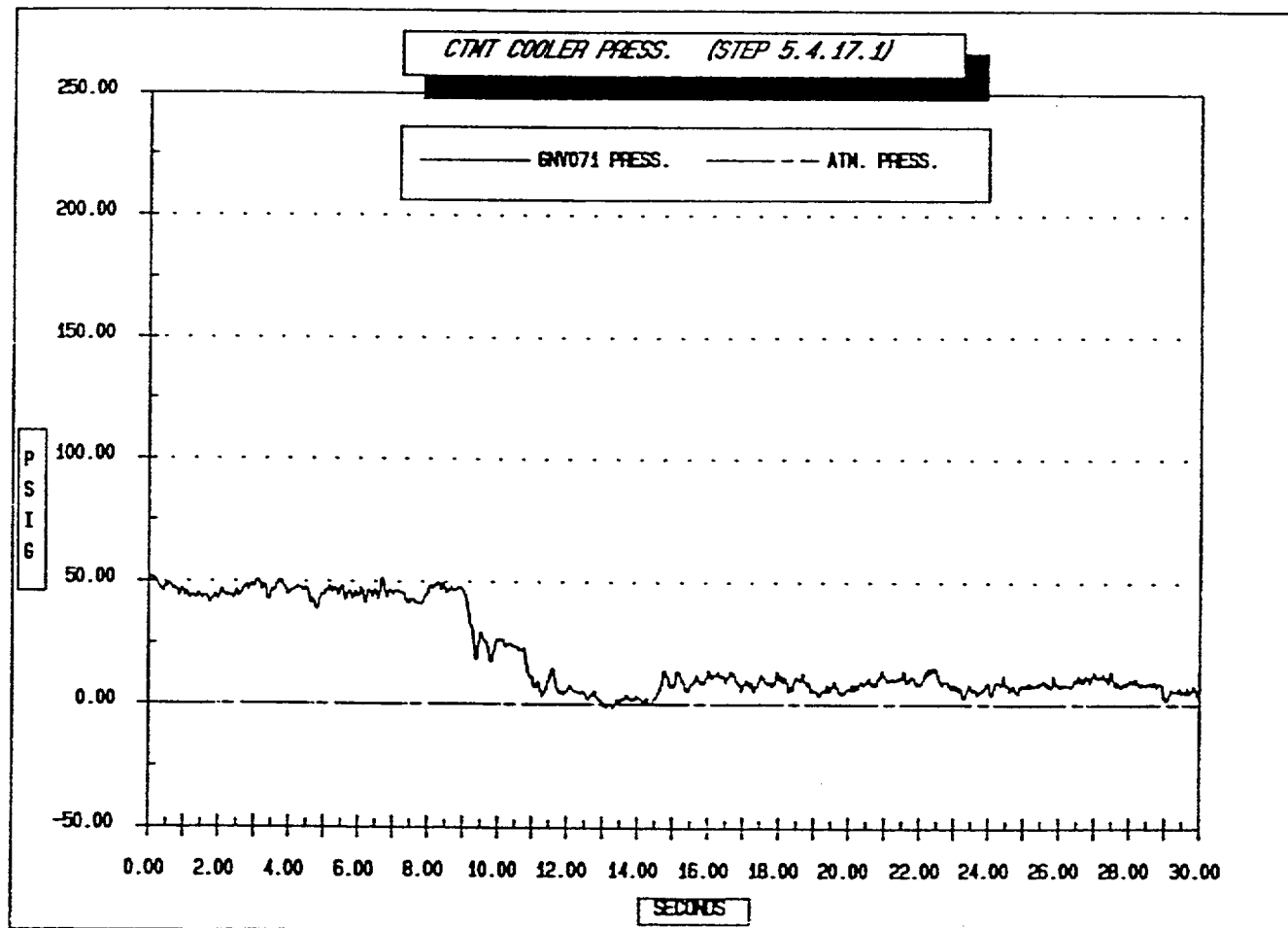
96227-TR-01

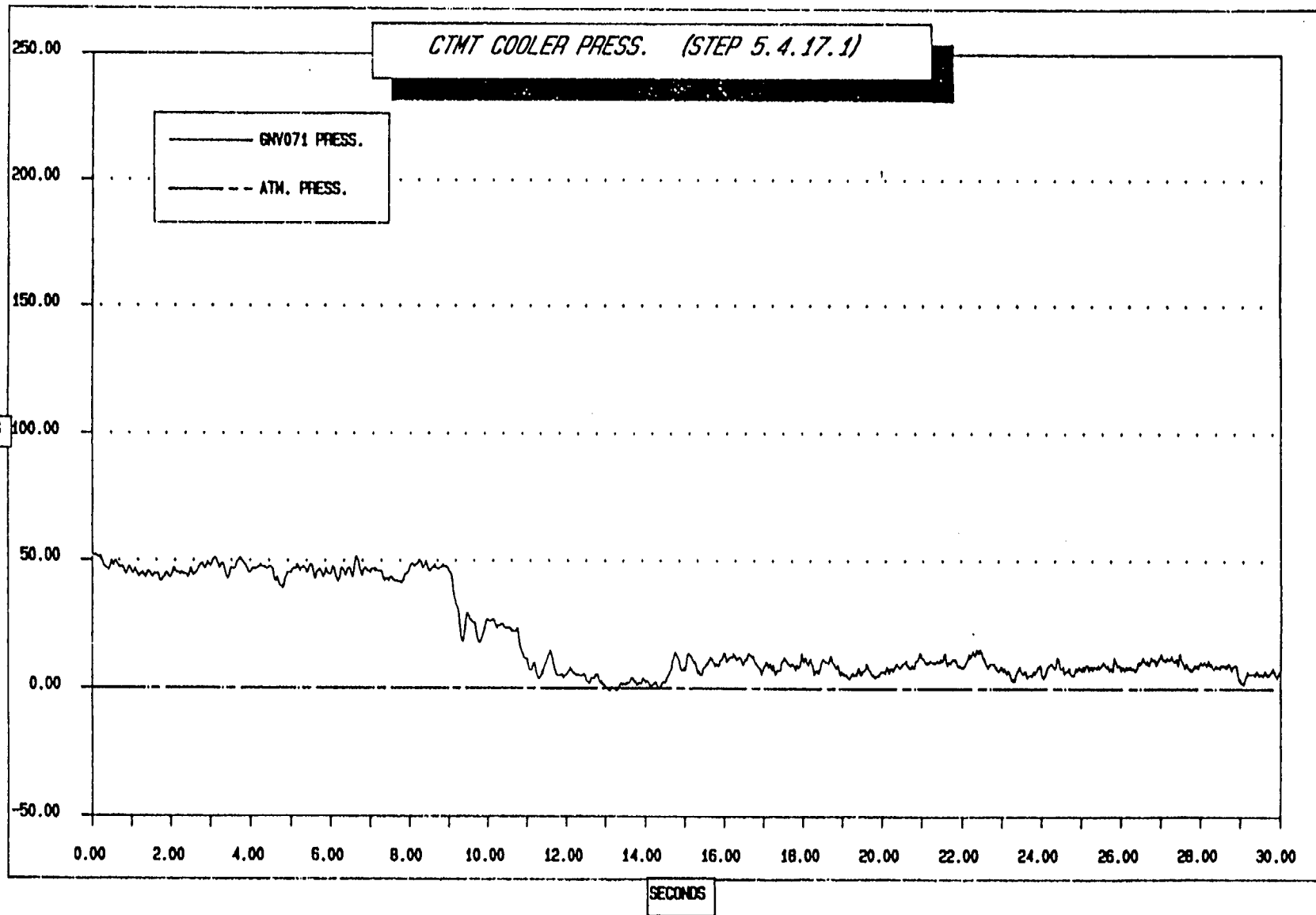
Rev. 3

Att/Appx. E

Sh EV3

Test: STS KJ-001R STEP 5.4.17.1	
Run:	0.00
Device:	MB16
Channel:	1
Event:	1
First Sample:	36301.00
Last Sample:	37801.00
Trigger Date:	11-14-1991
Trigger Time:	00:08:11.91
X-Axis Units at First Sample:	726.00
Sample Separation:	0.02
X-Axis Units:	SECONDS
Y-Axis Upper Limit:	5.00
Y-Axis Lower Limit:	-5.00
Y-Axis Max Value:	1.21
Y-Axis Min Value:	1.00
Y-Axis Units:	VOLTS

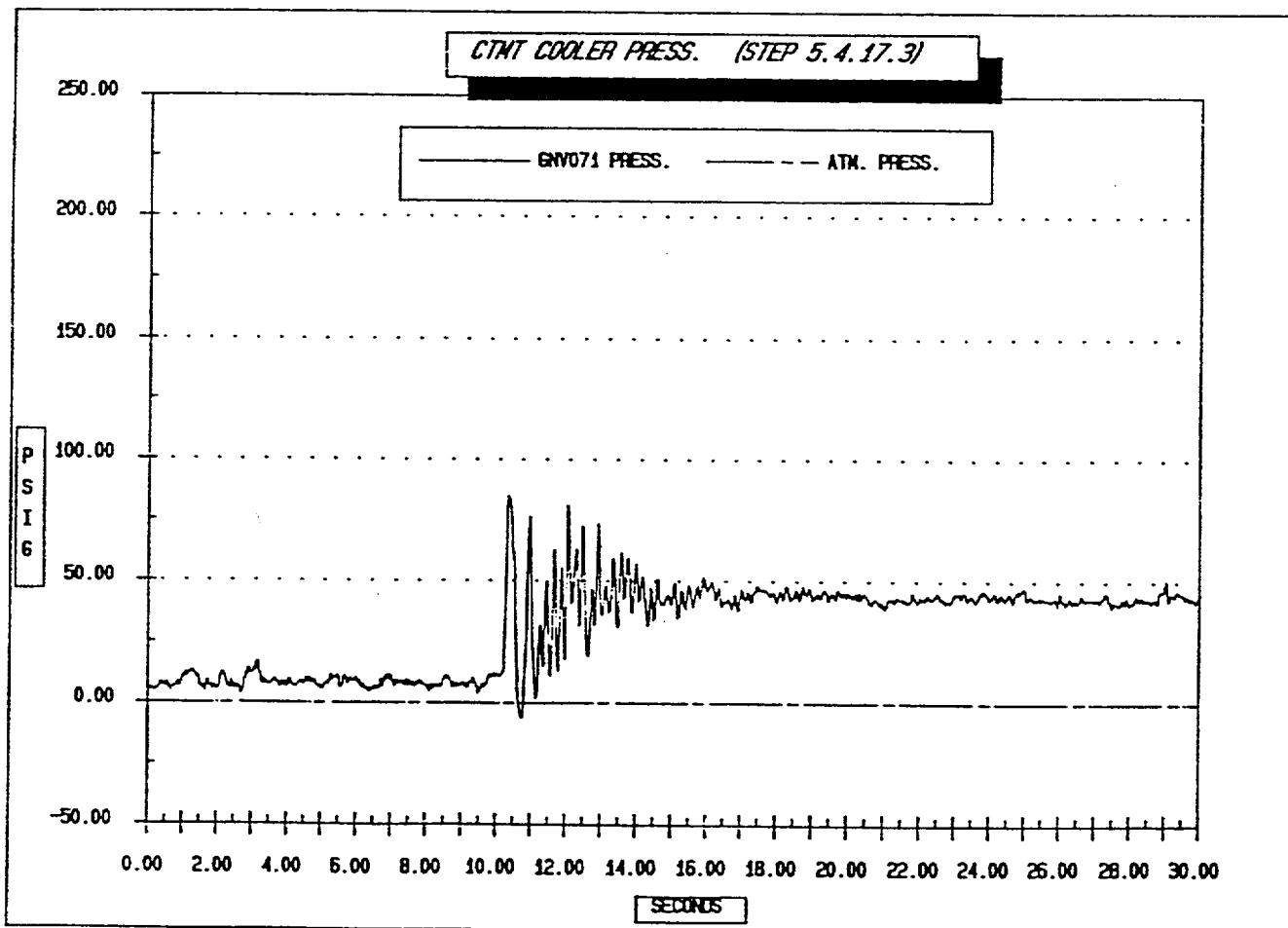
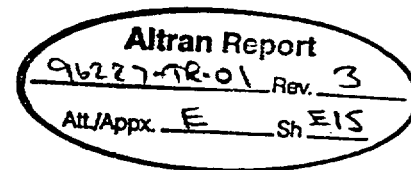


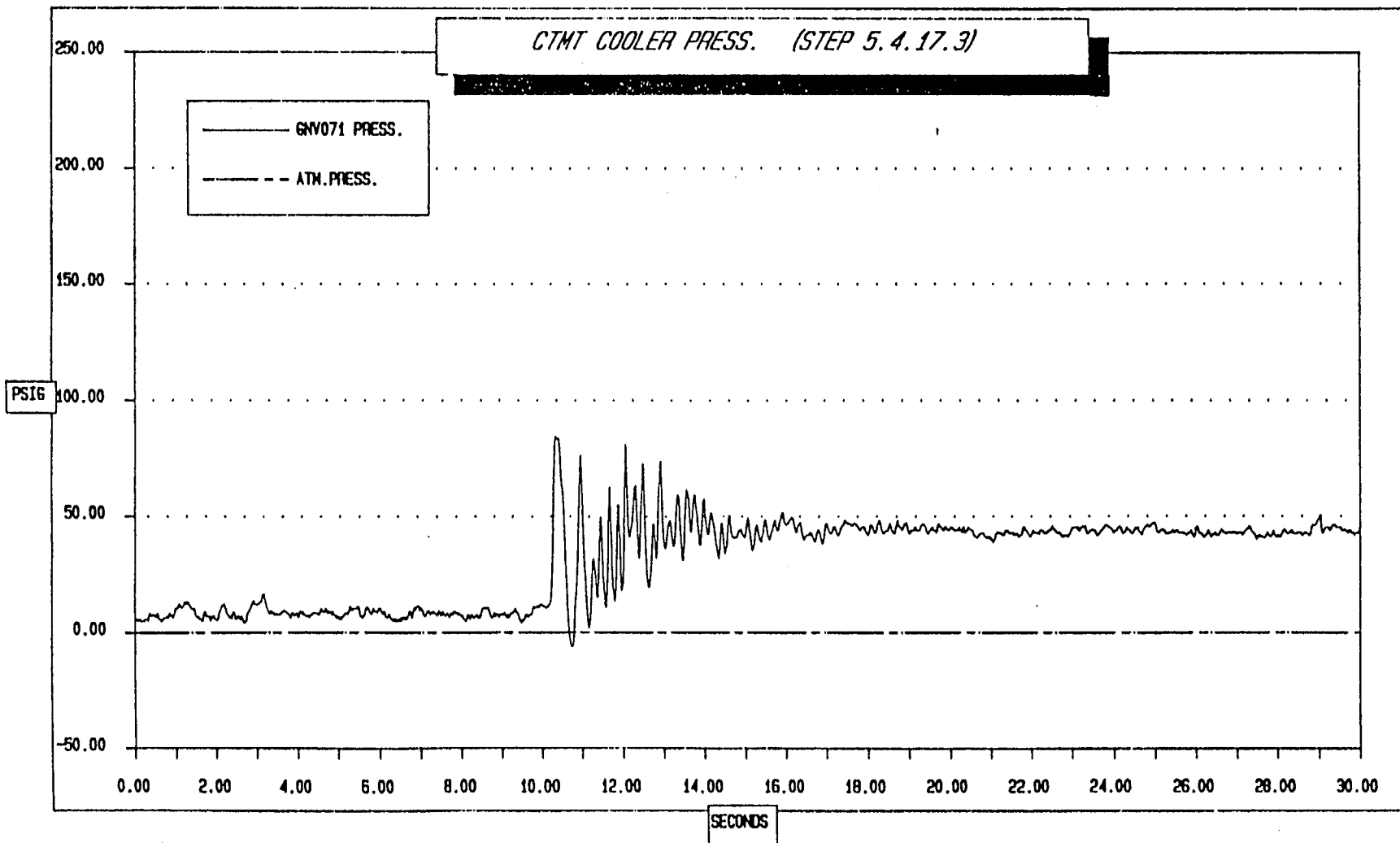


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9/22/78-01 Rev. 3
Alt/Approx. E Sh E14

5 Data collected during step 5.4.17.3, ESW pump start following load reject test. Data shows ESW pump start after coastdown to zero shaft revolutions. Service water is cross connected to maintain system fill and pressure.

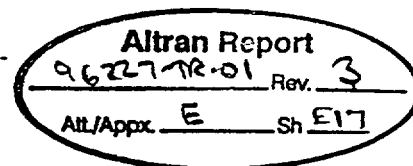
Test: STS KJ-001R STEP 5.4.17.3	
Run:	0.00
Device:	MB16
Channel:	1
Event:	1
First Sample:	40401.00
Last Sample:	41901.00
Trigger Date:	11-14-1991
Trigger Time:	00:08:11.91
X-Axis Units at First Sample:	808.00
Sample Separation:	0.02
X-Axis Units:	SECONDS
Y-Axis Upper Limit:	5.00
Y-Axis Lower Limit:	-5.00
Y-Axis Max Value:	1.34
Y-Axis Min Value:	0.98
Y-Axis Units:	VOLTS



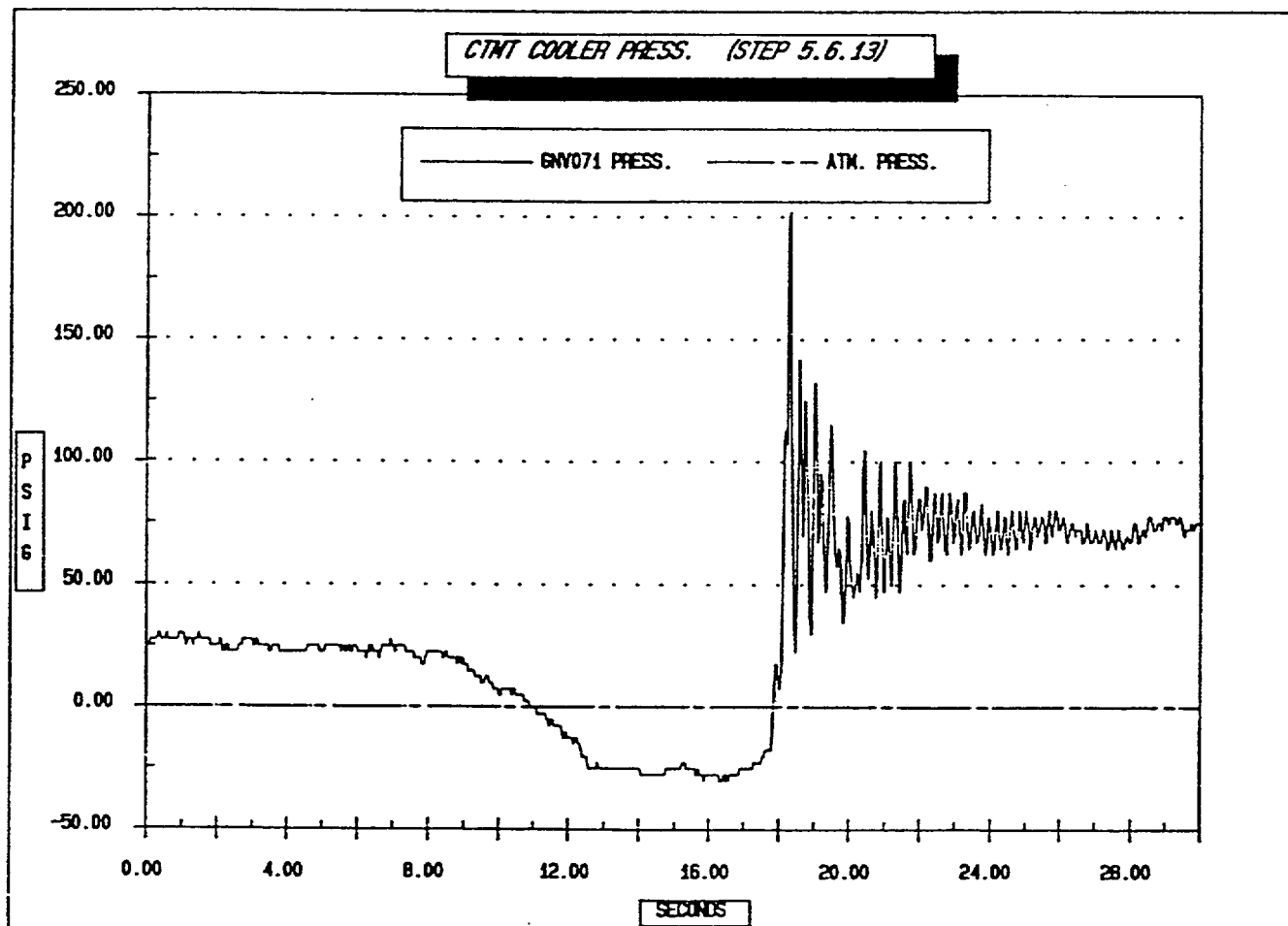


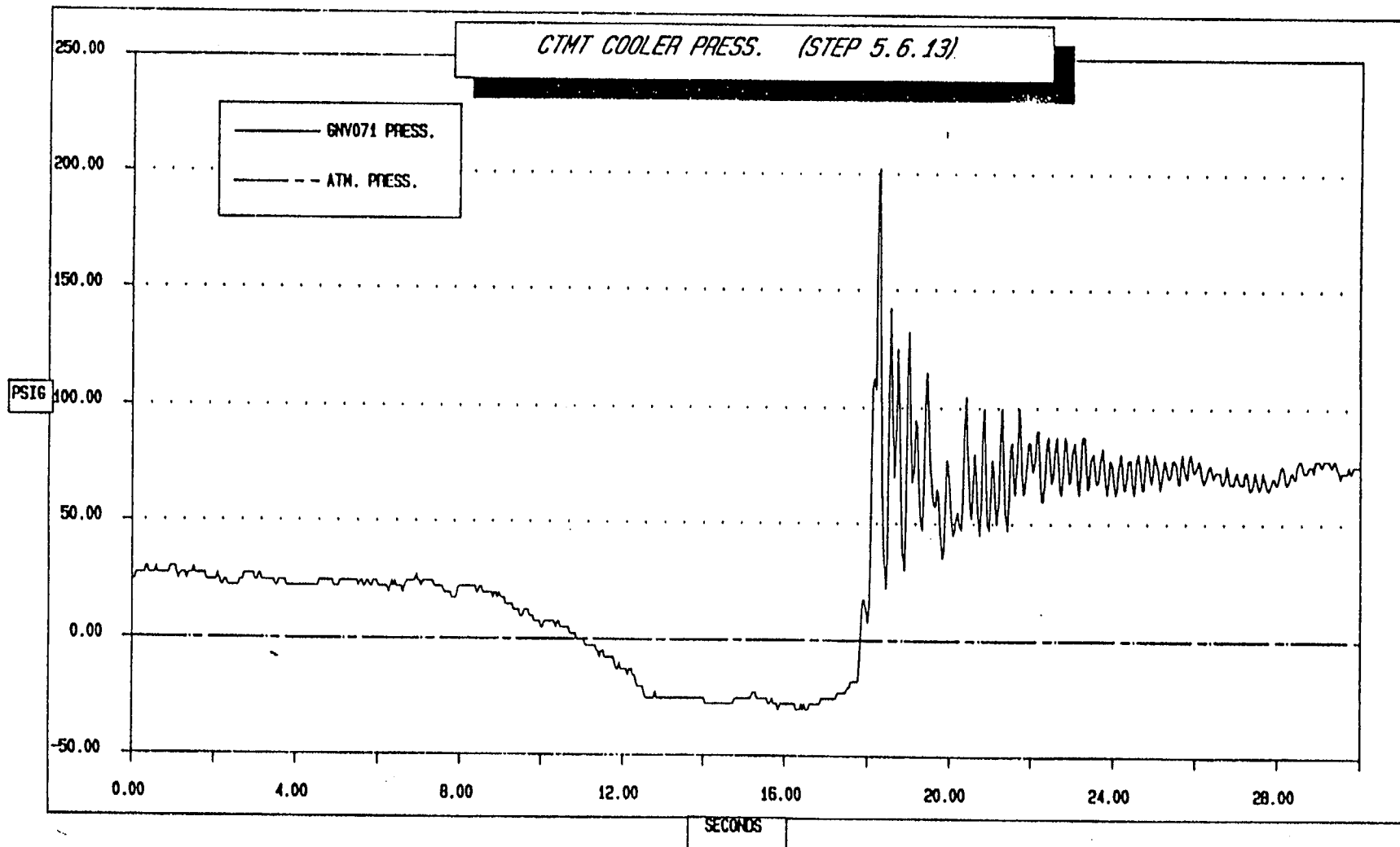
Altran Report
961217E-01 Rev. 3
Att/APPX E SH E116

6 Data collected during step 5.6.13, SI without loss of offsite power. Data shows service water shutdown during load shed and ESW pump started by the LOCA Sequencer. Service water was in service prior to SI signal.



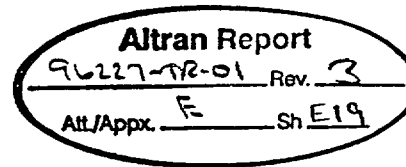
Test: STS NJ-001R STEP 5.6.13	
Run:	2.00
Device:	MB16
Channel:	1
Event:	1
First Sample:	980.00
Last Sample:	1730.00
Trigger Date:	11-12-1991
Trigger Time:	18:42:58.03
X-Axis Units at First Sample:	39.16
Sample Separation:	0.04
X-Axis Units:	SECONDS
Y-Axis Upper Limit:	5.00
Y-Axis Lower Limit:	-5.00
Y-Axis Max Value:	1.81
Y-Axis Min Value:	0.88
Y-Axis Units:	VOLTS





Data collected during step 5.2.19. SI with loss of offsite power. Data shows ESM pump shutdown during load shed and restarted by the LOCA Sequencer. Service water was NOT cross connected with ESM during this section of test.

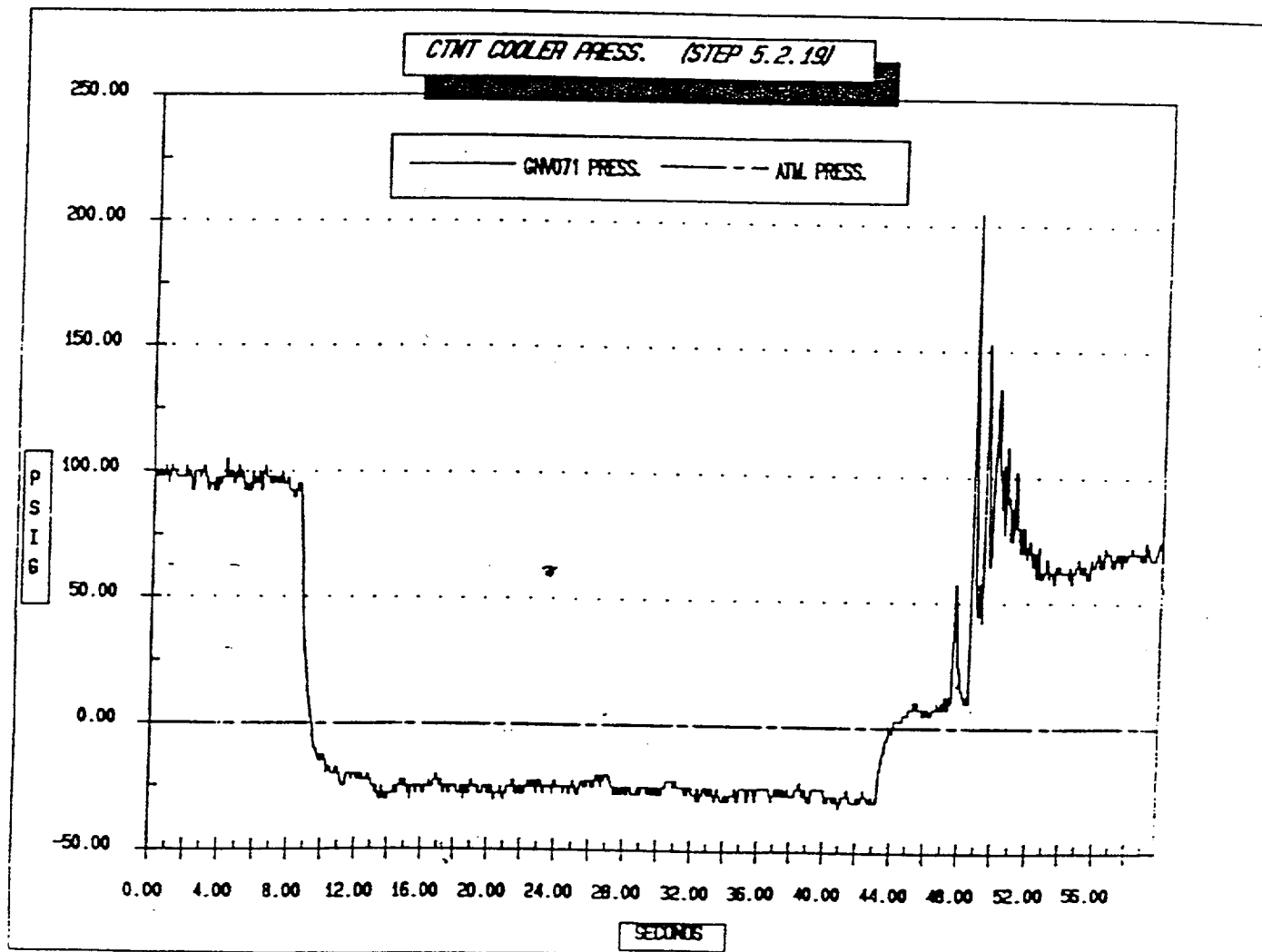
Test: STS NJ-0018 STEP 5.2.19	
Run:	0.00
Device:	MB16
Channel:	1
Event:	1
First Sample:	820.00
Last Sample:	2320.00
Trigger Date:	11-12-1991
Trigger Time:	04:34:56.70
X-Axis Units at First Sample:	32.76
Sample Separation:	0.04
X-Axis Units:	SECONDS
Y-Axis Upper Limit:	5.00
Y-Axis Lower Limit:	-5.00
Y-Axis Max Value:	1.82
Y-Axis Min Value:	0.87
Y-Axis Units:	VOLTS

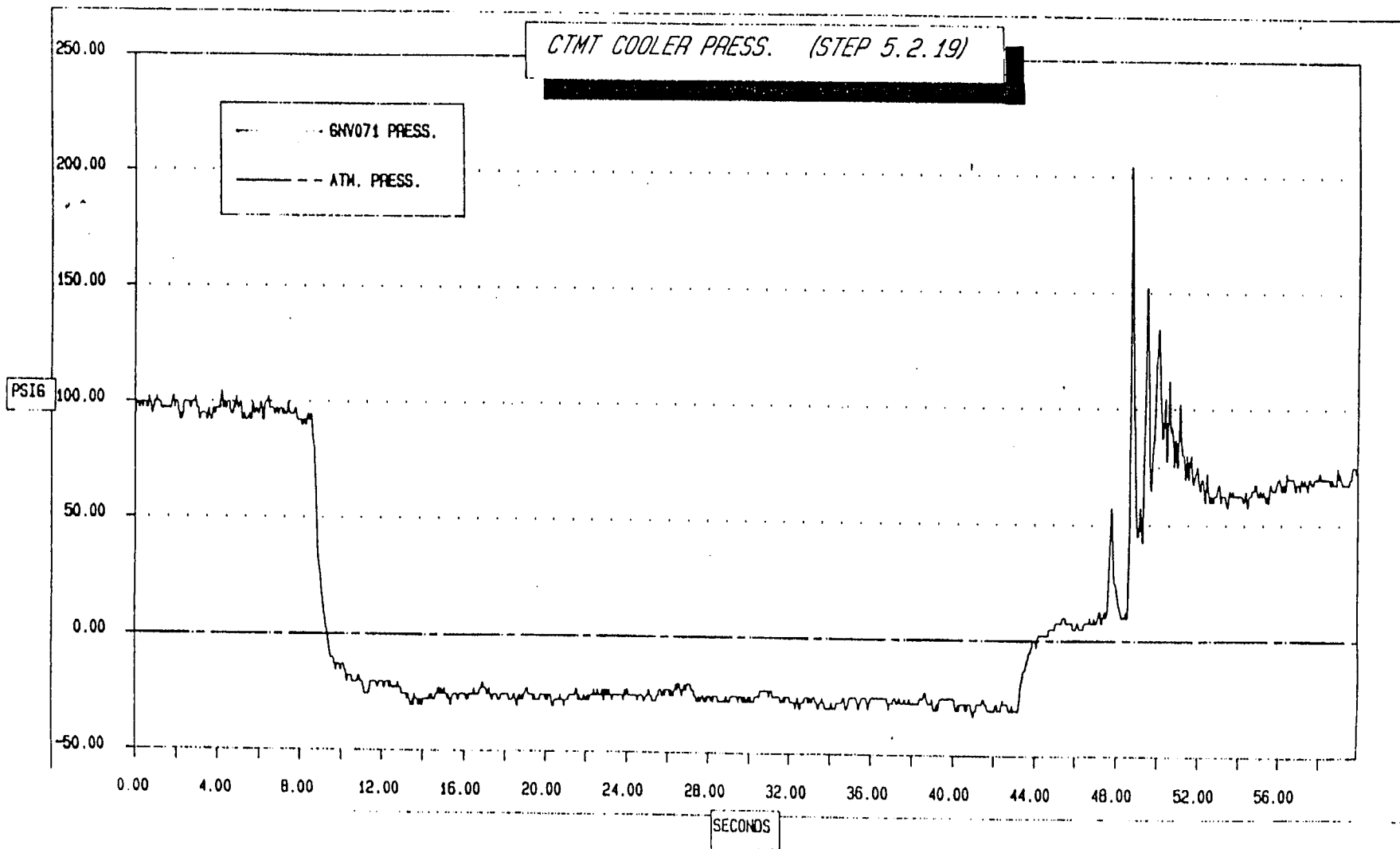


Attachment 1 to Calculation No. EF-S-010

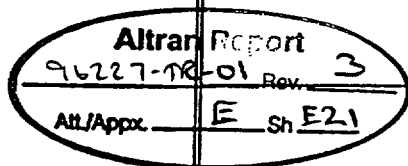
Calculation Revision No. 00

Originator: Date: 11/12/91
 Verified By: TI Date: 5/7/92
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Att/APPX E Sh E20



SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
0.00	1.38	0.00	95.00
0.04	1.40	0.00	100.00
0.08	1.40	0.00	100.00
0.12	1.40	0.00	100.00
0.16	1.39	0.00	97.50
0.20	1.39	0.00	97.50
0.24	1.40	0.00	100.00
0.28	1.40	0.00	100.00
0.32	1.40	0.00	100.00
0.36	1.39	0.00	97.50
0.40	1.40	0.00	100.00
0.44	1.40	0.00	100.00
0.48	1.40	0.00	100.00
0.52	1.39	0.00	97.50
0.56	1.39	0.00	97.50
0.60	1.40	0.00	100.00
0.64	1.41	0.00	102.50
0.68	1.40	0.00	100.00
0.72	1.40	0.00	100.00
0.76	1.39	0.00	97.50
0.80	1.38	0.00	95.00
0.84	1.39	0.00	97.50
0.88	1.39	0.00	97.50
0.92	1.40	0.00	100.00
0.96	1.40	0.00	100.00
1.00	1.41	0.00	102.50
1.04	1.40	0.00	100.00
1.08	1.40	0.00	100.00
1.12	1.40	0.00	100.00
1.16	1.40	0.00	100.00
1.20	1.40	0.00	100.00
1.24	1.39	0.00	97.50
1.28	1.39	0.00	97.50
1.32	1.39	0.00	97.50
1.36	1.39	0.00	97.50
1.40	1.39	0.00	97.50
1.44	1.39	0.00	97.50
1.48	1.39	0.00	97.50
1.52	1.39	0.00	97.50
1.56	1.39	0.00	97.50
1.60	1.39	0.00	97.50
1.64	1.39	0.00	97.50
1.68	1.39	0.00	97.50
1.72	1.39	0.00	97.50
1.76	1.40	0.00	100.00
1.80	1.41	0.00	102.50
1.84	1.41	0.00	102.50
1.88	1.39	0.00	97.50
1.92	1.40	0.00	100.00
1.96	1.40	0.00	100.00
2.00	1.40	0.00	100.00
2.04	1.40	0.00	100.00

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
2.08	1.39	0.00	97.50
2.12	1.38	0.00	95.00
2.16	1.37	0.00	92.50
2.20	1.38	0.00	95.00
2.24	1.37	0.00	92.50
2.28	1.38	0.00	95.00
2.32	1.40	0.00	100.00
2.36	1.40	0.00	100.00
2.40	1.40	0.00	100.00
2.44	1.40	0.00	100.00
2.48	1.40	0.00	100.00
2.52	1.40	0.00	100.00
2.56	1.40	0.00	100.00
2.60	1.40	0.00	100.00
2.64	1.39	0.00	97.50
2.68	1.39	0.00	97.50
2.72	1.40	0.00	100.00
2.76	1.40	0.00	100.00
2.80	1.40	0.00	100.00
2.84	1.40	0.00	100.00
2.88	1.41	0.00	102.50
2.92	1.40	0.00	100.00
2.96	1.39	0.00	97.50
3.00	1.39	0.00	97.50
3.04	1.39	0.00	97.50
3.08	1.37	0.00	92.50
3.12	1.37	0.00	92.50
3.16	1.38	0.00	95.00
3.20	1.38	0.00	95.00
3.24	1.38	0.00	95.00
3.28	1.38	0.00	95.00
3.32	1.38	0.00	95.00
3.36	1.38	0.00	95.00
3.40	1.38	0.00	95.00
3.44	1.37	0.00	92.50
3.48	1.37	0.00	92.50
3.52	1.38	0.00	95.00
3.56	1.39	0.00	97.50
3.60	1.38	0.00	95.00
3.64	1.37	0.00	92.50
3.68	1.37	0.00	92.50
3.72	1.38	0.00	95.00
3.76	1.39	0.00	97.50
3.80	1.39	0.00	97.50
3.84	1.38	0.00	95.00
3.88	1.38	0.00	95.00
3.92	1.39	0.00	97.50
3.96	1.39	0.00	97.50
4.00	1.39	0.00	97.50
4.04	1.39	0.00	97.50
4.08	1.39	0.00	97.50
4.12	1.40	0.00	100.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
4.16	1.42	0.00	105.00
4.20	1.41	0.00	102.50
4.24	1.39	0.00	97.50
4.28	1.40	0.00	100.00
4.32	1.40	0.00	100.00
4.36	1.39	0.00	97.50
4.40	1.39	0.00	97.50
4.44	1.40	0.00	100.00
4.48	1.40	0.00	100.00
4.52	1.40	0.00	100.00
4.56	1.39	0.00	97.50
4.60	1.38	0.00	95.00
4.64	1.38	0.00	95.00
4.68	1.38	0.00	95.00
4.72	1.39	0.00	97.50
4.76	1.40	0.00	100.00
4.80	1.39	0.00	97.50
4.84	1.40	0.00	100.00
4.88	1.41	0.00	102.50
4.92	1.40	0.00	100.00
4.96	1.39	0.00	97.50
5.00	1.39	0.00	97.50
5.04	1.40	0.00	100.00
5.08	1.40	0.00	100.00
5.12	1.39	0.00	97.50
5.16	1.37	0.00	92.50
5.20	1.37	0.00	92.50
5.24	1.38	0.00	95.00
5.28	1.38	0.00	95.00
5.32	1.37	0.00	92.50
5.36	1.37	0.00	92.50
5.40	1.37	0.00	92.50
5.44	1.37	0.00	92.50
5.48	1.38	0.00	95.00
5.52	1.38	0.00	95.00
5.56	1.37	0.00	92.50
5.60	1.37	0.00	92.50
5.64	1.39	0.00	97.50
5.68	1.40	0.00	100.00
5.72	1.39	0.00	97.50
5.76	1.38	0.00	95.00
5.80	1.38	0.00	95.00
5.84	1.39	0.00	97.50
5.88	1.39	0.00	97.50
5.92	1.38	0.00	95.00
5.96	1.38	0.00	95.00
6.00	1.39	0.00	97.50
6.04	1.40	0.00	100.00
6.08	1.40	0.00	100.00
6.12	1.39	0.00	97.50
6.16	1.37	0.00	92.50
6.20	1.37	0.00	92.50

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
6.24	1.39	0.00	97.50
6.28	1.40	0.00	100.00
6.32	1.40	0.00	100.00
6.36	1.40	0.00	100.00
6.40	1.41	0.00	102.50
6.44	1.40	0.00	100.00
6.48	1.39	0.00	97.50
6.52	1.39	0.00	97.50
6.56	1.39	0.00	97.50
6.60	1.39	0.00	97.50
6.64	1.39	0.00	97.50
6.68	1.39	0.00	97.50
6.72	1.38	0.00	95.00
6.76	1.38	0.00	95.00
6.80	1.39	0.00	97.50
6.84	1.39	0.00	97.50
6.88	1.38	0.00	95.00
6.92	1.38	0.00	95.00
6.96	1.39	0.00	97.50
7.00	1.39	0.00	97.50
7.04	1.39	0.00	97.50
7.08	1.39	0.00	97.50
7.12	1.38	0.00	95.00
7.16	1.38	0.00	95.00
7.20	1.39	0.00	97.50
7.24	1.38	0.00	95.00
7.28	1.38	0.00	95.00
7.32	1.38	0.00	95.00
7.36	1.40	0.00	100.00
7.40	1.40	0.00	100.00
7.44	1.39	0.00	97.50
7.48	1.38	0.00	95.00
7.52	1.38	0.00	95.00
7.56	1.38	0.00	95.00
7.60	1.38	0.00	95.00
7.64	1.38	0.00	95.00
7.68	1.38	0.00	95.00
7.72	1.39	0.00	97.50
7.76	1.39	0.00	97.50
7.80	1.38	0.00	95.00
7.84	1.37	0.00	92.50
7.88	1.37	0.00	92.50
7.92	1.37	0.00	92.50
7.96	1.37	0.00	92.50
8.00	1.37	0.00	92.50
8.04	1.37	0.00	92.50
8.08	1.36	0.00	90.00
8.12	1.36	0.00	90.00
8.16	1.37	0.00	92.50
8.20	1.37	0.00	92.50
8.24	1.36	0.00	90.00
8.28	1.37	0.00	92.50

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 Att./Appx. E Sh. E24

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
8.32	1.38	0.00	95.00
8.36	1.38	0.00	95.00
8.40	1.37	0.00	92.50
8.44	1.37	0.00	92.50
8.48	1.38	0.00	95.00
8.52	1.38	0.00	95.00
8.56	1.36	0.00	90.00
8.60	1.34	0.00	85.00
8.64	1.32	0.00	80.00
8.68	1.28	0.00	70.00
8.72	1.26	0.00	65.00
8.76	1.22	0.00	55.00
8.80	1.19	0.00	47.50
8.84	1.15	0.00	37.50
8.88	1.13	0.00	32.50
8.92	1.12	0.00	30.00
8.96	1.11	0.00	27.50
9.00	1.10	0.00	25.00
9.04	1.08	0.00	20.00
9.08	1.06	0.00	15.00
9.12	1.05	0.00	12.50
9.16	1.04	0.00	10.00
9.20	1.03	0.00	7.50
9.24	1.02	0.00	5.00
9.28	1.01	0.00	2.50
9.32	1.01	0.00	2.50
9.36	1.00	0.00	0.00
9.40	0.99	0.00	-2.50
9.44	0.98	0.00	-5.00
9.48	0.97	0.00	-7.50
9.52	0.96	0.00	-10.00
9.56	0.96	0.00	-10.00
9.60	0.96	0.00	-10.00
9.64	0.96	0.00	-10.00
9.68	0.95	0.00	-12.50
9.72	0.95	0.00	-12.50
9.76	0.94	0.00	-15.00
9.80	0.95	0.00	-12.50
9.84	0.95	0.00	-12.50
9.88	0.95	0.00	-12.50
9.92	0.95	0.00	-12.50
9.96	0.94	0.00	-15.00
10.00	0.95	0.00	-12.50
10.04	0.95	0.00	-12.50
10.08	0.95	0.00	-12.50
10.12	0.95	0.00	-12.50
10.16	0.94	0.00	-15.00
10.20	0.94	0.00	-15.00
10.24	0.93	0.00	-17.50
10.28	0.92	0.00	-20.00
10.32	0.93	0.00	-17.50
10.36	0.93	0.00	-17.50

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 Alt./Appx. E Sh. E25

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
10.40	0.93	0.00	-17.50
10.44	0.93	0.00	-17.50
10.48	0.93	0.00	-17.50
10.52	0.92	0.00	-20.00
10.56	0.92	0.00	-20.00
10.60	0.92	0.00	-20.00
10.64	0.92	0.00	-20.00
10.68	0.92	0.00	-20.00
10.72	0.92	0.00	-20.00
10.76	0.92	0.00	-20.00
10.80	0.92	0.00	-20.00
10.84	0.93	0.00	-17.50
10.88	0.93	0.00	-17.50
10.92	0.92	0.00	-20.00
10.96	0.92	0.00	-20.00
11.00	0.92	0.00	-20.00
11.04	0.92	0.00	-20.00
11.08	0.91	0.00	-22.50
11.12	0.91	0.00	-22.50
11.16	0.90	0.00	-25.00
11.20	0.90	0.00	-25.00
11.24	0.90	0.00	-25.00
11.28	0.90	0.00	-25.00
11.32	0.90	0.00	-25.00
11.36	0.90	0.00	-25.00
11.40	0.91	0.00	-22.50
11.44	0.92	0.00	-20.00
11.48	0.92	0.00	-20.00
11.52	0.92	0.00	-20.00
11.56	0.92	0.00	-20.00
11.60	0.92	0.00	-20.00
11.64	0.92	0.00	-20.00
11.68	0.92	0.00	-20.00
11.72	0.92	0.00	-20.00
11.76	0.91	0.00	-22.50
11.80	0.91	0.00	-22.50
11.84	0.92	0.00	-20.00
11.88	0.92	0.00	-20.00
11.92	0.92	0.00	-20.00
11.96	0.92	0.00	-20.00
12.00	0.92	0.00	-20.00
12.04	0.92	0.00	-20.00
12.08	0.91	0.00	-22.50
12.12	0.91	0.00	-22.50
12.16	0.92	0.00	-20.00
12.20	0.92	0.00	-20.00
12.24	0.92	0.00	-20.00
12.28	0.92	0.00	-20.00
12.32	0.91	0.00	-22.50
12.36	0.92	0.00	-20.00
12.40	0.92	0.00	-20.00
12.44	0.91	0.00	-22.50

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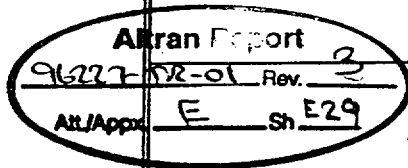
SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
12.48	0.91	0.00	-22.50
12.52	0.91	0.00	-22.50
12.56	0.91	0.00	-22.50
12.60	0.91	0.00	-22.50
12.64	0.91	0.00	-22.50
12.68	0.91	0.00	-22.50
12.72	0.91	0.00	-22.50
12.76	0.92	0.00	-20.00
12.80	0.91	0.00	-22.50
12.84	0.91	0.00	-22.50
12.88	0.91	0.00	-22.50
12.92	0.91	0.00	-22.50
12.96	0.90	0.00	-25.00
13.00	0.90	0.00	-25.00
13.04	0.90	0.00	-25.00
13.08	0.90	0.00	-25.00
13.12	0.90	0.00	-25.00
13.16	0.90	0.00	-25.00
13.20	0.89	0.00	-27.50
13.24	0.89	0.00	-27.50
13.28	0.90	0.00	-25.00
13.32	0.89	0.00	-27.50
13.36	0.89	0.00	-27.50
13.40	0.88	0.00	-30.00
13.44	0.88	0.00	-30.00
13.48	0.88	0.00	-30.00
13.52	0.89	0.00	-27.50
13.56	0.88	0.00	-30.00
13.60	0.90	0.00	-25.00
13.64	0.89	0.00	-27.50
13.68	0.89	0.00	-27.50
13.72	0.89	0.00	-27.50
13.76	0.88	0.00	-30.00
13.80	0.89	0.00	-27.50
13.84	0.88	0.00	-30.00
13.88	0.89	0.00	-27.50
13.92	0.88	0.00	-30.00
13.96	0.88	0.00	-30.00
14.00	0.89	0.00	-27.50
14.04	0.89	0.00	-27.50
14.08	0.89	0.00	-27.50
14.12	0.89	0.00	-27.50
14.16	0.89	0.00	-27.50
14.20	0.89	0.00	-27.50
14.24	0.89	0.00	-27.50
14.28	0.89	0.00	-27.50
14.32	0.90	0.00	-25.00
14.36	0.89	0.00	-27.50
14.40	0.89	0.00	-27.50
14.44	0.90	0.00	-25.00
14.48	0.89	0.00	-27.50
14.52	0.89	0.00	-27.50

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
14.56	0.89	0.00	-27.50
14.60	0.90	0.00	-25.00
14.64	0.90	0.00	-25.00
14.68	0.90	0.00	-25.00
14.72	0.91	0.00	-22.50
14.76	0.91	0.00	-22.50
14.80	0.91	0.00	-22.50
14.84	0.90	0.00	-25.00
14.88	0.90	0.00	-25.00
14.92	0.91	0.00	-22.50
14.96	0.90	0.00	-25.00
15.00	0.90	0.00	-25.00
15.04	0.91	0.00	-22.50
15.08	0.90	0.00	-25.00
15.12	0.90	0.00	-25.00
15.16	0.90	0.00	-25.00
15.20	0.89	0.00	-27.50
15.24	0.90	0.00	-25.00
15.28	0.89	0.00	-27.50
15.32	0.89	0.00	-27.50
15.36	0.88	0.00	-30.00
15.40	0.89	0.00	-27.50
15.44	0.90	0.00	-25.00
15.48	0.90	0.00	-25.00
15.52	0.90	0.00	-25.00
15.56	0.90	0.00	-25.00
15.60	0.90	0.00	-25.00
15.64	0.90	0.00	-25.00
15.68	0.89	0.00	-27.50
15.72	0.89	0.00	-27.50
15.76	0.90	0.00	-25.00
15.80	0.90	0.00	-25.00
15.84	0.90	0.00	-25.00
15.88	0.90	0.00	-25.00
15.92	0.90	0.00	-25.00
15.96	0.90	0.00	-25.00
16.00	0.90	0.00	-25.00
16.04	0.90	0.00	-25.00
16.08	0.89	0.00	-27.50
16.12	0.89	0.00	-27.50
16.16	0.90	0.00	-25.00
16.20	0.89	0.00	-27.50
16.24	0.90	0.00	-25.00
16.28	0.90	0.00	-25.00
16.32	0.90	0.00	-25.00
16.36	0.90	0.00	-25.00
16.40	0.90	0.00	-25.00
16.44	0.90	0.00	-25.00
16.48	0.91	0.00	-22.50
16.52	0.90	0.00	-25.00
16.56	0.90	0.00	-25.00
16.60	0.90	0.00	-25.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
16.64	0.90	0.00	-25.00
16.68	0.90	0.00	-25.00
16.72	0.90	0.00	-25.00
16.76	0.91	0.00	-22.50
16.80	0.91	0.00	-22.50
16.84	0.91	0.00	-22.50
16.88	0.92	0.00	-20.00
16.92	0.92	0.00	-20.00
16.96	0.91	0.00	-22.50
17.00	0.91	0.00	-22.50
17.04	0.91	0.00	-22.50
17.08	0.91	0.00	-22.50
17.12	0.90	0.00	-25.00
17.16	0.90	0.00	-25.00
17.20	0.91	0.00	-22.50
17.24	0.90	0.00	-25.00
17.28	0.90	0.00	-25.00
17.32	0.89	0.00	-27.50
17.36	0.89	0.00	-27.50
17.40	0.90	0.00	-25.00
17.44	0.90	0.00	-25.00
17.48	0.90	0.00	-25.00
17.52	0.90	0.00	-25.00
17.56	0.90	0.00	-25.00
17.60	0.90	0.00	-25.00
17.64	0.89	0.00	-27.50
17.68	0.89	0.00	-27.50
17.72	0.89	0.00	-27.50
17.76	0.90	0.00	-25.00
17.80	0.90	0.00	-25.00
17.84	0.90	0.00	-25.00
17.88	0.90	0.00	-25.00
17.92	0.90	0.00	-25.00
17.96	0.90	0.00	-25.00
18.00	0.90	0.00	-25.00
18.04	0.90	0.00	-25.00
18.08	0.90	0.00	-25.00
18.12	0.90	0.00	-25.00
18.16	0.89	0.00	-27.50
18.20	0.89	0.00	-27.50
18.24	0.89	0.00	-27.50
18.28	0.89	0.00	-27.50
18.32	0.89	0.00	-27.50
18.36	0.89	0.00	-27.50
18.40	0.90	0.00	-25.00
18.44	0.90	0.00	-25.00
18.48	0.90	0.00	-25.00
18.52	0.89	0.00	-27.50
18.56	0.88	0.00	-30.00
18.60	0.89	0.00	-27.50
18.64	0.90	0.00	-25.00
18.68	0.89	0.00	-27.50



SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
18.72	0.90	0.00	-25.00
18.76	0.89	0.00	-27.50
18.80	0.89	0.00	-27.50
18.84	0.90	0.00	-25.00
18.88	0.89	0.00	-27.50
18.92	0.90	0.00	-25.00
18.96	0.90	0.00	-25.00
19.00	0.91	0.00	-22.50
19.04	0.91	0.00	-22.50
19.08	0.91	0.00	-22.50
19.12	0.90	0.00	-25.00
19.16	0.90	0.00	-25.00
19.20	0.90	0.00	-25.00
19.24	0.90	0.00	-25.00
19.28	0.90	0.00	-25.00
19.32	0.90	0.00	-25.00
19.36	0.90	0.00	-25.00
19.40	0.89	0.00	-27.50
19.44	0.90	0.00	-25.00
19.48	0.89	0.00	-27.50
19.52	0.89	0.00	-27.50
19.56	0.89	0.00	-27.50
19.60	0.89	0.00	-27.50
19.64	0.89	0.00	-27.50
19.68	0.89	0.00	-27.50
19.72	0.90	0.00	-25.00
19.76	0.90	0.00	-25.00
19.80	0.90	0.00	-25.00
19.84	0.90	0.00	-25.00
19.88	0.90	0.00	-25.00
19.92	0.90	0.00	-25.00
19.96	0.90	0.00	-25.00
20.00	0.89	0.00	-27.50
20.04	0.90	0.00	-25.00
20.08	0.90	0.00	-25.00
20.12	0.89	0.00	-27.50
20.16	0.90	0.00	-25.00
20.20	0.90	0.00	-25.00
20.24	0.90	0.00	-25.00
20.28	0.90	0.00	-25.00
20.32	0.89	0.00	-27.50
20.36	0.88	0.00	-30.00
20.40	0.88	0.00	-30.00
20.44	0.89	0.00	-27.50
20.48	0.89	0.00	-27.50
20.52	0.89	0.00	-27.50
20.56	0.89	0.00	-27.50
20.60	0.89	0.00	-27.50
20.64	0.89	0.00	-27.50
20.68	0.89	0.00	-27.50
20.72	0.89	0.00	-27.50
20.76	0.90	0.00	-25.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
20.80	0.89	0.00	-27.50
20.84	0.89	0.00	-27.50
20.88	0.89	0.00	-27.50
20.92	0.88	0.00	-30.00
20.96	0.89	0.00	-27.50
21.00	0.89	0.00	-27.50
21.04	0.89	0.00	-27.50
21.08	0.89	0.00	-27.50
21.12	0.89	0.00	-27.50
21.16	0.90	0.00	-25.00
21.20	0.90	0.00	-25.00
21.24	0.90	0.00	-25.00
21.28	0.90	0.00	-25.00
21.32	0.90	0.00	-25.00
21.36	0.90	0.00	-25.00
21.40	0.90	0.00	-25.00
21.44	0.90	0.00	-25.00
21.48	0.91	0.00	-22.50
21.52	0.91	0.00	-22.50
21.56	0.91	0.00	-22.50
21.60	0.90	0.00	-25.00
21.64	0.89	0.00	-27.50
21.68	0.90	0.00	-25.00
21.72	0.89	0.00	-27.50
21.76	0.89	0.00	-27.50
21.80	0.89	0.00	-27.50
21.84	0.89	0.00	-27.50
21.88	0.90	0.00	-25.00
21.92	0.90	0.00	-25.00
21.96	0.89	0.00	-27.50
22.00	0.89	0.00	-27.50
22.04	0.89	0.00	-27.50
22.08	0.90	0.00	-25.00
22.12	0.90	0.00	-25.00
22.16	0.89	0.00	-27.50
22.20	0.90	0.00	-25.00
22.24	0.90	0.00	-25.00
22.28	0.90	0.00	-25.00
22.32	0.90	0.00	-25.00
22.36	0.90	0.00	-25.00
22.40	0.91	0.00	-22.50
22.44	0.90	0.00	-25.00
22.48	0.90	0.00	-25.00
22.52	0.90	0.00	-25.00
22.56	0.90	0.00	-25.00
22.60	0.91	0.00	-22.50
22.64	0.90	0.00	-25.00
22.68	0.90	0.00	-25.00
22.72	0.90	0.00	-25.00
22.76	0.90	0.00	-25.00
22.80	0.91	0.00	-22.50
22.84	0.90	0.00	-25.00

Atran Report
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 Att/Appendix E Sh E31

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
22.88	0.89	0.00	-27.50
22.92	0.91	0.00	-22.50
22.96	0.90	0.00	-25.00
23.00	0.90	0.00	-25.00
23.04	0.91	0.00	-22.50
23.08	0.90	0.00	-25.00
23.12	0.91	0.00	-22.50
23.16	0.90	0.00	-25.00
23.20	0.90	0.00	-25.00
23.24	0.90	0.00	-25.00
23.28	0.89	0.00	-27.50
23.32	0.90	0.00	-25.00
23.36	0.90	0.00	-25.00
23.40	0.90	0.00	-25.00
23.44	0.90	0.00	-25.00
23.48	0.90	0.00	-25.00
23.52	0.90	0.00	-25.00
23.56	0.90	0.00	-25.00
23.60	0.90	0.00	-25.00
23.64	0.90	0.00	-25.00
23.68	0.90	0.00	-25.00
23.72	0.90	0.00	-25.00
23.76	0.90	0.00	-25.00
23.80	0.90	0.00	-25.00
23.84	0.89	0.00	-27.50
23.88	0.90	0.00	-25.00
23.92	0.91	0.00	-22.50
23.96	0.90	0.00	-25.00
24.00	0.91	0.00	-22.50
24.04	0.91	0.00	-22.50
24.08	0.90	0.00	-25.00
24.12	0.90	0.00	-25.00
24.16	0.90	0.00	-25.00
24.20	0.90	0.00	-25.00
24.24	0.90	0.00	-25.00
24.28	0.90	0.00	-25.00
24.32	0.90	0.00	-25.00
24.36	0.90	0.00	-25.00
24.40	0.90	0.00	-25.00
24.44	0.90	0.00	-25.00
24.48	0.90	0.00	-25.00
24.52	0.89	0.00	-27.50
24.56	0.90	0.00	-25.00
24.60	0.90	0.00	-25.00
24.64	0.90	0.00	-25.00
24.68	0.90	0.00	-25.00
24.72	0.90	0.00	-25.00
24.76	0.90	0.00	-25.00
24.80	0.90	0.00	-25.00
24.84	0.89	0.00	-27.50
24.88	0.89	0.00	-27.50
24.92	0.90	0.00	-25.00

Altran Report
 96237-TR-01 Rev. 3
 Alt/Apx. E Sh. E32

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
24.96	0.90	0.00	-25.00
25.00	0.90	0.00	-25.00
25.04	0.91	0.00	-22.50
25.08	0.91	0.00	-22.50
25.12	0.90	0.00	-25.00
25.16	0.90	0.00	-25.00
25.20	0.90	0.00	-25.00
25.24	0.89	0.00	-27.50
25.28	0.89	0.00	-27.50
25.32	0.89	0.00	-27.50
25.36	0.89	0.00	-27.50
25.40	0.89	0.00	-27.50
25.44	0.90	0.00	-25.00
25.48	0.90	0.00	-25.00
25.52	0.90	0.00	-25.00
25.56	0.91	0.00	-22.50
25.60	0.91	0.00	-22.50
25.64	0.91	0.00	-22.50
25.68	0.91	0.00	-22.50
25.72	0.90	0.00	-25.00
25.76	0.90	0.00	-25.00
25.80	0.91	0.00	-22.50
25.84	0.90	0.00	-25.00
25.88	0.91	0.00	-22.50
25.92	0.91	0.00	-22.50
25.96	0.91	0.00	-22.50
26.00	0.91	0.00	-22.50
26.04	0.91	0.00	-22.50
26.08	0.91	0.00	-22.50
26.12	0.90	0.00	-25.00
26.16	0.90	0.00	-25.00
26.20	0.91	0.00	-22.50
26.24	0.90	0.00	-25.00
26.28	0.90	0.00	-25.00
26.32	0.91	0.00	-22.50
26.36	0.91	0.00	-22.50
26.40	0.92	0.00	-20.00
26.44	0.92	0.00	-20.00
26.48	0.91	0.00	-22.50
26.52	0.92	0.00	-20.00
26.56	0.92	0.00	-20.00
26.60	0.92	0.00	-20.00
26.64	0.91	0.00	-22.50
26.68	0.90	0.00	-25.00
26.72	0.91	0.00	-22.50
26.76	0.91	0.00	-22.50
26.80	0.92	0.00	-20.00
26.84	0.91	0.00	-22.50
26.88	0.91	0.00	-22.50
26.92	0.92	0.00	-20.00
26.96	0.92	0.00	-20.00
27.00	0.92	0.00	-20.00

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 Att/Approx. E Sh. E33

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
27.04	0.92	0.00	-20.00
27.08	0.92	0.00	-20.00
27.12	0.92	0.00	-20.00
27.16	0.91	0.00	-22.50
27.20	0.91	0.00	-22.50
27.24	0.91	0.00	-22.50
27.28	0.90	0.00	-25.00
27.32	0.90	0.00	-25.00
27.36	0.90	0.00	-25.00
27.40	0.89	0.00	-27.50
27.44	0.89	0.00	-27.50
27.48	0.89	0.00	-27.50
27.52	0.90	0.00	-25.00
27.56	0.89	0.00	-27.50
27.60	0.89	0.00	-27.50
27.64	0.90	0.00	-25.00
27.68	0.90	0.00	-25.00
27.72	0.90	0.00	-25.00
27.76	0.89	0.00	-27.50
27.80	0.89	0.00	-27.50
27.84	0.89	0.00	-27.50
27.88	0.90	0.00	-25.00
27.92	0.89	0.00	-27.50
27.96	0.90	0.00	-25.00
28.00	0.90	0.00	-25.00
28.04	0.90	0.00	-25.00
28.08	0.90	0.00	-25.00
28.12	0.89	0.00	-27.50
28.16	0.90	0.00	-25.00
28.20	0.89	0.00	-27.50
28.24	0.90	0.00	-25.00
28.28	0.90	0.00	-25.00
28.32	0.90	0.00	-25.00
28.36	0.90	0.00	-25.00
28.40	0.90	0.00	-25.00
28.44	0.90	0.00	-25.00
28.48	0.89	0.00	-27.50
28.52	0.89	0.00	-27.50
28.56	0.89	0.00	-27.50
28.60	0.89	0.00	-27.50
28.64	0.89	0.00	-27.50
28.68	0.89	0.00	-27.50
28.72	0.89	0.00	-27.50
28.76	0.89	0.00	-27.50
28.80	0.89	0.00	-27.50
28.84	0.90	0.00	-25.00
28.88	0.90	0.00	-25.00
28.92	0.89	0.00	-27.50
28.96	0.89	0.00	-27.50
29.00	0.89	0.00	-27.50
29.04	0.90	0.00	-25.00
29.08	0.90	0.00	-25.00

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 Att./Appx. E Sh E34

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
29.12	0.90	0.00	-25.00
29.16	0.90	0.00	-25.00
29.20	0.90	0.00	-25.00
29.24	0.90	0.00	-25.00
29.28	0.90	0.00	-25.00
29.32	0.90	0.00	-25.00
29.36	0.90	0.00	-25.00
29.40	0.90	0.00	-25.00
29.44	0.89	0.00	-27.50
29.48	0.90	0.00	-25.00
29.52	0.90	0.00	-25.00
29.56	0.90	0.00	-25.00
29.60	0.90	0.00	-25.00
29.64	0.89	0.00	-27.50
29.68	0.89	0.00	-27.50
29.72	0.90	0.00	-25.00
29.76	0.89	0.00	-27.50
29.80	0.90	0.00	-25.00
29.84	0.89	0.00	-27.50
29.88	0.89	0.00	-27.50
29.92	0.90	0.00	-25.00
29.96	0.90	0.00	-25.00
30.00	0.89	0.00	-27.50
30.04	0.89	0.00	-27.50
30.08	0.90	0.00	-25.00
30.12	0.89	0.00	-27.50
30.16	0.89	0.00	-27.50
30.20	0.89	0.00	-27.50
30.24	0.89	0.00	-27.50
30.28	0.90	0.00	-25.00
30.32	0.90	0.00	-25.00
30.36	0.90	0.00	-25.00
30.40	0.90	0.00	-25.00
30.44	0.90	0.00	-25.00
30.48	0.90	0.00	-25.00
30.52	0.91	0.00	-22.50
30.56	0.91	0.00	-22.50
30.60	0.91	0.00	-22.50
30.64	0.91	0.00	-22.50
30.68	0.91	0.00	-22.50
30.72	0.91	0.00	-22.50
30.76	0.91	0.00	-22.50
30.80	0.91	0.00	-22.50
30.84	0.91	0.00	-22.50
30.88	0.91	0.00	-22.50
30.92	0.91	0.00	-22.50
30.96	0.90	0.00	-25.00
31.00	0.91	0.00	-22.50
31.04	0.91	0.00	-22.50
31.08	0.91	0.00	-22.50
31.12	0.91	0.00	-22.50
31.16	0.90	0.00	-25.00

Altran Report
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 Att. Appx. E Sh E35

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
31.20	0.90	0.00	-25.00
31.24	0.90	0.00	-25.00
31.28	0.90	0.00	-25.00
31.32	0.90	0.00	-25.00
31.36	0.90	0.00	-25.00
31.40	0.90	0.00	-25.00
31.44	0.90	0.00	-25.00
31.48	0.90	0.00	-25.00
31.52	0.90	0.00	-25.00
31.56	0.89	0.00	-27.50
31.60	0.89	0.00	-27.50
31.64	0.89	0.00	-27.50
31.68	0.90	0.00	-25.00
31.72	0.90	0.00	-25.00
31.76	0.89	0.00	-27.50
31.80	0.90	0.00	-25.00
31.84	0.90	0.00	-25.00
31.88	0.90	0.00	-25.00
31.92	0.90	0.00	-25.00
31.96	0.90	0.00	-25.00
32.00	0.90	0.00	-25.00
32.04	0.89	0.00	-27.50
32.08	0.89	0.00	-27.50
32.12	0.89	0.00	-27.50
32.16	0.89	0.00	-27.50
32.20	0.89	0.00	-27.50
32.24	0.89	0.00	-27.50
32.28	0.88	0.00	-30.00
32.32	0.89	0.00	-27.50
32.36	0.89	0.00	-27.50
32.40	0.90	0.00	-25.00
32.44	0.89	0.00	-27.50
32.48	0.88	0.00	-30.00
32.52	0.88	0.00	-30.00
32.56	0.89	0.00	-27.50
32.60	0.89	0.00	-27.50
32.64	0.89	0.00	-27.50
32.68	0.89	0.00	-27.50
32.72	0.90	0.00	-25.00
32.76	0.90	0.00	-25.00
32.80	0.90	0.00	-25.00
32.84	0.90	0.00	-25.00
32.88	0.90	0.00	-25.00
32.92	0.89	0.00	-27.50
32.96	0.89	0.00	-27.50
33.00	0.90	0.00	-25.00
33.04	0.89	0.00	-27.50
33.08	0.89	0.00	-27.50
33.12	0.90	0.00	-25.00
33.16	0.90	0.00	-25.00
33.20	0.90	0.00	-25.00
33.24	0.90	0.00	-25.00

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 Att./Appx. E Sh E36

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
33.28	0.89	0.00	-27.50
33.32	0.89	0.00	-27.50
33.36	0.89	0.00	-27.50
33.40	0.88	0.00	-30.00
33.44	0.88	0.00	-30.00
33.48	0.89	0.00	-27.50
33.52	0.89	0.00	-27.50
33.56	0.89	0.00	-27.50
33.60	0.90	0.00	-25.00
33.64	0.89	0.00	-27.50
33.68	0.89	0.00	-27.50
33.72	0.89	0.00	-27.50
33.76	0.88	0.00	-30.00
33.80	0.88	0.00	-30.00
33.84	0.88	0.00	-30.00
33.88	0.88	0.00	-30.00
33.92	0.88	0.00	-30.00
33.96	0.88	0.00	-30.00
34.00	0.88	0.00	-30.00
34.04	0.89	0.00	-27.50
34.08	0.89	0.00	-27.50
34.12	0.88	0.00	-30.00
34.16	0.88	0.00	-30.00
34.20	0.88	0.00	-30.00
34.24	0.88	0.00	-30.00
34.28	0.88	0.00	-30.00
34.32	0.89	0.00	-27.50
34.36	0.89	0.00	-27.50
34.40	0.89	0.00	-27.50
34.44	0.89	0.00	-27.50
34.48	0.89	0.00	-27.50
34.52	0.89	0.00	-27.50
34.56	0.89	0.00	-27.50
34.60	0.90	0.00	-25.00
34.64	0.90	0.00	-25.00
34.68	0.90	0.00	-25.00
34.72	0.89	0.00	-27.50
34.76	0.88	0.00	-30.00
34.80	0.88	0.00	-30.00
34.84	0.88	0.00	-30.00
34.88	0.89	0.00	-27.50
34.92	0.90	0.00	-25.00
34.96	0.90	0.00	-25.00
35.00	0.90	0.00	-25.00
35.04	0.90	0.00	-25.00
35.08	0.90	0.00	-25.00
35.12	0.90	0.00	-25.00
35.16	0.90	0.00	-25.00
35.20	0.90	0.00	-25.00
35.24	0.90	0.00	-25.00
35.28	0.90	0.00	-25.00
35.32	0.89	0.00	-27.50

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 Att/Approx. E Sh E37

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
35.36	0.88	0.00	-30.00
35.40	0.88	0.00	-30.00
35.44	0.89	0.00	-27.50
35.48	0.89	0.00	-27.50
35.52	0.90	0.00	-25.00
35.56	0.90	0.00	-25.00
35.60	0.90	0.00	-25.00
35.64	0.90	0.00	-25.00
35.68	0.90	0.00	-25.00
35.72	0.90	0.00	-25.00
35.76	0.90	0.00	-25.00
35.80	0.89	0.00	-27.50
35.84	0.88	0.00	-30.00
35.88	0.89	0.00	-27.50
35.92	0.89	0.00	-27.50
35.96	0.90	0.00	-25.00
36.00	0.90	0.00	-25.00
36.04	0.90	0.00	-25.00
36.08	0.90	0.00	-25.00
36.12	0.90	0.00	-25.00
36.16	0.90	0.00	-25.00
36.20	0.90	0.00	-25.00
36.24	0.90	0.00	-25.00
36.28	0.90	0.00	-25.00
36.32	0.90	0.00	-25.00
36.36	0.90	0.00	-25.00
36.40	0.90	0.00	-25.00
36.44	0.90	0.00	-25.00
36.48	0.90	0.00	-25.00
36.52	0.90	0.00	-25.00
36.56	0.90	0.00	-25.00
36.60	0.90	0.00	-25.00
36.64	0.90	0.00	-25.00
36.68	0.90	0.00	-25.00
36.72	0.90	0.00	-25.00
36.76	0.89	0.00	-27.50
36.80	0.89	0.00	-27.50
36.84	0.88	0.00	-30.00
36.88	0.89	0.00	-27.50
36.92	0.89	0.00	-27.50
36.96	0.89	0.00	-27.50
37.00	0.89	0.00	-27.50
37.04	0.89	0.00	-27.50
37.08	0.90	0.00	-25.00
37.12	0.90	0.00	-25.00
37.16	0.90	0.00	-25.00
37.20	0.89	0.00	-27.50
37.24	0.89	0.00	-27.50
37.28	0.89	0.00	-27.50
37.32	0.90	0.00	-25.00
37.36	0.90	0.00	-25.00
37.40	0.90	0.00	-25.00

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 Att./Appx E Sh E38

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
37.44	0.89	0.00	-27.50
37.48	0.89	0.00	-27.50
37.52	0.89	0.00	-27.50
37.56	0.89	0.00	-27.50
37.60	0.90	0.00	-25.00
37.64	0.89	0.00	-27.50
37.68	0.89	0.00	-27.50
37.72	0.89	0.00	-27.50
37.76	0.89	0.00	-27.50
37.80	0.89	0.00	-27.50
37.84	0.90	0.00	-25.00
37.88	0.89	0.00	-27.50
37.92	0.89	0.00	-27.50
37.96	0.89	0.00	-27.50
38.00	0.89	0.00	-27.50
38.04	0.89	0.00	-27.50
38.08	0.89	0.00	-27.50
38.12	0.89	0.00	-27.50
38.16	0.89	0.00	-27.50
38.20	0.89	0.00	-27.50
38.24	0.89	0.00	-27.50
38.28	0.89	0.00	-27.50
38.32	0.90	0.00	-25.00
38.36	0.90	0.00	-25.00
38.40	0.90	0.00	-25.00
38.44	0.90	0.00	-25.00
38.48	0.90	0.00	-25.00
38.52	0.91	0.00	-22.50
38.56	0.91	0.00	-22.50
38.60	0.91	0.00	-22.50
38.64	0.90	0.00	-25.00
38.68	0.90	0.00	-25.00
38.72	0.89	0.00	-27.50
38.76	0.89	0.00	-27.50
38.80	0.89	0.00	-27.50
38.84	0.89	0.00	-27.50
38.88	0.89	0.00	-27.50
38.92	0.90	0.00	-25.00
38.96	0.89	0.00	-27.50
39.00	0.88	0.00	-30.00
39.04	0.88	0.00	-30.00
39.08	0.88	0.00	-30.00
39.12	0.88	0.00	-30.00
39.16	0.89	0.00	-27.50
39.20	0.89	0.00	-27.50
39.24	0.88	0.00	-30.00
39.28	0.89	0.00	-27.50
39.32	0.90	0.00	-25.00
39.36	0.90	0.00	-25.00
39.40	0.90	0.00	-25.00
39.44	0.90	0.00	-25.00
39.48	0.90	0.00	-25.00

Altran Report
96227-TP-01 Rev. 3
 Att/Appx. F Sh. E99

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
39.52	0.90	0.00	-25.00
39.56	0.90	0.00	-25.00
39.60	0.90	0.00	-25.00
39.64	0.90	0.00	-25.00
39.68	0.90	0.00	-25.00
39.72	0.90	0.00	-25.00
39.76	0.90	0.00	-25.00
39.80	0.90	0.00	-25.00
39.84	0.90	0.00	-25.00
39.88	0.90	0.00	-25.00
39.92	0.90	0.00	-25.00
39.96	0.90	0.00	-25.00
40.00	0.90	0.00	-25.00
40.04	0.89	0.00	-27.50
40.08	0.88	0.00	-30.00
40.12	0.88	0.00	-30.00
40.16	0.88	0.00	-30.00
40.20	0.89	0.00	-27.50
40.24	0.88	0.00	-30.00
40.28	0.89	0.00	-27.50
40.32	0.89	0.00	-27.50
40.36	0.89	0.00	-27.50
40.40	0.89	0.00	-27.50
40.44	0.89	0.00	-27.50
40.48	0.89	0.00	-27.50
40.52	0.89	0.00	-27.50
40.56	0.88	0.00	-30.00
40.60	0.89	0.00	-27.50
40.64	0.88	0.00	-30.00
40.68	0.89	0.00	-27.50
40.72	0.89	0.00	-27.50
40.76	0.89	0.00	-27.50
40.80	0.89	0.00	-27.50
40.84	0.88	0.00	-30.00
40.88	0.88	0.00	-30.00
40.92	0.87	0.00	-32.50
40.96	0.87	0.00	-32.50
41.00	0.88	0.00	-30.00
41.04	0.88	0.00	-30.00
41.08	0.88	0.00	-30.00
41.12	0.89	0.00	-27.50
41.16	0.89	0.00	-27.50
41.20	0.89	0.00	-27.50
41.24	0.89	0.00	-27.50
41.28	0.89	0.00	-27.50
41.32	0.89	0.00	-27.50
41.36	0.89	0.00	-27.50
41.40	0.90	0.00	-25.00
41.44	0.90	0.00	-25.00
41.48	0.90	0.00	-25.00
41.52	0.89	0.00	-27.50
41.56	0.89	0.00	-27.50

Allran Export
 96127-NR-01 Rev. 3
 Att./Appx E Sh E40

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
41.60	0.89	0.00	-27.50
41.64	0.88	0.00	-30.00
41.68	0.88	0.00	-30.00
41.72	0.88	0.00	-30.00
41.76	0.88	0.00	-30.00
41.80	0.88	0.00	-30.00
41.84	0.88	0.00	-30.00
41.88	0.88	0.00	-30.00
41.92	0.88	0.00	-30.00
41.96	0.88	0.00	-30.00
42.00	0.88	0.00	-30.00
42.04	0.89	0.00	-30.00
42.08	0.89	0.00	-27.50
42.12	0.88	0.00	-27.50
42.16	0.88	0.00	-30.00
42.20	0.88	0.00	-30.00
42.24	0.88	0.00	-30.00
42.28	0.88	0.00	-30.00
42.32	0.89	0.00	-27.50
42.36	0.89	0.00	-27.50
42.40	0.90	0.00	-25.00
42.44	0.89	0.00	-27.50
42.48	0.89	0.00	-27.50
42.52	0.89	0.00	-27.50
42.56	0.89	0.00	-27.50
42.60	0.89	0.00	-27.50
42.64	0.89	0.00	-27.50
42.68	0.88	0.00	-30.00
42.72	0.88	0.00	-30.00
42.76	0.88	0.00	-30.00
42.80	0.88	0.00	-30.00
42.84	0.88	0.00	-30.00
42.88	0.89	0.00	-27.50
42.92	0.88	0.00	-30.00
42.96	0.88	0.00	-30.00
43.00	0.88	0.00	-30.00
43.04	0.88	0.00	-30.00
43.08	0.88	0.00	-30.00
43.12	0.88	0.00	-30.00
43.16	0.88	0.00	-30.00
43.20	0.89	0.00	-27.50
43.24	0.90	0.00	-25.00
43.28	0.92	0.00	-20.00
43.32	0.93	0.00	-17.50
43.36	0.93	0.00	-17.50
43.40	0.94	0.00	-15.00
43.44	0.95	0.00	-12.50
43.48	0.95	0.00	-12.50
43.52	0.96	0.00	-10.00
43.56	0.96	0.00	-10.00
43.60	0.97	0.00	-7.50
43.64	0.97	0.00	-7.50

Alttron
 96227-08-01 Rev. 3
 Alt/Appx. E Sh. E41

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
43.68	0.98	0.00	-5.00
43.72	0.98	0.00	-5.00
43.76	0.98	0.00	-5.00
43.80	0.99	0.00	-2.50
43.84	0.99	0.00	-2.50
43.88	1.00	0.00	0.00
43.92	1.00	0.00	0.00
43.96	1.00	0.00	0.00
44.00	1.00	0.00	0.00
44.04	0.99	0.00	-2.50
44.08	1.00	0.00	0.00
44.12	1.01	0.00	2.50
44.16	1.01	0.00	2.50
44.20	1.01	0.00	2.50
44.24	1.01	0.00	2.50
44.28	1.01	0.00	2.50
44.32	1.01	0.00	2.50
44.36	1.01	0.00	2.50
44.40	1.01	0.00	2.50
44.44	1.01	0.00	2.50
44.48	1.01	0.00	2.50
44.52	1.01	0.00	2.50
44.56	1.01	0.00	2.50
44.60	1.01	0.00	2.50
44.64	1.01	0.00	2.50
44.68	1.02	0.00	5.00
44.72	1.02	0.00	5.00
44.76	1.02	0.00	5.00
44.80	1.02	0.00	5.00
44.84	1.02	0.00	5.00
44.88	1.02	0.00	5.00
44.92	1.02	0.00	5.00
44.96	1.02	0.00	5.00
45.00	1.03	0.00	7.50
45.04	1.03	0.00	7.50
45.08	1.03	0.00	7.50
45.12	1.03	0.00	7.50
45.16	1.03	0.00	7.50
45.20	1.03	0.00	7.50
45.24	1.03	0.00	7.50
45.28	1.03	0.00	7.50
45.32	1.04	0.00	10.00
45.36	1.04	0.00	10.00
45.40	1.04	0.00	10.00
45.44	1.04	0.00	10.00
45.48	1.04	0.00	10.00
45.52	1.03	0.00	7.50
45.56	1.03	0.00	7.50
45.60	1.03	0.00	7.50
45.64	1.03	0.00	7.50
45.68	1.03	0.00	7.50
45.72	1.03	0.00	7.50

Altran Report

9627-1R-01 Rev. 3
 Att./ppx. E Sh E42

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
45.76	1.03	0.00	7.50
45.80	1.03	0.00	7.50
45.84	1.02	0.00	5.00
45.88	1.02	0.00	5.00
45.92	1.02	0.00	5.00
45.96	1.02	0.00	5.00
46.00	1.02	0.00	5.00
46.04	1.03	0.00	7.50
46.08	1.03	0.00	7.50
46.12	1.03	0.00	7.50
46.16	1.02	0.00	5.00
46.20	1.02	0.00	5.00
46.24	1.02	0.00	5.00
46.28	1.02	0.00	5.00
46.32	1.02	0.00	5.00
46.36	1.02	0.00	5.00
46.40	1.03	0.00	7.50
46.44	1.03	0.00	7.50
46.48	1.03	0.00	7.50
46.52	1.03	0.00	7.50
46.56	1.03	0.00	7.50
46.60	1.03	0.00	7.50
46.64	1.03	0.00	7.50
46.68	1.04	0.00	10.00
46.72	1.03	0.00	7.50
46.76	1.03	0.00	7.50
46.80	1.03	0.00	7.50
46.84	1.03	0.00	7.50
46.88	1.03	0.00	7.50
46.92	1.04	0.00	10.00
46.96	1.03	0.00	7.50
47.00	1.03	0.00	7.50
47.04	1.03	0.00	7.50
47.08	1.04	0.00	10.00
47.12	1.05	0.00	12.50
47.16	1.05	0.00	12.50
47.20	1.05	0.00	12.50
47.24	1.03	0.00	7.50
47.28	1.03	0.00	7.50
47.32	1.04	0.00	10.00
47.36	1.04	0.00	10.00
47.40	1.05	0.00	12.50
47.44	1.05	0.00	12.50
47.48	1.04	0.00	10.00
47.52	1.05	0.00	12.50
47.56	1.08	0.00	20.00
47.60	1.13	0.00	32.50
47.64	1.19	0.00	47.50
47.68	1.23	0.00	57.50
47.72	1.22	0.00	55.00
47.76	1.18	0.00	45.00
47.80	1.15	0.00	37.50

Altran Report

96227-VK-01 Rev. 3

Att. Appx. E Sh E43

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
47.84	1.12	0.00	30.00
47.88	1.10	0.00	25.00
47.92	1.10	0.00	25.00
47.96	1.09	0.00	22.50
48.00	1.08	0.00	20.00
48.04	1.07	0.00	17.50
48.08	1.06	0.00	15.00
48.12	1.06	0.00	15.00
48.16	1.05	0.00	12.50
48.20	1.05	0.00	12.50
48.24	1.04	0.00	10.00
48.28	1.04	0.00	10.00
48.32	1.04	0.00	10.00
48.36	1.04	0.00	10.00
48.40	1.04	0.00	10.00
48.44	1.05	0.00	12.50
48.48	1.04	0.00	10.00
48.52	1.04	0.00	10.00
48.56	1.06	0.00	15.00
48.60	1.19	0.00	47.50
48.64	1.61	0.00	152.50
48.68	1.82	0.00	205.00
48.72	1.72	0.00	180.00
48.76	1.55	0.00	137.50
48.80	1.41	0.00	102.50
48.84	1.32	0.00	80.00
48.88	1.24	0.00	60.00
48.92	1.20	0.00	50.00
48.96	1.18	0.00	45.00
49.00	1.18	0.00	45.00
49.04	1.19	0.00	47.50
49.08	1.23	0.00	57.50
49.12	1.23	0.00	57.50
49.16	1.20	0.00	50.00
49.20	1.18	0.00	45.00
49.24	1.17	0.00	42.50
49.28	1.26	0.00	65.00
49.32	1.43	0.00	107.50
49.36	1.56	0.00	140.00
49.40	1.61	0.00	152.50
49.44	1.55	0.00	137.50
49.48	1.47	0.00	117.50
49.52	1.39	0.00	97.50
49.56	1.32	0.00	80.00
49.60	1.27	0.00	67.50
49.64	1.26	0.00	65.00
49.68	1.28	0.00	70.00
49.72	1.32	0.00	80.00
49.76	1.35	0.00	87.50
49.80	1.38	0.00	95.00
49.84	1.43	0.00	107.50
49.88	1.48	0.00	120.00

Altran Report

91227-01 Rev. 3

Att/Appx. E Sh E44

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
49.92	1.50	0.00	125.00
49.96	1.53	0.00	132.50
50.00	1.54	0.00	135.00
50.04	1.50	0.00	125.00
50.08	1.44	0.00	110.00
50.12	1.41	0.00	102.50
50.16	1.39	0.00	97.50
50.20	1.35	0.00	87.50
50.24	1.35	0.00	87.50
50.28	1.40	0.00	100.00
50.32	1.42	0.00	105.00
50.36	1.36	0.00	90.00
50.40	1.31	0.00	77.50
50.44	1.32	0.00	80.00
50.48	1.39	0.00	97.50
50.52	1.45	0.00	112.50
50.56	1.42	0.00	105.00
50.60	1.37	0.00	92.50
50.64	1.36	0.00	90.00
50.68	1.37	0.00	92.50
50.72	1.34	0.00	85.00
50.76	1.30	0.00	75.00
50.80	1.33	0.00	82.50
50.84	1.35	0.00	87.50
50.88	1.34	0.00	85.00
50.92	1.30	0.00	75.00
50.96	1.30	0.00	75.00
51.00	1.35	0.00	87.50
51.04	1.41	0.00	102.50
51.08	1.40	0.00	100.00
51.12	1.35	0.00	87.50
51.16	1.32	0.00	80.00
51.20	1.32	0.00	80.00
51.24	1.32	0.00	80.00
51.28	1.30	0.00	75.00
51.32	1.28	0.00	70.00
51.36	1.29	0.00	72.50
51.40	1.32	0.00	80.00
51.44	1.31	0.00	77.50
51.48	1.28	0.00	70.00
51.52	1.28	0.00	70.00
51.56	1.31	0.00	77.50
51.60	1.32	0.00	80.00
51.64	1.30	0.00	75.00
51.68	1.28	0.00	70.00
51.72	1.27	0.00	67.50
51.76	1.28	0.00	70.00
51.80	1.28	0.00	70.00
51.84	1.29	0.00	72.50
51.88	1.29	0.00	72.50
51.92	1.30	0.00	75.00
51.96	1.30	0.00	75.00

Altran Report

96287-TR-01 Rev. 3

Att/Appx. E Sh. E45

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
52.00	1.28	0.00	70.00
52.04	1.26	0.00	65.00
52.08	1.26	0.00	65.00
52.12	1.28	0.00	70.00
52.16	1.28	0.00	70.00
52.20	1.28	0.00	70.00
52.24	1.27	0.00	67.50
52.28	1.25	0.00	62.50
52.32	1.24	0.00	60.00
52.36	1.25	0.00	62.50
52.40	1.28	0.00	70.00
52.44	1.29	0.00	72.50
52.48	1.27	0.00	67.50
52.52	1.24	0.00	60.00
52.56	1.24	0.00	60.00
52.60	1.25	0.00	62.50
52.64	1.25	0.00	62.50
52.68	1.24	0.00	60.00
52.72	1.24	0.00	60.00
52.76	1.25	0.00	62.50
52.80	1.25	0.00	62.50
52.84	1.25	0.00	62.50
52.88	1.25	0.00	62.50
52.92	1.26	0.00	65.00
52.96	1.27	0.00	67.50
53.00	1.27	0.00	67.50
53.04	1.26	0.00	65.00
53.08	1.24	0.00	60.00
53.12	1.25	0.00	62.50
53.16	1.25	0.00	62.50
53.20	1.25	0.00	62.50
53.24	1.25	0.00	62.50
53.28	1.25	0.00	62.50
53.32	1.25	0.00	62.50
53.36	1.24	0.00	60.00
53.40	1.23	0.00	57.50
53.44	1.24	0.00	60.00
53.48	1.25	0.00	62.50
53.52	1.26	0.00	65.00
53.56	1.26	0.00	65.00
53.60	1.25	0.00	62.50
53.64	1.25	0.00	62.50
53.68	1.25	0.00	62.50
53.72	1.26	0.00	65.00
53.76	1.25	0.00	62.50
53.80	1.25	0.00	62.50
53.84	1.25	0.00	62.50
53.88	1.25	0.00	62.50
53.92	1.25	0.00	62.50
53.96	1.25	0.00	62.50
54.00	1.25	0.00	62.50
54.04	1.25	0.00	62.50

Altran Report
916227-NR-01 Rev. 3
 Att. Appx. E Sh. E46

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
54.08	1.25	0.00	62.50
54.12	1.25	0.00	62.50
54.16	1.25	0.00	62.50
54.20	1.25	0.00	62.50
54.24	1.24	0.00	60.00
54.28	1.24	0.00	60.00
54.32	1.25	0.00	62.50
54.36	1.26	0.00	65.00
54.40	1.24	0.00	60.00
54.44	1.23	0.00	57.50
54.48	1.24	0.00	60.00
54.52	1.25	0.00	62.50
54.56	1.25	0.00	62.50
54.60	1.25	0.00	62.50
54.64	1.25	0.00	62.50
54.68	1.26	0.00	65.00
54.72	1.26	0.00	65.00
54.76	1.26	0.00	65.00
54.80	1.27	0.00	67.50
54.84	1.27	0.00	67.50
54.88	1.27	0.00	67.50
54.92	1.26	0.00	65.00
54.96	1.25	0.00	62.50
55.00	1.25	0.00	62.50
55.04	1.25	0.00	62.50
55.08	1.26	0.00	65.00
55.12	1.26	0.00	65.00
55.16	1.25	0.00	62.50
55.20	1.25	0.00	62.50
55.24	1.26	0.00	65.00
55.28	1.25	0.00	62.50
55.32	1.25	0.00	62.50
55.36	1.24	0.00	60.00
55.40	1.25	0.00	62.50
55.44	1.25	0.00	62.50
55.48	1.24	0.00	60.00
55.52	1.24	0.00	60.00
55.56	1.25	0.00	62.50
55.60	1.27	0.00	67.50
55.64	1.27	0.00	67.50
55.68	1.26	0.00	65.00
55.72	1.26	0.00	65.00
55.76	1.26	0.00	65.00
55.80	1.26	0.00	65.00
55.84	1.26	0.00	65.00
55.88	1.26	0.00	65.00
55.92	1.27	0.00	67.50
55.96	1.27	0.00	67.50
56.00	1.28	0.00	70.00
56.04	1.28	0.00	70.00
56.08	1.28	0.00	70.00
56.12	1.27	0.00	67.50

Altran Report
96227-TR-01 Rev. 3
 Att./Apex. E Sh. E47

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
56.16	1.26	0.00	65.00
56.20	1.26	0.00	65.00
56.24	1.27	0.00	67.50
56.28	1.27	0.00	67.50
56.32	1.26	0.00	65.00
56.36	1.26	0.00	65.00
56.40	1.27	0.00	67.50
56.44	1.29	0.00	72.50
56.48	1.28	0.00	70.00
56.52	1.28	0.00	70.00
56.56	1.28	0.00	70.00
56.60	1.28	0.00	70.00
56.64	1.28	0.00	70.00
56.68	1.28	0.00	70.00
56.72	1.28	0.00	70.00
56.76	1.28	0.00	70.00
56.80	1.27	0.00	67.50
56.84	1.26	0.00	65.00
56.88	1.26	0.00	65.00
56.92	1.27	0.00	67.50
56.96	1.27	0.00	67.50
57.00	1.27	0.00	67.50
57.04	1.26	0.00	65.00
57.08	1.27	0.00	67.50
57.12	1.28	0.00	70.00
57.16	1.28	0.00	70.00
57.20	1.27	0.00	67.50
57.24	1.27	0.00	67.50
57.28	1.27	0.00	67.50
57.32	1.28	0.00	70.00
57.36	1.27	0.00	67.50
57.40	1.27	0.00	67.50
57.44	1.26	0.00	65.00
57.48	1.27	0.00	67.50
57.52	1.28	0.00	70.00
57.56	1.28	0.00	70.00
57.60	1.28	0.00	70.00
57.64	1.27	0.00	67.50
57.68	1.27	0.00	67.50
57.72	1.27	0.00	67.50
57.76	1.27	0.00	67.50
57.80	1.28	0.00	70.00
57.84	1.28	0.00	70.00
57.88	1.28	0.00	70.00
57.92	1.28	0.00	70.00
57.96	1.28	0.00	70.00
58.00	1.28	0.00	70.00
58.04	1.29	0.00	72.50
58.08	1.29	0.00	72.50
58.12	1.28	0.00	70.00
58.16	1.28	0.00	70.00
58.20	1.28	0.00	70.00

Altran Report
96227-TR-01 Rev. 3
 Att./Appx. E Sh E48

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
58.24	1.28	0.00	70.00
58.28	1.28	0.00	70.00
58.32	1.28	0.00	70.00
58.36	1.28	0.00	70.00
58.40	1.28	0.00	70.00
58.44	1.28	0.00	70.00
58.48	1.28	0.00	70.00
58.52	1.28	0.00	70.00
58.56	1.27	0.00	67.50
58.60	1.27	0.00	67.50
58.64	1.28	0.00	70.00
58.68	1.28	0.00	70.00
58.72	1.27	0.00	67.50
58.76	1.27	0.00	67.50
58.80	1.27	0.00	67.50
58.84	1.27	0.00	67.50
58.88	1.29	0.00	72.50
58.92	1.30	0.00	75.00
58.96	1.29	0.00	72.50
59.00	1.28	0.00	70.00
59.04	1.29	0.00	72.50
59.08	1.28	0.00	70.00
59.12	1.28	0.00	70.00
59.16	1.27	0.00	67.50
59.20	1.27	0.00	67.50
59.24	1.27	0.00	67.50
59.28	1.27	0.00	67.50
59.32	1.27	0.00	67.50
59.36	1.27	0.00	67.50
59.40	1.27	0.00	67.50
59.44	1.27	0.00	67.50
59.48	1.27	0.00	67.50
59.52	1.28	0.00	70.00
59.56	1.28	0.00	70.00
59.60	1.28	0.00	70.00
59.64	1.29	0.00	72.50
59.68	1.30	0.00	75.00
59.72	1.30	0.00	75.00
59.76	1.30	0.00	75.00
59.80	1.30	0.00	75.00
59.84	1.29	0.00	72.50
59.88	1.29	0.00	72.50
59.92	1.29	0.00	72.50

Altran Report

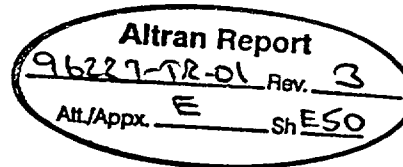
96227-R-01 Rev. 3

Att/Appx. E Sh. E49

Attachment 1 to Calculation No. EF-S-010
Calculation Revision No. 00
Sheet 31 of 31

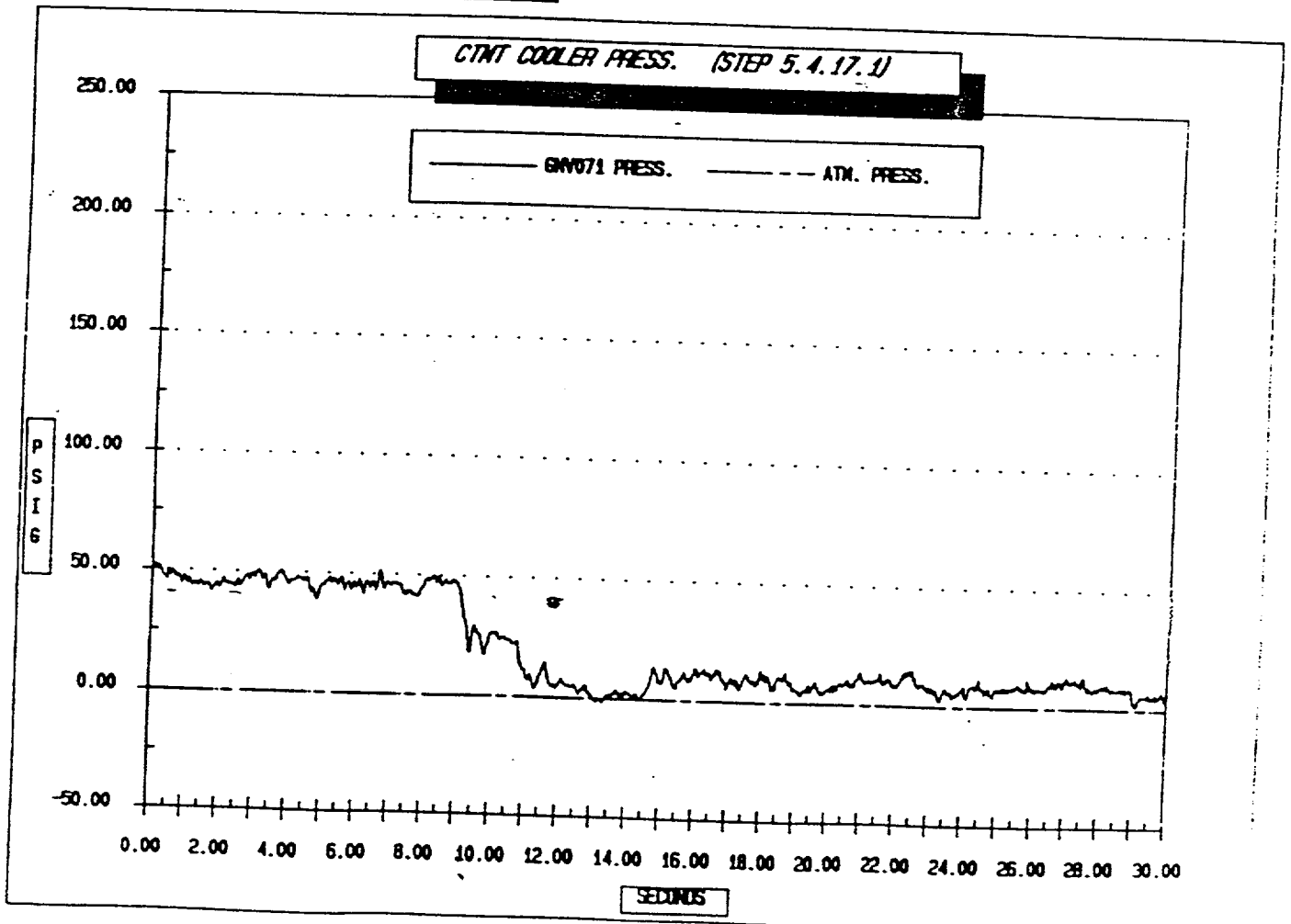
Data collected during step 5.4.17.1 ESW pump load reject. Data shows ESW pump shutdown by placing the handswitch in PTL. Service water is cross connected to maintain system fill and pressure.

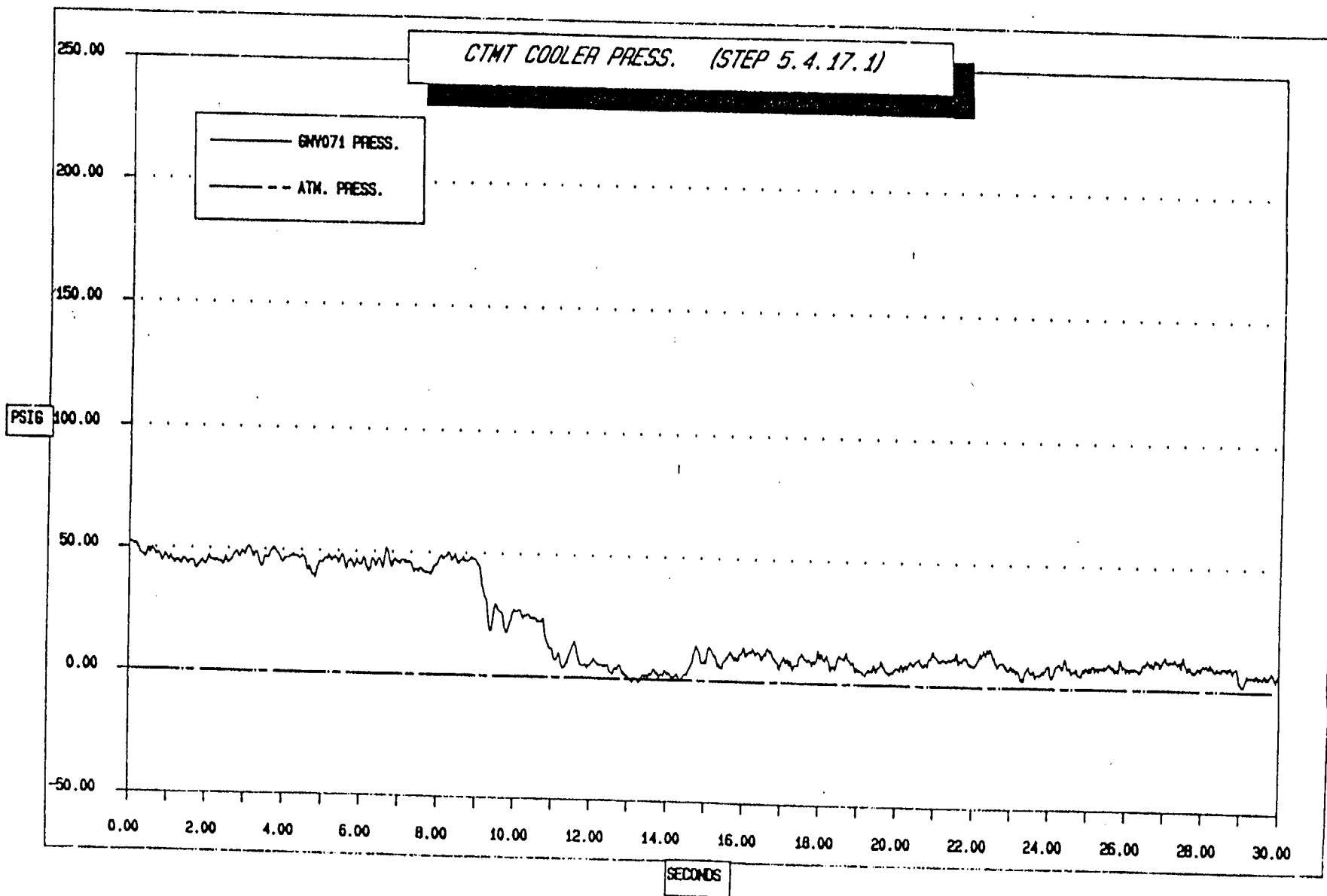
Test: SIS KJ-001R STEP 5.4.17.1	
Run:	0.00
Device:	MB16
Channel:	1
Event:	1
First Sample:	36301.00
Last Sample:	37801.00
Trigger Date:	11-14-1991
Trigger Time:	00:08:11.91
X-Axis Units at First Sample:	726.00
Sample Separation:	0.02
X-Axis Units:	SECONDS
Y-Axis Upper Limit:	5.00
Y-Axis Lower Limit:	-5.00
Y-Axis Max Value:	1.21
Y-Axis Min Value:	1.00
Y-Axis Units:	VOLTS



Attachment 4 to Calculation No. EF-S-010
 Calculation Revision No. 00

Originator: SLJ Date: 5/1/92
 Verified By: TD Date: 5/7/92
 Sheet 1 of 31





Altman Report
96227-01 Rev. 3
Att/APPX E SH ES1

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
0.00	1.21	0.00	52.00
0.02	1.21	0.00	52.00
0.04	1.21	0.00	51.25
0.06	1.21	0.00	52.00
0.08	1.21	0.00	52.00
0.10	1.21	0.00	51.25
0.12	1.21	0.00	51.25
0.14	1.20	0.00	50.75
0.16	1.21	0.00	51.25
0.18	1.21	0.00	51.25
0.20	1.20	0.00	50.75
0.22	1.20	0.00	50.00
0.24	1.20	0.00	49.50
0.26	1.19	0.00	48.25
0.28	1.19	0.00	47.50
0.30	1.19	0.00	47.50
0.32	1.19	0.00	47.00
0.34	1.19	0.00	47.00
0.36	1.19	0.00	46.50
0.38	1.19	0.00	46.50
0.40	1.18	0.00	45.75
0.42	1.19	0.00	47.00
0.44	1.19	0.00	48.25
0.46	1.20	0.00	49.50
0.48	1.20	0.00	49.50
0.50	1.19	0.00	48.25
0.52	1.19	0.00	47.50
0.54	1.19	0.00	48.25
0.56	1.20	0.00	49.50
0.58	1.20	0.00	49.50
0.60	1.20	0.00	49.50
0.62	1.20	0.00	48.75
0.64	1.19	0.00	48.25
0.66	1.19	0.00	47.00
0.68	1.19	0.00	47.50
0.70	1.19	0.00	47.50
0.72	1.19	0.00	47.00
0.74	1.19	0.00	47.50
0.76	1.19	0.00	47.50
0.78	1.19	0.00	47.00
0.80	1.19	0.00	46.50
0.82	1.18	0.00	45.25
0.84	1.18	0.00	44.50
0.86	1.18	0.00	44.50
0.88	1.18	0.00	45.75
0.90	1.19	0.00	46.50
0.92	1.19	0.00	47.50
0.94	1.19	0.00	47.00
0.96	1.19	0.00	47.00
0.98	1.18	0.00	45.75
1.00	1.18	0.00	45.25
1.02	1.18	0.00	44.50

Altran Report
9627-TR-01 Rev. 3
 Att. Appx. E Sh ESL

Attachment 4 to Calculation No. EF-S-010
 Calculation Revision No. 00
 Sheet 3 of 3

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
1.04	1.18	0.00	45.25
1.06	1.18	0.00	45.75
1.08	1.19	0.00	46.50
1.10	1.18	0.00	45.75
1.12	1.18	0.00	44.50
1.14	1.18	0.00	44.00
1.16	1.17	0.00	43.25
1.18	1.18	0.00	44.50
1.20	1.18	0.00	44.00
1.22	1.18	0.00	44.50
1.24	1.18	0.00	45.25
1.26	1.18	0.00	45.25
1.28	1.18	0.00	44.50
1.30	1.18	0.00	44.00
1.32	1.17	0.00	43.25
1.34	1.17	0.00	43.25
1.36	1.18	0.00	44.00
1.38	1.18	0.00	45.25
1.40	1.18	0.00	45.75
1.42	1.18	0.00	45.25
1.44	1.18	0.00	45.25
1.46	1.18	0.00	44.50
1.48	1.18	0.00	44.00
1.50	1.17	0.00	43.25
1.52	1.17	0.00	43.25
1.54	1.18	0.00	44.00
1.56	1.18	0.00	44.50
1.58	1.18	0.00	44.50
1.60	1.18	0.00	44.50
1.62	1.18	0.00	44.50
1.64	1.18	0.00	44.50
1.66	1.18	0.00	44.50
1.68	1.17	0.00	43.25
1.70	1.17	0.00	42.00
1.72	1.17	0.00	42.00
1.74	1.17	0.00	42.00
1.76	1.17	0.00	42.00
1.78	1.17	0.00	42.75
1.80	1.17	0.00	43.25
1.82	1.17	0.00	43.25
1.84	1.17	0.00	43.25
1.86	1.18	0.00	44.50
1.88	1.18	0.00	45.25
1.90	1.18	0.00	44.50
1.92	1.18	0.00	44.00
1.94	1.17	0.00	43.25
1.96	1.17	0.00	43.25
1.98	1.17	0.00	43.25
2.00	1.18	0.00	44.00
2.02	1.18	0.00	44.50
2.04	1.18	0.00	45.75
2.06	1.19	0.00	47.00

Altran Report
 96277-12-01 Rev. 3
 Mt./Appx. E Sh. 53

SECONDS	XMITR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
2.08	1.19	0.00	47.00
2.10	1.18	0.00	45.75
2.12	1.18	0.00	45.25
2.14	1.18	0.00	45.25
2.16	1.18	0.00	45.25
2.18	1.18	0.00	45.25
2.20	1.18	0.00	44.50
2.22	1.18	0.00	44.50
2.24	1.18	0.00	45.25
2.26	1.18	0.00	45.25
2.28	1.18	0.00	45.25
2.30	1.18	0.00	44.50
2.32	1.18	0.00	44.50
2.34	1.18	0.00	44.50
2.36	1.18	0.00	44.50
2.38	1.18	0.00	44.00
2.40	1.17	0.00	43.25
2.42	1.17	0.00	43.25
2.44	1.18	0.00	44.00
2.46	1.18	0.00	45.25
2.48	1.19	0.00	46.50
2.50	1.19	0.00	46.50
2.52	1.18	0.00	45.75
2.54	1.18	0.00	44.50
2.56	1.18	0.00	44.00
2.58	1.18	0.00	44.50
2.60	1.18	0.00	45.25
2.62	1.18	0.00	45.25
2.64	1.18	0.00	45.75
2.66	1.18	0.00	45.75
2.68	1.19	0.00	47.00
2.70	1.19	0.00	47.50
2.72	1.19	0.00	47.50
2.74	1.19	0.00	48.25
2.76	1.20	0.00	48.75
2.78	1.20	0.00	48.75
2.80	1.20	0.00	48.75
2.82	1.19	0.00	47.00
2.84	1.19	0.00	46.50
2.86	1.19	0.00	47.00
2.88	1.19	0.00	48.25
2.90	1.19	0.00	48.25
2.92	1.20	0.00	49.50
2.94	1.20	0.00	48.75
2.96	1.19	0.00	48.25
2.98	1.19	0.00	48.25
3.00	1.19	0.00	47.50
3.02	1.19	0.00	48.25
3.04	1.20	0.00	49.50
3.06	1.20	0.00	50.75
3.08	1.20	0.00	50.75
3.10	1.20	0.00	50.75

Altran Report
 96227-TR-01 Rev. 3
 At/ Appx. E Sh ES4

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
3.12	1.20	0.00	50.75
3.14	1.20	0.00	50.00
3.16	1.20	0.00	48.75
3.18	1.20	0.00	48.75
3.20	1.19	0.00	47.00
3.22	1.19	0.00	47.00
3.24	1.19	0.00	47.50
3.26	1.20	0.00	48.75
3.28	1.20	0.00	48.75
3.30	1.20	0.00	48.75
3.32	1.19	0.00	48.25
3.34	1.18	0.00	45.75
3.36	1.18	0.00	44.50
3.38	1.17	0.00	43.25
3.40	1.17	0.00	43.25
3.42	1.17	0.00	42.75
3.44	1.17	0.00	43.25
3.46	1.18	0.00	44.00
3.48	1.18	0.00	45.75
3.50	1.19	0.00	47.00
3.52	1.19	0.00	47.00
3.54	1.19	0.00	47.00
3.56	1.19	0.00	46.50
3.58	1.19	0.00	46.50
3.60	1.19	0.00	47.00
3.62	1.19	0.00	47.50
3.64	1.20	0.00	48.75
3.66	1.20	0.00	49.50
3.68	1.20	0.00	49.50
3.70	1.20	0.00	50.00
3.72	1.20	0.00	50.75
3.74	1.20	0.00	50.75
3.76	1.20	0.00	50.75
3.78	1.20	0.00	50.00
3.80	1.20	0.00	50.00
3.82	1.20	0.00	48.75
3.84	1.19	0.00	48.25
3.86	1.19	0.00	48.25
3.88	1.19	0.00	47.50
3.90	1.19	0.00	47.00
3.92	1.19	0.00	46.50
3.94	1.18	0.00	45.25
3.96	1.18	0.00	45.25
3.98	1.18	0.00	45.25
4.00	1.18	0.00	45.25
4.02	1.18	0.00	45.75
4.04	1.19	0.00	46.50
4.06	1.19	0.00	46.50
4.08	1.19	0.00	46.50
4.10	1.19	0.00	46.50
4.12	1.19	0.00	46.50
4.14	1.19	0.00	47.00

Altran Report
 96227-TR-C1 Rev. 3
 Att/Appx. E Sh ESS

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
4.16	1.19	0.00	47.00
4.18	1.19	0.00	47.50
4.20	1.19	0.00	47.50
4.22	1.19	0.00	47.50
4.24	1.19	0.00	48.25
4.26	1.19	0.00	47.50
4.28	1.19	0.00	47.50
4.30	1.19	0.00	47.50
4.32	1.19	0.00	47.50
4.34	1.19	0.00	47.50
4.36	1.19	0.00	47.00
4.38	1.19	0.00	46.50
4.40	1.19	0.00	46.50
4.42	1.19	0.00	46.50
4.44	1.19	0.00	47.00
4.46	1.19	0.00	47.50
4.48	1.19	0.00	47.50
4.50	1.19	0.00	47.50
4.52	1.19	0.00	47.00
4.54	1.19	0.00	46.50
4.56	1.18	0.00	45.25
4.58	1.17	0.00	43.25
4.60	1.17	0.00	42.00
4.62	1.17	0.00	42.00
4.64	1.17	0.00	42.00
4.66	1.17	0.00	43.25
4.68	1.17	0.00	42.75
4.70	1.17	0.00	42.00
4.72	1.16	0.00	41.00
4.74	1.16	0.00	39.75
4.76	1.16	0.00	39.75
4.78	1.16	0.00	39.75
4.80	1.16	0.00	39.00
4.82	1.16	0.00	39.75
4.84	1.16	0.00	41.00
4.86	1.17	0.00	42.75
4.88	1.17	0.00	43.25
4.90	1.18	0.00	44.00
4.92	1.18	0.00	45.25
4.94	1.18	0.00	45.25
4.96	1.18	0.00	45.25
4.98	1.18	0.00	45.25
5.00	1.18	0.00	45.25
5.02	1.18	0.00	45.25
5.04	1.19	0.00	46.50
5.06	1.19	0.00	46.50
5.08	1.19	0.00	47.00
5.10	1.19	0.00	47.00
5.12	1.19	0.00	46.50
5.14	1.19	0.00	47.00
5.16	1.19	0.00	48.25
5.18	1.19	0.00	47.50

Altran Report
76227-MR-01 Rev. 3
 Att./Appx. E Sh. ES6

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
5.20	1.19	0.00	47.50
5.22	1.19	0.00	46.50
5.24	1.18	0.00	45.75
5.26	1.19	0.00	46.50
5.28	1.19	0.00	47.00
5.30	1.19	0.00	47.50
5.32	1.19	0.00	47.50
5.34	1.19	0.00	47.00
5.36	1.19	0.00	47.00
5.38	1.19	0.00	46.50
5.40	1.18	0.00	45.25
5.42	1.18	0.00	45.25
5.44	1.18	0.00	45.75
5.46	1.19	0.00	46.50
5.48	1.19	0.00	47.50
5.50	1.19	0.00	48.25
5.52	1.19	0.00	48.25
5.54	1.19	0.00	47.50
5.56	1.19	0.00	46.50
5.58	1.18	0.00	44.50
5.60	1.17	0.00	43.25
5.62	1.17	0.00	42.75
5.64	1.17	0.00	43.25
5.66	1.18	0.00	45.25
5.68	1.18	0.00	45.75
5.70	1.18	0.00	45.75
5.72	1.18	0.00	45.75
5.74	1.19	0.00	46.50
5.76	1.18	0.00	45.75
5.78	1.18	0.00	45.25
5.80	1.18	0.00	44.00
5.82	1.17	0.00	43.25
5.84	1.18	0.00	44.00
5.86	1.18	0.00	44.50
5.88	1.18	0.00	45.75
5.90	1.19	0.00	46.50
5.92	1.18	0.00	45.75
5.94	1.18	0.00	45.25
5.96	1.18	0.00	44.50
5.98	1.18	0.00	44.50
6.00	1.18	0.00	44.50
6.02	1.18	0.00	45.25
6.04	1.19	0.00	46.50
6.06	1.19	0.00	47.50
6.08	1.19	0.00	47.00
6.10	1.19	0.00	46.50
6.12	1.18	0.00	44.50
6.14	1.17	0.00	43.25
6.16	1.17	0.00	43.25
6.18	1.17	0.00	42.00
6.20	1.17	0.00	42.00
6.22	1.17	0.00	42.75

Altran Report
 96227-7B-01 Rev. 3
 Att/Appx. E Sh. E57

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
6.24	1.18	0.00	44.50
6.26	1.19	0.00	46.50
6.28	1.19	0.00	47.00
6.30	1.19	0.00	46.50
6.32	1.19	0.00	46.50
6.34	1.18	0.00	45.75
6.36	1.18	0.00	45.25
6.38	1.18	0.00	44.00
6.40	1.18	0.00	44.50
6.42	1.18	0.00	45.25
6.44	1.19	0.00	46.50
6.46	1.19	0.00	47.00
6.48	1.19	0.00	47.00
6.50	1.19	0.00	46.50
6.52	1.18	0.00	45.25
6.54	1.18	0.00	44.50
6.56	1.17	0.00	43.25
6.58	1.18	0.00	44.00
6.60	1.18	0.00	45.75
6.62	1.19	0.00	47.50
6.64	1.20	0.00	49.50
6.66	1.21	0.00	51.25
6.68	1.21	0.00	51.25
6.70	1.20	0.00	50.00
6.72	1.20	0.00	48.75
6.74	1.19	0.00	47.00
6.76	1.18	0.00	45.75
6.78	1.18	0.00	44.50
6.80	1.18	0.00	44.00
6.82	1.18	0.00	44.50
6.84	1.18	0.00	45.75
6.86	1.19	0.00	46.50
6.88	1.19	0.00	47.00
6.90	1.19	0.00	47.00
6.92	1.19	0.00	46.50
6.94	1.18	0.00	45.75
6.96	1.18	0.00	45.75
6.98	1.18	0.00	45.75
7.00	1.18	0.00	45.25
7.02	1.18	0.00	45.75
7.04	1.19	0.00	46.50
7.06	1.19	0.00	46.50
7.08	1.19	0.00	46.50
7.10	1.19	0.00	46.50
7.12	1.19	0.00	46.50
7.14	1.18	0.00	45.75
7.16	1.19	0.00	46.50
7.18	1.18	0.00	45.75
7.20	1.18	0.00	45.75
7.22	1.18	0.00	45.75
7.24	1.18	0.00	45.75
7.26	1.18	0.00	45.75

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 Att/Appx. E Sh ES8

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
7.28	1.18	0.00	45.75
7.30	1.18	0.00	45.25
7.32	1.18	0.00	44.50
7.34	1.17	0.00	43.25
7.36	1.17	0.00	42.75
7.38	1.17	0.00	42.00
7.40	1.17	0.00	42.75
7.42	1.17	0.00	42.75
7.44	1.17	0.00	42.75
7.46	1.17	0.00	42.75
7.48	1.17	0.00	42.00
7.50	1.17	0.00	42.75
7.52	1.17	0.00	43.25
7.54	1.17	0.00	43.25
7.56	1.17	0.00	43.25
7.58	1.17	0.00	42.75
7.60	1.17	0.00	42.75
7.62	1.17	0.00	42.00
7.64	1.17	0.00	42.00
7.66	1.17	0.00	42.00
7.68	1.17	0.00	42.00
7.70	1.17	0.00	41.50
7.72	1.17	0.00	41.50
7.74	1.17	0.00	41.50
7.76	1.17	0.00	41.50
7.78	1.17	0.00	41.50
7.80	1.16	0.00	41.00
7.82	1.17	0.00	41.50
7.84	1.17	0.00	42.00
7.86	1.17	0.00	42.75
7.88	1.18	0.00	44.00
7.90	1.18	0.00	44.50
7.92	1.18	0.00	44.50
7.94	1.18	0.00	45.25
7.96	1.18	0.00	45.25
7.98	1.18	0.00	45.75
8.00	1.19	0.00	47.00
8.02	1.19	0.00	47.50
8.04	1.19	0.00	48.25
8.06	1.20	0.00	48.75
8.08	1.20	0.00	48.75
8.10	1.19	0.00	48.25
8.12	1.19	0.00	47.50
8.14	1.19	0.00	47.50
8.16	1.19	0.00	48.25
8.18	1.20	0.00	48.75
8.20	1.20	0.00	48.75
8.22	1.20	0.00	48.75
8.24	1.20	0.00	49.50
8.26	1.20	0.00	50.00
8.28	1.20	0.00	50.00
8.30	1.20	0.00	49.50

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
8.32	1.19	0.00	48.25
8.34	1.19	0.00	47.00
8.36	1.19	0.00	47.00
8.38	1.19	0.00	47.50
8.40	1.19	0.00	48.25
8.42	1.20	0.00	49.50
8.44	1.20	0.00	48.75
8.46	1.19	0.00	47.50
8.48	1.19	0.00	46.50
8.50	1.18	0.00	45.75
8.52	1.18	0.00	45.75
8.54	1.18	0.00	45.75
8.56	1.19	0.00	46.50
8.58	1.19	0.00	47.00
8.60	1.19	0.00	47.00
8.62	1.19	0.00	47.50
8.64	1.19	0.00	48.25
8.66	1.19	0.00	47.00
8.68	1.19	0.00	47.00
8.70	1.19	0.00	46.50
8.72	1.19	0.00	46.50
8.74	1.19	0.00	46.50
8.76	1.19	0.00	46.50
8.78	1.19	0.00	47.00
8.80	1.19	0.00	47.00
8.82	1.19	0.00	47.50
8.84	1.19	0.00	47.50
8.86	1.19	0.00	48.25
8.88	1.19	0.00	47.50
8.90	1.19	0.00	47.50
8.92	1.19	0.00	47.50
8.94	1.19	0.00	47.50
8.96	1.19	0.00	47.00
8.98	1.19	0.00	46.50
9.00	1.18	0.00	45.75
9.02	1.18	0.00	45.25
9.04	1.18	0.00	45.25
9.06	1.18	0.00	44.50
9.08	1.18	0.00	44.00
9.10	1.17	0.00	42.00
9.12	1.16	0.00	39.75
9.14	1.15	0.00	37.25
9.16	1.14	0.00	34.75
9.18	1.13	0.00	33.50
9.20	1.13	0.00	32.25
9.22	1.13	0.00	31.75
9.24	1.13	0.00	31.25
9.26	1.12	0.00	30.50
9.28	1.11	0.00	28.00
9.30	1.10	0.00	24.50
9.32	1.09	0.00	22.00
9.34	1.08	0.00	19.50

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
9.36	1.07	0.00	18.25
9.38	1.07	0.00	18.25
9.40	1.08	0.00	20.75
9.42	1.09	0.00	22.50
9.44	1.10	0.00	25.00
9.46	1.11	0.00	27.50
9.48	1.12	0.00	29.25
9.50	1.12	0.00	29.25
9.52	1.12	0.00	28.75
9.54	1.11	0.00	28.00
9.56	1.11	0.00	26.75
9.58	1.11	0.00	26.75
9.60	1.11	0.00	26.25
9.62	1.10	0.00	25.75
9.64	1.10	0.00	25.75
9.66	1.10	0.00	25.75
9.68	1.10	0.00	25.00
9.70	1.09	0.00	23.25
9.72	1.09	0.00	21.25
9.74	1.08	0.00	19.50
9.76	1.08	0.00	19.00
9.78	1.07	0.00	17.75
9.80	1.07	0.00	17.75
9.82	1.07	0.00	17.75
9.84	1.08	0.00	19.00
9.86	1.08	0.00	20.75
9.88	1.09	0.00	22.00
9.90	1.09	0.00	22.50
9.92	1.10	0.00	23.75
9.94	1.10	0.00	25.00
9.96	1.11	0.00	26.25
9.98	1.11	0.00	26.75
10.00	1.11	0.00	26.75
10.02	1.11	0.00	26.25
10.04	1.11	0.00	26.25
10.06	1.11	0.00	26.25
10.08	1.11	0.00	26.25
10.10	1.11	0.00	26.75
10.12	1.11	0.00	26.75
10.14	1.11	0.00	26.75
10.16	1.11	0.00	26.25
10.18	1.10	0.00	25.00
10.20	1.10	0.00	24.50
10.22	1.10	0.00	23.75
10.24	1.10	0.00	23.75
10.26	1.10	0.00	24.50
10.28	1.10	0.00	24.50
10.30	1.10	0.00	24.50
10.32	1.10	0.00	24.50
10.34	1.10	0.00	25.00
10.36	1.10	0.00	25.00
10.38	1.10	0.00	25.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
10.40	1.10	0.00	24.50
10.42	1.10	0.00	23.75
10.44	1.10	0.00	23.75
10.46	1.10	0.00	23.75
10.48	1.10	0.00	23.75
10.50	1.10	0.00	23.75
10.52	1.10	0.00	23.75
10.54	1.10	0.00	23.75
10.56	1.10	0.00	23.75
10.58	1.09	0.00	23.25
10.60	1.09	0.00	22.50
10.62	1.09	0.00	22.50
10.64	1.09	0.00	22.50
10.66	1.09	0.00	22.50
10.68	1.09	0.00	22.50
10.70	1.09	0.00	22.50
10.72	1.09	0.00	22.50
10.74	1.09	0.00	23.25
10.76	1.09	0.00	23.25
10.78	1.09	0.00	21.25
10.80	1.08	0.00	19.00
10.82	1.07	0.00	16.50
10.84	1.06	0.00	14.75
10.86	1.05	0.00	13.50
10.88	1.05	0.00	13.50
10.90	1.05	0.00	12.25
10.92	1.05	0.00	11.50
10.94	1.05	0.00	11.50
10.96	1.05	0.00	11.50
10.98	1.05	0.00	11.50
11.00	1.04	0.00	11.00
11.02	1.04	0.00	9.25
11.04	1.03	0.00	8.00
11.06	1.03	0.00	7.25
11.08	1.03	0.00	7.25
11.10	1.03	0.00	7.25
11.12	1.03	0.00	8.00
11.14	1.04	0.00	9.25
11.16	1.04	0.00	9.75
11.18	1.04	0.00	9.75
11.20	1.03	0.00	8.50
11.22	1.03	0.00	6.75
11.24	1.02	0.00	5.50
11.26	1.02	0.00	5.00
11.28	1.02	0.00	3.75
11.30	1.02	0.00	3.75
11.32	1.02	0.00	4.25
11.34	1.02	0.00	5.00
11.36	1.02	0.00	5.50
11.38	1.03	0.00	6.75
11.40	1.02	0.00	6.00
11.42	1.03	0.00	8.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
11.44	1.03	0.00	8.50
11.46	1.04	0.00	9.75
11.48	1.04	0.00	9.75
11.50	1.04	0.00	11.00
11.52	1.05	0.00	11.50
11.54	1.05	0.00	12.75
11.56	1.06	0.00	14.00
11.58	1.06	0.00	14.75
11.60	1.06	0.00	14.00
11.62	1.05	0.00	12.75
11.64	1.05	0.00	11.50
11.66	1.04	0.00	9.75
11.68	1.03	0.00	8.50
11.70	1.03	0.00	7.25
11.72	1.03	0.00	6.75
11.74	1.02	0.00	5.50
11.76	1.02	0.00	5.50
11.78	1.02	0.00	5.00
11.80	1.02	0.00	5.00
11.82	1.02	0.00	5.00
11.84	1.02	0.00	5.50
11.86	1.02	0.00	5.50
11.88	1.02	0.00	5.50
11.90	1.02	0.00	4.25
11.92	1.02	0.00	4.25
11.94	1.02	0.00	5.00
11.96	1.02	0.00	5.00
11.98	1.02	0.00	5.50
12.00	1.02	0.00	5.50
12.02	1.02	0.00	6.00
12.04	1.03	0.00	6.75
12.06	1.03	0.00	7.25
12.08	1.03	0.00	8.00
12.10	1.03	0.00	7.25
12.12	1.03	0.00	7.25
12.14	1.03	0.00	6.75
12.16	1.02	0.00	6.00
12.18	1.02	0.00	6.00
12.20	1.02	0.00	6.00
12.22	1.02	0.00	5.50
12.24	1.02	0.00	5.50
12.26	1.02	0.00	5.50
12.28	1.02	0.00	5.50
12.30	1.02	0.00	5.50
12.32	1.02	0.00	5.00
12.34	1.02	0.00	5.00
12.36	1.02	0.00	5.00
12.38	1.02	0.00	5.00
12.40	1.02	0.00	5.00
12.42	1.02	0.00	5.50
12.44	1.02	0.00	5.50
12.46	1.02	0.00	5.50

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
12.48	1.02	0.00	5.00
12.50	1.02	0.00	4.25
12.52	1.01	0.00	3.00
12.54	1.01	0.00	2.50
12.56	1.01	0.00	2.50
12.58	1.01	0.00	1.75
12.60	1.01	0.00	2.50
12.62	1.02	0.00	3.75
12.64	1.02	0.00	4.25
12.66	1.02	0.00	4.25
12.68	1.02	0.00	3.75
12.70	1.02	0.00	3.75
12.72	1.02	0.00	4.25
12.74	1.02	0.00	5.50
12.76	1.02	0.00	5.50
12.78	1.02	0.00	5.50
12.80	1.02	0.00	4.25
12.82	1.01	0.00	3.00
12.84	1.01	0.00	2.50
12.86	1.01	0.00	1.75
12.88	1.01	0.00	3.00
12.90	1.01	0.00	1.75
12.92	1.01	0.00	1.25
12.94	1.01	0.00	1.75
12.96	1.01	0.00	1.25
12.98	1.01	0.00	1.25
13.00	1.00	0.00	0.50
13.02	1.00	0.00	0.00
13.04	1.00	0.00	-0.60
13.06	1.00	0.00	0.00
13.08	1.00	0.00	-0.60
13.10	1.00	0.00	-1.23
13.12	1.00	0.00	-0.60
13.14	1.00	0.00	0.00
13.16	1.00	0.00	0.50
13.18	1.00	0.00	0.00
13.20	1.00	0.00	0.00
13.22	1.00	0.00	0.00
13.24	1.00	0.00	0.00
13.26	1.00	0.00	-1.23
13.28	1.00	0.00	-1.23
13.30	1.00	0.00	-0.60
13.32	1.00	0.00	-0.60
13.34	1.00	0.00	0.50
13.36	1.01	0.00	1.25
13.38	1.01	0.00	1.75
13.40	1.01	0.00	1.75
13.42	1.01	0.00	1.75
13.44	1.01	0.00	1.25
13.46	1.01	0.00	1.75
13.48	1.01	0.00	1.75
13.50	1.01	0.00	1.25

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Attachment 4 to Calculation No. EF-S-010
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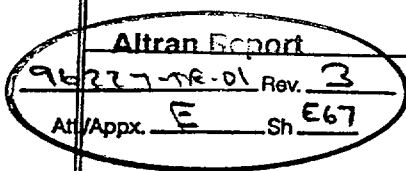
SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
13.52	1.01	0.00	1.75
13.54	1.01	0.00	2.50
13.56	1.01	0.00	1.75
13.58	1.01	0.00	1.75
13.60	1.01	0.00	2.50
13.62	1.01	0.00	2.50
13.64	1.02	0.00	3.75
13.66	1.02	0.00	4.25
13.68	1.02	0.00	4.25
13.70	1.02	0.00	3.75
13.72	1.01	0.00	2.50
13.74	1.01	0.00	3.00
13.76	1.01	0.00	2.50
13.78	1.01	0.00	1.25
13.80	1.01	0.00	1.25
13.82	1.01	0.00	1.75
13.84	1.01	0.00	2.50
13.86	1.01	0.00	2.50
13.88	1.01	0.00	1.75
13.90	1.01	0.00	1.75
13.92	1.01	0.00	1.75
13.94	1.02	0.00	3.75
13.96	1.02	0.00	3.75
13.98	1.01	0.00	3.00
14.00	1.01	0.00	2.50
14.02	1.01	0.00	2.50
14.04	1.01	0.00	3.00
14.06	1.01	0.00	3.00
14.08	1.01	0.00	2.50
14.10	1.01	0.00	1.75
14.12	1.01	0.00	1.25
14.14	1.00	0.00	0.50
14.16	1.01	0.00	1.25
14.18	1.01	0.00	1.25
14.20	1.01	0.00	1.25
14.22	1.01	0.00	1.75
14.24	1.01	0.00	2.50
14.26	1.01	0.00	2.50
14.28	1.01	0.00	2.50
14.30	1.01	0.00	1.25
14.32	1.00	0.00	0.50
14.34	1.00	0.00	0.00
14.36	1.00	0.00	0.00
14.38	1.00	0.00	0.50
14.40	1.00	0.00	0.50
14.42	1.01	0.00	1.25
14.44	1.01	0.00	1.75
14.46	1.01	0.00	2.50
14.48	1.01	0.00	2.50
14.50	1.01	0.00	2.50
14.52	1.01	0.00	2.50
14.54	1.02	0.00	3.75

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
14.56	1.02	0.00	4.25
14.58	1.02	0.00	5.00
14.60	1.02	0.00	5.50
14.62	1.02	0.00	6.00
14.64	1.03	0.00	6.75
14.66	1.03	0.00	7.25
14.68	1.03	0.00	8.50
14.70	1.04	0.00	10.50
14.72	1.05	0.00	12.25
14.74	1.05	0.00	13.50
14.76	1.06	0.00	14.00
14.78	1.05	0.00	13.50
14.80	1.05	0.00	12.75
14.82	1.05	0.00	12.25
14.84	1.05	0.00	11.50
14.86	1.04	0.00	11.00
14.88	1.04	0.00	9.25
14.90	1.03	0.00	8.00
14.92	1.03	0.00	7.25
14.94	1.03	0.00	7.25
14.96	1.03	0.00	7.25
14.98	1.03	0.00	8.00
15.00	1.03	0.00	7.25
15.02	1.03	0.00	7.25
15.04	1.03	0.00	8.50
15.06	1.04	0.00	11.00
15.08	1.05	0.00	12.75
15.10	1.05	0.00	13.50
15.12	1.05	0.00	13.50
15.14	1.05	0.00	12.75
15.16	1.05	0.00	12.75
15.18	1.05	0.00	12.75
15.20	1.04	0.00	11.00
15.22	1.04	0.00	10.50
15.24	1.04	0.00	9.75
15.26	1.04	0.00	10.50
15.28	1.04	0.00	9.75
15.30	1.03	0.00	8.50
15.32	1.03	0.00	7.25
15.34	1.02	0.00	6.00
15.36	1.03	0.00	6.75
15.38	1.03	0.00	6.75
15.40	1.02	0.00	5.50
15.42	1.02	0.00	5.50
15.44	1.02	0.00	5.50
15.46	1.03	0.00	7.25
15.48	1.03	0.00	8.00
15.50	1.03	0.00	8.00
15.52	1.03	0.00	8.50
15.54	1.03	0.00	8.50
15.56	1.04	0.00	9.75
15.58	1.04	0.00	9.25

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
15.60	1.04	0.00	9.75
15.62	1.04	0.00	11.00
15.64	1.04	0.00	11.00
15.66	1.05	0.00	12.25
15.68	1.05	0.00	11.50
15.70	1.04	0.00	10.50
15.72	1.04	0.00	9.75
15.74	1.04	0.00	9.75
15.76	1.03	0.00	8.50
15.78	1.04	0.00	9.25
15.80	1.04	0.00	9.75
15.82	1.04	0.00	9.25
15.84	1.03	0.00	8.50
15.86	1.03	0.00	8.50
15.88	1.04	0.00	9.25
15.90	1.04	0.00	11.00
15.92	1.04	0.00	11.00
15.94	1.05	0.00	11.50
15.96	1.05	0.00	11.50
15.98	1.05	0.00	13.50
16.00	1.06	0.00	14.00
16.02	1.05	0.00	13.50
16.04	1.05	0.00	12.25
16.06	1.04	0.00	10.50
16.08	1.04	0.00	10.50
16.10	1.05	0.00	11.50
16.12	1.04	0.00	11.00
16.14	1.05	0.00	12.25
16.16	1.05	0.00	12.25
16.18	1.05	0.00	12.25
16.20	1.05	0.00	12.25
16.22	1.05	0.00	12.25
16.24	1.05	0.00	13.50
16.26	1.05	0.00	12.75
16.28	1.05	0.00	12.75
16.30	1.05	0.00	11.50
16.32	1.04	0.00	11.00
16.34	1.05	0.00	11.50
16.36	1.05	0.00	11.50
16.38	1.05	0.00	12.25
16.40	1.05	0.00	12.25
16.42	1.05	0.00	11.50
16.44	1.04	0.00	10.50
16.46	1.04	0.00	9.25
16.48	1.04	0.00	9.25
16.50	1.04	0.00	9.75
16.52	1.04	0.00	11.00
16.54	1.05	0.00	11.50
16.56	1.05	0.00	11.50
16.58	1.04	0.00	11.00
16.60	1.05	0.00	12.75
16.62	1.05	0.00	13.50



SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
16.64	1.05	0.00	13.50
16.66	1.05	0.00	12.75
16.68	1.05	0.00	12.25
16.70	1.05	0.00	12.25
16.72	1.05	0.00	12.75
16.74	1.05	0.00	11.50
16.76	1.04	0.00	11.00
16.78	1.04	0.00	9.75
16.80	1.04	0.00	9.75
16.82	1.04	0.00	9.75
16.84	1.03	0.00	8.50
16.86	1.03	0.00	8.50
16.88	1.03	0.00	8.00
16.90	1.03	0.00	8.00
16.92	1.02	0.00	6.00
16.94	1.02	0.00	5.50
16.96	1.03	0.00	6.75
16.98	1.03	0.00	7.25
17.00	1.03	0.00	8.50
17.02	1.03	0.00	8.50
17.04	1.04	0.00	9.25
17.06	1.04	0.00	10.50
17.08	1.04	0.00	10.50
17.10	1.04	0.00	9.75
17.12	1.03	0.00	8.00
17.14	1.03	0.00	8.50
17.16	1.04	0.00	9.75
17.18	1.03	0.00	8.00
17.20	1.03	0.00	7.25
17.22	1.03	0.00	8.50
17.24	1.04	0.00	9.25
17.26	1.03	0.00	8.00
17.28	1.02	0.00	6.00
17.30	1.02	0.00	5.50
17.32	1.02	0.00	6.00
17.34	1.03	0.00	7.25
17.36	1.03	0.00	7.25
17.38	1.03	0.00	7.25
17.40	1.03	0.00	7.25
17.42	1.03	0.00	7.25
17.44	1.04	0.00	9.75
17.46	1.04	0.00	10.50
17.48	1.04	0.00	11.00
17.50	1.04	0.00	11.00
17.52	1.05	0.00	12.25
17.54	1.05	0.00	11.50
17.56	1.04	0.00	11.00
17.58	1.04	0.00	11.00
17.60	1.04	0.00	9.75
17.62	1.04	0.00	9.75
17.64	1.04	0.00	9.25
17.66	1.03	0.00	8.50

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
17.68	1.04	0.00	9.25
17.70	1.04	0.00	9.25
17.72	1.04	0.00	9.75
17.74	1.04	0.00	9.25
17.76	1.03	0.00	8.50
17.78	1.03	0.00	8.50
17.80	1.03	0.00	7.25
17.82	1.03	0.00	8.50
17.84	1.04	0.00	9.25
17.86	1.03	0.00	8.00
17.88	1.03	0.00	8.50
17.90	1.03	0.00	8.50
17.92	1.04	0.00	9.75
17.94	1.05	0.00	12.25
17.96	1.05	0.00	13.50
17.98	1.05	0.00	12.25
18.00	1.04	0.00	10.50
18.02	1.04	0.00	10.50
18.04	1.05	0.00	11.50
18.06	1.05	0.00	12.25
18.08	1.05	0.00	11.50
18.10	1.04	0.00	9.75
18.12	1.04	0.00	9.25
18.14	1.04	0.00	10.50
18.16	1.04	0.00	11.00
18.18	1.05	0.00	11.50
18.20	1.04	0.00	10.50
18.22	1.04	0.00	9.25
18.24	1.04	0.00	9.25
18.26	1.03	0.00	7.25
18.28	1.02	0.00	5.50
18.30	1.02	0.00	6.00
18.32	1.03	0.00	6.75
18.34	1.03	0.00	7.25
18.36	1.03	0.00	6.75
18.38	1.02	0.00	6.00
18.40	1.03	0.00	6.75
18.42	1.03	0.00	8.00
18.44	1.04	0.00	9.25
18.46	1.04	0.00	10.50
18.48	1.04	0.00	11.00
18.50	1.05	0.00	11.50
18.52	1.04	0.00	11.00
18.54	1.04	0.00	11.00
18.56	1.04	0.00	10.50
18.58	1.04	0.00	10.50
18.60	1.04	0.00	10.50
18.62	1.04	0.00	9.75
18.64	1.04	0.00	10.50
18.66	1.05	0.00	12.25
18.68	1.05	0.00	12.75
18.70	1.05	0.00	12.25

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
18.72	1.04	0.00	10.50
18.74	1.04	0.00	9.75
18.76	1.04	0.00	9.75
18.78	1.04	0.00	9.75
18.80	1.03	0.00	8.50
18.82	1.03	0.00	8.00
18.84	1.03	0.00	8.50
18.86	1.04	0.00	9.25
18.88	1.03	0.00	8.00
18.90	1.03	0.00	6.75
18.92	1.02	0.00	5.50
18.94	1.02	0.00	5.50
18.96	1.03	0.00	6.75
18.98	1.02	0.00	6.00
19.00	1.02	0.00	6.00
19.02	1.02	0.00	5.50
19.04	1.02	0.00	6.00
19.06	1.02	0.00	5.50
19.08	1.02	0.00	5.50
19.10	1.02	0.00	5.00
19.12	1.02	0.00	4.25
19.14	1.02	0.00	4.25
19.16	1.02	0.00	3.75
19.18	1.02	0.00	3.75
19.20	1.02	0.00	5.00
19.22	1.02	0.00	5.50
19.24	1.02	0.00	6.00
19.26	1.02	0.00	6.00
19.28	1.02	0.00	5.50
19.30	1.02	0.00	5.50
19.32	1.02	0.00	6.00
19.34	1.02	0.00	5.50
19.36	1.03	0.00	6.75
19.38	1.03	0.00	8.00
19.40	1.03	0.00	8.00
19.42	1.03	0.00	7.25
19.44	1.02	0.00	5.50
19.46	1.02	0.00	5.50
19.48	1.02	0.00	6.00
19.50	1.03	0.00	7.25
19.52	1.03	0.00	7.25
19.54	1.03	0.00	7.25
19.56	1.03	0.00	8.00
19.58	1.04	0.00	9.75
19.60	1.04	0.00	9.25
19.62	1.03	0.00	8.50
19.64	1.03	0.00	7.25
19.66	1.03	0.00	7.25
19.68	1.03	0.00	7.25
19.70	1.02	0.00	6.00
19.72	1.02	0.00	5.50
19.74	1.02	0.00	5.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
19.76	1.02	0.00	5.50
19.78	1.02	0.00	5.00
19.80	1.02	0.00	4.25
19.82	1.02	0.00	5.00
19.84	1.02	0.00	5.00
19.86	1.02	0.00	5.50
19.88	1.02	0.00	5.00
19.90	1.02	0.00	5.00
19.92	1.02	0.00	6.00
19.94	1.02	0.00	6.00
19.96	1.03	0.00	6.75
19.98	1.03	0.00	6.75
20.00	1.03	0.00	6.75
20.02	1.03	0.00	6.75
20.04	1.03	0.00	6.75
20.06	1.02	0.00	6.00
20.08	1.03	0.00	8.00
20.10	1.03	0.00	8.50
20.12	1.03	0.00	8.00
20.14	1.03	0.00	7.25
20.16	1.02	0.00	6.00
20.18	1.03	0.00	6.75
20.20	1.03	0.00	8.00
20.22	1.03	0.00	8.00
20.24	1.03	0.00	8.00
20.26	1.03	0.00	6.75
20.28	1.03	0.00	7.25
20.30	1.03	0.00	8.50
20.32	1.04	0.00	9.25
20.34	1.04	0.00	9.75
20.36	1.04	0.00	9.25
20.38	1.04	0.00	9.25
20.40	1.03	0.00	8.50
20.42	1.03	0.00	8.00
20.44	1.03	0.00	8.50
20.46	1.03	0.00	8.50
20.48	1.04	0.00	9.25
20.50	1.04	0.00	9.75
20.52	1.04	0.00	9.75
20.54	1.04	0.00	10.50
20.56	1.04	0.00	10.50
20.58	1.04	0.00	11.00
20.60	1.04	0.00	9.25
20.62	1.03	0.00	8.50
20.64	1.04	0.00	9.25
20.66	1.03	0.00	8.00
20.68	1.03	0.00	8.00
20.70	1.03	0.00	8.00
20.72	1.03	0.00	8.00
20.74	1.04	0.00	9.25
20.76	1.03	0.00	8.50
20.78	1.03	0.00	8.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
20.80	1.04	0.00	9.25
20.82	1.04	0.00	11.00
20.84	1.04	0.00	11.00
20.86	1.04	0.00	11.00
20.88	1.04	0.00	11.00
20.90	1.05	0.00	12.25
20.92	1.05	0.00	12.75
20.94	1.06	0.00	14.00
20.96	1.05	0.00	13.50
20.98	1.05	0.00	12.25
21.00	1.05	0.00	12.25
21.02	1.05	0.00	11.50
21.04	1.04	0.00	11.00
21.06	1.04	0.00	10.50
21.08	1.04	0.00	9.75
21.10	1.04	0.00	9.75
21.12	1.04	0.00	10.50
21.14	1.04	0.00	9.75
21.16	1.04	0.00	10.50
21.18	1.04	0.00	10.50
21.20	1.04	0.00	11.00
21.22	1.04	0.00	10.50
21.24	1.04	0.00	10.50
21.26	1.04	0.00	10.50
21.28	1.04	0.00	9.75
21.30	1.04	0.00	10.50
21.32	1.04	0.00	10.50
21.34	1.04	0.00	10.50
21.36	1.04	0.00	11.00
21.38	1.04	0.00	10.50
21.40	1.04	0.00	10.50
21.42	1.04	0.00	10.50
21.44	1.04	0.00	11.00
21.46	1.05	0.00	11.50
21.48	1.04	0.00	11.00
21.50	1.04	0.00	11.00
21.52	1.05	0.00	12.75
21.54	1.05	0.00	13.50
21.56	1.05	0.00	13.50
21.58	1.05	0.00	11.50
21.60	1.04	0.00	9.25
21.62	1.04	0.00	9.25
21.64	1.04	0.00	10.50
21.66	1.04	0.00	10.50
21.68	1.04	0.00	10.50
21.70	1.04	0.00	9.75
21.72	1.04	0.00	10.50
21.74	1.05	0.00	11.50
21.76	1.05	0.00	11.50
21.78	1.05	0.00	11.50
21.80	1.04	0.00	11.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
21.82	1.05	0.00	11.50
21.84	1.04	0.00	11.00
21.86	1.04	0.00	9.75
21.88	1.04	0.00	9.25
21.90	1.03	0.00	8.50
21.92	1.03	0.00	8.50
21.94	1.04	0.00	9.25
21.96	1.03	0.00	8.50
21.98	1.03	0.00	8.50
22.00	1.03	0.00	8.00
22.02	1.03	0.00	8.50
22.04	1.03	0.00	8.50
22.06	1.04	0.00	9.25
22.08	1.04	0.00	9.75
22.10	1.04	0.00	10.50
22.12	1.04	0.00	11.00
22.14	1.05	0.00	11.50
22.16	1.05	0.00	12.25
22.18	1.05	0.00	13.50
22.20	1.05	0.00	12.25
22.22	1.05	0.00	12.25
22.24	1.05	0.00	13.50
22.26	1.06	0.00	14.75
22.28	1.06	0.00	14.00
22.30	1.05	0.00	13.50
22.32	1.05	0.00	12.75
22.34	1.06	0.00	14.00
22.36	1.06	0.00	15.25
22.38	1.06	0.00	14.75
22.40	1.06	0.00	14.00
22.42	1.06	0.00	14.00
22.44	1.06	0.00	15.25
22.46	1.06	0.00	15.25
22.48	1.06	0.00	14.00
22.50	1.05	0.00	12.75
22.52	1.05	0.00	11.50
22.54	1.05	0.00	12.25
22.56	1.04	0.00	11.00
22.58	1.04	0.00	9.75
22.60	1.04	0.00	9.75
22.62	1.03	0.00	8.50
22.64	1.03	0.00	8.00
22.66	1.03	0.00	8.50
22.68	1.04	0.00	9.25
22.70	1.04	0.00	9.75
22.72	1.04	0.00	9.75
22.74	1.04	0.00	9.75
22.76	1.04	0.00	9.75
22.78	1.04	0.00	9.75
22.80	1.04	0.00	9.75
22.82	1.03	0.00	8.50
22.84	1.03	0.00	8.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
22.86	1.03	0.00	8.50
22.88	1.03	0.00	7.25
22.90	1.03	0.00	7.25
22.92	1.03	0.00	6.75
22.94	1.03	0.00	7.25
22.96	1.03	0.00	8.50
22.98	1.03	0.00	8.50
23.00	1.03	0.00	8.00
23.02	1.03	0.00	6.75
23.04	1.03	0.00	6.75
23.06	1.03	0.00	8.00
23.08	1.03	0.00	7.25
23.10	1.03	0.00	6.75
23.12	1.02	0.00	6.00
23.14	1.03	0.00	6.75
23.16	1.03	0.00	7.25
23.18	1.03	0.00	6.75
23.20	1.02	0.00	5.50
23.22	1.02	0.00	3.75
23.24	1.01	0.00	3.00
23.26	1.02	0.00	3.75
23.28	1.01	0.00	3.00
23.30	1.02	0.00	3.75
23.32	1.01	0.00	3.00
23.34	1.02	0.00	5.00
23.36	1.02	0.00	6.00
23.38	1.03	0.00	6.75
23.40	1.03	0.00	6.75
23.42	1.03	0.00	8.00
23.44	1.03	0.00	8.50
23.46	1.03	0.00	7.25
23.48	1.03	0.00	6.75
23.50	1.02	0.00	6.00
23.52	1.02	0.00	6.00
23.54	1.02	0.00	6.00
23.56	1.03	0.00	6.75
23.58	1.03	0.00	6.75
23.60	1.03	0.00	6.75
23.62	1.02	0.00	5.50
23.64	1.02	0.00	4.25
23.66	1.02	0.00	5.00
23.68	1.02	0.00	5.50
23.70	1.02	0.00	5.50
23.72	1.02	0.00	5.50
23.74	1.02	0.00	5.00
23.76	1.02	0.00	5.50
23.78	1.02	0.00	6.00
23.80	1.03	0.00	6.75
23.82	1.03	0.00	6.75
23.84	1.02	0.00	6.00
23.86	1.03	0.00	6.75
23.88	1.03	0.00	7.25

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
23.90	1.03	0.00	7.25
23.92	1.03	0.00	8.50
23.94	1.03	0.00	8.50
23.96	1.04	0.00	9.25
23.98	1.03	0.00	8.50
24.00	1.02	0.00	6.00
24.02	1.02	0.00	5.00
24.04	1.02	0.00	4.25
24.06	1.02	0.00	4.25
24.08	1.02	0.00	5.00
24.10	1.02	0.00	5.50
24.12	1.03	0.00	6.75
24.14	1.03	0.00	7.25
24.16	1.03	0.00	8.50
24.18	1.04	0.00	9.25
24.20	1.04	0.00	9.25
24.22	1.04	0.00	9.75
24.24	1.04	0.00	9.75
24.26	1.04	0.00	9.75
24.28	1.04	0.00	9.25
24.30	1.03	0.00	8.50
24.32	1.03	0.00	8.00
24.34	1.03	0.00	8.00
24.36	1.03	0.00	8.50
24.38	1.04	0.00	10.50
24.40	1.05	0.00	12.25
24.42	1.05	0.00	11.50
24.44	1.04	0.00	9.75
24.46	1.03	0.00	8.00
24.48	1.03	0.00	8.00
24.50	1.03	0.00	8.00
24.52	1.03	0.00	8.00
24.54	1.03	0.00	8.50
24.56	1.03	0.00	6.75
24.58	1.02	0.00	6.00
24.60	1.03	0.00	6.75
24.62	1.03	0.00	6.75
24.64	1.03	0.00	7.25
24.66	1.03	0.00	6.75
24.68	1.03	0.00	8.00
24.70	1.03	0.00	8.00
24.72	1.02	0.00	6.00
24.74	1.02	0.00	6.00
24.76	1.02	0.00	5.50
24.78	1.02	0.00	5.50
24.80	1.02	0.00	5.50
24.82	1.02	0.00	5.00
24.84	1.02	0.00	6.00
24.86	1.03	0.00	6.75
24.88	1.03	0.00	8.00
24.90	1.03	0.00	7.25
24.92	1.03	0.00	8.00

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 Att/Appx. E Sh ETS

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
24.94	1.03	0.00	8.50
24.96	1.03	0.00	8.00
24.98	1.03	0.00	8.00
25.00	1.03	0.00	7.25
25.02	1.03	0.00	7.25
25.04	1.03	0.00	8.50
25.06	1.03	0.00	8.00
25.08	1.03	0.00	7.25
25.10	1.03	0.00	8.00
25.12	1.04	0.00	9.25
25.14	1.04	0.00	9.25
25.16	1.04	0.00	9.25
25.18	1.03	0.00	7.25
25.20	1.03	0.00	8.00
25.22	1.03	0.00	8.50
25.24	1.03	0.00	8.50
25.26	1.03	0.00	8.50
25.28	1.03	0.00	7.25
25.30	1.03	0.00	8.00
25.32	1.03	0.00	8.50
25.34	1.03	0.00	8.50
25.36	1.03	0.00	8.50
25.38	1.03	0.00	8.00
25.40	1.03	0.00	8.50
25.42	1.04	0.00	9.25
25.44	1.03	0.00	8.00
25.46	1.03	0.00	8.50
25.48	1.03	0.00	8.50
25.50	1.03	0.00	8.50
25.52	1.04	0.00	9.75
25.54	1.04	0.00	9.75
25.56	1.04	0.00	10.50
25.58	1.04	0.00	9.75
25.60	1.04	0.00	9.75
25.62	1.03	0.00	8.50
25.64	1.03	0.00	8.50
25.66	1.04	0.00	9.25
25.68	1.03	0.00	8.00
25.70	1.03	0.00	7.25
25.72	1.03	0.00	8.00
25.74	1.03	0.00	8.00
25.76	1.03	0.00	8.00
25.78	1.03	0.00	7.25
25.80	1.03	0.00	7.25
25.82	1.04	0.00	9.25
25.84	1.05	0.00	12.25
25.86	1.05	0.00	11.50
25.88	1.04	0.00	10.50
25.90	1.03	0.00	8.50
25.92	1.04	0.00	9.25
25.94	1.04	0.00	9.25
25.96	1.04	0.00	9.25

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
25.98	1.03	0.00	8.50
26.00	1.03	0.00	7.25
26.02	1.03	0.00	8.00
26.04	1.03	0.00	8.50
26.06	1.03	0.00	8.50
26.08	1.03	0.00	8.00
26.10	1.03	0.00	7.25
26.12	1.03	0.00	8.50
26.14	1.03	0.00	8.00
26.16	1.03	0.00	8.00
26.18	1.03	0.00	8.50
26.20	1.03	0.00	8.00
26.22	1.03	0.00	8.50
26.24	1.03	0.00	8.50
26.26	1.03	0.00	8.00
26.28	1.03	0.00	8.00
26.30	1.03	0.00	8.00
26.32	1.03	0.00	8.00
26.34	1.03	0.00	7.25
26.36	1.03	0.00	7.25
26.38	1.03	0.00	8.00
26.40	1.03	0.00	8.00
26.42	1.04	0.00	9.75
26.44	1.04	0.00	10.50
26.46	1.04	0.00	9.75
26.48	1.04	0.00	10.50
26.50	1.04	0.00	9.75
26.52	1.04	0.00	10.50
26.54	1.04	0.00	11.00
26.56	1.05	0.00	12.25
26.58	1.05	0.00	11.50
26.60	1.04	0.00	10.50
26.62	1.04	0.00	9.75
26.64	1.04	0.00	10.50
26.66	1.04	0.00	11.00
26.68	1.04	0.00	9.75
26.70	1.04	0.00	9.25
26.72	1.04	0.00	9.25
26.74	1.04	0.00	10.50
26.76	1.05	0.00	12.25
26.78	1.05	0.00	12.25
26.80	1.05	0.00	11.50
26.82	1.04	0.00	11.00
26.84	1.05	0.00	11.50
26.86	1.04	0.00	11.00
26.88	1.04	0.00	9.25
26.90	1.04	0.00	9.75
26.92	1.04	0.00	10.50
26.94	1.04	0.00	11.00
26.96	1.05	0.00	12.25
26.98	1.05	0.00	12.25
27.00	1.05	0.00	12.75

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SECONDS		XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
	27.02	1.05	0.00	13.50
	27.04	1.05	0.00	12.75
	27.06	1.05	0.00	11.50
	27.08	1.04	0.00	11.00
	27.10	1.05	0.00	11.50
	27.12	1.04	0.00	11.00
	27.14	1.05	0.00	11.50
	27.16	1.05	0.00	12.25
	27.18	1.05	0.00	11.50
	27.20	1.05	0.00	11.50
	27.22	1.05	0.00	11.50
	27.24	1.05	0.00	11.50
	27.26	1.05	0.00	12.25
	27.28	1.05	0.00	12.75
	27.30	1.05	0.00	11.50
	27.32	1.04	0.00	11.00
	27.34	1.04	0.00	10.50
	27.36	1.04	0.00	11.00
	27.38	1.05	0.00	11.50
	27.40	1.05	0.00	11.50
	27.42	1.04	0.00	9.75
	27.44	1.04	0.00	9.25
	27.46	1.04	0.00	11.00
	27.48	1.05	0.00	13.50
	27.50	1.05	0.00	13.50
	27.52	1.05	0.00	12.25
	27.54	1.04	0.00	11.00
	27.56	1.04	0.00	10.50
	27.58	1.04	0.00	9.25
	27.60	1.03	0.00	8.00
	27.62	1.03	0.00	8.50
	27.64	1.04	0.00	9.75
	27.66	1.04	0.00	9.75
	27.68	1.04	0.00	9.25
	27.70	1.03	0.00	8.00
	27.72	1.03	0.00	8.00
	27.74	1.03	0.00	7.25
	27.76	1.03	0.00	8.00
	27.78	1.03	0.00	7.25
	27.80	1.03	0.00	7.25
	27.82	1.03	0.00	8.00
	27.84	1.04	0.00	9.25
	27.86	1.04	0.00	9.25
	27.88	1.03	0.00	8.50
	27.90	1.03	0.00	8.50
	27.92	1.04	0.00	9.25
	27.94	1.03	0.00	8.00
	27.96	1.03	0.00	8.50
	27.98	1.04	0.00	9.75
	28.00	1.04	0.00	9.75
	28.02	1.04	0.00	10.50
	28.04	1.04	0.00	9.75

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
28.06	1.04	0.00	9.75
28.08	1.04	0.00	10.50
28.10	1.04	0.00	10.50
28.12	1.04	0.00	9.75
28.14	1.04	0.00	9.25
28.16	1.04	0.00	9.25
28.18	1.04	0.00	9.75
28.20	1.04	0.00	11.00
28.22	1.04	0.00	10.50
28.24	1.04	0.00	9.25
28.26	1.04	0.00	9.75
28.28	1.04	0.00	9.75
28.30	1.03	0.00	8.00
28.32	1.03	0.00	8.00
28.34	1.03	0.00	8.00
28.36	1.03	0.00	8.50
28.38	1.04	0.00	9.25
28.40	1.03	0.00	8.50
28.42	1.03	0.00	8.50
28.44	1.03	0.00	8.50
28.46	1.03	0.00	8.50
28.48	1.03	0.00	8.00
28.50	1.03	0.00	8.00
28.52	1.04	0.00	9.25
28.54	1.04	0.00	9.25
28.56	1.04	0.00	9.25
28.58	1.04	0.00	9.25
28.60	1.03	0.00	8.50
28.62	1.03	0.00	8.50
28.64	1.04	0.00	9.25
28.66	1.03	0.00	8.00
28.68	1.03	0.00	8.50
28.70	1.04	0.00	9.75
28.72	1.04	0.00	9.75
28.74	1.04	0.00	9.75
28.76	1.03	0.00	8.50
28.78	1.03	0.00	7.25
28.80	1.03	0.00	8.50
28.82	1.03	0.00	8.50
28.84	1.04	0.00	9.25
28.86	1.04	0.00	9.25
28.88	1.04	0.00	9.25
28.90	1.04	0.00	9.25
28.92	1.03	0.00	8.00
28.94	1.02	0.00	6.00
28.96	1.02	0.00	3.75
28.98	1.01	0.00	3.00
29.00	1.02	0.00	3.75
29.02	1.01	0.00	1.75
29.04	1.01	0.00	2.50
29.06	1.01	0.00	1.75
29.08	1.01	0.00	1.75

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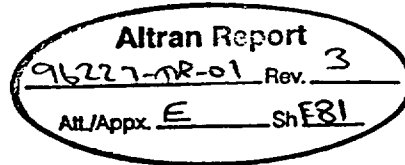
SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
29.10	1.01	0.00	3.00
29.12	1.02	0.00	3.75
29.14	1.02	0.00	5.00
29.16	1.02	0.00	5.00
29.18	1.03	0.00	6.75
29.20	1.02	0.00	6.00
29.22	1.02	0.00	6.00
29.24	1.02	0.00	6.00
29.26	1.02	0.00	6.00
29.28	1.02	0.00	6.00
29.30	1.02	0.00	6.00
29.32	1.02	0.00	6.00
29.34	1.02	0.00	6.00
29.36	1.02	0.00	5.50
29.38	1.02	0.00	5.50
29.40	1.03	0.00	6.75
29.42	1.03	0.00	7.25
29.44	1.03	0.00	6.75
29.46	1.02	0.00	6.00
29.48	1.02	0.00	5.00
29.50	1.02	0.00	6.00
29.52	1.02	0.00	6.00
29.54	1.02	0.00	5.50
29.56	1.02	0.00	5.50
29.58	1.02	0.00	5.00
29.60	1.02	0.00	6.00
29.62	1.03	0.00	7.25
29.64	1.03	0.00	6.75
29.66	1.02	0.00	6.00
29.68	1.02	0.00	5.00
29.70	1.02	0.00	5.50
29.72	1.02	0.00	6.00
29.74	1.02	0.00	5.50
29.76	1.03	0.00	6.75
29.78	1.03	0.00	6.75
29.80	1.03	0.00	8.00
29.82	1.03	0.00	8.00
29.84	1.03	0.00	7.25
29.86	1.03	0.00	6.75
29.88	1.02	0.00	5.50
29.90	1.02	0.00	5.50
29.92	1.02	0.00	4.25
29.94	1.02	0.00	5.00
29.96	1.02	0.00	6.00
29.98	1.03	0.00	6.75
30.00	1.03	0.00	7.25

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Attachment 4 to Calculation No. EF-S-010
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Data collected during step 5.4.17.3. ESM pump start following load reject test.
Data shows ESM pump start after coastdown to zero shaft revolutions. Service
water is cross connected to maintain system fill and pressure.

Test: STS KJ-001R STEP 5.4.17.3	
Run:	0.00
Device:	MB16
Channel:	1
Event:	1
First Sample:	40401.00
Last Sample:	41901.00
Trigger Date:	11-14-1991
Trigger Time:	00:08:11.91
X-Axis Units at First Sample:	808.00
Sample Separation:	0.02
X-Axis Units:	SECONDS
Y-Axis Upper Limit:	5.00
Y-Axis Lower Limit:	-5.00
Y-Axis Max Value:	1.34
Y-Axis Min Value:	0.98
Y-Axis Units:	VOLTS



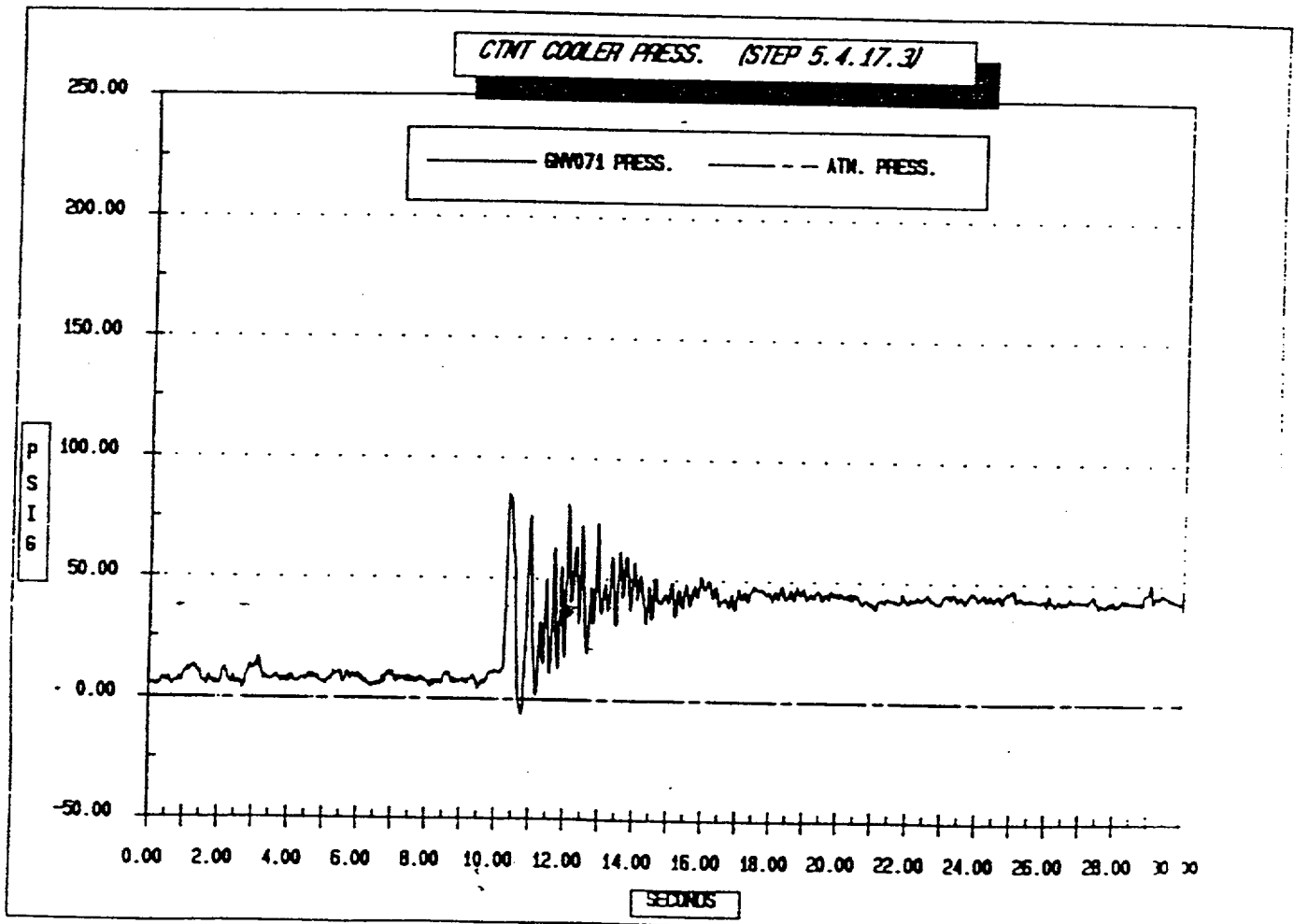
Attachment 5 to Calculation No. EF-S-010

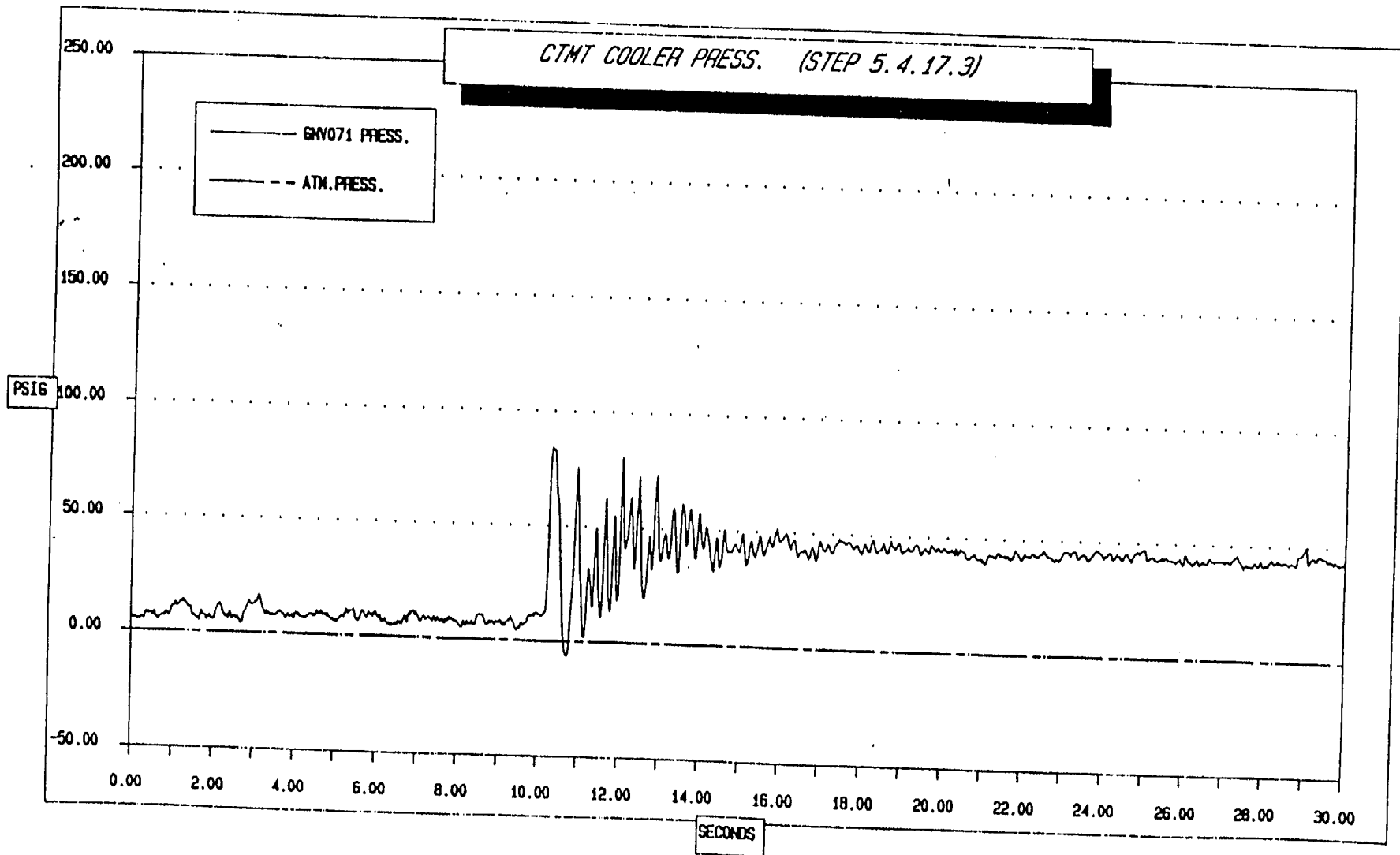
Calculation Revision No. 00

Originator: 41 Date: 5/1/92

Verified By: TD Date: 5/7/92

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SECONDS		XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
	0.00	1.02	0.00	6.00
	0.02	1.02	0.00	6.00
	0.04	1.02	0.00	5.50
	0.06	1.02	0.00	5.50
	0.08	1.02	0.00	6.00
	0.10	1.02	0.00	6.00
	0.12	1.02	0.00	5.50
	0.14	1.02	0.00	5.00
	0.16	1.02	0.00	5.00
	0.18	1.02	0.00	5.50
	0.20	1.02	0.00	5.00
	0.22	1.02	0.00	5.00
	0.24	1.02	0.00	6.00
	0.26	1.02	0.00	6.00
	0.28	1.02	0.00	6.00
	0.30	1.02	0.00	5.50
	0.32	1.02	0.00	6.00
	0.34	1.03	0.00	8.00
	0.36	1.03	0.00	8.50
	0.38	1.03	0.00	8.00
	0.40	1.03	0.00	7.25
	0.42	1.03	0.00	7.25
	0.44	1.03	0.00	8.00
	0.46	1.03	0.00	8.00
	0.48	1.03	0.00	7.25
	0.50	1.03	0.00	6.75
	0.52	1.03	0.00	7.25
	0.54	1.03	0.00	8.50
	0.56	1.03	0.00	8.00
	0.58	1.02	0.00	6.00
	0.60	1.02	0.00	6.00
	0.62	1.02	0.00	6.00
	0.64	1.02	0.00	5.00
	0.66	1.02	0.00	5.50
	0.68	1.02	0.00	6.00
	0.70	1.03	0.00	6.75
	0.72	1.03	0.00	6.75
	0.74	1.03	0.00	6.75
	0.76	1.03	0.00	6.75
	0.78	1.03	0.00	7.25
	0.80	1.03	0.00	6.75
	0.82	1.03	0.00	7.25
	0.84	1.03	0.00	8.50
	0.86	1.03	0.00	8.00
	0.88	1.03	0.00	8.00
	0.90	1.03	0.00	7.25
	0.92	1.03	0.00	6.75
	0.94	1.03	0.00	8.00
	0.96	1.04	0.00	9.75
	0.98	1.04	0.00	11.00
	1.00	1.04	0.00	11.00
	1.02	1.04	0.00	10.50

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Attachment 5 to Calculation No. EF-S-010
 Calculation Revision No. 00
 Sheet 3 of 3

SECONDS		XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
	1.04	1.04	0.00	11.00
	1.06	1.05	0.00	12.25
	1.08	1.05	0.00	12.75
	1.10	1.05	0.00	12.25
	1.12	1.04	0.00	11.00
	1.14	1.04	0.00	11.00
	1.16	1.05	0.00	11.50
	1.18	1.05	0.00	12.75
	1.20	1.05	0.00	13.50
	1.22	1.05	0.00	12.75
	1.24	1.05	0.00	13.50
	1.26	1.05	0.00	13.50
	1.28	1.05	0.00	12.75
	1.30	1.05	0.00	13.50
	1.32	1.05	0.00	12.25
	1.34	1.05	0.00	12.25
	1.36	1.05	0.00	11.50
	1.38	1.04	0.00	10.50
	1.40	1.04	0.00	10.50
	1.42	1.04	0.00	10.50
	1.44	1.04	0.00	11.00
	1.46	1.04	0.00	9.25
	1.48	1.03	0.00	7.25
	1.50	1.03	0.00	7.25
	1.52	1.03	0.00	6.75
	1.54	1.03	0.00	7.25
	1.56	1.03	0.00	6.75
	1.58	1.02	0.00	6.00
	1.60	1.02	0.00	6.00
	1.62	1.02	0.00	6.00
	1.64	1.02	0.00	5.00
	1.66	1.03	0.00	6.75
	1.68	1.03	0.00	8.50
	1.70	1.04	0.00	9.25
	1.72	1.03	0.00	8.50
	1.74	1.03	0.00	7.25
	1.76	1.03	0.00	7.25
	1.78	1.03	0.00	7.25
	1.80	1.03	0.00	7.25
	1.82	1.03	0.00	7.25
	1.84	1.02	0.00	5.50
	1.86	1.02	0.00	6.00
	1.88	1.03	0.00	7.25
	1.90	1.03	0.00	7.25
	1.92	1.03	0.00	7.25
	1.94	1.02	0.00	6.00
	1.96	1.02	0.00	6.00
	1.98	1.02	0.00	6.00
	2.00	1.02	0.00	5.50
	2.02	1.02	0.00	6.00
	2.04	1.03	0.00	6.75
	2.06	1.03	0.00	8.50

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
2.08	1.04	0.00	9.75
2.10	1.04	0.00	11.00
2.12	1.05	0.00	12.25
2.14	1.05	0.00	12.25
2.16	1.05	0.00	12.75
2.18	1.05	0.00	12.25
2.20	1.04	0.00	11.00
2.22	1.04	0.00	10.50
2.24	1.03	0.00	8.50
2.26	1.03	0.00	8.00
2.28	1.03	0.00	8.00
2.30	1.03	0.00	6.75
2.32	1.03	0.00	7.25
2.34	1.03	0.00	6.75
2.36	1.02	0.00	6.00
2.38	1.03	0.00	8.00
2.40	1.04	0.00	9.25
2.42	1.03	0.00	8.50
2.44	1.03	0.00	8.00
2.46	1.02	0.00	6.00
2.48	1.02	0.00	6.00
2.50	1.03	0.00	6.75
2.52	1.03	0.00	7.25
2.54	1.03	0.00	7.25
2.56	1.02	0.00	6.00
2.58	1.02	0.00	6.00
2.60	1.03	0.00	7.25
2.62	1.03	0.00	6.75
2.64	1.02	0.00	5.50
2.66	1.02	0.00	4.25
2.68	1.02	0.00	4.25
2.70	1.02	0.00	5.00
2.72	1.02	0.00	5.00
2.74	1.03	0.00	7.25
2.76	1.03	0.00	8.50
2.78	1.04	0.00	9.75
2.80	1.04	0.00	10.50
2.82	1.04	0.00	11.00
2.84	1.05	0.00	12.25
2.86	1.05	0.00	12.75
2.88	1.06	0.00	14.00
2.90	1.06	0.00	14.00
2.92	1.05	0.00	12.75
2.94	1.05	0.00	12.25
2.96	1.05	0.00	12.25
2.98	1.05	0.00	12.25
3.00	1.05	0.00	12.75
3.02	1.05	0.00	12.75
3.04	1.06	0.00	14.00
3.06	1.05	0.00	13.50
3.08	1.05	0.00	13.50
3.10	1.06	0.00	15.25

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 At/ Appx. E Sh. E-85

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
3.12	1.07	0.00	16.50
3.14	1.07	0.00	17.00
3.16	1.06	0.00	15.75
3.18	1.06	0.00	14.75
3.20	1.05	0.00	12.75
3.22	1.05	0.00	11.50
3.24	1.04	0.00	9.75
3.26	1.04	0.00	9.25
3.28	1.03	0.00	8.00
3.30	1.03	0.00	8.50
3.32	1.04	0.00	9.75
3.34	1.04	0.00	9.25
3.36	1.03	0.00	8.50
3.38	1.03	0.00	8.00
3.40	1.03	0.00	8.50
3.42	1.03	0.00	8.00
3.44	1.03	0.00	8.00
3.46	1.03	0.00	8.00
3.48	1.03	0.00	8.00
3.50	1.03	0.00	8.00
3.52	1.03	0.00	8.00
3.54	1.03	0.00	8.00
3.56	1.03	0.00	8.50
3.58	1.03	0.00	8.50
3.60	1.04	0.00	9.25
3.62	1.04	0.00	9.25
3.64	1.04	0.00	9.75
3.66	1.04	0.00	9.75
3.68	1.04	0.00	9.25
3.70	1.03	0.00	8.50
3.72	1.03	0.00	8.50
3.74	1.03	0.00	8.00
3.76	1.03	0.00	8.00
3.78	1.03	0.00	6.75
3.80	1.03	0.00	6.75
3.82	1.03	0.00	8.00
3.84	1.03	0.00	8.50
3.86	1.03	0.00	8.50
3.88	1.03	0.00	8.00
3.90	1.03	0.00	7.25
3.92	1.03	0.00	8.00
3.94	1.03	0.00	8.50
3.96	1.03	0.00	8.00
3.98	1.03	0.00	6.75
4.00	1.03	0.00	6.75
4.02	1.03	0.00	8.50
4.04	1.04	0.00	9.75
4.06	1.04	0.00	9.25
4.08	1.03	0.00	8.50
4.10	1.03	0.00	8.00
4.12	1.04	0.00	9.25
4.14	1.03	0.00	8.00

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 Att/Appx. E Sh E86

SECONDS		XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
	4.16	1.03	0.00	7.25
	4.18	1.03	0.00	7.25
	4.20	1.03	0.00	7.25
	4.22	1.03	0.00	7.25
	4.24	1.03	0.00	7.25
	4.26	1.03	0.00	6.75
	4.28	1.03	0.00	7.25
	4.30	1.03	0.00	7.25
	4.32	1.03	0.00	8.00
	4.34	1.03	0.00	8.00
	4.36	1.03	0.00	8.50
	4.38	1.03	0.00	8.50
	4.40	1.03	0.00	8.50
	4.42	1.03	0.00	8.50
	4.44	1.03	0.00	8.50
	4.46	1.03	0.00	8.00
	4.48	1.03	0.00	8.50
	4.50	1.03	0.00	8.00
	4.52	1.03	0.00	8.00
	4.54	1.04	0.00	9.25
	4.56	1.04	0.00	10.50
	4.58	1.04	0.00	9.75
	4.60	1.04	0.00	9.25
	4.62	1.03	0.00	8.50
	4.64	1.04	0.00	9.75
	4.66	1.04	0.00	10.50
	4.68	1.04	0.00	9.75
	4.70	1.03	0.00	8.50
	4.72	1.03	0.00	8.50
	4.74	1.04	0.00	9.25
	4.76	1.04	0.00	9.25
	4.78	1.03	0.00	8.50
	4.80	1.03	0.00	8.50
	4.82	1.03	0.00	8.00
	4.84	1.04	0.00	9.25
	4.86	1.03	0.00	8.00
	4.88	1.03	0.00	7.25
	4.90	1.03	0.00	7.25
	4.92	1.03	0.00	6.75
	4.94	1.03	0.00	7.25
	4.96	1.03	0.00	6.75
	4.98	1.03	0.00	6.75
	5.00	1.02	0.00	6.00
	5.02	1.03	0.00	6.75
	5.04	1.03	0.00	6.75
	5.06	1.02	0.00	6.00
	5.08	1.03	0.00	6.75
	5.10	1.03	0.00	7.25
	5.12	1.03	0.00	8.00
	5.14	1.03	0.00	8.00
	5.16	1.03	0.00	8.50
	5.18	1.03	0.00	8.50

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 At/Appx. E Sh E87

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
5.20	1.03	0.00	8.50
5.22	1.03	0.00	8.00
5.24	1.04	0.00	9.25
5.26	1.04	0.00	9.75
5.28	1.05	0.00	11.50
5.30	1.04	0.00	11.00
5.32	1.04	0.00	9.75
5.34	1.04	0.00	10.50
5.36	1.04	0.00	10.50
5.38	1.04	0.00	10.50
5.40	1.04	0.00	10.50
5.42	1.04	0.00	10.50
5.44	1.04	0.00	10.50
5.46	1.05	0.00	11.50
5.48	1.04	0.00	11.00
5.50	1.04	0.00	9.25
5.52	1.03	0.00	7.25
5.54	1.03	0.00	6.75
5.56	1.03	0.00	7.25
5.58	1.03	0.00	6.75
5.60	1.03	0.00	7.25
5.62	1.03	0.00	8.00
5.64	1.04	0.00	9.25
5.66	1.04	0.00	11.00
5.68	1.04	0.00	11.00
5.70	1.04	0.00	11.00
5.72	1.04	0.00	10.50
5.74	1.04	0.00	9.75
5.76	1.03	0.00	8.50
5.78	1.03	0.00	8.00
5.80	1.03	0.00	8.50
5.82	1.04	0.00	9.75
5.84	1.04	0.00	10.50
5.86	1.04	0.00	9.75
5.88	1.04	0.00	9.25
5.90	1.04	0.00	9.25
5.92	1.04	0.00	9.25
5.94	1.03	0.00	8.50
5.96	1.04	0.00	9.25
5.98	1.04	0.00	10.50
6.00	1.04	0.00	10.50
6.02	1.04	0.00	9.75
6.04	1.03	0.00	8.50
6.06	1.03	0.00	8.00
6.08	1.03	0.00	8.50
6.10	1.04	0.00	9.25
6.12	1.03	0.00	8.50
6.14	1.03	0.00	6.75
6.16	1.03	0.00	6.75
6.18	1.03	0.00	6.75
6.20	1.03	0.00	7.25
6.22	1.03	0.00	8.00

Altran Report
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 Att/Appx. E Sh E88

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
6.24	1.03	0.00	6.75
6.26	1.02	0.00	6.00
6.28	1.02	0.00	6.00
6.30	1.02	0.00	5.50
6.32	1.02	0.00	6.00
6.34	1.02	0.00	5.00
6.36	1.02	0.00	5.50
6.38	1.02	0.00	6.00
6.40	1.02	0.00	5.00
6.42	1.02	0.00	5.50
6.44	1.02	0.00	5.50
6.46	1.02	0.00	6.00
6.48	1.02	0.00	5.50
6.50	1.02	0.00	5.50
6.52	1.03	0.00	6.75
6.54	1.02	0.00	6.00
6.56	1.03	0.00	6.75
6.58	1.03	0.00	6.75
6.60	1.02	0.00	6.00
6.62	1.03	0.00	6.75
6.64	1.03	0.00	6.75
6.66	1.02	0.00	6.00
6.68	1.03	0.00	8.00
6.70	1.04	0.00	9.25
6.72	1.04	0.00	9.25
6.74	1.03	0.00	8.50
6.76	1.03	0.00	6.75
6.78	1.03	0.00	6.75
6.80	1.04	0.00	9.25
6.82	1.04	0.00	10.50
6.84	1.04	0.00	11.00
6.86	1.04	0.00	9.75
6.88	1.04	0.00	11.00
6.90	1.05	0.00	11.50
6.92	1.05	0.00	11.50
6.94	1.05	0.00	11.50
6.96	1.04	0.00	9.75
6.98	1.04	0.00	10.50
7.00	1.04	0.00	11.00
7.02	1.04	0.00	9.75
7.04	1.04	0.00	9.75
7.06	1.03	0.00	8.00
7.08	1.03	0.00	7.25
7.10	1.03	0.00	7.25
7.12	1.03	0.00	7.25
7.14	1.04	0.00	9.25
7.16	1.04	0.00	9.25
7.18	1.04	0.00	9.75
7.20	1.03	0.00	8.50
7.22	1.03	0.00	8.00
7.24	1.03	0.00	8.50
7.26	1.03	0.00	8.50

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 Att/Appx. E Sh. E89

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
7.28	1.03	0.00	8.50
7.30	1.04	0.00	9.25
7.32	1.03	0.00	8.50
7.34	1.03	0.00	8.50
7.36	1.03	0.00	8.00
7.38	1.03	0.00	7.25
7.40	1.03	0.00	8.50
7.42	1.04	0.00	9.75
7.44	1.04	0.00	9.25
7.46	1.03	0.00	8.00
7.48	1.03	0.00	7.25
7.50	1.03	0.00	8.00
7.52	1.04	0.00	9.25
7.54	1.03	0.00	8.50
7.56	1.03	0.00	8.00
7.58	1.03	0.00	7.25
7.60	1.03	0.00	8.00
7.62	1.03	0.00	8.50
7.64	1.03	0.00	8.00
7.66	1.03	0.00	7.25
7.68	1.03	0.00	6.75
7.70	1.03	0.00	7.25
7.72	1.03	0.00	8.50
7.74	1.03	0.00	8.00
7.76	1.03	0.00	8.50
7.78	1.03	0.00	8.00
7.80	1.04	0.00	9.25
7.82	1.04	0.00	9.25
7.84	1.03	0.00	8.50
7.86	1.03	0.00	8.50
7.88	1.03	0.00	8.00
7.90	1.03	0.00	8.50
7.92	1.03	0.00	8.00
7.94	1.03	0.00	8.00
7.96	1.03	0.00	8.00
7.98	1.03	0.00	7.25
8.00	1.03	0.00	7.25
8.02	1.03	0.00	7.25
8.04	1.02	0.00	6.00
8.06	1.02	0.00	6.00
8.08	1.02	0.00	5.00
8.10	1.02	0.00	5.50
8.12	1.03	0.00	6.75
8.14	1.03	0.00	8.00
8.16	1.03	0.00	7.25
8.18	1.03	0.00	6.75
8.20	1.02	0.00	6.00
8.22	1.03	0.00	7.25
8.24	1.03	0.00	8.00
8.26	1.03	0.00	7.25
8.28	1.03	0.00	6.75
8.30	1.03	0.00	6.75

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 At/ Appx. E Sh E90

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
8.32	1.03	0.00	7.25
8.34	1.03	0.00	8.00
8.36	1.03	0.00	7.25
8.38	1.03	0.00	6.75
8.40	1.03	0.00	6.75
8.42	1.03	0.00	7.25
8.44	1.03	0.00	6.75
8.46	1.03	0.00	8.00
8.48	1.04	0.00	9.75
8.50	1.04	0.00	10.50
8.52	1.04	0.00	11.00
8.54	1.04	0.00	11.00
8.56	1.04	0.00	10.50
8.58	1.04	0.00	10.50
8.60	1.04	0.00	11.00
8.62	1.04	0.00	11.00
8.64	1.04	0.00	10.50
8.66	1.04	0.00	9.25
8.68	1.03	0.00	8.50
8.70	1.03	0.00	7.25
8.72	1.03	0.00	6.75
8.74	1.03	0.00	6.75
8.76	1.03	0.00	7.25
8.78	1.03	0.00	8.50
8.80	1.03	0.00	7.25
8.82	1.03	0.00	7.25
8.84	1.03	0.00	8.00
8.86	1.03	0.00	8.00
8.88	1.03	0.00	8.00
8.90	1.03	0.00	7.25
8.92	1.03	0.00	6.75
8.94	1.03	0.00	8.00
8.96	1.03	0.00	8.00
8.98	1.03	0.00	8.00
9.00	1.03	0.00	8.00
9.02	1.03	0.00	8.00
9.04	1.03	0.00	8.50
9.06	1.03	0.00	8.50
9.08	1.03	0.00	7.25
9.10	1.03	0.00	6.75
9.12	1.03	0.00	6.75
9.14	1.03	0.00	8.00
9.16	1.03	0.00	6.75
9.18	1.03	0.00	6.75
9.20	1.03	0.00	8.00
9.22	1.03	0.00	8.50
9.24	1.03	0.00	8.50
9.26	1.03	0.00	8.50
9.28	1.04	0.00	9.25
9.30	1.04	0.00	9.75
9.32	1.04	0.00	10.50
9.34	1.04	0.00	9.75

Altran Report
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 Att/Appx. E Sh E91

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
9.36	1.03	0.00	8.50
9.38	1.03	0.00	8.50
9.40	1.03	0.00	8.00
9.42	1.03	0.00	6.75
9.44	1.02	0.00	5.00
9.46	1.02	0.00	4.25
9.48	1.02	0.00	5.00
9.50	1.02	0.00	6.00
9.52	1.02	0.00	5.50
9.54	1.02	0.00	5.50
9.56	1.03	0.00	6.75
9.58	1.03	0.00	8.00
9.60	1.03	0.00	8.00
9.62	1.03	0.00	7.25
9.64	1.03	0.00	6.75
9.66	1.03	0.00	7.25
9.68	1.03	0.00	8.00
9.70	1.03	0.00	8.00
9.72	1.03	0.00	8.00
9.74	1.04	0.00	9.25
9.76	1.04	0.00	10.50
9.78	1.05	0.00	11.50
9.80	1.04	0.00	11.00
9.82	1.04	0.00	11.00
9.84	1.04	0.00	11.00
9.86	1.05	0.00	11.50
9.88	1.05	0.00	11.50
9.90	1.04	0.00	11.00
9.92	1.05	0.00	12.25
9.94	1.05	0.00	12.25
9.96	1.05	0.00	12.25
9.98	1.05	0.00	12.25
10.00	1.05	0.00	11.50
10.02	1.05	0.00	11.50
10.04	1.05	0.00	11.50
10.06	1.05	0.00	11.50
10.08	1.04	0.00	11.00
10.10	1.04	0.00	11.00
10.12	1.05	0.00	11.50
10.14	1.05	0.00	11.50
10.16	1.05	0.00	12.75
10.18	1.05	0.00	12.75
10.20	1.06	0.00	14.00
10.22	1.08	0.00	19.00
10.24	1.12	0.00	29.25
10.26	1.19	0.00	46.50
10.28	1.27	0.00	67.25
10.30	1.32	0.00	80.50
10.32	1.34	0.00	84.75
10.34	1.34	0.00	83.75
10.36	1.33	0.00	83.00
10.38	1.34	0.00	83.75

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 Att/Appx. E ShE92

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
10.40	1.33	0.00	81.25
10.42	1.30	0.00	75.75
10.44	1.28	0.00	69.00
10.46	1.26	0.00	64.00
10.48	1.25	0.00	62.25
10.50	1.24	0.00	59.25
10.52	1.21	0.00	53.00
10.54	1.17	0.00	43.25
10.56	1.13	0.00	32.25
10.58	1.09	0.00	21.25
10.60	1.05	0.00	13.50
10.62	1.02	0.00	6.00
10.64	1.01	0.00	1.25
10.66	0.99	0.00	-1.82
10.68	0.99	0.00	-3.68
10.70	0.98	0.00	-5.50
10.72	0.98	0.00	-5.50
10.74	0.98	0.00	-6.10
10.76	0.98	0.00	-4.87
10.78	0.99	0.00	-1.82
10.80	1.02	0.00	4.25
10.82	1.05	0.00	12.25
10.84	1.08	0.00	20.25
10.86	1.12	0.00	30.00
10.88	1.17	0.00	42.75
10.90	1.23	0.00	57.50
10.92	1.28	0.00	70.25
10.94	1.31	0.00	76.25
10.96	1.29	0.00	73.25
10.98	1.25	0.00	63.50
11.00	1.21	0.00	52.00
11.02	1.16	0.00	40.25
11.04	1.13	0.00	31.25
11.06	1.09	0.00	22.50
11.08	1.06	0.00	15.25
11.10	1.04	0.00	9.25
11.12	1.02	0.00	5.00
11.14	1.01	0.00	2.50
11.16	1.01	0.00	2.50
11.18	1.02	0.00	5.50
11.20	1.05	0.00	12.75
11.22	1.09	0.00	22.50
11.24	1.12	0.00	30.50
11.26	1.13	0.00	32.25
11.28	1.12	0.00	30.00
11.30	1.10	0.00	23.75
11.32	1.07	0.00	18.25
11.34	1.06	0.00	15.25
11.36	1.06	0.00	15.75
11.38	1.10	0.00	23.75
11.40	1.15	0.00	37.25
11.42	1.19	0.00	48.25

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 At/ Appx. E Sh E93

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
11.44	1.20	0.00	50.00
11.46	1.18	0.00	44.00
11.48	1.13	0.00	33.50
11.50	1.10	0.00	24.50
11.52	1.07	0.00	16.50
11.54	1.05	0.00	12.25
11.56	1.04	0.00	11.00
11.58	1.06	0.00	15.75
11.60	1.11	0.00	26.25
11.62	1.18	0.00	44.50
11.64	1.24	0.00	60.50
11.66	1.25	0.00	63.00
11.68	1.22	0.00	54.25
11.70	1.16	0.00	41.00
11.72	1.12	0.00	28.75
11.74	1.08	0.00	20.75
11.76	1.06	0.00	15.25
11.78	1.05	0.00	13.50
11.80	1.07	0.00	17.00
11.82	1.12	0.00	29.25
11.84	1.18	0.00	45.75
11.86	1.22	0.00	55.50
11.88	1.22	0.00	55.00
11.90	1.18	0.00	45.75
11.92	1.14	0.00	34.25
11.94	1.10	0.00	23.75
11.96	1.07	0.00	18.25
11.98	1.08	0.00	20.75
12.00	1.15	0.00	36.75
12.02	1.26	0.00	64.75
12.04	1.33	0.00	81.25
12.06	1.32	0.00	78.75
12.08	1.26	0.00	66.00
12.10	1.21	0.00	53.00
12.12	1.18	0.00	44.00
12.14	1.16	0.00	41.00
12.16	1.17	0.00	41.50
12.18	1.18	0.00	44.00
12.20	1.19	0.00	47.50
12.22	1.21	0.00	52.00
12.24	1.23	0.00	58.00
12.26	1.25	0.00	63.00
12.28	1.25	0.00	63.50
12.30	1.24	0.00	59.25
12.32	1.21	0.00	51.25
12.34	1.17	0.00	42.00
12.36	1.14	0.00	34.75
12.38	1.13	0.00	32.25
12.40	1.15	0.00	36.75
12.42	1.20	0.00	49.50
12.44	1.26	0.00	65.25
12.46	1.29	0.00	72.75

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 Att./Appx. E Sh E94

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
12.48	1.27	0.00	68.50
12.50	1.23	0.00	57.50
12.52	1.18	0.00	45.75
12.54	1.14	0.00	34.75
12.56	1.11	0.00	28.00
12.58	1.09	0.00	23.25
12.60	1.08	0.00	20.25
12.62	1.08	0.00	19.50
12.64	1.09	0.00	21.25
12.66	1.11	0.00	26.75
12.68	1.14	0.00	34.75
12.70	1.17	0.00	42.75
12.72	1.19	0.00	47.00
12.74	1.19	0.00	46.50
12.76	1.16	0.00	41.00
12.78	1.14	0.00	36.00
12.80	1.13	0.00	32.25
12.82	1.14	0.00	34.25
12.84	1.17	0.00	42.75
12.86	1.23	0.00	58.50
12.88	1.29	0.00	72.00
12.90	1.30	0.00	73.75
12.92	1.27	0.00	67.25
12.94	1.23	0.00	56.25
12.96	1.19	0.00	46.50
12.98	1.16	0.00	39.75
13.00	1.15	0.00	36.75
13.02	1.14	0.00	36.00
13.04	1.15	0.00	37.75
13.06	1.16	0.00	40.25
13.08	1.17	0.00	43.25
13.10	1.19	0.00	46.50
13.12	1.19	0.00	48.25
13.14	1.19	0.00	47.50
13.16	1.18	0.00	44.00
13.18	1.16	0.00	40.25
13.20	1.15	0.00	38.50
13.22	1.15	0.00	37.25
13.24	1.15	0.00	38.50
13.26	1.17	0.00	42.00
13.28	1.20	0.00	48.75
13.30	1.23	0.00	56.25
13.32	1.24	0.00	59.75
13.34	1.23	0.00	58.00
13.36	1.21	0.00	52.00
13.38	1.18	0.00	44.50
13.40	1.15	0.00	38.50
13.42	1.13	0.00	33.50
13.44	1.13	0.00	31.25
13.46	1.13	0.00	31.75
13.48	1.15	0.00	37.75
13.50	1.19	0.00	47.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
13.52	1.23	0.00	56.25
13.54	1.25	0.00	61.75
13.56	1.24	0.00	61.00
13.58	1.23	0.00	58.00
13.60	1.21	0.00	53.00
13.62	1.19	0.00	47.00
13.64	1.17	0.00	43.25
13.66	1.18	0.00	44.00
13.68	1.19	0.00	48.25
13.70	1.22	0.00	54.25
13.72	1.23	0.00	58.50
13.74	1.24	0.00	59.75
13.76	1.23	0.00	57.50
13.78	1.22	0.00	54.25
13.80	1.20	0.00	50.00
13.82	1.18	0.00	45.25
13.84	1.16	0.00	41.00
13.86	1.15	0.00	37.75
13.88	1.15	0.00	37.75
13.90	1.16	0.00	41.00
13.92	1.18	0.00	45.75
13.94	1.21	0.00	53.00
13.96	1.23	0.00	57.50
13.98	1.23	0.00	57.50
14.00	1.21	0.00	53.00
14.02	1.20	0.00	49.50
14.04	1.18	0.00	45.25
14.06	1.17	0.00	42.00
14.08	1.17	0.00	42.75
14.10	1.19	0.00	46.50
14.12	1.20	0.00	49.50
14.14	1.21	0.00	52.00
14.16	1.20	0.00	50.75
14.18	1.20	0.00	49.50
14.20	1.19	0.00	47.50
14.22	1.18	0.00	45.75
14.24	1.17	0.00	42.75
14.26	1.16	0.00	39.00
14.28	1.14	0.00	35.50
14.30	1.13	0.00	33.00
14.32	1.13	0.00	32.25
14.34	1.14	0.00	34.75
14.36	1.16	0.00	39.00
14.38	1.18	0.00	44.50
14.40	1.19	0.00	47.50
14.42	1.19	0.00	46.50
14.44	1.17	0.00	42.75
14.46	1.15	0.00	37.75
14.48	1.14	0.00	34.25
14.50	1.14	0.00	34.75
14.52	1.15	0.00	37.75
14.54	1.17	0.00	43.25

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 Att/Appx. E Sh E96

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
14.56	1.19	0.00	48.25
14.58	1.20	0.00	50.75
14.60	1.20	0.00	50.75
14.62	1.19	0.00	47.50
14.64	1.18	0.00	44.50
14.66	1.17	0.00	42.00
14.68	1.16	0.00	41.00
14.70	1.17	0.00	41.50
14.72	1.16	0.00	41.00
14.74	1.16	0.00	41.00
14.76	1.16	0.00	41.00
14.78	1.16	0.00	41.00
14.80	1.17	0.00	42.00
14.82	1.17	0.00	43.25
14.84	1.18	0.00	44.00
14.86	1.18	0.00	44.50
14.88	1.18	0.00	44.50
14.90	1.18	0.00	44.50
14.92	1.17	0.00	43.25
14.94	1.17	0.00	42.00
14.96	1.16	0.00	41.00
14.98	1.16	0.00	41.00
15.00	1.17	0.00	43.25
15.02	1.19	0.00	46.50
15.04	1.20	0.00	48.75
15.06	1.20	0.00	49.50
15.08	1.19	0.00	47.00
15.10	1.18	0.00	44.00
15.12	1.16	0.00	41.00
15.14	1.15	0.00	37.25
15.16	1.14	0.00	35.50
15.18	1.14	0.00	36.00
15.20	1.15	0.00	38.50
15.22	1.17	0.00	42.00
15.24	1.18	0.00	45.25
15.26	1.19	0.00	46.50
15.28	1.18	0.00	45.75
15.30	1.18	0.00	44.00
15.32	1.17	0.00	42.00
15.34	1.16	0.00	40.25
15.36	1.16	0.00	39.75
15.38	1.16	0.00	39.00
15.40	1.16	0.00	41.00
15.42	1.17	0.00	43.25
15.44	1.19	0.00	46.50
15.46	1.19	0.00	48.25
15.48	1.20	0.00	48.75
15.50	1.19	0.00	47.50
15.52	1.18	0.00	45.75
15.54	1.17	0.00	43.25
15.56	1.16	0.00	41.00
15.58	1.16	0.00	40.25

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 Att/Appx. E ShE97

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
15.60	1.16	0.00	40.25
15.62	1.17	0.00	41.50
15.64	1.17	0.00	42.75
15.66	1.18	0.00	44.50
15.68	1.19	0.00	46.50
15.70	1.19	0.00	47.50
15.72	1.19	0.00	48.25
15.74	1.19	0.00	47.00
15.76	1.18	0.00	45.25
15.78	1.18	0.00	44.00
15.80	1.18	0.00	44.00
15.82	1.18	0.00	44.50
15.84	1.19	0.00	46.50
15.86	1.19	0.00	48.25
15.88	1.20	0.00	50.00
15.90	1.21	0.00	52.00
15.92	1.21	0.00	51.25
15.94	1.20	0.00	49.50
15.96	1.19	0.00	47.50
15.98	1.19	0.00	46.50
16.00	1.19	0.00	46.50
16.02	1.19	0.00	47.00
16.04	1.19	0.00	47.00
16.06	1.19	0.00	47.50
16.08	1.19	0.00	48.25
16.10	1.20	0.00	49.50
16.12	1.20	0.00	50.00
16.14	1.20	0.00	49.50
16.16	1.20	0.00	48.75
16.18	1.19	0.00	47.50
16.20	1.18	0.00	45.75
16.22	1.18	0.00	44.50
16.24	1.17	0.00	43.25
16.26	1.17	0.00	43.25
16.28	1.18	0.00	45.25
16.30	1.19	0.00	46.50
16.32	1.19	0.00	47.00
16.34	1.19	0.00	47.50
16.36	1.18	0.00	45.75
16.38	1.17	0.00	43.25
16.40	1.17	0.00	41.50
16.42	1.16	0.00	40.25
16.44	1.16	0.00	40.25
16.46	1.17	0.00	41.50
16.48	1.17	0.00	41.50
16.50	1.17	0.00	42.00
16.52	1.17	0.00	42.00
16.54	1.17	0.00	42.00
16.56	1.17	0.00	42.00
16.58	1.17	0.00	43.25
16.60	1.17	0.00	43.25
16.62	1.17	0.00	42.75

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 Att./Appx. E Sh E98

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
16.64	1.17	0.00	41.50
16.66	1.16	0.00	41.00
16.68	1.16	0.00	39.75
16.70	1.16	0.00	39.00
16.72	1.16	0.00	39.75
16.74	1.16	0.00	40.25
16.76	1.17	0.00	42.75
16.78	1.18	0.00	44.50
16.80	1.18	0.00	44.50
16.82	1.17	0.00	43.25
16.84	1.17	0.00	41.50
16.86	1.16	0.00	39.00
16.88	1.15	0.00	38.50
16.90	1.16	0.00	39.00
16.92	1.16	0.00	40.25
16.94	1.17	0.00	42.75
16.96	1.18	0.00	45.25
16.98	1.19	0.00	47.00
17.00	1.19	0.00	47.00
17.02	1.18	0.00	45.75
17.04	1.18	0.00	44.00
17.06	1.17	0.00	43.25
17.08	1.17	0.00	42.75
17.10	1.17	0.00	42.75
17.12	1.17	0.00	43.25
17.14	1.18	0.00	44.50
17.16	1.18	0.00	45.75
17.18	1.18	0.00	45.75
17.20	1.18	0.00	45.25
17.22	1.18	0.00	44.50
17.24	1.17	0.00	43.25
17.26	1.17	0.00	42.00
17.28	1.17	0.00	42.00
17.30	1.17	0.00	42.75
17.32	1.18	0.00	44.00
17.34	1.18	0.00	45.25
17.36	1.18	0.00	45.75
17.38	1.19	0.00	46.50
17.40	1.19	0.00	46.50
17.42	1.19	0.00	47.00
17.44	1.19	0.00	48.25
17.46	1.19	0.00	48.25
17.48	1.19	0.00	47.50
17.50	1.19	0.00	47.50
17.52	1.19	0.00	47.00
17.54	1.19	0.00	47.00
17.56	1.19	0.00	47.00
17.58	1.19	0.00	46.50
17.60	1.19	0.00	46.50
17.62	1.19	0.00	46.50
17.64	1.19	0.00	46.50
17.66	1.19	0.00	47.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
17.68	1.19	0.00	47.00
17.70	1.19	0.00	47.00
17.72	1.19	0.00	46.50
17.74	1.18	0.00	45.75
17.76	1.18	0.00	45.25
17.78	1.18	0.00	44.50
17.80	1.18	0.00	44.50
17.82	1.18	0.00	44.50
17.84	1.18	0.00	45.25
17.86	1.18	0.00	45.25
17.88	1.18	0.00	45.75
17.90	1.18	0.00	45.75
17.92	1.18	0.00	45.25
17.94	1.18	0.00	44.00
17.96	1.17	0.00	42.75
17.98	1.17	0.00	42.00
18.00	1.17	0.00	42.00
18.02	1.17	0.00	43.25
18.04	1.18	0.00	44.50
18.06	1.19	0.00	46.50
18.08	1.19	0.00	46.50
18.10	1.18	0.00	45.75
18.12	1.18	0.00	45.25
18.14	1.18	0.00	44.00
18.16	1.17	0.00	43.25
18.18	1.17	0.00	43.25
18.20	1.18	0.00	44.50
18.22	1.19	0.00	46.50
18.24	1.19	0.00	47.50
18.26	1.19	0.00	48.25
18.28	1.19	0.00	48.25
18.30	1.19	0.00	47.50
18.32	1.18	0.00	45.75
18.34	1.18	0.00	44.50
18.36	1.17	0.00	43.25
18.38	1.17	0.00	42.75
18.40	1.17	0.00	43.25
18.42	1.18	0.00	44.00
18.44	1.18	0.00	44.00
18.46	1.18	0.00	44.00
18.48	1.18	0.00	44.00
18.50	1.18	0.00	45.25
18.52	1.19	0.00	46.50
18.54	1.19	0.00	47.00
18.56	1.18	0.00	45.75
18.58	1.18	0.00	44.50
18.60	1.18	0.00	44.00
18.62	1.17	0.00	42.75
18.64	1.17	0.00	42.75
18.66	1.18	0.00	44.50
18.68	1.18	0.00	45.75
18.70	1.19	0.00	47.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
19.76	1.18	0.00	45.75
19.78	1.18	0.00	45.25
19.80	1.18	0.00	44.50
19.82	1.18	0.00	44.50
19.84	1.18	0.00	44.50
19.86	1.18	0.00	45.75
19.88	1.18	0.00	45.75
19.90	1.18	0.00	45.25
19.92	1.18	0.00	44.50
19.94	1.18	0.00	44.50
19.96	1.18	0.00	44.00
19.98	1.18	0.00	44.50
20.00	1.18	0.00	45.75
20.02	1.18	0.00	45.75
20.04	1.18	0.00	45.25
20.06	1.18	0.00	44.50
20.08	1.18	0.00	44.50
20.10	1.18	0.00	44.00
20.12	1.18	0.00	44.50
20.14	1.18	0.00	44.50
20.16	1.18	0.00	44.00
20.18	1.18	0.00	44.50
20.20	1.18	0.00	44.50
20.22	1.18	0.00	45.25
20.24	1.18	0.00	44.00
20.26	1.18	0.00	44.00
20.28	1.17	0.00	43.25
20.30	1.18	0.00	45.25
20.32	1.18	0.00	45.75
20.34	1.18	0.00	44.50
20.36	1.17	0.00	43.25
20.38	1.17	0.00	43.25
20.40	1.18	0.00	44.00
20.42	1.18	0.00	44.50
20.44	1.18	0.00	45.25
20.46	1.18	0.00	45.25
20.48	1.18	0.00	44.50
20.50	1.18	0.00	44.50
20.52	1.18	0.00	44.50
20.54	1.18	0.00	44.00
20.56	1.17	0.00	43.25
20.58	1.17	0.00	42.00
20.60	1.17	0.00	41.50
20.62	1.17	0.00	41.50
20.64	1.17	0.00	41.50
20.66	1.16	0.00	41.00
20.68	1.17	0.00	41.50
20.70	1.17	0.00	42.00
20.72	1.17	0.00	42.75
20.74	1.17	0.00	42.75
20.76	1.17	0.00	43.25
20.78	1.17	0.00	43.25

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
20.80	1.17	0.00	42.75
20.82	1.17	0.00	42.00
20.84	1.17	0.00	41.50
20.86	1.16	0.00	41.00
20.88	1.16	0.00	41.00
20.90	1.16	0.00	41.00
20.92	1.17	0.00	41.50
20.94	1.17	0.00	41.50
20.96	1.16	0.00	40.25
20.98	1.16	0.00	41.00
21.00	1.16	0.00	40.25
21.02	1.16	0.00	39.75
21.04	1.16	0.00	39.00
21.06	1.16	0.00	39.75
21.08	1.16	0.00	40.25
21.10	1.17	0.00	41.50
21.12	1.17	0.00	42.75
21.14	1.17	0.00	43.25
21.16	1.17	0.00	43.25
21.18	1.17	0.00	43.25
21.20	1.17	0.00	42.75
21.22	1.17	0.00	43.25
21.24	1.17	0.00	42.75
21.26	1.17	0.00	42.75
21.28	1.17	0.00	42.00
21.30	1.17	0.00	42.00
21.32	1.17	0.00	42.00
21.34	1.17	0.00	43.25
21.36	1.18	0.00	44.00
21.38	1.18	0.00	44.00
21.40	1.18	0.00	44.00
21.42	1.17	0.00	43.25
21.44	1.17	0.00	43.25
21.46	1.17	0.00	43.25
21.48	1.17	0.00	43.25
21.50	1.17	0.00	42.75
21.52	1.17	0.00	42.75
21.54	1.17	0.00	43.25
21.56	1.17	0.00	42.75
21.58	1.17	0.00	42.00
21.60	1.17	0.00	42.75
21.62	1.17	0.00	42.75
21.64	1.17	0.00	42.00
21.66	1.17	0.00	41.50
21.68	1.17	0.00	41.50
21.70	1.17	0.00	42.00
21.72	1.17	0.00	42.00
21.74	1.17	0.00	42.00
21.76	1.17	0.00	43.25
21.78	1.18	0.00	45.25
21.80	1.18	0.00	45.75

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 Att/Appx. F Sh 102

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
21.82	1.18	0.00	45.25
21.84	1.18	0.00	44.50
21.86	1.18	0.00	44.00
21.88	1.17	0.00	43.25
21.90	1.17	0.00	42.75
21.92	1.17	0.00	42.00
21.94	1.17	0.00	41.50
21.96	1.17	0.00	41.50
21.98	1.17	0.00	42.00
22.00	1.17	0.00	42.75
22.02	1.18	0.00	44.00
22.04	1.18	0.00	44.00
22.06	1.17	0.00	43.25
22.08	1.17	0.00	43.25
22.10	1.17	0.00	43.25
22.12	1.17	0.00	43.25
22.14	1.17	0.00	43.25
22.16	1.17	0.00	42.75
22.18	1.17	0.00	42.75
22.20	1.18	0.00	44.00
22.22	1.18	0.00	44.50
22.24	1.18	0.00	44.50
22.26	1.18	0.00	44.00
22.28	1.18	0.00	44.00
22.30	1.17	0.00	43.25
22.32	1.17	0.00	43.25
22.34	1.17	0.00	43.25
22.36	1.17	0.00	43.25
22.38	1.17	0.00	43.25
22.40	1.18	0.00	44.00
22.42	1.18	0.00	44.00
22.44	1.18	0.00	44.50
22.46	1.18	0.00	44.50
22.48	1.18	0.00	44.50
22.50	1.18	0.00	45.75
22.52	1.18	0.00	45.75
22.54	1.18	0.00	44.50
22.56	1.18	0.00	44.50
22.58	1.18	0.00	44.00
22.60	1.17	0.00	43.25
22.62	1.17	0.00	43.25
22.64	1.17	0.00	43.25
22.66	1.17	0.00	42.75
22.68	1.17	0.00	43.25
22.70	1.17	0.00	42.75
22.72	1.17	0.00	42.00
22.74	1.17	0.00	41.50
22.76	1.17	0.00	41.50
22.78	1.17	0.00	42.00
22.80	1.17	0.00	42.00
22.82	1.17	0.00	42.00
22.84	1.17	0.00	42.00

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Att./Appx. E Sh E103

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
22.86	1.17	0.00	41.50
22.88	1.17	0.00	41.50
22.90	1.17	0.00	42.00
22.92	1.17	0.00	42.75
22.94	1.17	0.00	43.25
22.96	1.18	0.00	44.00
22.98	1.18	0.00	44.50
23.00	1.18	0.00	45.25
23.02	1.18	0.00	45.25
23.04	1.18	0.00	45.25
23.06	1.18	0.00	45.25
23.08	1.18	0.00	45.25
23.10	1.18	0.00	45.25
23.12	1.18	0.00	45.25
23.14	1.18	0.00	44.50
23.16	1.18	0.00	44.00
23.18	1.18	0.00	44.00
23.20	1.18	0.00	45.25
23.22	1.18	0.00	45.25
23.24	1.18	0.00	45.75
23.26	1.18	0.00	45.75
23.28	1.18	0.00	45.75
23.30	1.18	0.00	45.75
23.32	1.18	0.00	44.50
23.34	1.17	0.00	43.25
23.36	1.17	0.00	42.75
23.38	1.17	0.00	42.75
23.40	1.17	0.00	43.25
23.42	1.18	0.00	44.00
23.44	1.18	0.00	44.00
23.46	1.18	0.00	44.50
23.48	1.18	0.00	44.50
23.50	1.18	0.00	44.50
23.52	1.18	0.00	44.00
23.54	1.18	0.00	44.00
23.56	1.17	0.00	42.75
23.58	1.17	0.00	42.00
23.60	1.17	0.00	42.00
23.62	1.17	0.00	42.00
23.64	1.17	0.00	42.75
23.66	1.17	0.00	43.25
23.68	1.18	0.00	44.00
23.70	1.18	0.00	44.00
23.72	1.18	0.00	45.25
23.74	1.18	0.00	45.25
23.76	1.18	0.00	45.25
23.78	1.19	0.00	46.50
23.80	1.19	0.00	46.50
23.82	1.19	0.00	46.50
23.84	1.19	0.00	46.50
23.86	1.18	0.00	45.75
23.88	1.18	0.00	45.25

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
23.90	1.18	0.00	45.25
23.92	1.18	0.00	45.25
23.94	1.18	0.00	44.50
23.96	1.18	0.00	44.00
23.98	1.17	0.00	43.25
24.00	1.17	0.00	43.25
24.02	1.18	0.00	44.00
24.04	1.18	0.00	44.00
24.06	1.18	0.00	44.00
24.08	1.18	0.00	44.50
24.10	1.18	0.00	45.25
24.12	1.18	0.00	45.75
24.14	1.18	0.00	45.75
24.16	1.18	0.00	45.25
24.18	1.18	0.00	44.00
24.20	1.17	0.00	42.75
24.22	1.17	0.00	42.75
24.24	1.17	0.00	43.25
24.26	1.17	0.00	43.25
24.28	1.18	0.00	44.00
24.30	1.18	0.00	44.50
24.32	1.18	0.00	45.25
24.34	1.18	0.00	44.50
24.36	1.18	0.00	44.50
24.38	1.18	0.00	44.00
24.40	1.17	0.00	43.25
24.42	1.17	0.00	42.75
24.44	1.17	0.00	42.75
24.46	1.17	0.00	43.25
24.48	1.18	0.00	44.00
24.50	1.18	0.00	44.50
24.52	1.18	0.00	45.25
24.54	1.18	0.00	45.25
24.56	1.18	0.00	45.25
24.58	1.18	0.00	45.25
24.60	1.18	0.00	44.00
24.62	1.17	0.00	43.25
24.64	1.17	0.00	42.75
24.66	1.17	0.00	42.00
24.68	1.17	0.00	42.75
24.70	1.18	0.00	44.00
24.72	1.18	0.00	44.50
24.74	1.18	0.00	45.25
24.76	1.18	0.00	45.75
24.78	1.18	0.00	45.75
24.80	1.19	0.00	46.50
24.82	1.19	0.00	46.50
24.84	1.18	0.00	45.75
24.86	1.18	0.00	45.75
24.88	1.19	0.00	46.50
24.90	1.19	0.00	46.50
24.92	1.19	0.00	47.00

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 Att./Appx. E Sh E105

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
24.94	1.19	0.00	47.00
24.96	1.19	0.00	47.50
24.98	1.19	0.00	47.50
25.00	1.19	0.00	47.50
25.02	1.19	0.00	46.50
25.04	1.18	0.00	45.25
25.06	1.17	0.00	43.25
25.08	1.17	0.00	43.25
25.10	1.17	0.00	43.25
25.12	1.18	0.00	44.00
25.14	1.18	0.00	44.00
25.16	1.18	0.00	44.50
25.18	1.18	0.00	44.50
25.20	1.18	0.00	44.00
25.22	1.18	0.00	44.00
25.24	1.18	0.00	44.00
25.26	1.17	0.00	43.25
25.28	1.17	0.00	42.75
25.30	1.17	0.00	42.75
25.32	1.17	0.00	42.75
25.34	1.17	0.00	43.25
25.36	1.17	0.00	43.25
25.38	1.17	0.00	43.25
25.40	1.17	0.00	43.25
25.42	1.18	0.00	44.00
25.44	1.18	0.00	44.00
25.46	1.17	0.00	43.25
25.48	1.17	0.00	43.25
25.50	1.18	0.00	44.00
25.52	1.18	0.00	44.00
25.54	1.18	0.00	44.00
25.56	1.17	0.00	43.25
25.58	1.17	0.00	43.25
25.60	1.17	0.00	43.25
25.62	1.17	0.00	43.25
25.64	1.17	0.00	43.25
25.66	1.17	0.00	43.25
25.68	1.17	0.00	42.75
25.70	1.17	0.00	42.75
25.72	1.17	0.00	42.75
25.74	1.17	0.00	42.75
25.76	1.17	0.00	42.00
25.78	1.17	0.00	42.75
25.80	1.17	0.00	42.75
25.82	1.17	0.00	43.25
25.84	1.17	0.00	43.25
25.86	1.17	0.00	43.25
25.88	1.18	0.00	44.00
25.90	1.17	0.00	43.25
25.92	1.17	0.00	42.00
25.94	1.17	0.00	41.50
25.96	1.16	0.00	41.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
25.98	1.17	0.00	42.75
26.00	1.18	0.00	45.25
26.02	1.18	0.00	45.75
26.04	1.18	0.00	45.25
26.06	1.18	0.00	44.00
26.08	1.17	0.00	42.75
26.10	1.17	0.00	42.75
26.12	1.17	0.00	42.75
26.14	1.17	0.00	42.75
26.16	1.17	0.00	42.00
26.18	1.17	0.00	42.00
26.20	1.16	0.00	41.00
26.22	1.17	0.00	41.50
26.24	1.17	0.00	42.00
26.26	1.17	0.00	42.75
26.28	1.17	0.00	43.25
26.30	1.18	0.00	44.00
26.32	1.17	0.00	43.25
26.34	1.17	0.00	42.75
26.36	1.17	0.00	41.50
26.38	1.17	0.00	41.50
26.40	1.17	0.00	42.00
26.42	1.17	0.00	42.00
26.44	1.17	0.00	42.75
26.46	1.17	0.00	43.25
26.48	1.17	0.00	42.00
26.50	1.17	0.00	42.00
26.52	1.17	0.00	42.00
26.54	1.17	0.00	42.00
26.56	1.17	0.00	42.00
26.58	1.17	0.00	43.25
26.60	1.18	0.00	44.00
26.62	1.18	0.00	44.50
26.64	1.18	0.00	44.50
26.66	1.18	0.00	44.00
26.68	1.17	0.00	43.25
26.70	1.17	0.00	43.25
26.72	1.17	0.00	42.75
26.74	1.17	0.00	42.75
26.76	1.17	0.00	43.25
26.78	1.17	0.00	43.25
26.80	1.17	0.00	43.25
26.82	1.17	0.00	43.25
26.84	1.17	0.00	43.25
26.86	1.17	0.00	43.25
26.88	1.17	0.00	43.25
26.90	1.17	0.00	43.25
26.92	1.17	0.00	43.25
26.94	1.17	0.00	43.25
26.96	1.17	0.00	43.25
26.98	1.17	0.00	42.75
27.00	1.17	0.00	42.75

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
27.02	1.17	0.00	42.75
27.04	1.17	0.00	43.25
27.06	1.17	0.00	43.25
27.08	1.17	0.00	43.25
27.10	1.17	0.00	43.25
27.12	1.17	0.00	43.25
27.14	1.17	0.00	42.00
27.16	1.17	0.00	42.75
27.18	1.17	0.00	43.25
27.20	1.18	0.00	44.00
27.22	1.18	0.00	44.00
27.24	1.18	0.00	44.50
27.26	1.18	0.00	44.50
27.28	1.18	0.00	45.25
27.30	1.18	0.00	45.75
27.32	1.18	0.00	45.75
27.34	1.18	0.00	45.25
27.36	1.18	0.00	44.50
27.38	1.17	0.00	43.25
27.40	1.17	0.00	42.75
27.42	1.17	0.00	42.75
27.44	1.17	0.00	42.00
27.46	1.16	0.00	41.00
27.48	1.16	0.00	40.25
27.50	1.16	0.00	41.00
27.52	1.17	0.00	41.50
27.54	1.17	0.00	42.00
27.56	1.17	0.00	42.00
27.58	1.17	0.00	41.50
27.60	1.17	0.00	41.50
27.62	1.17	0.00	41.50
27.64	1.16	0.00	41.00
27.66	1.16	0.00	41.00
27.68	1.16	0.00	41.00
27.70	1.16	0.00	41.00
27.72	1.17	0.00	42.00
27.74	1.17	0.00	42.75
27.76	1.17	0.00	43.25
27.78	1.17	0.00	42.75
27.80	1.17	0.00	42.00
27.82	1.17	0.00	41.50
27.84	1.17	0.00	41.50
27.86	1.17	0.00	42.00
27.88	1.17	0.00	43.25
27.90	1.18	0.00	44.00
27.92	1.17	0.00	43.25
27.94	1.17	0.00	42.00
27.96	1.17	0.00	41.50
27.98	1.16	0.00	41.00
28.00	1.17	0.00	41.50
28.02	1.17	0.00	42.00
28.04	1.17	0.00	41.50

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
28.06	1.17	0.00	42.00
28.08	1.17	0.00	41.50
28.10	1.17	0.00	42.00
28.12	1.17	0.00	43.25
28.14	1.18	0.00	44.00
28.16	1.18	0.00	44.50
28.18	1.18	0.00	44.50
28.20	1.18	0.00	44.00
28.22	1.17	0.00	43.25
28.24	1.17	0.00	42.75
28.26	1.17	0.00	42.75
28.28	1.17	0.00	43.25
28.30	1.18	0.00	44.00
28.32	1.17	0.00	43.25
28.34	1.18	0.00	44.00
28.36	1.17	0.00	43.25
28.38	1.17	0.00	43.25
28.40	1.17	0.00	42.75
28.42	1.17	0.00	42.75
28.44	1.17	0.00	42.75
28.46	1.17	0.00	42.75
28.48	1.17	0.00	43.25
28.50	1.17	0.00	43.25
28.52	1.17	0.00	43.25
28.54	1.17	0.00	43.25
28.56	1.17	0.00	42.75
28.58	1.17	0.00	42.00
28.60	1.17	0.00	42.00
28.62	1.17	0.00	42.75
28.64	1.17	0.00	42.75
28.66	1.17	0.00	43.25
28.68	1.17	0.00	43.25
28.70	1.17	0.00	43.25
28.72	1.17	0.00	42.75
28.74	1.17	0.00	42.00
28.76	1.17	0.00	42.00
28.78	1.17	0.00	42.00
28.80	1.17	0.00	43.25
28.82	1.18	0.00	45.25
28.84	1.19	0.00	46.50
28.86	1.19	0.00	46.50
28.88	1.19	0.00	46.50
28.90	1.19	0.00	46.50
28.92	1.19	0.00	46.50
28.94	1.19	0.00	47.00
28.96	1.19	0.00	47.50
28.98	1.20	0.00	48.75
29.00	1.20	0.00	49.50
29.02	1.20	0.00	50.75
29.04	1.19	0.00	48.25
29.06	1.18	0.00	45.75
29.08	1.17	0.00	43.25

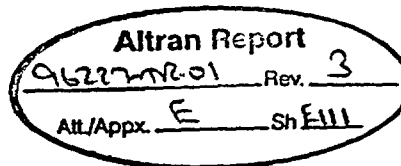
Altran REPORT
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 Att Appx. E Sh E104

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
29.10	1.17	0.00	42.75
29.12	1.18	0.00	44.00
29.14	1.18	0.00	44.50
29.16	1.18	0.00	45.25
29.18	1.18	0.00	45.25
29.20	1.18	0.00	45.25
29.22	1.18	0.00	45.25
29.24	1.18	0.00	44.50
29.26	1.18	0.00	44.50
29.28	1.18	0.00	44.50
29.30	1.18	0.00	45.25
29.32	1.19	0.00	46.50
29.34	1.19	0.00	46.50
29.36	1.19	0.00	46.50
29.38	1.19	0.00	46.50
29.40	1.18	0.00	45.75
29.42	1.18	0.00	45.75
29.44	1.18	0.00	45.25
29.46	1.18	0.00	45.25
29.48	1.18	0.00	45.25
29.50	1.18	0.00	45.25
29.52	1.18	0.00	45.25
29.54	1.18	0.00	44.00
29.56	1.18	0.00	44.00
29.58	1.18	0.00	44.00
29.60	1.18	0.00	44.50
29.62	1.18	0.00	44.50
29.64	1.18	0.00	44.50
29.66	1.18	0.00	44.00
29.68	1.17	0.00	43.25
29.70	1.17	0.00	43.25
29.72	1.18	0.00	44.00
29.74	1.18	0.00	44.00
29.76	1.18	0.00	44.00
29.78	1.17	0.00	43.25
29.80	1.17	0.00	43.25
29.82	1.17	0.00	43.25
29.84	1.17	0.00	43.25
29.86	1.17	0.00	42.00
29.88	1.17	0.00	42.75
29.90	1.17	0.00	42.75
29.92	1.17	0.00	43.25
29.94	1.17	0.00	43.25
29.96	1.17	0.00	43.25
29.98	1.18	0.00	44.50
30.00	1.18	0.00	45.25

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 Alt. Appx. E Sh. 110

Data collected during step 5.4.11. loss of offsite power without SI. Data shows ESM pump shutdown during load shed and restarted by the Shutdown Sequencer. Service water is cross connected to maintain system fill and

Title: STS KJ-0012 STEP 5.4.11	
Run:	0
Device:	MB16
Channel:	1
Event:	1
First Sample:	10024
Last Sample:	12274
Trigger Date:	11-14-1991
Trigger Time:	00:08:11.91
X-Axis Units at First Sample:	200.5
Sample Separation:	0.02
X-Axis Units:	SECONDS
Y-Axis Upper Limit:	5
Y-Axis Lower Limit:	-5
Y-Axis Max Value:	1.718
Y-Axis Min Value:	0.9194
Y-Axis Units:	VOLTS



Attachment 3 to Calculation No. EF-S-010

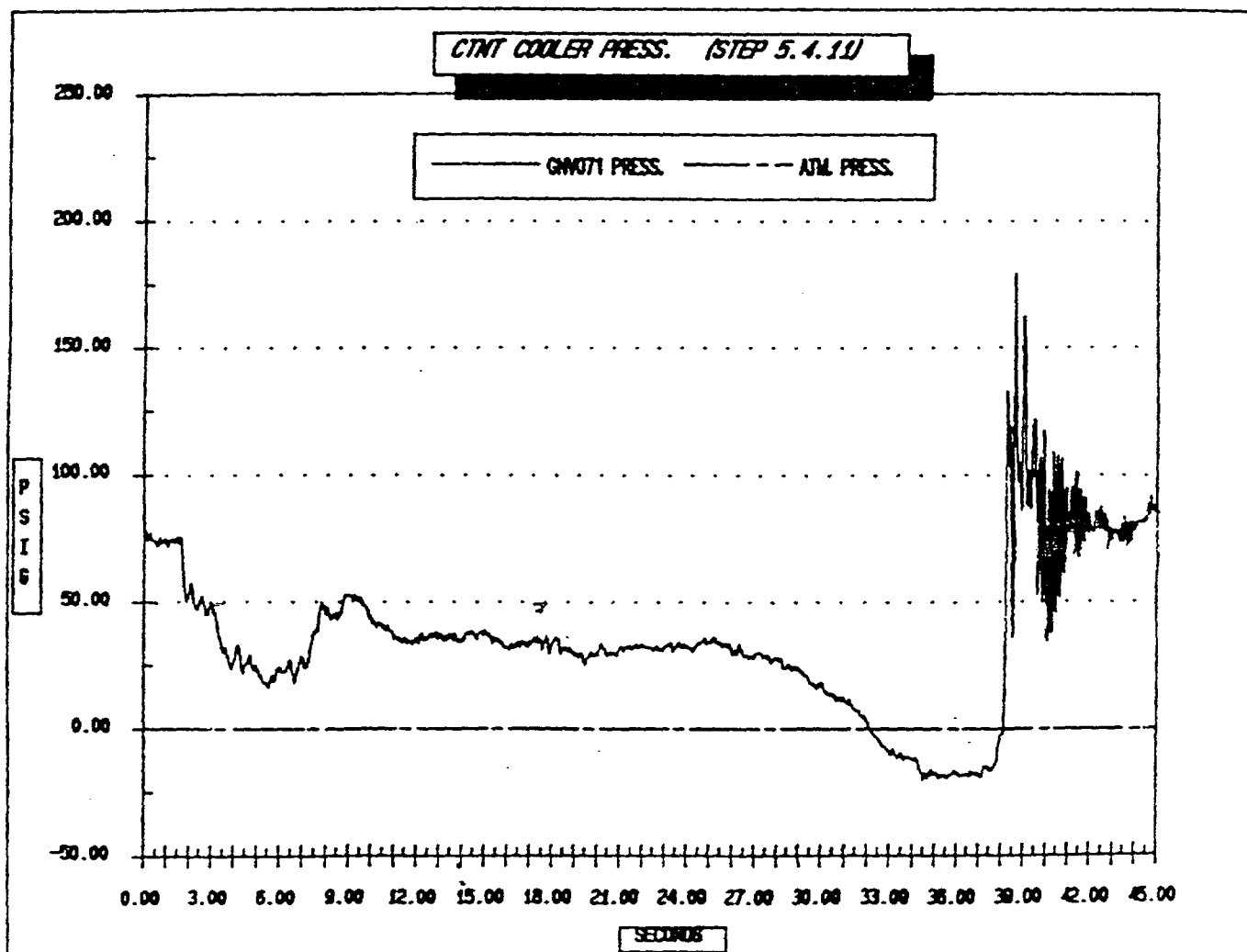
Calculation Revision No. 00

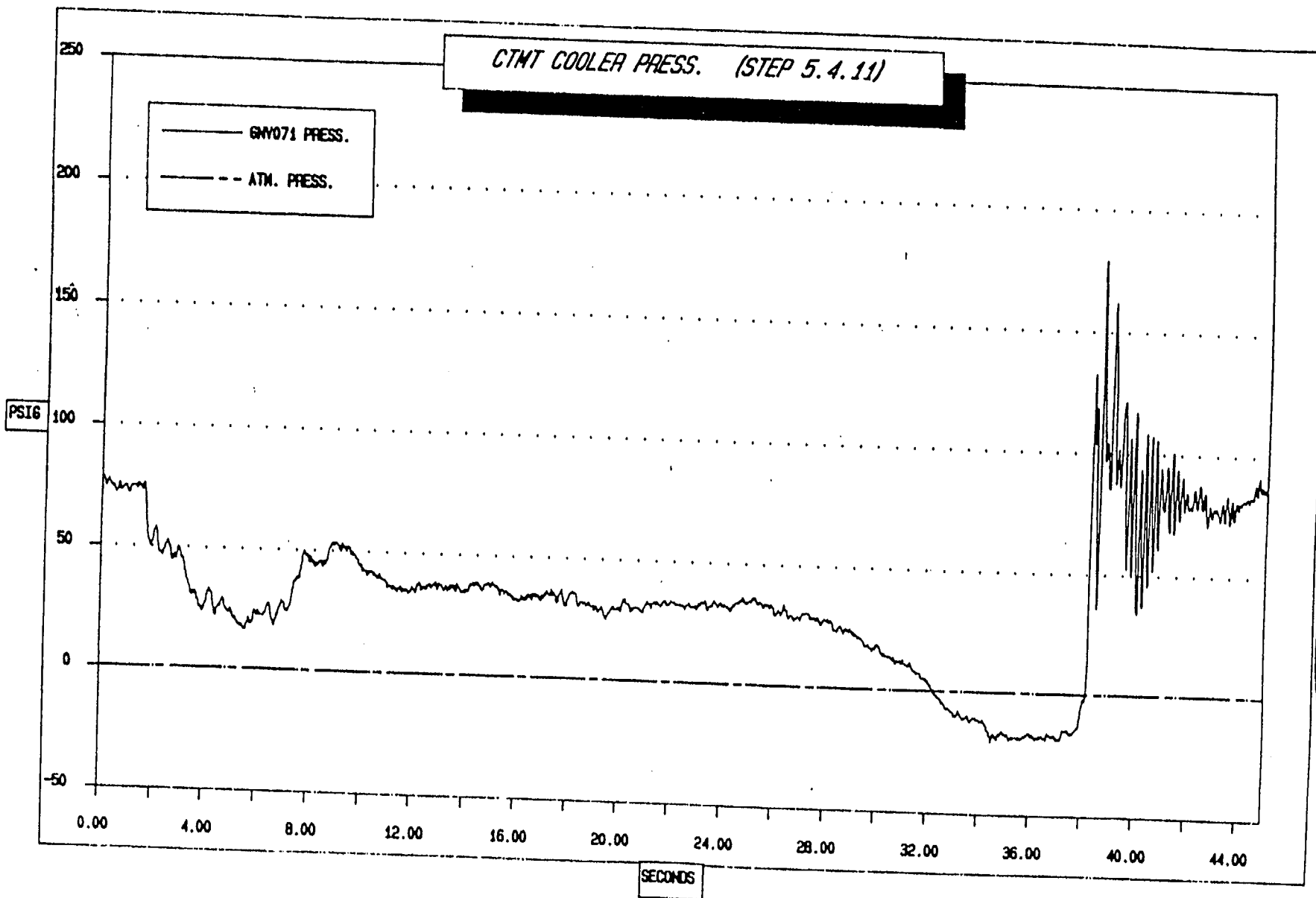
Originator:

Date: 5/4/92

Verified By: JJA Date: 5/7/92

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Alt/APPX E Sh E112

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
0.00	1.31	0.00	78.25
0.02	1.31	0.00	78.25
0.04	1.31	0.00	78.25
0.06	1.31	0.00	77.50
0.08	1.31	0.00	77.00
0.10	1.31	0.00	76.25
0.12	1.30	0.00	75.00
0.14	1.30	0.00	74.50
0.16	1.30	0.00	75.00
0.18	1.30	0.00	75.75
0.20	1.31	0.00	76.25
0.22	1.31	0.00	77.00
0.24	1.31	0.00	77.00
0.26	1.31	0.00	77.50
0.28	1.31	0.00	76.25
0.30	1.30	0.00	75.75
0.32	1.30	0.00	75.00
0.34	1.30	0.00	74.50
0.36	1.30	0.00	74.50
0.38	1.30	0.00	74.50
0.40	1.30	0.00	74.50
0.42	1.30	0.00	74.50
0.44	1.30	0.00	73.75
0.46	1.30	0.00	74.50
0.48	1.30	0.00	73.75
0.50	1.29	0.00	73.25
0.52	1.29	0.00	72.75
0.54	1.29	0.00	72.00
0.56	1.29	0.00	72.00
0.58	1.29	0.00	72.75
0.60	1.29	0.00	72.75
0.62	1.29	0.00	72.75
0.64	1.30	0.00	74.50
0.66	1.30	0.00	75.75
0.68	1.30	0.00	75.75
0.70	1.30	0.00	74.50
0.72	1.29	0.00	73.25
0.74	1.29	0.00	73.25
0.76	1.29	0.00	73.25
0.78	1.29	0.00	73.25
0.80	1.30	0.00	73.75
0.82	1.30	0.00	73.75
0.84	1.30	0.00	73.75
0.86	1.30	0.00	74.50
0.88	1.30	0.00	75.00
0.90	1.30	0.00	75.00
0.92	1.30	0.00	74.50
0.94	1.30	0.00	74.50
0.96	1.30	0.00	75.00
0.98	1.30	0.00	73.75
1.00	1.29	0.00	72.75
1.02	1.29	0.00	72.00

Altran Report
96237-TE.d Rev. 3
 Att/Appx. E Sh EN3

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
1.04	1.29	0.00	72.00
1.06	1.29	0.00	72.00
1.08	1.29	0.00	72.00
1.10	1.29	0.00	73.25
1.12	1.30	0.00	73.75
1.14	1.30	0.00	75.00
1.16	1.30	0.00	75.00
1.18	1.30	0.00	74.50
1.20	1.30	0.00	75.00
1.22	1.30	0.00	74.50
1.24	1.30	0.00	74.50
1.26	1.30	0.00	75.00
1.28	1.30	0.00	75.00
1.30	1.30	0.00	75.00
1.32	1.30	0.00	75.00
1.34	1.30	0.00	73.75
1.36	1.30	0.00	73.75
1.38	1.30	0.00	75.00
1.40	1.30	0.00	75.75
1.42	1.30	0.00	75.75
1.44	1.30	0.00	75.00
1.46	1.30	0.00	74.50
1.48	1.30	0.00	75.00
1.50	1.30	0.00	75.00
1.52	1.30	0.00	73.75
1.54	1.29	0.00	73.25
1.56	1.30	0.00	73.75
1.58	1.30	0.00	75.00
1.60	1.30	0.00	75.75
1.62	1.30	0.00	75.75
1.64	1.30	0.00	74.50
1.66	1.29	0.00	73.25
1.68	1.28	0.00	70.75
1.70	1.27	0.00	66.50
1.72	1.25	0.00	63.00
1.74	1.24	0.00	59.75
1.76	1.23	0.00	58.00
1.78	1.22	0.00	55.50
1.80	1.22	0.00	53.75
1.82	1.21	0.00	52.50
1.84	1.21	0.00	52.00
1.86	1.21	0.00	51.25
1.88	1.20	0.00	50.75
1.90	1.20	0.00	50.00
1.92	1.21	0.00	51.25
1.94	1.21	0.00	51.25
1.96	1.21	0.00	52.00
1.98	1.21	0.00	53.00
2.00	1.22	0.00	54.25
2.02	1.22	0.00	55.00
2.04	1.23	0.00	56.75
2.06	1.23	0.00	56.75

Altran Report
 96227-TR-01 Rev. 3
 At/Appx. E Sh E114

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
2.08	1.23	0.00	57.50
2.10	1.23	0.00	58.00
2.12	1.23	0.00	57.50
2.14	1.23	0.00	56.75
2.16	1.22	0.00	54.25
2.18	1.21	0.00	52.50
2.20	1.21	0.00	51.25
2.22	1.20	0.00	49.50
2.24	1.20	0.00	48.75
2.26	1.19	0.00	47.50
2.28	1.19	0.00	47.50
2.30	1.19	0.00	47.50
2.32	1.19	0.00	47.50
2.34	1.19	0.00	47.00
2.36	1.19	0.00	46.50
2.38	1.19	0.00	46.50
2.40	1.19	0.00	47.50
2.42	1.19	0.00	48.25
2.44	1.20	0.00	48.75
2.46	1.20	0.00	49.50
2.48	1.20	0.00	50.75
2.50	1.20	0.00	50.75
2.52	1.21	0.00	51.25
2.54	1.21	0.00	52.00
2.56	1.21	0.00	52.50
2.58	1.21	0.00	52.50
2.60	1.21	0.00	51.25
2.62	1.20	0.00	50.75
2.64	1.20	0.00	50.00
2.66	1.20	0.00	49.50
2.68	1.19	0.00	48.25
2.70	1.19	0.00	46.50
2.72	1.18	0.00	45.25
2.74	1.18	0.00	44.50
2.76	1.18	0.00	45.25
2.78	1.18	0.00	45.75
2.80	1.19	0.00	46.50
2.82	1.19	0.00	47.00
2.84	1.19	0.00	46.50
2.86	1.18	0.00	45.75
2.88	1.18	0.00	45.25
2.90	1.19	0.00	47.00
2.92	1.19	0.00	48.25
2.94	1.20	0.00	49.50
2.96	1.20	0.00	50.00
2.98	1.20	0.00	48.75
3.00	1.20	0.00	48.75
3.02	1.20	0.00	49.50
3.04	1.19	0.00	48.25
3.06	1.19	0.00	47.00
3.08	1.18	0.00	45.75
3.10	1.18	0.00	45.25

Altran Report
 94227-M-01 Rev. 3
 Att/Appx. E ShE115

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
3.12	1.18	0.00	45.75
3.14	1.18	0.00	45.75
3.16	1.18	0.00	45.25
3.18	1.18	0.00	44.00
3.20	1.17	0.00	42.75
3.22	1.16	0.00	41.00
3.24	1.16	0.00	39.75
3.26	1.16	0.00	40.25
3.28	1.15	0.00	38.50
3.30	1.15	0.00	37.75
3.32	1.15	0.00	36.75
3.34	1.14	0.00	36.00
3.36	1.14	0.00	35.50
3.38	1.14	0.00	34.75
3.40	1.14	0.00	34.25
3.42	1.13	0.00	33.50
3.44	1.13	0.00	31.75
3.46	1.13	0.00	31.75
3.48	1.12	0.00	30.50
3.50	1.12	0.00	30.00
3.52	1.12	0.00	30.50
3.54	1.13	0.00	31.75
3.56	1.13	0.00	31.75
3.58	1.13	0.00	31.75
3.60	1.12	0.00	30.50
3.62	1.13	0.00	31.75
3.64	1.13	0.00	31.75
3.66	1.13	0.00	31.25
3.68	1.12	0.00	30.00
3.70	1.12	0.00	28.75
3.72	1.11	0.00	28.00
3.74	1.12	0.00	28.75
3.76	1.11	0.00	27.50
3.78	1.11	0.00	26.25
3.80	1.10	0.00	25.00
3.82	1.10	0.00	25.00
3.84	1.10	0.00	25.75
3.86	1.10	0.00	25.00
3.88	1.10	0.00	24.50
3.90	1.10	0.00	23.75
3.92	1.10	0.00	23.75
3.94	1.10	0.00	23.75
3.96	1.10	0.00	24.50
3.98	1.11	0.00	26.25
4.00	1.11	0.00	26.25
4.02	1.11	0.00	26.75
4.04	1.11	0.00	27.50
4.06	1.11	0.00	28.00
4.08	1.12	0.00	30.00
4.10	1.12	0.00	30.50
4.12	1.13	0.00	31.75
4.14	1.13	0.00	33.00

Altran Report
94227-SR-01 Rev. 3
 Att/Appx. E Sh ENG

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
4.16	1.13	0.00	32.25
4.18	1.13	0.00	33.00
4.20	1.13	0.00	31.75
4.22	1.13	0.00	31.25
4.24	1.13	0.00	31.75
4.26	1.13	0.00	31.25
4.28	1.12	0.00	30.00
4.30	1.12	0.00	28.75
4.32	1.11	0.00	26.75
4.34	1.10	0.00	25.00
4.36	1.10	0.00	24.50
4.38	1.09	0.00	22.50
4.40	1.09	0.00	22.50
4.42	1.09	0.00	22.00
4.44	1.09	0.00	23.25
4.46	1.10	0.00	24.50
4.48	1.10	0.00	25.00
4.50	1.10	0.00	25.00
4.52	1.10	0.00	25.75
4.54	1.11	0.00	26.25
4.56	1.11	0.00	26.25
4.58	1.10	0.00	25.75
4.60	1.11	0.00	26.25
4.62	1.11	0.00	27.50
4.64	1.11	0.00	28.00
4.66	1.12	0.00	28.75
4.68	1.12	0.00	29.25
4.70	1.12	0.00	29.25
4.72	1.12	0.00	28.75
4.74	1.11	0.00	27.50
4.76	1.11	0.00	26.25
4.78	1.10	0.00	25.75
4.80	1.10	0.00	25.00
4.82	1.10	0.00	24.50
4.84	1.10	0.00	24.50
4.86	1.10	0.00	24.50
4.88	1.09	0.00	23.25
4.90	1.10	0.00	23.75
4.92	1.09	0.00	23.25
4.94	1.09	0.00	23.25
4.96	1.10	0.00	23.75
4.98	1.10	0.00	25.00
5.00	1.10	0.00	25.00
5.02	1.10	0.00	24.50
5.04	1.09	0.00	23.25
5.06	1.09	0.00	22.50
5.08	1.09	0.00	23.25
5.10	1.09	0.00	21.25
5.12	1.08	0.00	20.75
5.14	1.08	0.00	20.75
5.16	1.09	0.00	21.25
5.18	1.09	0.00	21.25

Altran Report
 96227-NR-01 Rev. 3
 Att. Appx. E Sh. E17

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
5.20	1.08	0.00	20.75
5.22	1.08	0.00	20.25
5.24	1.08	0.00	19.50
5.26	1.08	0.00	19.50
5.28	1.08	0.00	19.00
5.30	1.07	0.00	18.25
5.32	1.07	0.00	18.25
5.34	1.07	0.00	18.25
5.36	1.07	0.00	18.25
5.38	1.07	0.00	17.75
5.40	1.07	0.00	17.75
5.42	1.07	0.00	18.25
5.44	1.07	0.00	18.25
5.46	1.07	0.00	18.25
5.48	1.07	0.00	17.00
5.50	1.07	0.00	17.00
5.52	1.07	0.00	16.50
5.54	1.07	0.00	16.50
5.56	1.07	0.00	16.50
5.58	1.07	0.00	16.50
5.60	1.07	0.00	17.75
5.62	1.08	0.00	19.00
5.64	1.08	0.00	19.00
5.66	1.08	0.00	20.25
5.68	1.09	0.00	21.25
5.70	1.09	0.00	21.25
5.72	1.08	0.00	20.25
5.74	1.08	0.00	19.00
5.76	1.08	0.00	19.00
5.78	1.08	0.00	19.50
5.80	1.08	0.00	19.00
5.82	1.08	0.00	19.00
5.84	1.08	0.00	19.50
5.86	1.08	0.00	20.75
5.88	1.09	0.00	23.25
5.90	1.10	0.00	23.75
5.92	1.10	0.00	24.50
5.94	1.09	0.00	23.25
5.96	1.09	0.00	23.25
5.98	1.10	0.00	23.75
6.00	1.09	0.00	22.50
6.02	1.09	0.00	22.50
6.04	1.10	0.00	23.75
6.06	1.10	0.00	24.50
6.08	1.09	0.00	23.25
6.10	1.09	0.00	23.25
6.12	1.09	0.00	22.50
6.14	1.09	0.00	22.50
6.16	1.09	0.00	22.50
6.18	1.09	0.00	22.50
6.20	1.09	0.00	22.50
6.22	1.09	0.00	22.50

Altran Report
 96227-DR-01 Rev. 3
 Att/Appx. E Sh E118

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
6.24	1.09	0.00	22.50
6.26	1.09	0.00	22.50
6.28	1.09	0.00	22.50
6.30	1.09	0.00	23.25
6.32	1.09	0.00	23.25
6.34	1.10	0.00	23.75
6.36	1.10	0.00	24.50
6.38	1.10	0.00	25.75
6.40	1.11	0.00	26.25
6.42	1.11	0.00	27.50
6.44	1.11	0.00	27.50
6.46	1.11	0.00	27.50
6.48	1.11	0.00	27.50
6.50	1.11	0.00	26.25
6.52	1.10	0.00	25.00
6.54	1.10	0.00	23.75
6.56	1.09	0.00	22.00
6.58	1.09	0.00	21.25
6.60	1.08	0.00	20.75
6.62	1.08	0.00	20.25
6.64	1.08	0.00	19.50
6.66	1.07	0.00	18.25
6.68	1.07	0.00	18.25
6.70	1.08	0.00	19.50
6.72	1.08	0.00	20.75
6.74	1.09	0.00	21.25
6.76	1.09	0.00	22.00
6.78	1.09	0.00	23.25
6.80	1.09	0.00	22.50
6.82	1.09	0.00	23.25
6.84	1.10	0.00	24.50
6.86	1.10	0.00	25.75
6.88	1.11	0.00	26.25
6.90	1.11	0.00	26.75
6.92	1.11	0.00	26.75
6.94	1.12	0.00	28.75
6.96	1.11	0.00	28.00
6.98	1.11	0.00	28.00
7.00	1.11	0.00	28.00
7.02	1.11	0.00	28.00
7.04	1.11	0.00	27.50
7.06	1.11	0.00	26.25
7.08	1.10	0.00	25.00
7.10	1.10	0.00	24.50
7.12	1.10	0.00	24.50
7.14	1.10	0.00	24.50
7.16	1.10	0.00	24.50
7.18	1.10	0.00	24.50
7.20	1.10	0.00	25.00
7.22	1.10	0.00	25.75
7.24	1.11	0.00	26.25
7.26	1.11	0.00	26.75

Altran Report

96227-01 Rev. 3
 Att/Appx. E Sh E119

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
7.28	1.11	0.00	26.75
7.30	1.12	0.00	28.75
7.32	1.12	0.00	30.50
7.34	1.13	0.00	32.25
7.36	1.13	0.00	33.50
7.38	1.13	0.00	33.50
7.40	1.14	0.00	35.50
7.42	1.15	0.00	36.75
7.44	1.15	0.00	36.75
7.46	1.15	0.00	36.75
7.48	1.15	0.00	36.75
7.50	1.15	0.00	37.75
7.52	1.15	0.00	38.50
7.54	1.15	0.00	37.75
7.56	1.16	0.00	39.00
7.58	1.16	0.00	39.00
7.60	1.16	0.00	39.00
7.62	1.15	0.00	38.50
7.64	1.16	0.00	39.00
7.66	1.16	0.00	41.00
7.68	1.17	0.00	42.00
7.70	1.18	0.00	44.00
7.72	1.18	0.00	45.25
7.74	1.18	0.00	45.75
7.76	1.19	0.00	48.25
7.78	1.20	0.00	48.75
7.80	1.20	0.00	48.75
7.82	1.20	0.00	50.00
7.84	1.20	0.00	49.50
7.86	1.20	0.00	48.75
7.88	1.19	0.00	48.25
7.90	1.19	0.00	47.50
7.92	1.19	0.00	47.50
7.94	1.19	0.00	48.25
7.96	1.19	0.00	48.25
7.98	1.19	0.00	47.50
8.00	1.18	0.00	45.25
8.02	1.18	0.00	45.25
8.04	1.19	0.00	47.00
8.06	1.19	0.00	47.50
8.08	1.19	0.00	47.00
8.10	1.18	0.00	45.25
8.12	1.18	0.00	45.75
8.14	1.18	0.00	45.75
8.16	1.18	0.00	44.50
8.18	1.18	0.00	45.25
8.20	1.18	0.00	44.00
8.22	1.17	0.00	43.25
8.24	1.17	0.00	43.25
8.26	1.18	0.00	44.00
8.28	1.18	0.00	44.50
8.30	1.18	0.00	44.00

Altran Report
 96227MR-01 Rev. 3
 Att/Approx. E ShE120

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
8.32	1.18	0.00	44.50
8.34	1.18	0.00	44.00
8.36	1.18	0.00	45.25
8.38	1.18	0.00	45.25
8.40	1.18	0.00	45.25
8.42	1.18	0.00	45.75
8.44	1.18	0.00	45.75
8.46	1.18	0.00	45.25
8.48	1.18	0.00	45.75
8.50	1.18	0.00	44.00
8.52	1.17	0.00	43.25
8.54	1.18	0.00	44.00
8.56	1.18	0.00	45.75
8.58	1.18	0.00	45.75
8.60	1.18	0.00	45.75
8.62	1.18	0.00	44.50
8.64	1.18	0.00	45.25
8.66	1.18	0.00	45.75
8.68	1.18	0.00	45.75
8.70	1.19	0.00	46.50
8.72	1.19	0.00	47.50
8.74	1.20	0.00	48.75
8.76	1.20	0.00	50.75
8.78	1.21	0.00	51.25
8.80	1.21	0.00	51.25
8.82	1.21	0.00	51.25
8.84	1.21	0.00	52.50
8.86	1.21	0.00	53.00
8.88	1.21	0.00	52.50
8.90	1.21	0.00	53.00
8.92	1.21	0.00	52.50
8.94	1.21	0.00	52.50
8.96	1.21	0.00	53.00
8.98	1.21	0.00	52.50
9.00	1.21	0.00	53.00
9.02	1.21	0.00	53.00
9.04	1.21	0.00	53.00
9.06	1.21	0.00	53.00
9.08	1.21	0.00	53.00
9.10	1.21	0.00	52.50
9.12	1.21	0.00	52.50
9.14	1.21	0.00	52.00
9.16	1.21	0.00	52.00
9.18	1.20	0.00	50.75
9.20	1.21	0.00	51.25
9.22	1.20	0.00	50.00
9.24	1.20	0.00	50.75
9.26	1.21	0.00	52.00
9.28	1.21	0.00	53.00
9.30	1.21	0.00	52.50
9.32	1.21	0.00	52.00
9.34	1.21	0.00	51.25

Altran Report

96227-0001 Rev. 3

Att/Appx. E Sh E121

Attachment 3 to Calculation No. EF-S-010
Calculation Revision No. 00
Sheet 11 of 46

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
9.36	1.21	0.00	52.00
9.38	1.21	0.00	52.00
9.40	1.21	0.00	51.25
9.42	1.20	0.00	50.75
9.44	1.20	0.00	50.00
9.46	1.21	0.00	51.25
9.48	1.21	0.00	52.00
9.50	1.21	0.00	51.25
9.52	1.21	0.00	52.00
9.54	1.21	0.00	51.25
9.56	1.21	0.00	51.25
9.58	1.20	0.00	50.75
9.60	1.20	0.00	48.75
9.62	1.20	0.00	48.75
9.64	1.20	0.00	48.75
9.66	1.20	0.00	48.75
9.68	1.20	0.00	49.50
9.70	1.20	0.00	48.75
9.72	1.19	0.00	48.25
9.74	1.19	0.00	48.25
9.76	1.19	0.00	48.25
9.78	1.19	0.00	47.50
9.80	1.19	0.00	47.00
9.82	1.19	0.00	47.00
9.84	1.19	0.00	46.50
9.86	1.19	0.00	46.50
9.88	1.18	0.00	45.75
9.90	1.18	0.00	44.50
9.92	1.18	0.00	44.00
9.94	1.18	0.00	44.00
9.96	1.18	0.00	44.00
9.98	1.18	0.00	44.50
10.00	1.18	0.00	44.50
10.02	1.18	0.00	44.00
10.04	1.17	0.00	42.00
10.06	1.17	0.00	42.75
10.08	1.17	0.00	42.75
10.10	1.17	0.00	42.75
10.12	1.17	0.00	42.00
10.14	1.17	0.00	41.50
10.16	1.17	0.00	41.50
10.18	1.17	0.00	42.00
10.20	1.17	0.00	42.00
10.22	1.17	0.00	41.50
10.24	1.16	0.00	40.25
10.26	1.16	0.00	40.25
10.28	1.17	0.00	41.50
10.30	1.16	0.00	41.00
10.32	1.16	0.00	41.00
10.34	1.17	0.00	41.50
10.36	1.17	0.00	42.00
10.38	1.17	0.00	42.00

Altman Report

96227 NR-01 Rev. 3

Alt/Appx. E Sh E122

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
10.40	1.17	0.00	41.50
10.42	1.17	0.00	41.50
10.44	1.17	0.00	41.50
10.46	1.17	0.00	41.50
10.48	1.16	0.00	41.00
10.50	1.16	0.00	40.25
10.52	1.16	0.00	41.00
10.54	1.16	0.00	41.00
10.56	1.16	0.00	40.25
10.58	1.16	0.00	39.75
10.60	1.16	0.00	39.75
10.62	1.16	0.00	39.00
10.64	1.16	0.00	39.75
10.66	1.16	0.00	39.00
10.68	1.16	0.00	39.75
10.70	1.16	0.00	40.25
10.72	1.16	0.00	41.00
10.74	1.16	0.00	40.25
10.76	1.16	0.00	39.00
10.78	1.16	0.00	39.00
10.80	1.16	0.00	39.00
10.82	1.16	0.00	39.00
10.84	1.15	0.00	38.50
10.86	1.15	0.00	38.50
10.88	1.15	0.00	38.50
10.90	1.15	0.00	38.50
10.92	1.15	0.00	38.50
10.94	1.15	0.00	38.50
10.96	1.15	0.00	37.75
10.98	1.15	0.00	37.25
11.00	1.15	0.00	37.25
11.02	1.14	0.00	35.50
11.04	1.14	0.00	36.00
11.06	1.14	0.00	36.00
11.08	1.14	0.00	36.00
11.10	1.14	0.00	36.00
11.12	1.14	0.00	36.00
11.14	1.14	0.00	36.00
11.16	1.14	0.00	36.00
11.18	1.14	0.00	35.50
11.20	1.14	0.00	34.75
11.22	1.14	0.00	34.75
11.24	1.14	0.00	36.00
11.26	1.14	0.00	36.00
11.28	1.14	0.00	35.50
11.30	1.14	0.00	35.50
11.32	1.14	0.00	34.75
11.34	1.14	0.00	34.75
11.36	1.14	0.00	34.25
11.38	1.13	0.00	33.50
11.40	1.14	0.00	34.25
11.42	1.14	0.00	34.75

Altran Report
 96227 DR-01 Rev. 3
 Att./Appx. E Sh E123

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
11.44	1.14	0.00	35.50
11.46	1.14	0.00	35.50
11.48	1.14	0.00	35.50
11.50	1.14	0.00	34.75
11.52	1.14	0.00	36.00
11.54	1.14	0.00	35.50
11.56	1.14	0.00	34.75
11.58	1.13	0.00	33.50
11.60	1.14	0.00	34.25
11.62	1.14	0.00	34.75
11.64	1.14	0.00	34.75
11.66	1.14	0.00	34.25
11.68	1.14	0.00	34.25
11.70	1.14	0.00	34.75
11.72	1.14	0.00	34.75
11.74	1.14	0.00	34.25
11.76	1.14	0.00	34.75
11.78	1.14	0.00	34.25
11.80	1.14	0.00	34.25
11.82	1.13	0.00	33.50
11.84	1.13	0.00	33.00
11.86	1.13	0.00	33.50
11.88	1.13	0.00	33.50
11.90	1.14	0.00	34.25
11.92	1.14	0.00	34.25
11.94	1.14	0.00	34.75
11.96	1.14	0.00	36.00
11.98	1.14	0.00	35.50
12.00	1.14	0.00	35.50
12.02	1.14	0.00	34.75
12.04	1.14	0.00	34.75
12.06	1.14	0.00	34.75
12.08	1.14	0.00	34.25
12.10	1.13	0.00	33.50
12.12	1.14	0.00	34.75
12.14	1.14	0.00	36.00
12.16	1.15	0.00	36.75
12.18	1.15	0.00	37.25
12.20	1.15	0.00	36.75
12.22	1.15	0.00	37.25
12.24	1.15	0.00	37.75
12.26	1.15	0.00	37.75
12.28	1.15	0.00	36.75
12.30	1.14	0.00	35.50
12.32	1.14	0.00	34.75
12.34	1.14	0.00	35.50
12.36	1.14	0.00	36.00
12.38	1.14	0.00	36.00
12.40	1.14	0.00	35.50
12.42	1.14	0.00	36.00
12.44	1.14	0.00	36.00
12.46	1.14	0.00	35.50

Altian Report

96227-12-01 Rev. 3

Att/Appx. E Sh E124

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
12.48	1.14	0.00	36.00
12.50	1.14	0.00	35.50
12.52	1.14	0.00	36.00
12.54	1.15	0.00	36.75
12.56	1.15	0.00	36.75
12.58	1.15	0.00	37.25
12.60	1.15	0.00	36.75
12.62	1.15	0.00	37.25
12.64	1.15	0.00	37.25
12.66	1.14	0.00	36.00
12.68	1.14	0.00	36.00
12.70	1.14	0.00	36.00
12.72	1.15	0.00	36.75
12.74	1.15	0.00	37.25
12.76	1.15	0.00	37.25
12.78	1.15	0.00	36.75
12.80	1.15	0.00	36.75
12.82	1.15	0.00	36.75
12.84	1.15	0.00	37.75
12.86	1.15	0.00	38.50
12.88	1.15	0.00	37.75
12.90	1.15	0.00	37.25
12.92	1.14	0.00	35.50
12.94	1.14	0.00	35.50
12.96	1.15	0.00	36.75
12.98	1.15	0.00	37.75
13.00	1.15	0.00	37.75
13.02	1.15	0.00	37.25
13.04	1.15	0.00	37.25
13.06	1.15	0.00	36.75
13.08	1.15	0.00	36.75
13.10	1.15	0.00	37.25
13.12	1.14	0.00	36.00
13.14	1.14	0.00	36.00
13.16	1.14	0.00	35.50
13.18	1.14	0.00	34.75
13.20	1.14	0.00	35.50
13.22	1.14	0.00	35.50
13.24	1.14	0.00	36.00
13.26	1.15	0.00	36.75
13.28	1.14	0.00	36.00
13.30	1.14	0.00	36.00
13.32	1.14	0.00	34.75
13.34	1.14	0.00	35.50
13.36	1.14	0.00	35.50
13.38	1.14	0.00	35.50
13.40	1.15	0.00	36.75
13.42	1.14	0.00	35.50
13.44	1.15	0.00	36.75
13.46	1.15	0.00	37.25
13.48	1.15	0.00	37.25
13.50	1.15	0.00	37.25

Altran Report
96227-TR-01 Rev. 3
 Att/Appx. E ShE125

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
13.52	1.14	0.00	36.00
13.54	1.14	0.00	36.00
13.56	1.15	0.00	36.75
13.58	1.15	0.00	36.75
13.60	1.14	0.00	35.50
13.62	1.14	0.00	34.75
13.64	1.14	0.00	34.75
13.66	1.15	0.00	36.75
13.68	1.15	0.00	37.75
13.70	1.15	0.00	37.25
13.72	1.15	0.00	36.75
13.74	1.14	0.00	36.00
13.76	1.14	0.00	36.00
13.78	1.14	0.00	36.00
13.80	1.14	0.00	34.75
13.82	1.14	0.00	34.25
13.84	1.14	0.00	34.25
13.86	1.14	0.00	34.75
13.88	1.14	0.00	34.75
13.90	1.14	0.00	34.25
13.92	1.14	0.00	34.75
13.94	1.14	0.00	34.25
13.96	1.14	0.00	35.50
13.98	1.14	0.00	34.75
14.00	1.14	0.00	34.25
14.02	1.14	0.00	34.75
14.04	1.14	0.00	34.75
14.06	1.14	0.00	35.50
14.08	1.14	0.00	34.75
14.10	1.14	0.00	34.75
14.12	1.14	0.00	35.50
14.14	1.14	0.00	36.00
14.16	1.15	0.00	37.25
14.18	1.15	0.00	37.75
14.20	1.15	0.00	37.25
14.22	1.15	0.00	37.75
14.24	1.15	0.00	37.25
14.26	1.15	0.00	37.75
14.28	1.15	0.00	38.50
14.30	1.15	0.00	37.75
14.32	1.15	0.00	37.75
14.34	1.15	0.00	37.25
14.36	1.15	0.00	37.25
14.38	1.15	0.00	38.50
14.40	1.15	0.00	38.50
14.42	1.15	0.00	38.50
14.44	1.15	0.00	37.75
14.46	1.15	0.00	37.75
14.48	1.15	0.00	38.50
14.50	1.15	0.00	38.50
14.52	1.15	0.00	37.75
14.54	1.15	0.00	37.25

Altran Report
 96227-R-01 Rev. 3
 Att/Approx. E Sh E126

Attachment 3 to Calculation No. EF-S-010
 Calculation Revision No. 00
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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
14.56	1.15	0.00	37.25
14.58	1.15	0.00	37.25
14.60	1.14	0.00	36.00
14.62	1.14	0.00	36.00
14.64	1.14	0.00	35.50
14.66	1.14	0.00	35.50
14.68	1.14	0.00	35.50
14.70	1.14	0.00	36.00
14.72	1.15	0.00	37.25
14.74	1.15	0.00	37.75
14.76	1.15	0.00	37.75
14.78	1.15	0.00	37.75
14.80	1.15	0.00	37.75
14.82	1.15	0.00	37.75
14.84	1.15	0.00	37.75
14.86	1.15	0.00	38.50
14.88	1.15	0.00	38.50
14.90	1.15	0.00	38.50
14.92	1.15	0.00	38.50
14.94	1.15	0.00	37.75
14.96	1.15	0.00	36.75
14.98	1.15	0.00	36.75
15.00	1.15	0.00	37.75
15.02	1.15	0.00	38.50
15.04	1.16	0.00	39.00
15.06	1.15	0.00	37.75
15.08	1.15	0.00	37.75
15.10	1.15	0.00	37.75
15.12	1.15	0.00	37.75
15.14	1.15	0.00	37.75
15.16	1.15	0.00	36.75
15.18	1.15	0.00	36.75
15.20	1.15	0.00	37.25
15.22	1.15	0.00	37.25
15.24	1.15	0.00	37.25
15.26	1.14	0.00	36.00
15.28	1.14	0.00	35.50
15.30	1.14	0.00	36.00
15.32	1.14	0.00	34.25
15.34	1.13	0.00	33.50
15.36	1.14	0.00	34.25
15.38	1.14	0.00	35.50
15.40	1.14	0.00	36.00
15.42	1.14	0.00	36.00
15.44	1.14	0.00	36.00
15.46	1.14	0.00	35.50
15.48	1.14	0.00	35.50
15.50	1.14	0.00	34.75
15.52	1.14	0.00	34.25
15.54	1.14	0.00	34.75
15.56	1.14	0.00	34.75
15.58	1.14	0.00	34.75

Altran Report
 96227-12-01 Rev. 3
 Att./Appx. E Sh E127

Attachment 3 to Calculation No. EF-S-010
 Calculation Revision No. 00
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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
15.60	1.14	0.00	35.50
15.62	1.14	0.00	34.75
15.64	1.14	0.00	34.75
15.66	1.14	0.00	34.75
15.68	1.13	0.00	33.50
15.70	1.14	0.00	34.25
15.72	1.14	0.00	34.25
15.74	1.14	0.00	34.25
15.76	1.13	0.00	33.50
15.78	1.13	0.00	33.00
15.80	1.13	0.00	33.00
15.82	1.13	0.00	33.50
15.84	1.13	0.00	33.00
15.86	1.13	0.00	33.00
15.88	1.13	0.00	31.75
15.90	1.13	0.00	31.75
15.92	1.13	0.00	32.25
15.94	1.13	0.00	32.25
15.96	1.13	0.00	32.25
15.98	1.13	0.00	31.75
16.00	1.13	0.00	31.75
16.02	1.13	0.00	32.25
16.04	1.13	0.00	31.75
16.06	1.13	0.00	31.75
16.08	1.13	0.00	31.25
16.10	1.13	0.00	31.25
16.12	1.13	0.00	31.25
16.14	1.13	0.00	31.75
16.16	1.13	0.00	32.25
16.18	1.13	0.00	32.25
16.20	1.13	0.00	33.50
16.22	1.13	0.00	33.00
16.24	1.13	0.00	32.25
16.26	1.13	0.00	33.00
16.28	1.13	0.00	32.25
16.30	1.13	0.00	31.75
16.32	1.13	0.00	31.75
16.34	1.13	0.00	32.25
16.36	1.13	0.00	33.00
16.38	1.13	0.00	33.00
16.40	1.13	0.00	32.25
16.42	1.13	0.00	33.50
16.44	1.14	0.00	34.25
16.46	1.14	0.00	34.25
16.48	1.13	0.00	33.50
16.50	1.13	0.00	33.00
16.52	1.13	0.00	33.50
16.54	1.14	0.00	34.25
16.56	1.14	0.00	34.25
16.58	1.13	0.00	33.50
16.60	1.13	0.00	32.25
16.62	1.13	0.00	33.50

Altran Report
96227-TR-01 Rev. 3
 Att. Appx. E Sh E128

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
16.64	1.14	0.00	34.75
16.66	1.14	0.00	34.75
16.68	1.14	0.00	34.75
16.70	1.13	0.00	33.50
16.72	1.14	0.00	34.25
16.74	1.14	0.00	34.25
16.76	1.13	0.00	33.50
16.78	1.14	0.00	34.25
16.80	1.14	0.00	34.25
16.82	1.13	0.00	33.50
16.84	1.13	0.00	33.00
16.86	1.13	0.00	33.00
16.88	1.13	0.00	33.50
16.90	1.13	0.00	32.25
16.92	1.13	0.00	33.00
16.94	1.13	0.00	32.25
16.96	1.13	0.00	33.00
16.98	1.14	0.00	34.25
17.00	1.13	0.00	33.50
17.02	1.13	0.00	33.00
17.04	1.13	0.00	33.00
17.06	1.13	0.00	33.50
17.08	1.14	0.00	34.75
17.10	1.14	0.00	34.75
17.12	1.14	0.00	34.25
17.14	1.14	0.00	34.75
17.16	1.14	0.00	36.00
17.18	1.14	0.00	36.00
17.20	1.14	0.00	35.50
17.22	1.14	0.00	34.75
17.24	1.14	0.00	34.75
17.26	1.14	0.00	34.75
17.28	1.14	0.00	34.25
17.30	1.14	0.00	34.75
17.32	1.14	0.00	34.25
17.34	1.14	0.00	35.50
17.36	1.15	0.00	36.75
17.38	1.14	0.00	36.00
17.40	1.14	0.00	34.75
17.42	1.14	0.00	34.25
17.44	1.14	0.00	34.75
17.46	1.14	0.00	35.50
17.48	1.14	0.00	35.50
17.50	1.14	0.00	34.25
17.52	1.14	0.00	34.25
17.54	1.13	0.00	33.50
17.56	1.13	0.00	32.25
17.58	1.13	0.00	31.25
17.60	1.13	0.00	31.75
17.62	1.13	0.00	31.75
17.64	1.13	0.00	33.50
17.66	1.14	0.00	34.25

Altran Report
962778-01 Rev. 3
 Att./Appx. E Sh# 129

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
17.68	1.14	0.00	34.75
17.70	1.14	0.00	35.50
17.72	1.14	0.00	35.50
17.74	1.14	0.00	36.00
17.76	1.15	0.00	36.75
17.78	1.14	0.00	34.25
17.80	1.14	0.00	34.25
17.82	1.13	0.00	33.00
17.84	1.13	0.00	31.75
17.86	1.12	0.00	30.50
17.88	1.12	0.00	30.00
17.90	1.12	0.00	30.00
17.92	1.12	0.00	30.00
17.94	1.12	0.00	30.50
17.96	1.13	0.00	32.25
17.98	1.13	0.00	33.00
18.00	1.13	0.00	33.00
18.02	1.14	0.00	34.25
18.04	1.14	0.00	34.75
18.06	1.14	0.00	34.75
18.08	1.14	0.00	35.50
18.10	1.14	0.00	35.50
18.12	1.14	0.00	35.50
18.14	1.14	0.00	36.00
18.16	1.14	0.00	35.50
18.18	1.14	0.00	36.00
18.20	1.14	0.00	35.50
18.22	1.14	0.00	35.50
18.24	1.14	0.00	35.50
18.26	1.14	0.00	35.50
18.28	1.14	0.00	35.50
18.30	1.14	0.00	34.75
18.32	1.13	0.00	33.50
18.34	1.13	0.00	32.25
18.36	1.13	0.00	31.25
18.38	1.12	0.00	30.50
18.40	1.12	0.00	30.00
18.42	1.12	0.00	30.00
18.44	1.12	0.00	30.50
18.46	1.13	0.00	31.25
18.48	1.13	0.00	31.75
18.50	1.13	0.00	31.75
18.52	1.13	0.00	31.75
18.54	1.13	0.00	32.25
18.56	1.13	0.00	31.75
18.58	1.13	0.00	31.25
18.60	1.13	0.00	31.25
18.62	1.13	0.00	31.25
18.64	1.13	0.00	31.75
18.66	1.13	0.00	31.75
18.68	1.13	0.00	31.25
18.70	1.13	0.00	31.25

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
18.72	1.12	0.00	30.50
18.74	1.12	0.00	30.50
18.76	1.13	0.00	31.25
18.78	1.13	0.00	31.25
18.80	1.13	0.00	31.75
18.82	1.13	0.00	31.75
18.84	1.13	0.00	31.25
18.86	1.12	0.00	30.50
18.88	1.12	0.00	30.50
18.90	1.12	0.00	30.00
18.92	1.12	0.00	30.00
18.94	1.12	0.00	30.00
18.96	1.12	0.00	30.00
18.98	1.12	0.00	30.50
19.00	1.12	0.00	30.00
19.02	1.12	0.00	28.75
19.04	1.12	0.00	28.75
19.06	1.12	0.00	30.00
19.08	1.12	0.00	30.00
19.10	1.12	0.00	30.00
19.12	1.12	0.00	30.00
19.14	1.12	0.00	29.25
19.16	1.11	0.00	28.00
19.18	1.11	0.00	28.00
19.20	1.11	0.00	28.00
19.22	1.12	0.00	28.75
19.24	1.12	0.00	28.75
19.26	1.12	0.00	29.25
19.28	1.12	0.00	29.25
19.30	1.12	0.00	30.00
19.32	1.12	0.00	30.00
19.34	1.12	0.00	29.25
19.36	1.12	0.00	28.75
19.38	1.11	0.00	27.50
19.40	1.11	0.00	26.75
19.42	1.11	0.00	26.25
19.44	1.10	0.00	25.75
19.46	1.10	0.00	25.75
19.48	1.10	0.00	25.00
19.50	1.11	0.00	26.25
19.52	1.11	0.00	26.25
19.54	1.11	0.00	27.50
19.56	1.11	0.00	27.50
19.58	1.11	0.00	27.50
19.60	1.11	0.00	28.00
19.62	1.11	0.00	28.00
19.64	1.12	0.00	28.75
19.66	1.12	0.00	29.25
19.68	1.12	0.00	29.25
19.70	1.12	0.00	29.25
19.72	1.12	0.00	30.00
19.74	1.12	0.00	30.50

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 At/ Appx. E Sh E111

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
19.76	1.12	0.00	30.50
19.78	1.12	0.00	30.50
19.80	1.12	0.00	29.25
19.82	1.12	0.00	29.25
19.84	1.12	0.00	29.25
19.86	1.12	0.00	29.25
19.88	1.12	0.00	29.25
19.90	1.12	0.00	29.25
19.92	1.12	0.00	29.25
19.94	1.12	0.00	30.00
19.96	1.12	0.00	30.00
19.98	1.12	0.00	30.00
20.00	1.12	0.00	29.25
20.02	1.12	0.00	29.25
20.04	1.12	0.00	28.75
20.06	1.12	0.00	29.25
20.08	1.12	0.00	30.50
20.10	1.13	0.00	31.25
20.12	1.13	0.00	32.25
20.14	1.13	0.00	33.00
20.16	1.13	0.00	33.50
20.18	1.13	0.00	33.50
20.20	1.13	0.00	33.50
20.22	1.13	0.00	33.50
20.24	1.13	0.00	32.25
20.26	1.13	0.00	32.25
20.28	1.13	0.00	31.75
20.30	1.13	0.00	31.75
20.32	1.13	0.00	31.75
20.34	1.13	0.00	31.75
20.36	1.13	0.00	31.75
20.38	1.13	0.00	31.25
20.40	1.13	0.00	31.25
20.42	1.12	0.00	30.00
20.44	1.12	0.00	29.25
20.46	1.12	0.00	28.75
20.48	1.12	0.00	29.25
20.50	1.12	0.00	30.00
20.52	1.12	0.00	29.25
20.54	1.12	0.00	29.25
20.56	1.12	0.00	30.00
20.58	1.12	0.00	30.00
20.60	1.12	0.00	30.00
20.62	1.12	0.00	30.00
20.64	1.12	0.00	30.50
20.66	1.12	0.00	30.50
20.68	1.12	0.00	30.00
20.70	1.12	0.00	30.00
20.72	1.12	0.00	30.00
20.74	1.12	0.00	30.00
20.76	1.12	0.00	30.00
20.78	1.12	0.00	30.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
20.80	1.12	0.00	29.25
20.82	1.12	0.00	29.25
20.84	1.12	0.00	28.75
20.86	1.12	0.00	28.75
20.88	1.12	0.00	28.75
20.90	1.12	0.00	28.75
20.92	1.12	0.00	28.75
20.94	1.12	0.00	30.00
20.96	1.12	0.00	30.50
20.98	1.13	0.00	31.25
21.00	1.13	0.00	31.25
21.02	1.13	0.00	31.75
21.04	1.13	0.00	32.25
21.06	1.13	0.00	32.25
21.08	1.13	0.00	33.00
21.10	1.13	0.00	32.25
21.12	1.13	0.00	32.25
21.14	1.13	0.00	32.25
21.16	1.13	0.00	32.25
21.18	1.13	0.00	31.75
21.20	1.13	0.00	31.25
21.22	1.12	0.00	30.50
21.24	1.13	0.00	31.75
21.26	1.13	0.00	32.25
21.28	1.13	0.00	32.25
21.30	1.13	0.00	32.25
21.32	1.13	0.00	32.25
21.34	1.13	0.00	33.00
21.36	1.13	0.00	33.00
21.38	1.13	0.00	33.00
21.40	1.13	0.00	32.25
21.42	1.13	0.00	32.25
21.44	1.13	0.00	33.00
21.46	1.13	0.00	33.00
21.48	1.13	0.00	33.00
21.50	1.13	0.00	32.25
21.52	1.13	0.00	31.75
21.54	1.13	0.00	31.75
21.56	1.13	0.00	31.75
21.58	1.13	0.00	31.75
21.60	1.13	0.00	31.25
21.62	1.13	0.00	31.25
21.64	1.13	0.00	31.75
21.66	1.13	0.00	32.25
21.68	1.13	0.00	33.00
21.70	1.13	0.00	33.00
21.72	1.13	0.00	33.00
21.74	1.13	0.00	33.50
21.76	1.13	0.00	33.50
21.78	1.13	0.00	33.50
21.80	1.13	0.00	33.00
21.82	1.13	0.00	32.25

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 Att/Appx. E Sh E133

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
21.84	1.13	0.00	31.75
21.86	1.13	0.00	31.75
21.88	1.13	0.00	31.75
21.90	1.13	0.00	32.25
21.92	1.13	0.00	32.25
21.94	1.13	0.00	32.25
21.96	1.13	0.00	33.00
21.98	1.13	0.00	33.50
22.00	1.13	0.00	33.50
22.02	1.13	0.00	33.00
22.04	1.13	0.00	33.00
22.06	1.13	0.00	33.00
22.08	1.13	0.00	33.00
22.10	1.13	0.00	33.00
22.12	1.13	0.00	33.00
22.14	1.13	0.00	33.00
22.16	1.13	0.00	32.25
22.18	1.13	0.00	32.25
22.20	1.13	0.00	32.25
22.22	1.13	0.00	32.25
22.24	1.13	0.00	32.25
22.26	1.13	0.00	32.25
22.28	1.13	0.00	32.25
22.30	1.13	0.00	31.75
22.32	1.13	0.00	31.75
22.34	1.13	0.00	32.25
22.36	1.13	0.00	32.25
22.38	1.13	0.00	31.75
22.40	1.13	0.00	31.75
22.42	1.13	0.00	31.75
22.44	1.13	0.00	31.75
22.46	1.13	0.00	31.75
22.48	1.13	0.00	31.25
22.50	1.13	0.00	31.25
22.52	1.13	0.00	31.25
22.54	1.12	0.00	30.50
22.56	1.13	0.00	31.25
22.58	1.13	0.00	31.75
22.60	1.13	0.00	31.75
22.62	1.13	0.00	32.25
22.64	1.13	0.00	32.25
22.66	1.13	0.00	32.25
22.68	1.13	0.00	32.25
22.70	1.13	0.00	33.00
22.72	1.13	0.00	32.25
22.74	1.13	0.00	31.25
22.76	1.13	0.00	31.75
22.78	1.13	0.00	31.25
22.80	1.13	0.00	31.25
22.82	1.13	0.00	31.25
22.84	1.13	0.00	31.25
22.86	1.13	0.00	31.25

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
22.88	1.13	0.00	31.25
22.90	1.13	0.00	31.25
22.92	1.13	0.00	31.25
22.94	1.13	0.00	31.75
22.96	1.13	0.00	31.75
22.98	1.13	0.00	31.25
23.00	1.12	0.00	30.50
23.02	1.13	0.00	31.25
23.04	1.13	0.00	31.75
23.06	1.13	0.00	32.25
23.08	1.13	0.00	33.00
23.10	1.13	0.00	32.25
23.12	1.13	0.00	32.25
23.14	1.13	0.00	33.00
23.16	1.13	0.00	33.00
23.18	1.13	0.00	33.50
23.20	1.13	0.00	33.50
23.22	1.13	0.00	33.00
23.24	1.13	0.00	33.00
23.26	1.13	0.00	33.50
23.28	1.13	0.00	33.50
23.30	1.13	0.00	33.50
23.32	1.14	0.00	34.25
23.34	1.13	0.00	33.50
23.36	1.13	0.00	33.00
23.38	1.13	0.00	31.75
23.40	1.12	0.00	30.50
23.42	1.12	0.00	30.50
23.44	1.13	0.00	31.25
23.46	1.13	0.00	31.25
23.48	1.13	0.00	31.75
23.50	1.13	0.00	32.25
23.52	1.13	0.00	31.75
23.54	1.13	0.00	31.75
23.56	1.13	0.00	32.25
23.58	1.13	0.00	32.25
23.60	1.13	0.00	33.00
23.62	1.13	0.00	33.50
23.64	1.14	0.00	34.25
23.66	1.14	0.00	34.25
23.68	1.14	0.00	34.25
23.70	1.13	0.00	33.50
23.72	1.13	0.00	33.00
23.74	1.13	0.00	33.00
23.76	1.13	0.00	33.00
23.78	1.13	0.00	32.25
23.80	1.13	0.00	31.75
23.82	1.13	0.00	31.75
23.84	1.13	0.00	32.25
23.86	1.13	0.00	33.00
23.88	1.13	0.00	33.00
23.90	1.13	0.00	33.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
23.92	1.13	0.00	33.50
23.94	1.13	0.00	33.00
23.96	1.13	0.00	32.25
23.98	1.13	0.00	32.25
24.00	1.13	0.00	32.25
24.02	1.13	0.00	32.25
24.04	1.13	0.00	33.00
24.06	1.13	0.00	32.25
24.08	1.13	0.00	32.25
24.10	1.13	0.00	32.25
24.12	1.13	0.00	32.25
24.14	1.13	0.00	32.25
24.16	1.13	0.00	32.25
24.18	1.13	0.00	32.25
24.20	1.13	0.00	31.25
24.22	1.13	0.00	31.25
24.24	1.13	0.00	31.25
24.26	1.13	0.00	31.25
24.28	1.12	0.00	30.50
24.30	1.12	0.00	30.50
24.32	1.12	0.00	30.50
24.34	1.13	0.00	31.25
24.36	1.13	0.00	31.75
24.38	1.13	0.00	32.25
24.40	1.13	0.00	32.25
24.42	1.13	0.00	33.00
24.44	1.13	0.00	32.25
24.46	1.13	0.00	33.00
24.48	1.13	0.00	33.50
24.50	1.13	0.00	33.50
24.52	1.13	0.00	33.50
24.54	1.13	0.00	33.50
24.56	1.14	0.00	34.25
24.58	1.13	0.00	33.50
24.60	1.13	0.00	33.50
24.62	1.13	0.00	33.50
24.64	1.14	0.00	34.25
24.66	1.14	0.00	34.75
24.68	1.14	0.00	34.25
24.70	1.14	0.00	34.75
24.72	1.14	0.00	34.75
24.74	1.14	0.00	35.50
24.76	1.14	0.00	36.00
24.78	1.14	0.00	36.00
24.80	1.14	0.00	35.50
24.82	1.14	0.00	34.25
24.84	1.14	0.00	34.25
24.86	1.14	0.00	34.25
24.88	1.13	0.00	33.50
24.90	1.13	0.00	33.50
24.92	1.13	0.00	33.50
24.94	1.13	0.00	33.50

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
24.96	1.14	0.00	34.25
24.98	1.14	0.00	34.25
25.00	1.14	0.00	34.25
25.02	1.14	0.00	34.75
25.04	1.14	0.00	34.75
25.06	1.14	0.00	34.75
25.08	1.14	0.00	34.25
25.10	1.14	0.00	34.75
25.12	1.14	0.00	34.75
25.14	1.14	0.00	36.00
25.16	1.14	0.00	35.50
25.18	1.14	0.00	35.50
25.20	1.14	0.00	36.00
25.22	1.14	0.00	36.00
25.24	1.14	0.00	36.00
25.26	1.14	0.00	36.00
25.28	1.14	0.00	35.50
25.30	1.14	0.00	34.25
25.32	1.13	0.00	33.50
25.34	1.14	0.00	34.25
25.36	1.13	0.00	33.50
25.38	1.14	0.00	34.25
25.40	1.13	0.00	33.50
25.42	1.13	0.00	33.50
25.44	1.14	0.00	34.25
25.46	1.14	0.00	34.25
25.48	1.14	0.00	34.25
25.50	1.14	0.00	34.25
25.52	1.13	0.00	33.50
25.54	1.13	0.00	33.00
25.56	1.13	0.00	32.25
25.58	1.13	0.00	32.25
25.60	1.13	0.00	32.25
25.62	1.13	0.00	33.00
25.64	1.13	0.00	33.50
25.66	1.13	0.00	33.50
25.68	1.13	0.00	33.00
25.70	1.13	0.00	33.00
25.72	1.13	0.00	33.00
25.74	1.13	0.00	33.50
25.76	1.13	0.00	33.00
25.78	1.13	0.00	33.00
25.80	1.13	0.00	33.00
25.82	1.13	0.00	32.25
25.84	1.13	0.00	32.25
25.86	1.13	0.00	33.00
25.88	1.13	0.00	33.50
25.90	1.13	0.00	33.00
25.92	1.13	0.00	33.00
25.94	1.13	0.00	32.25
25.96	1.13	0.00	32.25
25.98	1.13	0.00	32.25

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 Att. Appx. E Sh ER37

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
26.00	1.12	0.00	30.50
26.02	1.12	0.00	29.25
26.04	1.12	0.00	29.25
26.06	1.12	0.00	29.25
26.08	1.12	0.00	29.25
26.10	1.12	0.00	29.25
26.12	1.12	0.00	30.00
26.14	1.12	0.00	30.50
26.16	1.13	0.00	31.25
26.18	1.13	0.00	31.25
26.20	1.12	0.00	30.50
26.22	1.12	0.00	30.50
26.24	1.12	0.00	30.50
26.26	1.12	0.00	29.25
26.28	1.12	0.00	30.00
26.30	1.12	0.00	30.50
26.32	1.13	0.00	31.25
26.34	1.13	0.00	32.25
26.36	1.13	0.00	33.50
26.38	1.13	0.00	33.00
26.40	1.13	0.00	31.75
26.42	1.13	0.00	31.75
26.44	1.13	0.00	31.25
26.46	1.13	0.00	31.25
26.48	1.13	0.00	31.25
26.50	1.12	0.00	29.25
26.52	1.12	0.00	28.75
26.54	1.11	0.00	28.00
26.56	1.11	0.00	28.00
26.58	1.12	0.00	28.75
26.60	1.12	0.00	29.25
26.62	1.12	0.00	29.25
26.64	1.12	0.00	29.25
26.66	1.12	0.00	29.25
26.68	1.12	0.00	29.25
26.70	1.12	0.00	28.75
26.72	1.12	0.00	28.75
26.74	1.11	0.00	27.50
26.76	1.11	0.00	27.50
26.78	1.11	0.00	28.00
26.80	1.11	0.00	27.50
26.82	1.11	0.00	28.00
26.84	1.11	0.00	28.00
26.86	1.11	0.00	28.00
26.88	1.12	0.00	28.75
26.90	1.12	0.00	28.75
26.92	1.12	0.00	28.75
26.94	1.12	0.00	28.75
26.96	1.12	0.00	28.75
26.98	1.11	0.00	28.00
27.00	1.11	0.00	27.50
27.02	1.11	0.00	28.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
27.04	1.12	0.00	28.75
27.06	1.12	0.00	29.25
27.08	1.12	0.00	30.00
27.10	1.12	0.00	30.00
27.12	1.12	0.00	30.00
27.14	1.12	0.00	30.00
27.16	1.12	0.00	30.00
27.18	1.12	0.00	30.00
27.20	1.12	0.00	30.00
27.22	1.12	0.00	30.00
27.24	1.12	0.00	30.00
27.26	1.12	0.00	30.50
27.28	1.12	0.00	30.50
27.30	1.12	0.00	30.00
27.32	1.12	0.00	30.00
27.34	1.12	0.00	30.00
27.36	1.12	0.00	30.00
27.38	1.12	0.00	28.75
27.40	1.11	0.00	28.00
27.42	1.12	0.00	28.75
27.44	1.11	0.00	28.00
27.46	1.12	0.00	28.75
27.48	1.12	0.00	28.75
27.50	1.11	0.00	28.00
27.52	1.11	0.00	28.00
27.54	1.12	0.00	28.75
27.56	1.12	0.00	28.75
27.58	1.11	0.00	28.00
27.60	1.11	0.00	27.50
27.62	1.11	0.00	27.50
27.64	1.11	0.00	28.00
27.66	1.12	0.00	28.75
27.68	1.12	0.00	28.75
27.70	1.11	0.00	28.00
27.72	1.11	0.00	27.50
27.74	1.11	0.00	27.50
27.76	1.11	0.00	26.25
27.78	1.11	0.00	26.25
27.80	1.10	0.00	25.75
27.82	1.11	0.00	26.25
27.84	1.11	0.00	26.25
27.86	1.11	0.00	26.75
27.88	1.11	0.00	27.50
27.90	1.11	0.00	27.50
27.92	1.11	0.00	28.00
27.94	1.11	0.00	28.00
27.96	1.11	0.00	28.00
27.98	1.11	0.00	27.50
28.00	1.11	0.00	27.50
28.02	1.11	0.00	27.50
28.04	1.11	0.00	27.50
28.06	1.11	0.00	28.00

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 As/ Appx. E Sh E139

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
28.08	1.11	0.00	27.50
28.10	1.11	0.00	26.75
28.12	1.11	0.00	26.75
28.14	1.11	0.00	26.75
28.16	1.11	0.00	26.75
28.18	1.11	0.00	27.50
28.20	1.11	0.00	27.50
28.22	1.11	0.00	26.75
28.24	1.11	0.00	26.75
28.26	1.11	0.00	26.25
28.28	1.10	0.00	25.00
28.30	1.10	0.00	23.75
28.32	1.10	0.00	23.75
28.34	1.10	0.00	23.75
28.36	1.10	0.00	23.75
28.38	1.10	0.00	23.75
28.40	1.10	0.00	23.75
28.42	1.09	0.00	23.25
28.44	1.10	0.00	23.75
28.46	1.10	0.00	23.75
28.48	1.10	0.00	24.50
28.50	1.10	0.00	25.00
28.52	1.10	0.00	25.00
28.54	1.10	0.00	25.00
28.56	1.10	0.00	25.75
28.58	1.10	0.00	25.00
28.60	1.10	0.00	25.00
28.62	1.10	0.00	24.50
28.64	1.10	0.00	23.75
28.66	1.10	0.00	23.75
28.68	1.09	0.00	23.25
28.70	1.09	0.00	22.50
28.72	1.09	0.00	23.25
28.74	1.10	0.00	24.50
28.76	1.10	0.00	24.50
28.78	1.10	0.00	24.50
28.80	1.10	0.00	24.50
28.82	1.10	0.00	23.75
28.84	1.10	0.00	23.75
28.86	1.10	0.00	23.75
28.88	1.10	0.00	23.75
28.90	1.09	0.00	23.25
28.92	1.10	0.00	23.75
28.94	1.10	0.00	24.50
28.96	1.10	0.00	23.75
28.98	1.10	0.00	23.75
29.00	1.10	0.00	23.75
29.02	1.09	0.00	22.50
29.04	1.09	0.00	23.25
29.06	1.09	0.00	22.50
29.08	1.09	0.00	22.00
29.10	1.09	0.00	22.00

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 Att/Appx. E Sh E140

Attachment 3 to Calculation No. EF-S-010
 Calculation Revision No. 00
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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
29.12	1.09	0.00	22.00
29.14	1.09	0.00	22.00
29.16	1.09	0.00	22.50
29.18	1.09	0.00	22.00
29.20	1.09	0.00	21.25
29.22	1.08	0.00	20.75
29.24	1.08	0.00	20.75
29.26	1.09	0.00	21.25
29.28	1.09	0.00	21.25
29.30	1.08	0.00	20.75
29.32	1.08	0.00	20.75
29.34	1.08	0.00	20.75
29.36	1.08	0.00	20.75
29.38	1.08	0.00	20.25
29.40	1.08	0.00	20.25
29.42	1.08	0.00	19.50
29.44	1.08	0.00	19.50
29.46	1.08	0.00	19.00
29.48	1.08	0.00	19.00
29.50	1.07	0.00	17.75
29.52	1.07	0.00	17.75
29.54	1.07	0.00	17.75
29.56	1.07	0.00	17.75
29.58	1.07	0.00	17.75
29.60	1.07	0.00	17.75
29.62	1.07	0.00	17.75
29.64	1.07	0.00	18.25
29.66	1.07	0.00	17.75
29.68	1.07	0.00	17.00
29.70	1.07	0.00	17.00
29.72	1.07	0.00	17.00
29.74	1.07	0.00	17.00
29.76	1.07	0.00	16.50
29.78	1.07	0.00	16.50
29.80	1.06	0.00	15.75
29.82	1.07	0.00	16.50
29.84	1.07	0.00	17.00
29.86	1.07	0.00	17.00
29.88	1.07	0.00	17.00
29.90	1.07	0.00	16.50
29.92	1.07	0.00	17.00
29.94	1.07	0.00	18.25
29.96	1.07	0.00	18.25
29.98	1.07	0.00	18.25
30.00	1.07	0.00	17.75
30.02	1.07	0.00	18.25
30.04	1.07	0.00	17.75
30.06	1.07	0.00	17.75
30.08	1.07	0.00	17.75
30.10	1.07	0.00	16.50
30.12	1.06	0.00	15.75
30.14	1.06	0.00	15.25

Altran Report
 96227-NR-01 Rev. 3
 Att/Approx. E ShE141

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
30.16	1.06	0.00	14.75
30.18	1.06	0.00	14.75
30.20	1.06	0.00	14.00
30.22	1.06	0.00	14.75
30.24	1.06	0.00	14.75
30.26	1.06	0.00	14.75
30.28	1.06	0.00	14.00
30.30	1.06	0.00	14.00
30.32	1.05	0.00	13.50
30.34	1.06	0.00	14.00
30.36	1.06	0.00	14.00
30.38	1.06	0.00	14.00
30.40	1.05	0.00	13.50
30.42	1.05	0.00	13.50
30.44	1.05	0.00	13.50
30.46	1.06	0.00	14.00
30.48	1.05	0.00	13.50
30.50	1.05	0.00	13.50
30.52	1.05	0.00	12.75
30.54	1.05	0.00	12.75
30.56	1.05	0.00	12.75
30.58	1.05	0.00	12.25
30.60	1.05	0.00	12.75
30.62	1.05	0.00	13.50
30.64	1.05	0.00	12.75
30.66	1.05	0.00	12.25
30.68	1.04	0.00	11.00
30.70	1.04	0.00	11.00
30.72	1.05	0.00	11.50
30.74	1.05	0.00	12.25
30.76	1.05	0.00	12.25
30.78	1.05	0.00	11.50
30.80	1.05	0.00	11.50
30.82	1.05	0.00	11.50
30.84	1.05	0.00	11.50
30.86	1.05	0.00	12.25
30.88	1.05	0.00	12.25
30.90	1.04	0.00	11.00
30.92	1.04	0.00	11.00
30.94	1.05	0.00	11.50
30.96	1.05	0.00	12.25
30.98	1.05	0.00	12.75
31.00	1.05	0.00	11.50
31.02	1.04	0.00	11.00
31.04	1.04	0.00	11.00
31.06	1.04	0.00	11.00
31.08	1.04	0.00	11.00
31.10	1.04	0.00	10.50
31.12	1.04	0.00	10.50
31.14	1.04	0.00	10.50
31.16	1.04	0.00	10.50
31.18	1.04	0.00	9.75

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96287-RR-01 Rev. 3
 Att/Appx. E Sh E142

Attachment 3 to Calculation No. EF-S-010
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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
31.20	1.04	0.00	9.75
31.22	1.04	0.00	10.50
31.24	1.04	0.00	11.00
31.26	1.05	0.00	11.50
31.28	1.04	0.00	11.00
31.30	1.04	0.00	10.50
31.32	1.04	0.00	9.75
31.34	1.04	0.00	9.25
31.36	1.04	0.00	9.25
31.38	1.03	0.00	8.50
31.40	1.03	0.00	8.00
31.42	1.03	0.00	8.00
31.44	1.03	0.00	8.00
31.46	1.03	0.00	8.00
31.48	1.03	0.00	8.00
31.50	1.03	0.00	7.25
31.52	1.03	0.00	7.25
31.54	1.03	0.00	6.75
31.56	1.03	0.00	7.25
31.58	1.03	0.00	7.25
31.60	1.03	0.00	7.25
31.62	1.03	0.00	7.25
31.64	1.03	0.00	7.25
31.66	1.03	0.00	7.25
31.68	1.03	0.00	6.75
31.70	1.02	0.00	5.50
31.72	1.02	0.00	5.50
31.74	1.02	0.00	5.00
31.76	1.02	0.00	5.00
31.78	1.02	0.00	5.00
31.80	1.02	0.00	5.00
31.82	1.02	0.00	5.00
31.84	1.02	0.00	5.00
31.86	1.02	0.00	4.25
31.88	1.02	0.00	4.25
31.90	1.02	0.00	5.00
31.92	1.02	0.00	4.25
31.94	1.02	0.00	4.25
31.96	1.02	0.00	4.25
31.98	1.01	0.00	3.00
32.00	1.01	0.00	3.00
32.02	1.01	0.00	3.00
32.04	1.01	0.00	2.50
32.06	1.01	0.00	1.75
32.08	1.01	0.00	2.50
32.10	1.01	0.00	1.25
32.12	1.00	0.00	0.50
32.14	1.00	0.00	0.50
32.16	1.00	0.00	0.50
32.18	1.00	0.00	0.00
32.20	1.00	0.00	-0.60
32.22	1.00	0.00	-1.23

Altran Report

96227-02-01 Rev. 3

Att./Appx. E Sh E143

Attachment 3 to Calculation No. EF-S-010
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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
32.24	1.00	0.00	-1.23
32.26	0.99	0.00	-1.82
32.28	0.99	0.00	-1.82
32.30	0.99	0.00	-1.82
32.32	0.99	0.00	-1.82
32.34	0.99	0.00	-2.45
32.36	0.99	0.00	-2.45
32.38	0.99	0.00	-2.45
32.40	0.99	0.00	-3.05
32.42	0.99	0.00	-3.05
32.44	0.99	0.00	-3.05
32.46	0.99	0.00	-3.05
32.48	0.99	0.00	-3.68
32.50	0.99	0.00	-3.68
32.52	0.98	0.00	-4.87
32.54	0.98	0.00	-4.28
32.56	0.98	0.00	-4.87
32.58	0.98	0.00	-4.87
32.60	0.98	0.00	-4.87
32.62	0.98	0.00	-5.50
32.64	0.98	0.00	-5.50
32.66	0.98	0.00	-6.10
32.68	0.97	0.00	-6.73
32.70	0.97	0.00	-6.73
32.72	0.97	0.00	-7.33
32.74	0.97	0.00	-7.33
32.76	0.97	0.00	-7.33
32.78	0.97	0.00	-6.73
32.80	0.97	0.00	-7.33
32.82	0.97	0.00	-7.33
32.84	0.97	0.00	-7.33
32.86	0.97	0.00	-7.92
32.88	0.97	0.00	-7.92
32.90	0.97	0.00	-7.92
32.92	0.97	0.00	-8.55
32.94	0.97	0.00	-8.55
32.96	0.97	0.00	-8.55
32.98	0.97	0.00	-8.55
33.00	0.96	0.00	-9.15
33.02	0.96	0.00	-9.78
33.04	0.96	0.00	-10.38
33.06	0.96	0.00	-10.38
33.08	0.96	0.00	-10.38
33.10	0.96	0.00	-10.38
33.12	0.96	0.00	-10.38
33.14	0.96	0.00	-9.78
33.16	0.96	0.00	-9.15
33.18	0.97	0.00	-7.92
33.20	0.97	0.00	-7.92
33.22	0.97	0.00	-8.55
33.24	0.96	0.00	-9.15
33.26	0.96	0.00	-9.78

Altran Report

96027-08-01 Rev. 3

Alt/Appx. E ShE144

Attachment 3 to Calculation No. EF-S-010
Calculation Revision No. 00
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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
33.28	0.96	0.00	-10.38
33.30	0.96	0.00	-10.38
33.32	0.96	0.00	-11.00
33.34	0.96	0.00	-11.00
33.36	0.95	0.00	-11.60
33.38	0.95	0.00	-11.60
33.40	0.95	0.00	-11.60
33.42	0.96	0.00	-11.00
33.44	0.96	0.00	-11.00
33.46	0.96	0.00	-11.00
33.48	0.96	0.00	-11.00
33.50	0.96	0.00	-11.00
33.52	0.96	0.00	-10.38
33.54	0.96	0.00	-9.78
33.56	0.96	0.00	-10.38
33.58	0.96	0.00	-11.00
33.60	0.95	0.00	-11.60
33.62	0.95	0.00	-12.20
33.64	0.95	0.00	-12.20
33.66	0.95	0.00	-12.20
33.68	0.95	0.00	-12.20
33.70	0.95	0.00	-11.60
33.72	0.95	0.00	-11.60
33.74	0.95	0.00	-11.60
33.76	0.96	0.00	-11.00
33.78	0.96	0.00	-11.00
33.80	0.96	0.00	-11.00
33.82	0.96	0.00	-11.00
33.84	0.96	0.00	-11.00
33.86	0.96	0.00	-11.00
33.88	0.95	0.00	-11.60
33.90	0.95	0.00	-11.60
33.92	0.95	0.00	-11.60
33.94	0.95	0.00	-11.60
33.96	0.95	0.00	-11.60
33.98	0.95	0.00	-11.60
34.00	0.95	0.00	-11.60
34.02	0.95	0.00	-12.20
34.04	0.95	0.00	-12.20
34.06	0.95	0.00	-12.20
34.08	0.95	0.00	-12.20
34.10	0.95	0.00	-12.20
34.12	0.95	0.00	-12.20
34.14	0.95	0.00	-12.20
34.16	0.95	0.00	-11.60
34.18	0.95	0.00	-11.60
34.20	0.95	0.00	-12.20
34.22	0.95	0.00	-12.83
34.24	0.95	0.00	-12.83
34.26	0.95	0.00	-13.43
34.28	0.95	0.00	-13.43
34.30	0.94	0.00	-14.05

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Alt/Appx. E Sh E145

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
34.32	0.94	0.00	-14.65
34.34	0.94	0.00	-15.88
34.36	0.94	0.00	-15.88
34.38	0.94	0.00	-15.88
34.40	0.93	0.00	-16.48
34.42	0.93	0.00	-17.70
34.44	0.93	0.00	-17.70
34.46	0.93	0.00	-18.33
34.48	0.92	0.00	-18.93
34.50	0.92	0.00	-20.15
34.52	0.92	0.00	-18.93
34.54	0.93	0.00	-18.33
34.56	0.93	0.00	-17.70
34.58	0.93	0.00	-17.10
34.60	0.93	0.00	-17.10
34.62	0.93	0.00	-18.33
34.64	0.93	0.00	-17.70
34.66	0.93	0.00	-18.33
34.68	0.92	0.00	-18.93
34.70	0.92	0.00	-19.53
34.72	0.92	0.00	-18.93
34.74	0.93	0.00	-18.33
34.76	0.93	0.00	-17.10
34.78	0.93	0.00	-17.10
34.80	0.93	0.00	-17.70
34.82	0.93	0.00	-17.70
34.84	0.93	0.00	-17.10
34.86	0.93	0.00	-16.48
34.88	0.94	0.00	-15.88
34.90	0.94	0.00	-15.88
34.92	0.93	0.00	-16.48
34.94	0.93	0.00	-16.48
34.96	0.93	0.00	-17.10
34.98	0.93	0.00	-17.10
35.00	0.93	0.00	-17.10
35.02	0.93	0.00	-17.10
35.04	0.93	0.00	-17.70
35.06	0.93	0.00	-17.70
35.08	0.93	0.00	-17.70
35.10	0.93	0.00	-17.70
35.12	0.93	0.00	-17.10
35.14	0.93	0.00	-17.70
35.16	0.93	0.00	-18.33
35.18	0.92	0.00	-18.93
35.20	0.92	0.00	-19.53
35.22	0.92	0.00	-18.93
35.24	0.92	0.00	-18.93
35.26	0.93	0.00	-18.33
35.28	0.92	0.00	-18.93
35.30	0.93	0.00	-18.33
35.32	0.92	0.00	-18.93
35.34	0.93	0.00	-18.33

Altran Report
 96227-SP-01 Rev. 3
 Att./Appx. E Sh E146

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
35.36	0.93	0.00	-18.33
35.38	0.93	0.00	-18.33
35.40	0.93	0.00	-18.33
35.42	0.93	0.00	-18.33
35.44	0.93	0.00	-18.33
35.46	0.93	0.00	-18.33
35.48	0.93	0.00	-18.33
35.50	0.93	0.00	-18.33
35.52	0.92	0.00	-18.93
35.54	0.92	0.00	-18.93
35.56	0.93	0.00	-18.33
35.58	0.92	0.00	-18.93
35.60	0.93	0.00	-18.33
35.62	0.92	0.00	-18.93
35.64	0.92	0.00	-18.93
35.66	0.92	0.00	-18.93
35.68	0.92	0.00	-18.93
35.70	0.93	0.00	-18.33
35.72	0.93	0.00	-18.33
35.74	0.93	0.00	-18.33
35.76	0.93	0.00	-18.33
35.78	0.93	0.00	-17.70
35.80	0.93	0.00	-17.70
35.82	0.93	0.00	-17.70
35.84	0.93	0.00	-17.70
35.86	0.93	0.00	-17.10
35.88	0.93	0.00	-17.10
35.90	0.93	0.00	-17.10
35.92	0.93	0.00	-16.48
35.94	0.93	0.00	-16.48
35.96	0.93	0.00	-16.48
35.98	0.93	0.00	-16.48
36.00	0.93	0.00	-17.10
36.02	0.93	0.00	-17.70
36.04	0.93	0.00	-17.70
36.06	0.93	0.00	-17.70
36.08	0.93	0.00	-17.10
36.10	0.93	0.00	-17.10
36.12	0.93	0.00	-17.70
36.14	0.93	0.00	-18.33
36.16	0.93	0.00	-18.33
36.18	0.93	0.00	-18.33
36.20	0.92	0.00	-18.93
36.22	0.93	0.00	-18.33
36.24	0.93	0.00	-18.33
36.26	0.93	0.00	-18.33
36.28	0.93	0.00	-18.33
36.30	0.93	0.00	-18.33
36.32	0.93	0.00	-18.33
36.34	0.93	0.00	-17.70
36.36	0.93	0.00	-18.33
36.38	0.93	0.00	-17.70

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
36.40	0.93	0.00	-18.33
36.42	0.93	0.00	-17.70
36.44	0.93	0.00	-17.70
36.46	0.93	0.00	-17.70
36.48	0.93	0.00	-17.70
36.50	0.93	0.00	-18.33
36.52	0.93	0.00	-18.33
36.54	0.93	0.00	-18.33
36.56	0.93	0.00	-18.33
36.58	0.93	0.00	-18.33
36.60	0.92	0.00	-18.93
36.62	0.93	0.00	-18.33
36.64	0.93	0.00	-17.10
36.66	0.93	0.00	-16.48
36.68	0.93	0.00	-16.48
36.70	0.93	0.00	-17.10
36.72	0.93	0.00	-17.10
36.74	0.93	0.00	-17.10
36.76	0.93	0.00	-17.10
36.78	0.93	0.00	-17.10
36.80	0.93	0.00	-17.70
36.82	0.93	0.00	-17.70
36.84	0.93	0.00	-17.70
36.86	0.93	0.00	-17.70
36.88	0.93	0.00	-17.10
36.90	0.93	0.00	-17.70
36.92	0.93	0.00	-17.70
36.94	0.93	0.00	-17.70
36.96	0.93	0.00	-17.10
36.98	0.93	0.00	-17.70
37.00	0.93	0.00	-18.33
37.02	0.92	0.00	-18.93
37.04	0.92	0.00	-18.93
37.06	0.93	0.00	-18.33
37.08	0.93	0.00	-18.33
37.10	0.92	0.00	-18.93
37.12	0.92	0.00	-18.93
37.14	0.93	0.00	-18.33
37.16	0.92	0.00	-18.93
37.18	0.93	0.00	-18.33
37.20	0.93	0.00	-17.10
37.22	0.93	0.00	-16.48
37.24	0.94	0.00	-15.28
37.26	0.94	0.00	-14.65
37.28	0.94	0.00	-15.28
37.30	0.94	0.00	-15.28
37.32	0.94	0.00	-15.28
37.34	0.94	0.00	-15.28
37.36	0.94	0.00	-14.65
37.38	0.94	0.00	-15.28
37.40	0.94	0.00	-15.28
37.42	0.94	0.00	-15.28

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
37.44	0.94	0.00	-14.65
37.46	0.94	0.00	-15.28
37.48	0.94	0.00	-15.88
37.50	0.93	0.00	-16.48
37.52	0.93	0.00	-16.48
37.54	0.94	0.00	-15.88
37.56	0.94	0.00	-15.88
37.58	0.93	0.00	-16.48
37.60	0.93	0.00	-16.48
37.62	0.93	0.00	-16.48
37.64	0.94	0.00	-15.88
37.66	0.94	0.00	-15.28
37.68	0.94	0.00	-15.28
37.70	0.94	0.00	-15.28
37.72	0.94	0.00	-14.65
37.74	0.94	0.00	-14.05
37.76	0.95	0.00	-13.43
37.78	0.94	0.00	-14.05
37.80	0.95	0.00	-13.43
37.82	0.95	0.00	-13.43
37.84	0.95	0.00	-12.20
37.86	0.96	0.00	-11.00
37.88	0.96	0.00	-9.78
37.90	0.97	0.00	-7.92
37.92	0.97	0.00	-6.73
37.94	0.98	0.00	-5.50
37.96	0.98	0.00	-4.28
37.98	0.99	0.00	-3.05
38.00	0.99	0.00	-2.45
38.02	0.99	0.00	-1.82
38.04	0.99	0.00	-2.45
38.06	0.99	0.00	-2.45
38.08	0.99	0.00	-1.82
38.10	1.00	0.00	-1.23
38.12	1.01	0.00	3.00
38.14	1.05	0.00	13.50
38.16	1.13	0.00	32.25
38.18	1.27	0.00	67.75
38.20	1.44	0.00	110.00
38.22	1.53	0.00	133.00
38.24	1.52	0.00	129.50
38.26	1.46	0.00	114.75
38.28	1.42	0.00	104.50
38.30	1.42	0.00	103.75
38.32	1.45	0.00	113.50
38.34	1.48	0.00	119.00
38.36	1.45	0.00	112.25
38.38	1.38	0.00	95.25
38.40	1.30	0.00	74.50
38.42	1.23	0.00	56.25
38.44	1.17	0.00	43.25
38.46	1.14	0.00	36.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
38.48	1.16	0.00	39.00
38.50	1.25	0.00	63.00
38.52	1.49	0.00	122.75
38.54	1.69	0.00	172.75
38.56	1.72	0.00	179.50
38.58	1.65	0.00	161.25
38.60	1.57	0.00	141.75
38.62	1.51	0.00	127.00
38.64	1.47	0.00	116.50
38.66	1.43	0.00	108.00
38.68	1.40	0.00	100.00
38.70	1.39	0.00	97.00
38.72	1.39	0.00	97.75
38.74	1.40	0.00	100.75
38.76	1.42	0.00	104.50
38.78	1.42	0.00	104.50
38.80	1.41	0.00	101.25
38.82	1.38	0.00	95.75
38.84	1.36	0.00	90.25
38.86	1.34	0.00	86.00
38.88	1.34	0.00	86.00
38.90	1.37	0.00	92.75
38.92	1.45	0.00	112.25
38.94	1.56	0.00	139.75
38.96	1.63	0.00	158.00
38.98	1.65	0.00	162.50
39.00	1.63	0.00	157.00
39.02	1.59	0.00	148.25
39.04	1.55	0.00	137.25
39.06	1.49	0.00	123.25
39.08	1.44	0.00	108.75
39.10	1.39	0.00	96.50
39.12	1.35	0.00	88.50
39.14	1.35	0.00	88.00
39.16	1.37	0.00	92.25
39.18	1.39	0.00	97.75
39.20	1.41	0.00	102.00
39.22	1.41	0.00	101.25
39.24	1.39	0.00	97.75
39.26	1.37	0.00	92.25
39.28	1.35	0.00	88.00
39.30	1.35	0.00	86.75
39.32	1.36	0.00	91.00
39.34	1.40	0.00	99.00
39.36	1.43	0.00	108.00
39.38	1.46	0.00	114.75
39.40	1.48	0.00	119.00
39.42	1.49	0.00	121.50
39.44	1.49	0.00	121.50
39.46	1.48	0.00	119.75
39.48	1.45	0.00	113.00
39.50	1.40	0.00	100.75

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
39.52	1.34	0.00	85.50
39.54	1.28	0.00	70.75
39.56	1.24	0.00	59.25
39.58	1.21	0.00	52.50
39.60	1.22	0.00	53.75
39.62	1.26	0.00	64.75
39.64	1.34	0.00	86.00
39.66	1.41	0.00	103.25
39.68	1.43	0.00	106.75
39.70	1.39	0.00	97.00
39.72	1.33	0.00	81.75
39.74	1.26	0.00	66.00
39.76	1.22	0.00	55.00
39.78	1.20	0.00	49.50
39.80	1.21	0.00	53.00
39.82	1.28	0.00	70.75
39.84	1.39	0.00	98.25
39.86	1.47	0.00	117.25
39.88	1.46	0.00	116.00
39.90	1.40	0.00	100.00
39.92	1.32	0.00	79.25
39.94	1.24	0.00	61.00
39.96	1.19	0.00	47.50
39.98	1.15	0.00	38.50
40.00	1.14	0.00	34.25
40.02	1.14	0.00	34.25
40.04	1.17	0.00	41.50
40.06	1.24	0.00	59.25
40.08	1.33	0.00	81.25
40.10	1.38	0.00	94.00
40.12	1.37	0.00	91.50
40.14	1.31	0.00	77.50
40.16	1.24	0.00	60.50
40.18	1.18	0.00	45.75
40.20	1.15	0.00	37.25
40.22	1.15	0.00	37.25
40.24	1.20	0.00	49.50
40.26	1.30	0.00	75.00
40.28	1.40	0.00	100.00
40.30	1.44	0.00	108.75
40.32	1.40	0.00	100.00
40.34	1.33	0.00	83.00
40.36	1.26	0.00	66.00
40.38	1.21	0.00	52.50
40.40	1.18	0.00	45.75
40.42	1.19	0.00	47.00
40.44	1.24	0.00	59.25
40.46	1.33	0.00	81.75
40.48	1.41	0.00	101.25
40.50	1.43	0.00	107.50
40.52	1.39	0.00	98.25
40.54	1.33	0.00	83.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
40.56	1.27	0.00	67.25
40.58	1.23	0.00	56.75
40.60	1.21	0.00	52.00
40.62	1.22	0.00	55.50
40.64	1.27	0.00	68.50
40.66	1.35	0.00	88.50
40.68	1.42	0.00	103.75
40.70	1.43	0.00	106.25
40.72	1.39	0.00	97.75
40.74	1.34	0.00	84.75
40.76	1.29	0.00	72.00
40.78	1.25	0.00	63.50
40.80	1.24	0.00	61.00
40.82	1.26	0.00	65.25
40.84	1.30	0.00	75.00
40.86	1.35	0.00	86.75
40.88	1.37	0.00	93.50
40.90	1.38	0.00	94.75
40.92	1.36	0.00	91.00
40.94	1.34	0.00	85.50
40.96	1.32	0.00	80.50
40.98	1.32	0.00	78.75
41.00	1.31	0.00	77.50
41.02	1.31	0.00	77.00
41.04	1.31	0.00	77.50
41.06	1.32	0.00	79.25
41.08	1.33	0.00	83.00
41.10	1.36	0.00	89.25
41.12	1.38	0.00	94.00
41.14	1.38	0.00	95.25
41.16	1.37	0.00	92.25
41.18	1.34	0.00	84.75
41.20	1.31	0.00	76.25
41.22	1.28	0.00	70.25
41.24	1.27	0.00	68.50
41.26	1.28	0.00	70.75
41.28	1.32	0.00	80.50
41.30	1.37	0.00	92.75
41.32	1.41	0.00	101.25
41.34	1.40	0.00	100.75
41.36	1.37	0.00	93.50
41.38	1.33	0.00	82.50
41.40	1.29	0.00	72.75
41.42	1.27	0.00	67.75
41.44	1.28	0.00	69.50
41.46	1.31	0.00	76.25
41.48	1.34	0.00	85.50
41.50	1.37	0.00	92.25
41.52	1.38	0.00	94.00
41.54	1.36	0.00	91.00
41.56	1.34	0.00	84.75
41.58	1.32	0.00	78.75

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
41.60	1.30	0.00	75.00
41.62	1.29	0.00	73.25
41.64	1.30	0.00	75.00
41.66	1.32	0.00	78.75
41.68	1.34	0.00	83.75
41.70	1.35	0.00	88.50
41.72	1.36	0.00	91.00
41.74	1.36	0.00	89.75
41.76	1.35	0.00	86.75
41.78	1.33	0.00	81.75
41.80	1.32	0.00	78.75
41.82	1.31	0.00	77.00
41.84	1.32	0.00	78.75
41.86	1.33	0.00	81.25
41.88	1.34	0.00	83.75
41.90	1.34	0.00	84.75
41.92	1.34	0.00	84.25
41.94	1.33	0.00	82.50
41.96	1.32	0.00	80.00
41.98	1.31	0.00	78.25
42.00	1.31	0.00	77.50
42.02	1.31	0.00	78.25
42.04	1.31	0.00	78.25
42.06	1.32	0.00	78.75
42.08	1.32	0.00	78.75
42.10	1.31	0.00	78.25
42.12	1.31	0.00	77.50
42.14	1.32	0.00	78.75
42.16	1.32	0.00	80.50
42.18	1.33	0.00	83.00
42.20	1.34	0.00	85.50
42.22	1.34	0.00	86.00
42.24	1.34	0.00	85.50
42.26	1.34	0.00	83.75
42.28	1.33	0.00	81.75
42.30	1.32	0.00	79.25
42.32	1.31	0.00	78.25
42.34	1.32	0.00	78.75
42.36	1.32	0.00	80.50
42.38	1.34	0.00	83.75
42.40	1.34	0.00	86.00
42.42	1.35	0.00	88.00
42.44	1.35	0.00	87.25
42.46	1.34	0.00	85.50
42.48	1.33	0.00	81.75
42.50	1.32	0.00	78.75
42.52	1.31	0.00	77.50
42.54	1.31	0.00	78.25
42.56	1.32	0.00	79.25
42.58	1.33	0.00	81.75
42.60	1.34	0.00	84.25
42.62	1.34	0.00	84.75

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
42.64	1.33	0.00	82.50
42.66	1.32	0.00	78.75
42.68	1.30	0.00	74.50
42.70	1.29	0.00	71.50
42.72	1.28	0.00	70.75
42.74	1.29	0.00	72.00
42.76	1.30	0.00	75.00
42.78	1.31	0.00	78.25
42.80	1.32	0.00	79.25
42.82	1.32	0.00	79.25
42.84	1.31	0.00	77.50
42.86	1.30	0.00	75.75
42.88	1.30	0.00	74.50
42.90	1.30	0.00	74.50
42.92	1.30	0.00	75.75
42.94	1.31	0.00	78.25
42.96	1.31	0.00	78.25
42.98	1.31	0.00	78.25
43.00	1.31	0.00	77.50
43.02	1.31	0.00	77.00
43.04	1.31	0.00	77.50
43.06	1.31	0.00	78.25
43.08	1.31	0.00	78.25
43.10	1.31	0.00	77.50
43.12	1.31	0.00	77.00
43.14	1.31	0.00	76.25
43.16	1.30	0.00	75.00
43.18	1.30	0.00	74.50
43.20	1.29	0.00	73.25
43.22	1.30	0.00	73.75
43.24	1.30	0.00	75.75
43.26	1.31	0.00	77.50
43.28	1.32	0.00	79.25
43.30	1.32	0.00	80.50
43.32	1.32	0.00	80.50
43.34	1.32	0.00	78.75
43.36	1.30	0.00	75.75
43.38	1.29	0.00	73.25
43.40	1.29	0.00	73.25
43.42	1.30	0.00	75.75
43.44	1.32	0.00	80.00
43.46	1.33	0.00	82.50
43.48	1.34	0.00	83.75
43.50	1.33	0.00	82.50
43.52	1.32	0.00	79.25
43.54	1.31	0.00	77.00
43.56	1.30	0.00	73.75
43.58	1.29	0.00	72.00
43.60	1.29	0.00	72.75
43.62	1.30	0.00	75.75
43.64	1.32	0.00	79.25
43.66	1.33	0.00	81.25

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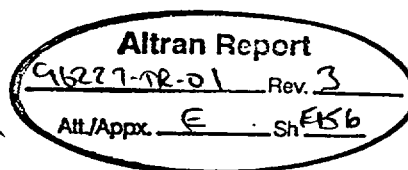
SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
43.68	1.33	0.00	81.75
43.70	1.32	0.00	80.00
43.72	1.31	0.00	76.25
43.74	1.30	0.00	73.75
43.76	1.30	0.00	73.75
43.78	1.30	0.00	75.75
43.80	1.31	0.00	78.25
43.82	1.32	0.00	80.00
43.84	1.33	0.00	81.25
43.86	1.32	0.00	80.50
43.88	1.32	0.00	78.75
43.90	1.31	0.00	78.25
43.92	1.31	0.00	78.25
43.94	1.32	0.00	79.25
43.96	1.32	0.00	80.50
43.98	1.32	0.00	80.50
44.00	1.32	0.00	80.00
44.02	1.32	0.00	80.00
44.04	1.33	0.00	81.25
44.06	1.33	0.00	81.25
44.08	1.33	0.00	81.75
44.10	1.33	0.00	81.75
44.12	1.33	0.00	81.75
44.14	1.33	0.00	81.75
44.16	1.33	0.00	81.75
44.18	1.33	0.00	81.25
44.20	1.33	0.00	81.75
44.22	1.33	0.00	82.50
44.24	1.33	0.00	82.50
44.26	1.33	0.00	82.50
44.28	1.33	0.00	82.50
44.30	1.33	0.00	81.25
44.32	1.33	0.00	81.75
44.34	1.33	0.00	82.50
44.36	1.33	0.00	83.00
44.38	1.33	0.00	82.50
44.40	1.33	0.00	83.00
44.42	1.33	0.00	82.50
44.44	1.33	0.00	82.50
44.46	1.33	0.00	82.50
44.48	1.34	0.00	83.75
44.50	1.34	0.00	84.75
44.52	1.35	0.00	87.25
44.54	1.35	0.00	88.50
44.56	1.35	0.00	88.50
44.58	1.35	0.00	87.25
44.60	1.34	0.00	84.25
44.62	1.34	0.00	84.25
44.64	1.35	0.00	86.75
44.66	1.36	0.00	89.25
44.68	1.37	0.00	91.50
44.70	1.36	0.00	91.00

Altran Report
 96227-12-01 Rev. 3
 At/ Appx. E Sh FISS

Attachment 3 to Calculation No. EF-S-010
 Calculation Revision No. 00
 Sheet 45 of 46

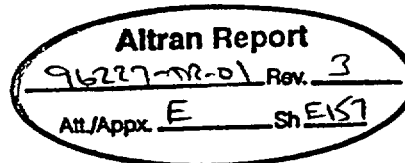
SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
44.72	1.36	0.00	89.25
44.74	1.35	0.00	86.75
44.76	1.34	0.00	86.00
44.78	1.34	0.00	86.00
44.80	1.35	0.00	87.25
44.82	1.35	0.00	88.00
44.84	1.35	0.00	87.25
44.86	1.35	0.00	86.75
44.88	1.34	0.00	85.50
44.90	1.34	0.00	85.50
44.92	1.34	0.00	85.50
44.94	1.35	0.00	86.75
44.96	1.35	0.00	86.75
44.98	1.34	0.00	85.50
45.00	1.34	0.00	84.25

Attachment 3 to Calculation No. EF-S-010
Calculation Revision No. 00
Sheet 46 of 46



Data collected during ESM Pump start, step 5.4.3, system line-ups. Data shows initial pressure spikes during ESM pump start with service water cross connected to maintain system fill and pressure.

Test: STS KJ-001R STEP 5.4.3	
Run:	0.00
Device:	MB16
Channel:	1
Event:	1
First Sample:	7372.00
Last Sample:	8872.00
Trigger Date:	11-14-1991
Trigger Time:	00:08:11.91
X-Axis Units at First Sample:	147.40
Sample Separation:	0.02
X-Axis Units:	SECONDS
Y-Axis Upper Limit:	5.00
Y-Axis Lower Limit:	-5.00
Y-Axis Max Value:	1.59
Y-Axis Min Value:	1.06
Y-Axis Units:	VOLTS



Attachment 2 to Calculation No. EF-S-010

Calculation Revision No. 00

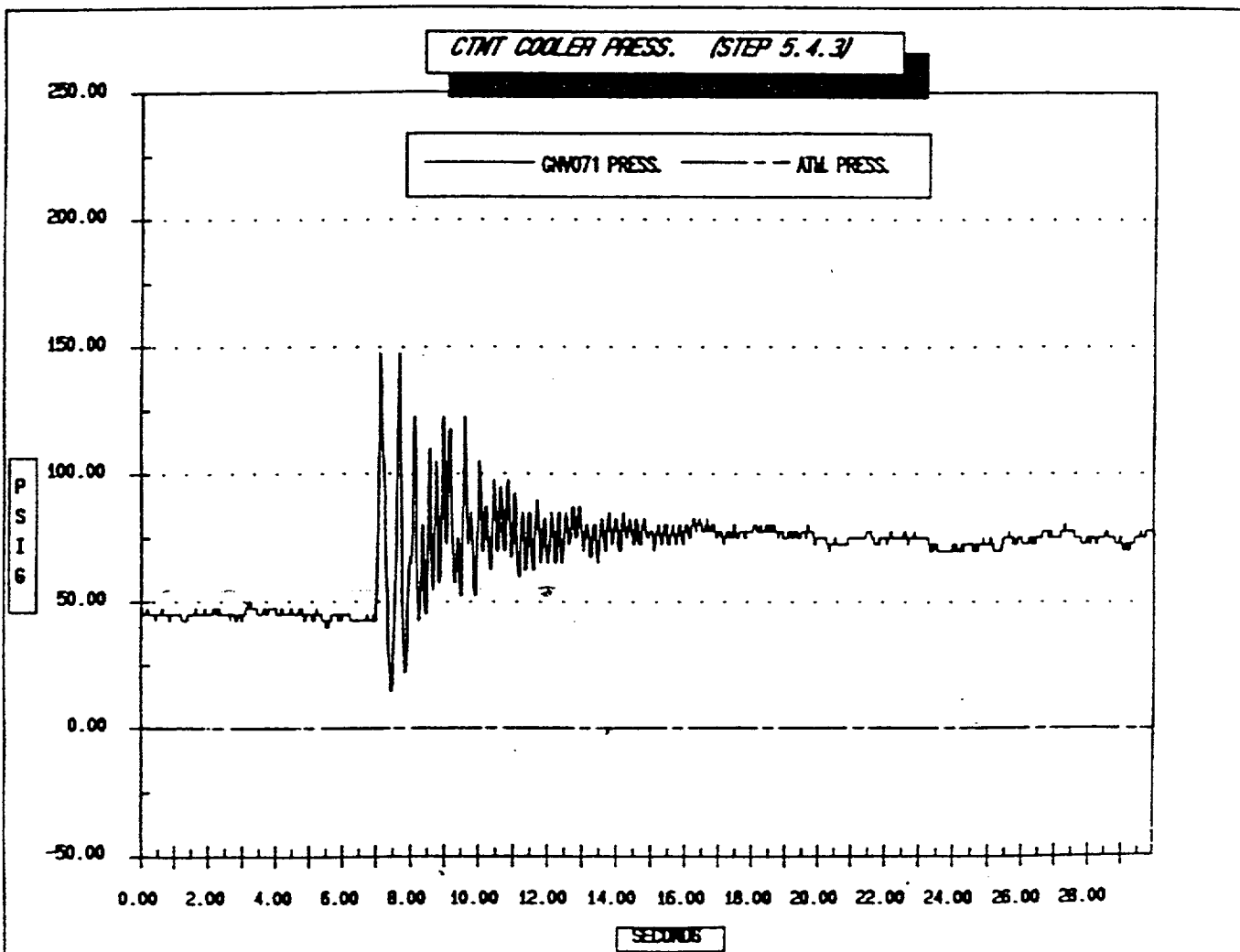
Originator: (signature)

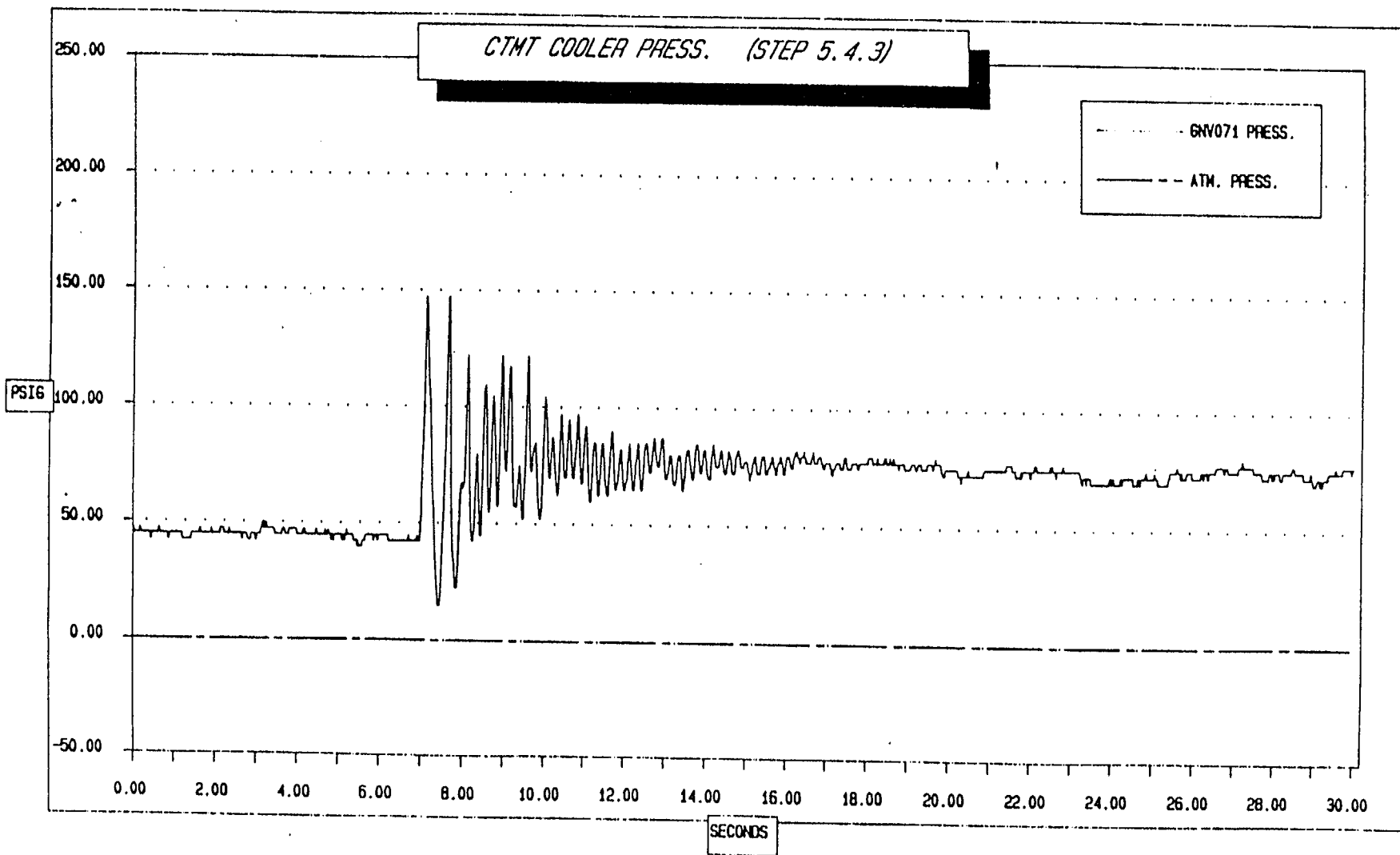
Verified By: TJD

Sheet 1 of 3

Date: 5/4/92

Date: 5/7/92





Altiran Report
91227-01 Rev. 3
Att/Approx E Sh E58

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
0.00	1.19	0.00	47.50
0.02	1.18	0.00	45.00
0.04	1.18	0.00	45.00
0.06	1.18	0.00	45.00
0.08	1.18	0.00	45.00
0.10	1.18	0.00	45.00
0.12	1.18	0.00	45.00
0.14	1.18	0.00	45.00
0.16	1.19	0.00	47.50
0.18	1.19	0.00	47.50
0.20	1.18	0.00	45.00
0.22	1.18	0.00	45.00
0.24	1.18	0.00	45.00
0.26	1.18	0.00	45.00
0.28	1.18	0.00	45.00
0.30	1.18	0.00	45.00
0.32	1.18	0.00	45.00
0.34	1.18	0.00	45.00
0.36	1.18	0.00	45.00
0.38	1.18	0.00	45.00
0.40	1.18	0.00	45.00
0.42	1.17	0.00	42.50
0.44	1.18	0.00	45.00
0.46	1.18	0.00	45.00
0.48	1.18	0.00	45.00
0.50	1.18	0.00	45.00
0.52	1.18	0.00	45.00
0.54	1.18	0.00	45.00
0.56	1.18	0.00	45.00
0.58	1.18	0.00	45.00
0.60	1.19	0.00	47.50
0.62	1.19	0.00	47.50
0.64	1.18	0.00	45.00
0.66	1.18	0.00	45.00
0.68	1.18	0.00	45.00
0.70	1.18	0.00	45.00
0.72	1.18	0.00	45.00
0.74	1.18	0.00	45.00
0.76	1.18	0.00	45.00
0.78	1.18	0.00	45.00
0.80	1.18	0.00	45.00
0.82	1.18	0.00	45.00
0.84	1.17	0.00	42.50
0.86	1.17	0.00	42.50
0.88	1.18	0.00	45.00
0.90	1.18	0.00	45.00
0.92	1.18	0.00	45.00
0.94	1.18	0.00	45.00
0.96	1.18	0.00	45.00
0.98	1.18	0.00	45.00
1.00	1.18	0.00	45.00
1.02	1.18	0.00	45.00

Altran Report
 94227-MR-01 Rev. 3
 At/ Appx. E Sh E159

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
1.04	1.18	0.00	45.00
1.06	1.18	0.00	45.00
1.08	1.18	0.00	45.00
1.10	1.18	0.00	45.00
1.12	1.18	0.00	45.00
1.14	1.18	0.00	45.00
1.16	1.18	0.00	45.00
1.18	1.18	0.00	45.00
1.20	1.17	0.00	42.50
1.22	1.17	0.00	42.50
1.24	1.17	0.00	42.50
1.26	1.17	0.00	42.50
1.28	1.17	0.00	42.50
1.30	1.17	0.00	42.50
1.32	1.17	0.00	42.50
1.34	1.17	0.00	42.50
1.36	1.17	0.00	42.50
1.38	1.17	0.00	42.50
1.40	1.18	0.00	45.00
1.42	1.18	0.00	45.00
1.44	1.18	0.00	45.00
1.46	1.18	0.00	45.00
1.48	1.18	0.00	45.00
1.50	1.18	0.00	45.00
1.52	1.18	0.00	45.00
1.54	1.18	0.00	45.00
1.56	1.18	0.00	45.00
1.58	1.18	0.00	45.00
1.60	1.19	0.00	47.50
1.62	1.19	0.00	47.50
1.64	1.18	0.00	45.00
1.66	1.18	0.00	45.00
1.68	1.18	0.00	45.00
1.70	1.18	0.00	45.00
1.72	1.18	0.00	45.00
1.74	1.18	0.00	45.00
1.76	1.18	0.00	45.00
1.78	1.18	0.00	45.00
1.80	1.18	0.00	45.00
1.82	1.18	0.00	45.00
1.84	1.18	0.00	45.00
1.86	1.18	0.00	45.00
1.88	1.18	0.00	45.00
1.90	1.19	0.00	47.50
1.92	1.18	0.00	45.00
1.94	1.18	0.00	45.00
1.96	1.18	0.00	45.00
1.98	1.18	0.00	45.00
2.00	1.18	0.00	45.00
2.02	1.18	0.00	45.00
2.04	1.18	0.00	45.00
2.06	1.18	0.00	45.00

Altran Report
96227-TR-01 Rev. 3
 Att/Appx. E Sh E160

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
2.08	1.18	0.00	45.00
2.10	1.18	0.00	45.00
2.12	1.19	0.00	47.50
2.14	1.19	0.00	47.50
2.16	1.19	0.00	47.50
2.18	1.19	0.00	47.50
2.20	1.19	0.00	47.50
2.22	1.18	0.00	45.00
2.24	1.18	0.00	45.00
2.26	1.18	0.00	45.00
2.28	1.18	0.00	45.00
2.30	1.18	0.00	45.00
2.32	1.19	0.00	47.50
2.34	1.18	0.00	45.00
2.36	1.18	0.00	45.00
2.38	1.18	0.00	45.00
2.40	1.18	0.00	45.00
2.42	1.18	0.00	45.00
2.44	1.18	0.00	45.00
2.46	1.18	0.00	45.00
2.48	1.18	0.00	45.00
2.50	1.18	0.00	45.00
2.52	1.18	0.00	45.00
2.54	1.18	0.00	45.00
2.56	1.18	0.00	45.00
2.58	1.18	0.00	45.00
2.60	1.18	0.00	45.00
2.62	1.18	0.00	45.00
2.64	1.17	0.00	42.50
2.66	1.18	0.00	45.00
2.68	1.18	0.00	45.00
2.70	1.18	0.00	45.00
2.72	1.18	0.00	45.00
2.74	1.18	0.00	45.00
2.76	1.18	0.00	45.00
2.78	1.17	0.00	42.50
2.80	1.17	0.00	42.50
2.82	1.17	0.00	42.50
2.84	1.17	0.00	42.50
2.86	1.18	0.00	45.00
2.88	1.18	0.00	45.00
2.90	1.18	0.00	45.00
2.92	1.18	0.00	45.00
2.94	1.18	0.00	45.00
2.96	1.18	0.00	45.00
2.98	1.17	0.00	42.50
3.00	1.17	0.00	42.50
3.02	1.18	0.00	45.00
3.04	1.18	0.00	45.00
3.06	1.18	0.00	45.00
3.08	1.18	0.00	45.00
3.10	1.19	0.00	47.50

Altran Report
 96227-R-01 Rev. 3
 Att. Appx. E Sh E161

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
3.12	1.19	0.00	47.50
3.14	1.20	0.00	50.00
3.16	1.20	0.00	50.00
3.18	1.19	0.00	47.50
3.20	1.19	0.00	47.50
3.22	1.20	0.00	50.00
3.24	1.20	0.00	50.00
3.26	1.19	0.00	47.50
3.28	1.19	0.00	47.50
3.30	1.19	0.00	47.50
3.32	1.19	0.00	47.50
3.34	1.19	0.00	47.50
3.36	1.19	0.00	47.50
3.38	1.19	0.00	47.50
3.40	1.19	0.00	47.50
3.42	1.19	0.00	47.50
3.44	1.18	0.00	45.00
3.46	1.18	0.00	45.00
3.48	1.18	0.00	45.00
3.50	1.18	0.00	45.00
3.52	1.18	0.00	45.00
3.54	1.18	0.00	45.00
3.56	1.18	0.00	45.00
3.58	1.18	0.00	45.00
3.60	1.18	0.00	45.00
3.62	1.19	0.00	47.50
3.64	1.19	0.00	47.50
3.66	1.19	0.00	47.50
3.68	1.19	0.00	47.50
3.70	1.18	0.00	45.00
3.72	1.18	0.00	45.00
3.74	1.18	0.00	45.00
3.76	1.18	0.00	45.00
3.78	1.19	0.00	47.50
3.80	1.19	0.00	47.50
3.82	1.19	0.00	47.50
3.84	1.19	0.00	47.50
3.86	1.19	0.00	47.50
3.88	1.19	0.00	47.50
3.90	1.19	0.00	47.50
3.92	1.19	0.00	47.50
3.94	1.19	0.00	47.50
3.96	1.19	0.00	47.50
3.98	1.19	0.00	47.50
4.00	1.18	0.00	45.00
4.02	1.18	0.00	45.00
4.04	1.18	0.00	45.00
4.06	1.18	0.00	45.00
4.08	1.18	0.00	45.00
4.10	1.18	0.00	45.00
4.12	1.18	0.00	45.00
4.14	1.19	0.00	47.50

Altran Report
 96287-M-01 Rev. 3
 Att/Appx. E Sh E162

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
4.16	1.19	0.00	47.50
4.18	1.19	0.00	47.50
4.20	1.18	0.00	45.00
4.22	1.18	0.00	45.00
4.24	1.18	0.00	45.00
4.26	1.18	0.00	45.00
4.28	1.18	0.00	45.00
4.30	1.18	0.00	45.00
4.32	1.18	0.00	45.00
4.34	1.18	0.00	45.00
4.36	1.18	0.00	45.00
4.38	1.18	0.00	45.00
4.40	1.18	0.00	45.00
4.42	1.18	0.00	45.00
4.44	1.19	0.00	47.50
4.46	1.19	0.00	47.50
4.48	1.18	0.00	45.00
4.50	1.18	0.00	45.00
4.52	1.18	0.00	45.00
4.54	1.18	0.00	45.00
4.56	1.18	0.00	45.00
4.58	1.18	0.00	45.00
4.60	1.18	0.00	45.00
4.62	1.18	0.00	45.00
4.64	1.18	0.00	45.00
4.66	1.18	0.00	45.00
4.68	1.19	0.00	47.50
4.70	1.18	0.00	45.00
4.72	1.18	0.00	45.00
4.74	1.18	0.00	45.00
4.76	1.19	0.00	47.50
4.78	1.18	0.00	45.00
4.80	1.18	0.00	45.00
4.82	1.17	0.00	42.50
4.84	1.18	0.00	45.00
4.86	1.18	0.00	45.00
4.88	1.17	0.00	42.50
4.90	1.18	0.00	45.00
4.92	1.18	0.00	45.00
4.94	1.18	0.00	45.00
4.96	1.18	0.00	45.00
4.98	1.18	0.00	45.00
5.00	1.18	0.00	45.00
5.02	1.18	0.00	45.00
5.04	1.18	0.00	45.00
5.06	1.18	0.00	45.00
5.08	1.17	0.00	42.50
5.10	1.18	0.00	45.00
5.12	1.18	0.00	45.00
5.14	1.17	0.00	42.50
5.16	1.18	0.00	45.00
5.18	1.18	0.00	45.00

Altran Report
 96227-TR-D1 Rev. 3
 AS/Appx. E ShE163

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
5.20	1.19	0.00	47.50
5.22	1.18	0.00	45.00
5.24	1.18	0.00	45.00
5.26	1.18	0.00	45.00
5.28	1.18	0.00	45.00
5.30	1.18	0.00	45.00
5.32	1.18	0.00	45.00
5.34	1.18	0.00	45.00
5.36	1.17	0.00	42.50
5.38	1.17	0.00	42.50
5.40	1.17	0.00	42.50
5.42	1.17	0.00	42.50
5.44	1.17	0.00	42.50
5.46	1.16	0.00	40.00
5.48	1.17	0.00	42.50
5.50	1.16	0.00	40.00
5.52	1.16	0.00	40.00
5.54	1.16	0.00	40.00
5.56	1.16	0.00	40.00
5.58	1.17	0.00	42.50
5.60	1.17	0.00	42.50
5.62	1.17	0.00	42.50
5.64	1.17	0.00	42.50
5.66	1.18	0.00	45.00
5.68	1.18	0.00	45.00
5.70	1.18	0.00	45.00
5.72	1.18	0.00	45.00
5.74	1.18	0.00	45.00
5.76	1.18	0.00	45.00
5.78	1.18	0.00	45.00
5.80	1.18	0.00	45.00
5.82	1.18	0.00	45.00
5.84	1.18	0.00	45.00
5.86	1.17	0.00	42.50
5.88	1.18	0.00	45.00
5.90	1.18	0.00	45.00
5.92	1.18	0.00	45.00
5.94	1.18	0.00	45.00
5.96	1.17	0.00	42.50
5.98	1.18	0.00	45.00
6.00	1.18	0.00	45.00
6.02	1.18	0.00	45.00
6.04	1.18	0.00	45.00
6.06	1.18	0.00	45.00
6.08	1.18	0.00	45.00
6.10	1.18	0.00	45.00
6.12	1.18	0.00	45.00
6.14	1.18	0.00	45.00
6.16	1.18	0.00	45.00
6.18	1.18	0.00	45.00
6.20	1.18	0.00	45.00
6.22	1.17	0.00	42.50

Altran Report
 91227-01 Rev. 3
 Att/ Appx. E Sh F164

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
6.24	1.17	0.00	42.50
6.26	1.17	0.00	42.50
6.28	1.17	0.00	42.50
6.30	1.17	0.00	42.50
6.32	1.17	0.00	42.50
6.34	1.17	0.00	42.50
6.36	1.17	0.00	42.50
6.38	1.17	0.00	42.50
6.40	1.17	0.00	42.50
6.42	1.17	0.00	42.50
6.44	1.17	0.00	42.50
6.46	1.17	0.00	42.50
6.48	1.17	0.00	42.50
6.50	1.17	0.00	42.50
6.52	1.17	0.00	42.50
6.54	1.17	0.00	42.50
6.56	1.17	0.00	42.50
6.58	1.17	0.00	42.50
6.60	1.17	0.00	42.50
6.62	1.17	0.00	42.50
6.64	1.17	0.00	42.50
6.66	1.17	0.00	42.50
6.68	1.17	0.00	42.50
6.70	1.17	0.00	42.50
6.72	1.18	0.00	45.00
6.74	1.17	0.00	42.50
6.76	1.17	0.00	42.50
6.78	1.17	0.00	42.50
6.80	1.17	0.00	42.50
6.82	1.17	0.00	42.50
6.84	1.17	0.00	42.50
6.86	1.17	0.00	42.50
6.88	1.17	0.00	42.50
6.90	1.17	0.00	42.50
6.92	1.18	0.00	45.00
6.94	1.17	0.00	42.50
6.96	1.17	0.00	42.50
6.98	1.17	0.00	42.50
7.00	1.19	0.00	47.50
7.02	1.22	0.00	55.00
7.04	1.28	0.00	70.00
7.06	1.39	0.00	97.50
7.08	1.51	0.00	127.50
7.10	1.59	0.00	147.50
7.12	1.58	0.00	145.00
7.14	1.54	0.00	135.00
7.16	1.49	0.00	122.50
7.18	1.45	0.00	112.50
7.20	1.43	0.00	107.50
7.22	1.41	0.00	102.50
7.24	1.37	0.00	92.50
7.26	1.32	0.00	80.00

Altran Report
 96227-TR-01 Rev. 3
 At/ Appx. E Sh E165

SECONDS		XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
	7.28	1.27	0.00	67.50
	7.30	1.23	0.00	57.50
	7.32	1.19	0.00	47.50
	7.34	1.15	0.00	37.50
	7.36	1.12	0.00	30.00
	7.38	1.10	0.00	25.00
	7.40	1.08	0.00	20.00
	7.42	1.06	0.00	15.00
	7.44	1.06	0.00	15.00
	7.46	1.06	0.00	15.00
	7.48	1.07	0.00	17.50
	7.50	1.10	0.00	25.00
	7.52	1.14	0.00	35.00
	7.54	1.20	0.00	50.00
	7.56	1.24	0.00	60.00
	7.58	1.29	0.00	72.50
	7.60	1.35	0.00	87.50
	7.62	1.44	0.00	110.00
	7.64	1.54	0.00	135.00
	7.66	1.59	0.00	147.50
	7.68	1.55	0.00	137.50
	7.70	1.47	0.00	117.50
	7.72	1.38	0.00	95.00
	7.74	1.29	0.00	72.50
	7.76	1.22	0.00	55.00
	7.78	1.16	0.00	40.00
	7.80	1.13	0.00	32.50
	7.82	1.10	0.00	25.00
	7.84	1.09	0.00	22.50
	7.86	1.09	0.00	22.50
	7.88	1.10	0.00	25.00
	7.90	1.13	0.00	32.50
	7.92	1.17	0.00	42.50
	7.94	1.22	0.00	55.00
	7.96	1.25	0.00	62.50
	7.98	1.27	0.00	67.50
	8.00	1.27	0.00	67.50
	8.02	1.26	0.00	65.00
	8.04	1.27	0.00	67.50
	8.06	1.31	0.00	77.50
	8.08	1.38	0.00	95.00
	8.10	1.46	0.00	115.00
	8.12	1.49	0.00	122.50
	8.14	1.45	0.00	112.50
	8.16	1.38	0.00	95.00
	8.18	1.30	0.00	75.00
	8.20	1.23	0.00	57.50
	8.22	1.19	0.00	47.50
	8.24	1.18	0.00	45.00
	8.26	1.17	0.00	42.50
	8.28	1.19	0.00	47.50
	8.30	1.22	0.00	55.00

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 Att/Appx. E Sh E16

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
8.32	1.26	0.00	65.00
8.34	1.31	0.00	77.50
8.36	1.32	0.00	80.00
8.38	1.29	0.00	72.50
8.40	1.26	0.00	65.00
8.42	1.22	0.00	55.00
8.44	1.19	0.00	47.50
8.46	1.18	0.00	45.00
8.48	1.20	0.00	50.00
8.50	1.26	0.00	65.00
8.52	1.35	0.00	87.50
8.54	1.43	0.00	107.50
8.56	1.44	0.00	110.00
8.58	1.41	0.00	102.50
8.60	1.34	0.00	85.00
8.62	1.28	0.00	70.00
8.64	1.24	0.00	60.00
8.66	1.22	0.00	55.00
8.68	1.23	0.00	57.50
8.70	1.27	0.00	67.50
8.72	1.34	0.00	85.00
8.74	1.40	0.00	100.00
8.76	1.42	0.00	105.00
8.78	1.40	0.00	100.00
8.80	1.34	0.00	85.00
8.82	1.29	0.00	72.50
8.84	1.25	0.00	62.50
8.86	1.23	0.00	57.50
8.88	1.24	0.00	60.00
8.90	1.30	0.00	75.00
8.92	1.39	0.00	97.50
8.94	1.47	0.00	117.50
8.96	1.49	0.00	122.50
8.98	1.46	0.00	115.00
9.00	1.40	0.00	100.00
9.02	1.34	0.00	85.00
9.04	1.30	0.00	75.00
9.06	1.29	0.00	72.50
9.08	1.32	0.00	80.00
9.10	1.37	0.00	92.50
9.12	1.44	0.00	110.00
9.14	1.47	0.00	117.50
9.16	1.47	0.00	117.50
9.18	1.43	0.00	107.50
9.20	1.38	0.00	95.00
9.22	1.32	0.00	80.00
9.24	1.28	0.00	70.00
9.26	1.25	0.00	62.50
9.28	1.23	0.00	57.50
9.30	1.23	0.00	57.50
9.32	1.23	0.00	57.50
9.34	1.25	0.00	62.50

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 Att./Appx. E ShE167

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
9.36	1.27	0.00	67.50
9.38	1.29	0.00	72.50
9.40	1.30	0.00	75.00
9.42	1.29	0.00	72.50
9.44	1.26	0.00	65.00
9.46	1.23	0.00	57.50
9.48	1.21	0.00	52.50
9.50	1.21	0.00	52.50
9.52	1.24	0.00	60.00
9.54	1.30	0.00	75.00
9.56	1.40	0.00	100.00
9.58	1.48	0.00	120.00
9.60	1.49	0.00	122.50
9.62	1.44	0.00	110.00
9.64	1.38	0.00	95.00
9.66	1.33	0.00	82.50
9.68	1.30	0.00	75.00
9.70	1.29	0.00	72.50
9.72	1.30	0.00	75.00
9.74	1.32	0.00	80.00
9.76	1.33	0.00	82.50
9.78	1.34	0.00	85.00
9.80	1.32	0.00	80.00
9.82	1.29	0.00	72.50
9.84	1.26	0.00	65.00
9.86	1.23	0.00	57.50
9.88	1.22	0.00	55.00
9.90	1.21	0.00	52.50
9.92	1.22	0.00	55.00
9.94	1.23	0.00	57.50
9.96	1.28	0.00	70.00
9.98	1.33	0.00	82.50
10.00	1.39	0.00	97.50
10.02	1.42	0.00	105.00
10.04	1.41	0.00	102.50
10.06	1.37	0.00	92.50
10.08	1.33	0.00	82.50
10.10	1.29	0.00	72.50
10.12	1.28	0.00	70.00
10.14	1.28	0.00	70.00
10.16	1.30	0.00	75.00
10.18	1.32	0.00	80.00
10.20	1.35	0.00	87.50
10.22	1.35	0.00	87.50
10.24	1.34	0.00	85.00
10.26	1.32	0.00	80.00
10.28	1.30	0.00	75.00
10.30	1.27	0.00	67.50
10.32	1.26	0.00	65.00
10.34	1.25	0.00	62.50
10.36	1.26	0.00	65.00
10.38	1.29	0.00	72.50

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 Alt/Appx. E Sh E168

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
10.40	1.34	0.00	85.00
10.42	1.38	0.00	95.00
10.44	1.39	0.00	97.50
10.46	1.37	0.00	92.50
10.48	1.34	0.00	85.00
10.50	1.32	0.00	80.00
10.52	1.29	0.00	72.50
10.54	1.28	0.00	70.00
10.56	1.28	0.00	70.00
10.58	1.31	0.00	77.50
10.60	1.34	0.00	85.00
10.62	1.37	0.00	92.50
10.64	1.38	0.00	95.00
10.66	1.36	0.00	90.00
10.68	1.34	0.00	85.00
10.70	1.31	0.00	77.50
10.72	1.29	0.00	72.50
10.74	1.28	0.00	70.00
10.76	1.28	0.00	70.00
10.78	1.30	0.00	75.00
10.80	1.34	0.00	85.00
10.82	1.37	0.00	92.50
10.84	1.39	0.00	97.50
10.86	1.38	0.00	95.00
10.88	1.35	0.00	87.50
10.90	1.32	0.00	80.00
10.92	1.29	0.00	72.50
10.94	1.27	0.00	67.50
10.96	1.27	0.00	67.50
10.98	1.29	0.00	72.50
11.00	1.32	0.00	80.00
11.02	1.35	0.00	87.50
11.04	1.37	0.00	92.50
11.06	1.36	0.00	90.00
11.08	1.33	0.00	82.50
11.10	1.30	0.00	75.00
11.12	1.27	0.00	67.50
11.14	1.25	0.00	62.50
11.16	1.24	0.00	60.00
11.18	1.24	0.00	60.00
11.20	1.26	0.00	65.00
11.22	1.29	0.00	72.50
11.24	1.32	0.00	80.00
11.26	1.34	0.00	85.00
11.28	1.34	0.00	85.00
11.30	1.33	0.00	82.50
11.32	1.30	0.00	75.00
11.34	1.27	0.00	67.50
11.36	1.25	0.00	62.50
11.38	1.25	0.00	62.50
11.40	1.27	0.00	67.50
11.42	1.29	0.00	72.50

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 Att/ Appx. E Sh E169

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
11.44	1.32	0.00	80.00
11.46	1.34	0.00	85.00
11.48	1.34	0.00	85.00
11.50	1.33	0.00	82.50
11.52	1.31	0.00	77.50
11.54	1.28	0.00	70.00
11.56	1.26	0.00	65.00
11.58	1.25	0.00	62.50
11.60	1.25	0.00	62.50
11.62	1.28	0.00	70.00
11.64	1.31	0.00	77.50
11.66	1.34	0.00	85.00
11.68	1.36	0.00	90.00
11.70	1.36	0.00	90.00
11.72	1.34	0.00	85.00
11.74	1.32	0.00	80.00
11.76	1.29	0.00	72.50
11.78	1.27	0.00	67.50
11.80	1.26	0.00	65.00
11.82	1.27	0.00	67.50
11.84	1.28	0.00	70.00
11.86	1.30	0.00	75.00
11.88	1.32	0.00	80.00
11.90	1.33	0.00	82.50
11.92	1.33	0.00	82.50
11.94	1.31	0.00	77.50
11.96	1.29	0.00	72.50
11.98	1.27	0.00	67.50
12.00	1.26	0.00	65.00
12.02	1.26	0.00	65.00
12.04	1.27	0.00	67.50
12.06	1.28	0.00	70.00
12.08	1.31	0.00	77.50
12.10	1.33	0.00	82.50
12.12	1.34	0.00	85.00
12.14	1.33	0.00	82.50
12.16	1.31	0.00	77.50
12.18	1.29	0.00	72.50
12.20	1.27	0.00	67.50
12.22	1.26	0.00	65.00
12.24	1.26	0.00	65.00
12.26	1.27	0.00	67.50
12.28	1.30	0.00	75.00
12.30	1.32	0.00	80.00
12.32	1.34	0.00	85.00
12.34	1.34	0.00	85.00
12.36	1.32	0.00	80.00
12.38	1.29	0.00	72.50
12.40	1.27	0.00	67.50
12.42	1.26	0.00	65.00
12.44	1.26	0.00	65.00
12.46	1.28	0.00	70.00

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Alt/Appx. E Sh ENO

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
12.48	1.30	0.00	75.00
12.50	1.33	0.00	82.50
12.52	1.34	0.00	85.00
12.54	1.34	0.00	85.00
12.56	1.33	0.00	82.50
12.58	1.31	0.00	77.50
12.60	1.30	0.00	75.00
12.62	1.29	0.00	72.50
12.64	1.29	0.00	72.50
12.66	1.30	0.00	75.00
12.68	1.32	0.00	80.00
12.70	1.34	0.00	85.00
12.72	1.35	0.00	87.50
12.74	1.35	0.00	87.50
12.76	1.33	0.00	82.50
12.78	1.32	0.00	80.00
12.80	1.30	0.00	75.00
12.82	1.30	0.00	75.00
12.84	1.30	0.00	75.00
12.86	1.32	0.00	80.00
12.88	1.33	0.00	82.50
12.90	1.35	0.00	87.50
12.92	1.35	0.00	87.50
12.94	1.35	0.00	87.50
12.96	1.33	0.00	82.50
12.98	1.31	0.00	77.50
13.00	1.29	0.00	72.50
13.02	1.28	0.00	70.00
13.04	1.28	0.00	70.00
13.06	1.29	0.00	72.50
13.08	1.30	0.00	75.00
13.10	1.32	0.00	80.00
13.12	1.32	0.00	80.00
13.14	1.32	0.00	80.00
13.16	1.31	0.00	77.50
13.18	1.30	0.00	75.00
13.20	1.28	0.00	70.00
13.22	1.27	0.00	67.50
13.24	1.27	0.00	67.50
13.26	1.27	0.00	67.50
13.28	1.28	0.00	70.00
13.30	1.30	0.00	75.00
13.32	1.32	0.00	80.00
13.34	1.32	0.00	80.00
13.36	1.32	0.00	80.00
13.38	1.31	0.00	77.50
13.40	1.29	0.00	72.50
13.42	1.27	0.00	67.50
13.44	1.26	0.00	65.00
13.46	1.27	0.00	67.50
13.48	1.28	0.00	70.00
13.50	1.30	0.00	75.00

Altran Report
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 Att/ Appx. E Sh EMI

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
13.52	1.32	0.00	80.00
13.54	1.33	0.00	82.50
13.56	1.33	0.00	82.50
13.58	1.32	0.00	80.00
13.60	1.31	0.00	77.50
13.62	1.30	0.00	75.00
13.64	1.29	0.00	72.50
13.66	1.28	0.00	70.00
13.68	1.28	0.00	70.00
13.70	1.29	0.00	72.50
13.72	1.31	0.00	77.50
13.74	1.33	0.00	82.50
13.76	1.34	0.00	85.00
13.78	1.34	0.00	85.00
13.80	1.33	0.00	82.50
13.82	1.31	0.00	77.50
13.84	1.30	0.00	75.00
13.86	1.29	0.00	72.50
13.88	1.29	0.00	72.50
13.90	1.30	0.00	75.00
13.92	1.31	0.00	77.50
13.94	1.33	0.00	82.50
13.96	1.33	0.00	82.50
13.98	1.33	0.00	82.50
14.00	1.32	0.00	80.00
14.02	1.31	0.00	77.50
14.04	1.29	0.00	72.50
14.06	1.28	0.00	70.00
14.08	1.28	0.00	70.00
14.10	1.28	0.00	70.00
14.12	1.30	0.00	75.00
14.14	1.32	0.00	80.00
14.16	1.33	0.00	82.50
14.18	1.34	0.00	85.00
14.20	1.33	0.00	82.50
14.22	1.32	0.00	80.00
14.24	1.31	0.00	77.50
14.26	1.30	0.00	75.00
14.28	1.30	0.00	75.00
14.30	1.30	0.00	75.00
14.32	1.31	0.00	77.50
14.34	1.32	0.00	80.00
14.36	1.33	0.00	82.50
14.38	1.33	0.00	82.50
14.40	1.32	0.00	80.00
14.42	1.31	0.00	77.50
14.44	1.30	0.00	75.00
14.46	1.29	0.00	72.50
14.48	1.29	0.00	72.50
14.50	1.29	0.00	72.50
14.52	1.30	0.00	75.00
14.54	1.32	0.00	80.00

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 At/Appx. E Sh. E12

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
14.56	1.33	0.00	82.50
14.58	1.32	0.00	80.00
14.60	1.32	0.00	80.00
14.62	1.31	0.00	77.50
14.64	1.29	0.00	72.50
14.66	1.29	0.00	72.50
14.68	1.29	0.00	72.50
14.70	1.29	0.00	72.50
14.72	1.30	0.00	75.00
14.74	1.32	0.00	80.00
14.76	1.32	0.00	80.00
14.78	1.33	0.00	82.50
14.80	1.33	0.00	82.50
14.82	1.32	0.00	80.00
14.84	1.31	0.00	77.50
14.86	1.30	0.00	75.00
14.88	1.30	0.00	75.00
14.90	1.30	0.00	75.00
14.92	1.30	0.00	75.00
14.94	1.31	0.00	77.50
14.96	1.31	0.00	77.50
14.98	1.31	0.00	77.50
15.00	1.31	0.00	77.50
15.02	1.31	0.00	77.50
15.04	1.30	0.00	75.00
15.06	1.29	0.00	72.50
15.08	1.28	0.00	70.00
15.10	1.29	0.00	72.50
15.12	1.29	0.00	72.50
15.14	1.30	0.00	75.00
15.16	1.31	0.00	77.50
15.18	1.31	0.00	77.50
15.20	1.32	0.00	80.00
15.22	1.32	0.00	80.00
15.24	1.31	0.00	77.50
15.26	1.30	0.00	75.00
15.28	1.29	0.00	72.50
15.30	1.29	0.00	72.50
15.32	1.29	0.00	72.50
15.34	1.30	0.00	75.00
15.36	1.31	0.00	77.50
15.38	1.32	0.00	80.00
15.40	1.32	0.00	80.00
15.42	1.32	0.00	80.00
15.44	1.32	0.00	80.00
15.46	1.31	0.00	77.50
15.48	1.29	0.00	72.50
15.50	1.29	0.00	72.50
15.52	1.29	0.00	72.50
15.54	1.30	0.00	75.00
15.56	1.30	0.00	75.00
15.58	1.31	0.00	77.50

Altran Report
 96227-18-01 Rev. 3
 Att/Appx. E Sh E173

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
15.60	1.31	0.00	77.50
15.62	1.32	0.00	80.00
15.64	1.32	0.00	80.00
15.66	1.31	0.00	77.50
15.68	1.30	0.00	75.00
15.70	1.30	0.00	75.00
15.72	1.29	0.00	72.50
15.74	1.29	0.00	72.50
15.76	1.30	0.00	75.00
15.78	1.31	0.00	77.50
15.80	1.31	0.00	77.50
15.82	1.32	0.00	80.00
15.84	1.32	0.00	80.00
15.86	1.31	0.00	77.50
15.88	1.31	0.00	77.50
15.90	1.30	0.00	75.00
15.92	1.29	0.00	72.50
15.94	1.29	0.00	72.50
15.96	1.30	0.00	75.00
15.98	1.31	0.00	77.50
16.00	1.32	0.00	80.00
16.02	1.32	0.00	80.00
16.04	1.32	0.00	80.00
16.06	1.32	0.00	80.00
16.08	1.31	0.00	77.50
16.10	1.30	0.00	75.00
16.12	1.30	0.00	75.00
16.14	1.30	0.00	75.00
16.16	1.31	0.00	77.50
16.18	1.32	0.00	80.00
16.20	1.32	0.00	80.00
16.22	1.33	0.00	82.50
16.24	1.33	0.00	82.50
16.26	1.33	0.00	82.50
16.28	1.32	0.00	80.00
16.30	1.32	0.00	80.00
16.32	1.31	0.00	77.50
16.34	1.32	0.00	80.00
16.36	1.32	0.00	80.00
16.38	1.32	0.00	80.00
16.40	1.32	0.00	80.00
16.42	1.33	0.00	82.50
16.44	1.32	0.00	80.00
16.46	1.32	0.00	80.00
16.48	1.31	0.00	77.50
16.50	1.31	0.00	77.50
16.52	1.31	0.00	77.50
16.54	1.31	0.00	77.50
16.56	1.31	0.00	77.50
16.58	1.31	0.00	77.50
16.60	1.32	0.00	80.00
16.62	1.32	0.00	80.00

Altran Report
 96227-ME-01 Rev. 3
 Att/Appx. E Sh E174

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
16.64	1.33	0.00	82.50
16.66	1.32	0.00	80.00
16.68	1.31	0.00	77.50
16.70	1.31	0.00	77.50
16.72	1.31	0.00	77.50
16.74	1.31	0.00	77.50
16.76	1.31	0.00	77.50
16.78	1.32	0.00	80.00
16.80	1.32	0.00	80.00
16.82	1.32	0.00	80.00
16.84	1.32	0.00	80.00
16.86	1.31	0.00	77.50
16.88	1.31	0.00	77.50
16.90	1.30	0.00	75.00
16.92	1.30	0.00	75.00
16.94	1.30	0.00	75.00
16.96	1.31	0.00	77.50
16.98	1.31	0.00	77.50
17.00	1.31	0.00	77.50
17.02	1.31	0.00	77.50
17.04	1.31	0.00	77.50
17.06	1.31	0.00	77.50
17.08	1.30	0.00	75.00
17.10	1.30	0.00	75.00
17.12	1.29	0.00	72.50
17.14	1.29	0.00	72.50
17.16	1.30	0.00	75.00
17.18	1.30	0.00	75.00
17.20	1.30	0.00	75.00
17.22	1.31	0.00	77.50
17.24	1.31	0.00	77.50
17.26	1.31	0.00	77.50
17.28	1.31	0.00	77.50
17.30	1.31	0.00	77.50
17.32	1.30	0.00	75.00
17.34	1.30	0.00	75.00
17.36	1.30	0.00	75.00
17.38	1.30	0.00	75.00
17.40	1.31	0.00	77.50
17.42	1.32	0.00	80.00
17.44	1.32	0.00	80.00
17.46	1.32	0.00	80.00
17.48	1.31	0.00	77.50
17.50	1.30	0.00	75.00
17.52	1.30	0.00	75.00
17.54	1.30	0.00	75.00
17.56	1.30	0.00	75.00
17.58	1.30	0.00	75.00
17.60	1.31	0.00	77.50
17.62	1.31	0.00	77.50
17.64	1.31	0.00	77.50
17.66	1.31	0.00	77.50

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
17.68	1.31	0.00	77.50
17.70	1.31	0.00	77.50
17.72	1.31	0.00	77.50
17.74	1.31	0.00	77.50
17.76	1.30	0.00	75.00
17.78	1.30	0.00	75.00
17.80	1.31	0.00	77.50
17.82	1.31	0.00	77.50
17.84	1.31	0.00	77.50
17.86	1.31	0.00	77.50
17.88	1.31	0.00	77.50
17.90	1.31	0.00	77.50
17.92	1.31	0.00	77.50
17.94	1.31	0.00	77.50
17.96	1.31	0.00	77.50
17.98	1.31	0.00	77.50
18.00	1.31	0.00	77.50
18.02	1.32	0.00	80.00
18.04	1.32	0.00	80.00
18.06	1.32	0.00	80.00
18.08	1.32	0.00	80.00
18.10	1.32	0.00	80.00
18.12	1.31	0.00	77.50
18.14	1.31	0.00	77.50
18.16	1.31	0.00	77.50
18.18	1.31	0.00	77.50
18.20	1.31	0.00	77.50
18.22	1.31	0.00	77.50
18.24	1.32	0.00	80.00
18.26	1.31	0.00	77.50
18.28	1.31	0.00	77.50
18.30	1.31	0.00	77.50
18.32	1.31	0.00	77.50
18.34	1.31	0.00	77.50
18.36	1.31	0.00	77.50
18.38	1.31	0.00	77.50
18.40	1.32	0.00	80.00
18.42	1.32	0.00	80.00
18.44	1.32	0.00	80.00
18.46	1.31	0.00	77.50
18.48	1.31	0.00	77.50
18.50	1.31	0.00	77.50
18.52	1.31	0.00	77.50
18.54	1.32	0.00	80.00
18.56	1.31	0.00	77.50
18.58	1.31	0.00	77.50
18.60	1.31	0.00	77.50
18.62	1.32	0.00	80.00
18.64	1.31	0.00	77.50
18.66	1.31	0.00	77.50
18.68	1.31	0.00	77.50
18.70	1.31	0.00	77.50

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
18.72	1.31	0.00	77.50
18.74	1.31	0.00	77.50
18.76	1.30	0.00	75.00
18.78	1.31	0.00	77.50
18.80	1.31	0.00	77.50
18.82	1.31	0.00	77.50
18.84	1.31	0.00	77.50
18.86	1.31	0.00	77.50
18.88	1.31	0.00	77.50
18.90	1.30	0.00	75.00
18.92	1.30	0.00	75.00
18.94	1.30	0.00	75.00
18.96	1.30	0.00	75.00
18.98	1.30	0.00	75.00
19.00	1.30	0.00	75.00
19.02	1.30	0.00	75.00
19.04	1.30	0.00	75.00
19.06	1.31	0.00	77.50
19.08	1.31	0.00	77.50
19.10	1.31	0.00	77.50
19.12	1.31	0.00	77.50
19.14	1.31	0.00	77.50
19.16	1.30	0.00	75.00
19.18	1.30	0.00	75.00
19.20	1.30	0.00	75.00
19.22	1.31	0.00	77.50
19.24	1.31	0.00	77.50
19.26	1.31	0.00	77.50
19.28	1.31	0.00	77.50
19.30	1.31	0.00	77.50
19.32	1.30	0.00	75.00
19.34	1.30	0.00	75.00
19.36	1.30	0.00	75.00
19.38	1.30	0.00	75.00
19.40	1.30	0.00	75.00
19.42	1.30	0.00	75.00
19.44	1.31	0.00	77.50
19.46	1.31	0.00	77.50
19.48	1.31	0.00	77.50
19.50	1.31	0.00	77.50
19.52	1.31	0.00	77.50
19.54	1.31	0.00	77.50
19.56	1.31	0.00	77.50
19.58	1.30	0.00	75.00
19.60	1.31	0.00	77.50
19.62	1.31	0.00	77.50
19.64	1.32	0.00	80.00
19.66	1.31	0.00	77.50
19.68	1.31	0.00	77.50
19.70	1.31	0.00	77.50
19.72	1.31	0.00	77.50
19.74	1.31	0.00	77.50

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
19.76	1.31	0.00	77.50
19.78	1.31	0.00	77.50
19.80	1.30	0.00	75.00
19.82	1.29	0.00	72.50
19.84	1.29	0.00	72.50
19.86	1.29	0.00	72.50
19.88	1.30	0.00	75.00
19.90	1.30	0.00	75.00
19.92	1.30	0.00	75.00
19.94	1.30	0.00	75.00
19.96	1.30	0.00	75.00
19.98	1.30	0.00	75.00
20.00	1.30	0.00	75.00
20.02	1.30	0.00	75.00
20.04	1.30	0.00	75.00
20.06	1.30	0.00	75.00
20.08	1.30	0.00	75.00
20.10	1.30	0.00	75.00
20.12	1.30	0.00	75.00
20.14	1.30	0.00	75.00
20.16	1.30	0.00	75.00
20.18	1.30	0.00	75.00
20.20	1.29	0.00	72.50
20.22	1.29	0.00	72.50
20.24	1.29	0.00	72.50
20.26	1.29	0.00	72.50
20.28	1.28	0.00	70.00
20.30	1.29	0.00	72.50
20.32	1.29	0.00	72.50
20.34	1.29	0.00	72.50
20.36	1.29	0.00	72.50
20.38	1.29	0.00	72.50
20.40	1.29	0.00	72.50
20.42	1.29	0.00	72.50
20.44	1.30	0.00	75.00
20.46	1.30	0.00	75.00
20.48	1.29	0.00	72.50
20.50	1.29	0.00	72.50
20.52	1.29	0.00	72.50
20.54	1.29	0.00	72.50
20.56	1.29	0.00	72.50
20.58	1.29	0.00	72.50
20.60	1.29	0.00	72.50
20.62	1.29	0.00	72.50
20.64	1.29	0.00	72.50
20.66	1.29	0.00	72.50
20.68	1.29	0.00	72.50
20.70	1.29	0.00	72.50
20.72	1.29	0.00	72.50
20.74	1.29	0.00	72.50
20.76	1.29	0.00	72.50
20.78	1.29	0.00	72.50

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
20.80	1.29	0.00	72.50
20.82	1.29	0.00	72.50
20.84	1.30	0.00	75.00
20.86	1.30	0.00	75.00
20.88	1.30	0.00	75.00
20.90	1.30	0.00	75.00
20.92	1.30	0.00	75.00
20.94	1.30	0.00	75.00
20.96	1.30	0.00	75.00
20.98	1.30	0.00	75.00
21.00	1.30	0.00	75.00
21.02	1.30	0.00	75.00
21.04	1.30	0.00	75.00
21.06	1.30	0.00	75.00
21.08	1.30	0.00	75.00
21.10	1.30	0.00	75.00
21.12	1.30	0.00	75.00
21.14	1.30	0.00	75.00
21.16	1.30	0.00	75.00
21.18	1.30	0.00	75.00
21.20	1.30	0.00	75.00
21.22	1.30	0.00	75.00
21.24	1.30	0.00	75.00
21.26	1.30	0.00	75.00
21.28	1.30	0.00	75.00
21.30	1.30	0.00	75.00
21.32	1.30	0.00	75.00
21.34	1.30	0.00	75.00
21.36	1.30	0.00	75.00
21.38	1.31	0.00	77.50
21.40	1.31	0.00	77.50
21.42	1.31	0.00	77.50
21.44	1.31	0.00	77.50
21.46	1.31	0.00	77.50
21.48	1.31	0.00	77.50
21.50	1.31	0.00	77.50
21.52	1.31	0.00	77.50
21.54	1.30	0.00	75.00
21.56	1.30	0.00	75.00
21.58	1.30	0.00	75.00
21.60	1.30	0.00	75.00
21.62	1.29	0.00	72.50
21.64	1.29	0.00	72.50
21.66	1.29	0.00	72.50
21.68	1.29	0.00	72.50
21.70	1.29	0.00	72.50
21.72	1.29	0.00	72.50
21.74	1.29	0.00	72.50
21.76	1.30	0.00	75.00
21.78	1.29	0.00	72.50
21.80	1.30	0.00	75.00
21.82	1.30	0.00	75.00

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
21.84	1.30	0.00	75.00
21.86	1.30	0.00	75.00
21.88	1.30	0.00	75.00
21.90	1.30	0.00	75.00
21.92	1.30	0.00	75.00
21.94	1.30	0.00	75.00
21.96	1.30	0.00	75.00
21.98	1.29	0.00	72.50
22.00	1.29	0.00	72.50
22.02	1.30	0.00	75.00
22.04	1.30	0.00	75.00
22.06	1.30	0.00	75.00
22.08	1.31	0.00	77.50
22.10	1.31	0.00	77.50
22.12	1.31	0.00	77.50
22.14	1.30	0.00	75.00
22.16	1.30	0.00	75.00
22.18	1.30	0.00	75.00
22.20	1.30	0.00	75.00
22.22	1.30	0.00	75.00
22.24	1.30	0.00	75.00
22.26	1.30	0.00	75.00
22.28	1.30	0.00	75.00
22.30	1.30	0.00	75.00
22.32	1.30	0.00	75.00
22.34	1.30	0.00	75.00
22.36	1.30	0.00	75.00
22.38	1.30	0.00	75.00
22.40	1.30	0.00	75.00
22.42	1.30	0.00	75.00
22.44	1.30	0.00	75.00
22.46	1.30	0.00	75.00
22.48	1.31	0.00	77.50
22.50	1.30	0.00	75.00
22.52	1.31	0.00	77.50
22.54	1.31	0.00	77.50
22.56	1.30	0.00	75.00
22.58	1.30	0.00	75.00
22.60	1.30	0.00	75.00
22.62	1.29	0.00	72.50
22.64	1.30	0.00	75.00
22.66	1.30	0.00	75.00
22.68	1.30	0.00	75.00
22.70	1.30	0.00	75.00
22.72	1.30	0.00	75.00
22.74	1.30	0.00	75.00
22.76	1.30	0.00	75.00
22.78	1.30	0.00	75.00
22.80	1.31	0.00	77.50
22.82	1.30	0.00	75.00
22.84	1.30	0.00	75.00
22.86	1.30	0.00	75.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
22.88	1.30	0.00	75.00
22.90	1.30	0.00	75.00
22.92	1.30	0.00	75.00
22.94	1.30	0.00	75.00
22.96	1.30	0.00	75.00
22.98	1.30	0.00	75.00
23.00	1.30	0.00	75.00
23.02	1.30	0.00	75.00
23.04	1.30	0.00	75.00
23.06	1.30	0.00	75.00
23.08	1.30	0.00	75.00
23.10	1.30	0.00	75.00
23.12	1.30	0.00	75.00
23.14	1.30	0.00	75.00
23.16	1.30	0.00	75.00
23.18	1.30	0.00	75.00
23.20	1.30	0.00	75.00
23.22	1.29	0.00	72.50
23.24	1.29	0.00	72.50
23.26	1.28	0.00	70.00
23.28	1.28	0.00	70.00
23.30	1.29	0.00	72.50
23.32	1.29	0.00	72.50
23.34	1.29	0.00	72.50
23.36	1.28	0.00	70.00
23.38	1.29	0.00	72.50
23.40	1.29	0.00	72.50
23.42	1.29	0.00	72.50
23.44	1.29	0.00	72.50
23.46	1.29	0.00	72.50
23.48	1.28	0.00	70.00
23.50	1.28	0.00	70.00
23.52	1.28	0.00	70.00
23.54	1.28	0.00	70.00
23.56	1.28	0.00	70.00
23.58	1.28	0.00	70.00
23.60	1.28	0.00	70.00
23.62	1.28	0.00	70.00
23.64	1.28	0.00	70.00
23.66	1.28	0.00	70.00
23.68	1.28	0.00	70.00
23.70	1.28	0.00	70.00
23.72	1.28	0.00	70.00
23.74	1.28	0.00	70.00
23.76	1.28	0.00	70.00
23.78	1.28	0.00	70.00
23.80	1.28	0.00	70.00
23.82	1.28	0.00	70.00
23.84	1.28	0.00	70.00
23.86	1.28	0.00	70.00
23.88	1.28	0.00	70.00
23.90	1.28	0.00	70.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
23.92	1.28	0.00	70.00
23.94	1.29	0.00	72.50
23.96	1.29	0.00	72.50
23.98	1.28	0.00	70.00
24.00	1.28	0.00	70.00
24.02	1.29	0.00	72.50
24.04	1.29	0.00	72.50
24.06	1.28	0.00	70.00
24.08	1.28	0.00	70.00
24.10	1.28	0.00	70.00
24.12	1.28	0.00	70.00
24.14	1.28	0.00	70.00
24.16	1.28	0.00	70.00
24.18	1.28	0.00	70.00
24.20	1.29	0.00	72.50
24.22	1.29	0.00	72.50
24.24	1.28	0.00	70.00
24.26	1.29	0.00	72.50
24.28	1.29	0.00	72.50
24.30	1.29	0.00	72.50
24.32	1.29	0.00	72.50
24.34	1.29	0.00	72.50
24.36	1.29	0.00	72.50
24.38	1.29	0.00	72.50
24.40	1.29	0.00	72.50
24.42	1.29	0.00	72.50
24.44	1.29	0.00	72.50
24.46	1.29	0.00	72.50
24.48	1.29	0.00	72.50
24.50	1.29	0.00	72.50
24.52	1.28	0.00	70.00
24.54	1.28	0.00	70.00
24.56	1.28	0.00	70.00
24.58	1.28	0.00	70.00
24.60	1.28	0.00	70.00
24.62	1.29	0.00	72.50
24.64	1.29	0.00	72.50
24.66	1.28	0.00	70.00
24.68	1.28	0.00	70.00
24.70	1.29	0.00	72.50
24.72	1.29	0.00	72.50
24.74	1.29	0.00	72.50
24.76	1.29	0.00	72.50
24.78	1.29	0.00	72.50
24.80	1.29	0.00	72.50
24.82	1.30	0.00	75.00
24.84	1.29	0.00	72.50
24.86	1.29	0.00	72.50
24.88	1.29	0.00	72.50
24.90	1.29	0.00	72.50
24.92	1.29	0.00	72.50
24.94	1.29	0.00	72.50

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Attachment 2 to Calculation No. EF-S-010
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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
24.96	1.29	0.00	72.50
24.98	1.29	0.00	72.50
25.00	1.29	0.00	72.50
25.02	1.29	0.00	72.50
25.04	1.30	0.00	75.00
25.06	1.29	0.00	72.50
25.08	1.29	0.00	72.50
25.10	1.29	0.00	72.50
25.12	1.28	0.00	70.00
25.14	1.28	0.00	70.00
25.16	1.28	0.00	70.00
25.18	1.28	0.00	70.00
25.20	1.28	0.00	70.00
25.22	1.28	0.00	70.00
25.24	1.28	0.00	70.00
25.26	1.28	0.00	70.00
25.28	1.28	0.00	70.00
25.30	1.28	0.00	70.00
25.32	1.28	0.00	70.00
25.34	1.28	0.00	70.00
25.36	1.28	0.00	70.00
25.38	1.29	0.00	72.50
25.40	1.29	0.00	72.50
25.42	1.30	0.00	75.00
25.44	1.30	0.00	75.00
25.46	1.30	0.00	75.00
25.48	1.30	0.00	75.00
25.50	1.30	0.00	75.00
25.52	1.30	0.00	75.00
25.54	1.30	0.00	75.00
25.56	1.30	0.00	75.00
25.58	1.30	0.00	75.00
25.60	1.31	0.00	77.50
25.62	1.30	0.00	75.00
25.64	1.30	0.00	75.00
25.66	1.30	0.00	75.00
25.68	1.30	0.00	75.00
25.70	1.29	0.00	72.50
25.72	1.30	0.00	75.00
25.74	1.29	0.00	72.50
25.76	1.29	0.00	72.50
25.78	1.29	0.00	72.50
25.80	1.29	0.00	72.50
25.82	1.29	0.00	72.50
25.84	1.30	0.00	75.00
25.86	1.30	0.00	75.00
25.88	1.30	0.00	75.00
25.90	1.30	0.00	75.00
25.92	1.30	0.00	75.00
25.94	1.30	0.00	75.00
25.96	1.30	0.00	75.00
25.98	1.29	0.00	72.50

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 At/Appx. E Sh E183

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
26.00	1.29	0.00	72.50
26.02	1.29	0.00	72.50
26.04	1.29	0.00	72.50
26.06	1.29	0.00	72.50
26.08	1.29	0.00	72.50
26.10	1.29	0.00	72.50
26.12	1.29	0.00	72.50
26.14	1.29	0.00	72.50
26.16	1.29	0.00	72.50
26.18	1.29	0.00	72.50
26.20	1.30	0.00	75.00
26.22	1.30	0.00	75.00
26.24	1.30	0.00	75.00
26.26	1.29	0.00	72.50
26.28	1.29	0.00	72.50
26.30	1.30	0.00	75.00
26.32	1.30	0.00	75.00
26.34	1.30	0.00	75.00
26.36	1.29	0.00	72.50
26.38	1.29	0.00	72.50
26.40	1.30	0.00	75.00
26.42	1.30	0.00	75.00
26.44	1.30	0.00	75.00
26.46	1.30	0.00	75.00
26.48	1.30	0.00	75.00
26.50	1.30	0.00	75.00
26.52	1.30	0.00	75.00
26.54	1.30	0.00	75.00
26.56	1.30	0.00	75.00
26.58	1.31	0.00	77.50
26.60	1.31	0.00	77.50
26.62	1.31	0.00	77.50
26.64	1.31	0.00	77.50
26.66	1.31	0.00	77.50
26.68	1.31	0.00	77.50
26.70	1.31	0.00	77.50
26.72	1.31	0.00	77.50
26.74	1.31	0.00	77.50
26.76	1.31	0.00	77.50
26.78	1.30	0.00	75.00
26.80	1.30	0.00	75.00
26.82	1.31	0.00	77.50
26.84	1.31	0.00	77.50
26.86	1.31	0.00	77.50
26.88	1.30	0.00	75.00
26.90	1.30	0.00	75.00
26.92	1.30	0.00	75.00
26.94	1.30	0.00	75.00
26.96	1.30	0.00	75.00
26.98	1.30	0.00	75.00
27.00	1.30	0.00	75.00
27.02	1.30	0.00	75.00

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 Att./appx. E Sh. E184

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
27.04	1.30	0.00	75.00
27.06	1.30	0.00	75.00
27.08	1.30	0.00	75.00
27.10	1.30	0.00	75.00
27.12	1.30	0.00	75.00
27.14	1.31	0.00	77.50
27.16	1.31	0.00	77.50
27.18	1.31	0.00	77.50
27.20	1.31	0.00	77.50
27.22	1.31	0.00	77.50
27.24	1.32	0.00	80.00
27.26	1.32	0.00	80.00
27.28	1.31	0.00	77.50
27.30	1.31	0.00	77.50
27.32	1.31	0.00	77.50
27.34	1.31	0.00	77.50
27.36	1.31	0.00	77.50
27.38	1.31	0.00	77.50
27.40	1.31	0.00	77.50
27.42	1.31	0.00	77.50
27.44	1.31	0.00	77.50
27.46	1.31	0.00	77.50
27.48	1.31	0.00	77.50
27.50	1.31	0.00	77.50
27.52	1.31	0.00	77.50
27.54	1.30	0.00	75.00
27.56	1.30	0.00	75.00
27.58	1.30	0.00	75.00
27.60	1.30	0.00	75.00
27.62	1.30	0.00	75.00
27.64	1.30	0.00	75.00
27.66	1.30	0.00	75.00
27.68	1.30	0.00	75.00
27.70	1.30	0.00	75.00
27.72	1.30	0.00	75.00
27.74	1.29	0.00	72.50
27.76	1.29	0.00	72.50
27.78	1.29	0.00	72.50
27.80	1.29	0.00	72.50
27.82	1.29	0.00	72.50
27.84	1.29	0.00	72.50
27.86	1.29	0.00	72.50
27.88	1.29	0.00	72.50
27.90	1.30	0.00	75.00
27.92	1.30	0.00	75.00
27.94	1.30	0.00	75.00
27.96	1.30	0.00	75.00
27.98	1.29	0.00	72.50
28.00	1.30	0.00	75.00
28.02	1.30	0.00	75.00
28.04	1.29	0.00	72.50
28.06	1.30	0.00	75.00

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 Att/APP. E Sh E185

Attachment 2 to Calculation No. EF-S-010
 Calculation Revision No. 00
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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
28.08	1.30	0.00	75.00
28.10	1.30	0.00	75.00
28.12	1.30	0.00	75.00
28.14	1.30	0.00	75.00
28.16	1.30	0.00	75.00
28.18	1.29	0.00	72.50
28.20	1.29	0.00	72.50
28.22	1.29	0.00	72.50
28.24	1.29	0.00	72.50
28.26	1.30	0.00	75.00
28.28	1.30	0.00	75.00
28.30	1.30	0.00	75.00
28.32	1.30	0.00	75.00
28.34	1.30	0.00	75.00
28.36	1.30	0.00	75.00
28.38	1.30	0.00	75.00
28.40	1.30	0.00	75.00
28.42	1.30	0.00	75.00
28.44	1.30	0.00	75.00
28.46	1.30	0.00	75.00
28.48	1.31	0.00	77.50
28.50	1.31	0.00	77.50
28.52	1.31	0.00	77.50
28.54	1.31	0.00	77.50
28.56	1.30	0.00	75.00
28.58	1.30	0.00	75.00
28.60	1.30	0.00	75.00
28.62	1.30	0.00	75.00
28.64	1.30	0.00	75.00
28.66	1.30	0.00	75.00
28.68	1.30	0.00	75.00
28.70	1.30	0.00	75.00
28.72	1.30	0.00	75.00
28.74	1.30	0.00	75.00
28.76	1.29	0.00	72.50
28.78	1.29	0.00	72.50
28.80	1.29	0.00	72.50
28.82	1.29	0.00	72.50
28.84	1.29	0.00	72.50
28.86	1.29	0.00	72.50
28.88	1.29	0.00	72.50
28.90	1.29	0.00	72.50
28.92	1.30	0.00	75.00
28.94	1.30	0.00	75.00
28.96	1.29	0.00	72.50
28.98	1.29	0.00	72.50
29.00	1.28	0.00	70.00
29.02	1.28	0.00	70.00
29.04	1.28	0.00	70.00
29.06	1.28	0.00	70.00
29.08	1.29	0.00	72.50
29.10	1.29	0.00	72.50

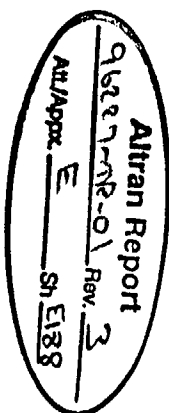
Altran Report
 96227-12-01 Rev. 3
 Alt./Appx. E Sh E186

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
29.12	1.29	0.00	72.50
29.14	1.29	0.00	72.50
29.16	1.28	0.00	70.00
29.18	1.29	0.00	72.50
29.20	1.28	0.00	70.00
29.22	1.28	0.00	70.00
29.24	1.29	0.00	72.50
29.26	1.29	0.00	72.50
29.28	1.29	0.00	72.50
29.30	1.29	0.00	72.50
29.32	1.29	0.00	72.50
29.34	1.29	0.00	72.50
29.36	1.30	0.00	75.00
29.38	1.30	0.00	75.00
29.40	1.30	0.00	75.00
29.42	1.30	0.00	75.00
29.44	1.30	0.00	75.00
29.46	1.30	0.00	75.00
29.48	1.30	0.00	75.00
29.50	1.30	0.00	75.00
29.52	1.30	0.00	75.00
29.54	1.30	0.00	75.00
29.56	1.31	0.00	77.50
29.58	1.30	0.00	75.00
29.60	1.30	0.00	75.00
29.62	1.30	0.00	75.00
29.64	1.30	0.00	75.00
29.66	1.30	0.00	75.00
29.68	1.30	0.00	75.00
29.70	1.30	0.00	75.00
29.72	1.31	0.00	77.50
29.74	1.31	0.00	77.50
29.76	1.31	0.00	77.50
29.78	1.31	0.00	77.50
29.80	1.31	0.00	77.50
29.82	1.31	0.00	77.50
29.84	1.31	0.00	77.50
29.86	1.31	0.00	77.50
29.88	1.31	0.00	77.50
29.90	1.31	0.00	77.50
29.92	1.31	0.00	77.50
29.94	1.30	0.00	75.00
29.96	1.31	0.00	77.50
29.98	1.31	0.00	77.50
30.00	1.31	0.00	77.50

Altran Report
 96227-18.01 Rev. 3
 Att/Approx. E Sh E187

Data collected during step 5.6.13. SI without loss of offsite power. Data shows service water shutdown during load shed and ESM pump started by the LOCA Sequencer. Service water was in service prior to SI signal.

Test 575 KJ-0018 STEP 5.6.13	
Run:	2.00
Device:	MB16
Channel:	1
Event:	1
First Sample:	980.00
Last Sample:	1730.00
Trigger Date:	11-12-1991
Trigger Time:	18:42:58.03
X-Axis Units at First Sample:	39.16
Sample Separation:	0.04
X-Axis Units:	SECONDS
Y-Axis Upper Limit:	5.00
Y-Axis Lower Limit:	-5.00
Y-Axis Max Value:	1.81
Y-Axis Min Value:	0.88
Y-Axis Units:	VOLTS



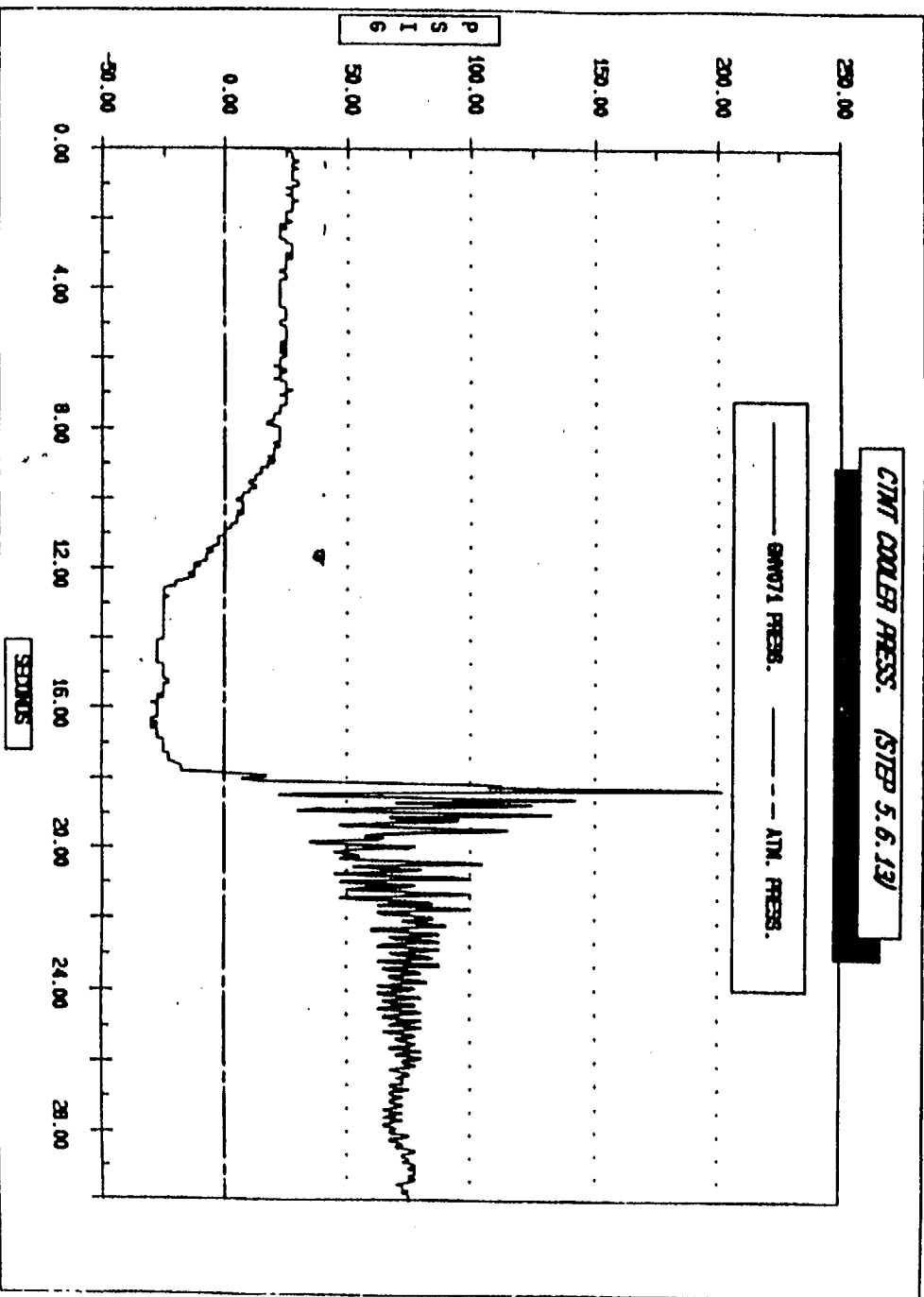
Attachment 6 to Calculation No. EF-S-010

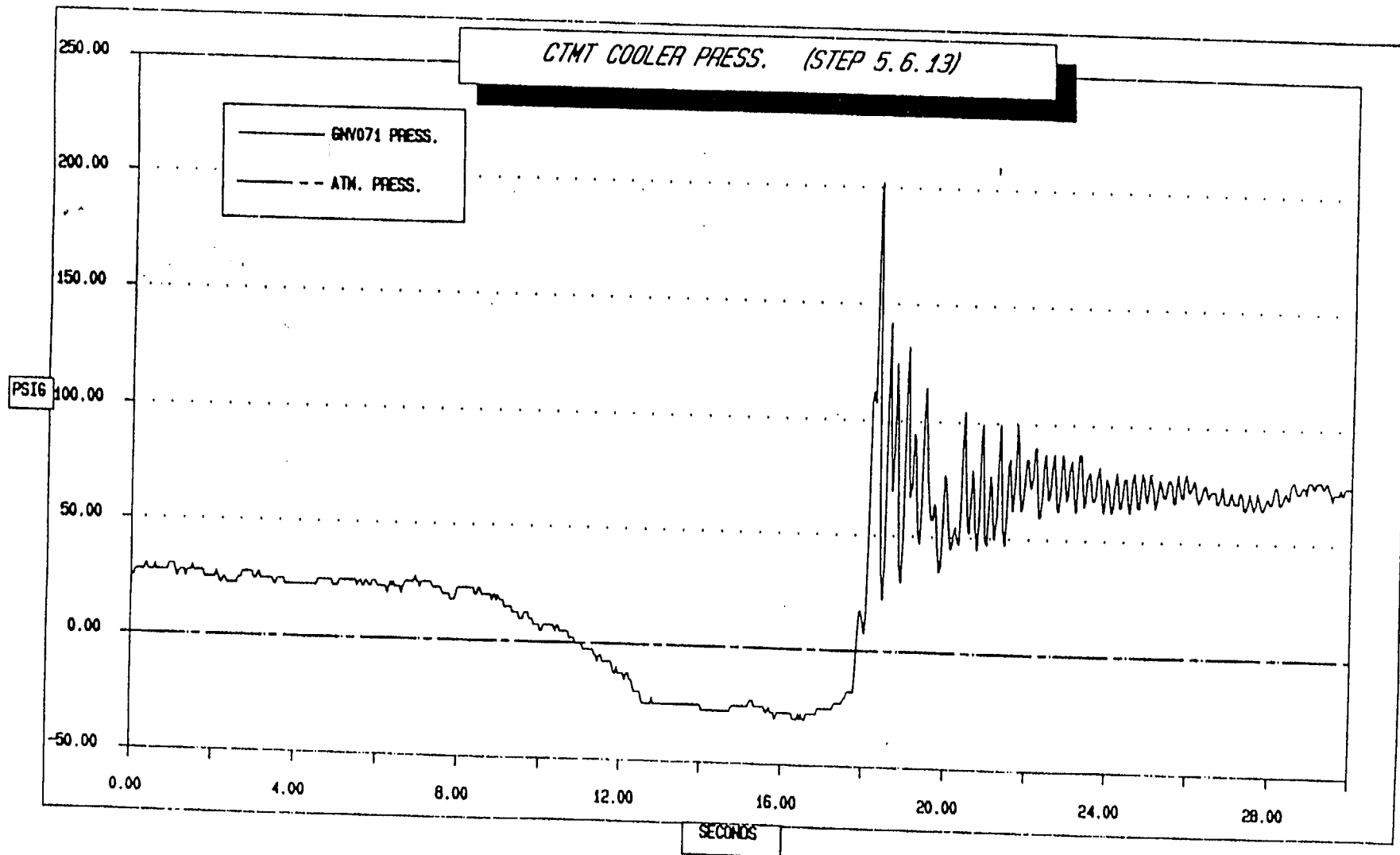
Calculation Revision No. 00

Originator: SLP Date: 5/4/92

Verified By: TT Date: 5/7/92

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Alt/Approx. E Sh 189

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
0.00	1.10	0.00	25.00
0.04	1.10	0.00	25.00
0.08	1.11	0.00	27.50
0.12	1.11	0.00	27.50
0.16	1.11	0.00	27.50
0.20	1.11	0.00	27.50
0.24	1.11	0.00	27.50
0.28	1.11	0.00	27.50
0.32	1.12	0.00	30.00
0.36	1.12	0.00	30.00
0.40	1.11	0.00	27.50
0.44	1.11	0.00	27.50
0.48	1.11	0.00	27.50
0.52	1.11	0.00	27.50
0.56	1.12	0.00	30.00
0.60	1.11	0.00	27.50
0.64	1.11	0.00	27.50
0.68	1.11	0.00	27.50
0.72	1.11	0.00	27.50
0.76	1.11	0.00	27.50
0.80	1.11	0.00	27.50
0.84	1.11	0.00	27.50
0.88	1.11	0.00	27.50
0.92	1.12	0.00	30.00
0.96	1.12	0.00	30.00
1.00	1.12	0.00	30.00
1.04	1.12	0.00	30.00
1.08	1.11	0.00	27.50
1.12	1.10	0.00	25.00
1.16	1.11	0.00	27.50
1.20	1.11	0.00	27.50
1.24	1.11	0.00	27.50
1.28	1.11	0.00	27.50
1.32	1.10	0.00	25.00
1.36	1.11	0.00	27.50
1.40	1.11	0.00	27.50
1.44	1.11	0.00	27.50
1.48	1.12	0.00	30.00
1.52	1.11	0.00	27.50
1.56	1.11	0.00	27.50
1.60	1.11	0.00	27.50
1.64	1.11	0.00	27.50
1.68	1.11	0.00	27.50
1.72	1.11	0.00	27.50
1.76	1.11	0.00	27.50
1.80	1.10	0.00	25.00
1.84	1.10	0.00	25.00
1.88	1.10	0.00	25.00
1.92	1.10	0.00	25.00
1.96	1.10	0.00	25.00
2.00	1.10	0.00	25.00
2.04	1.10	0.00	25.00

Altran Report

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Att/Appx. E Sh E190

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
2.08	1.11	0.00	27.50
2.12	1.10	0.00	25.00
2.16	1.09	0.00	22.50
2.20	1.09	0.00	22.50
2.24	1.10	0.00	25.00
2.28	1.10	0.00	25.00
2.32	1.09	0.00	22.50
2.36	1.09	0.00	22.50
2.40	1.09	0.00	22.50
2.44	1.09	0.00	22.50
2.48	1.09	0.00	22.50
2.52	1.09	0.00	22.50
2.56	1.09	0.00	22.50
2.60	1.10	0.00	25.00
2.64	1.10	0.00	25.00
2.68	1.10	0.00	25.00
2.72	1.11	0.00	27.50
2.76	1.11	0.00	27.50
2.80	1.11	0.00	27.50
2.84	1.11	0.00	27.50
2.88	1.11	0.00	27.50
2.92	1.11	0.00	27.50
2.96	1.11	0.00	27.50
3.00	1.10	0.00	25.00
3.04	1.10	0.00	25.00
3.08	1.11	0.00	27.50
3.12	1.11	0.00	27.50
3.16	1.10	0.00	25.00
3.20	1.10	0.00	25.00
3.24	1.10	0.00	25.00
3.28	1.10	0.00	25.00
3.32	1.10	0.00	25.00
3.36	1.10	0.00	25.00
3.40	1.10	0.00	25.00
3.44	1.10	0.00	25.00
3.48	1.09	0.00	22.50
3.52	1.09	0.00	22.50
3.56	1.10	0.00	25.00
3.60	1.10	0.00	25.00
3.64	1.10	0.00	25.00
3.68	1.10	0.00	25.00
3.72	1.10	0.00	25.00
3.76	1.09	0.00	22.50
3.80	1.09	0.00	22.50
3.84	1.09	0.00	22.50
3.88	1.09	0.00	22.50
3.92	1.09	0.00	22.50
3.96	1.09	0.00	22.50
4.00	1.09	0.00	22.50
4.04	1.09	0.00	22.50
4.08	1.09	0.00	22.50
4.12	1.09	0.00	22.50

Altran Report
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 Att./Appx. E Sh E191

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
4.16	1.09	0.00	22.50
4.20	1.09	0.00	22.50
4.24	1.09	0.00	22.50
4.28	1.09	0.00	22.50
4.32	1.09	0.00	22.50
4.36	1.09	0.00	22.50
4.40	1.09	0.00	22.50
4.44	1.09	0.00	22.50
4.48	1.09	0.00	22.50
4.52	1.09	0.00	22.50
4.56	1.10	0.00	25.00
4.60	1.10	0.00	25.00
4.64	1.10	0.00	25.00
4.68	1.10	0.00	25.00
4.72	1.10	0.00	25.00
4.76	1.10	0.00	25.00
4.80	1.10	0.00	25.00
4.84	1.10	0.00	25.00
4.88	1.10	0.00	25.00
4.92	1.09	0.00	22.50
4.96	1.09	0.00	22.50
5.00	1.09	0.00	22.50
5.04	1.09	0.00	22.50
5.08	1.10	0.00	25.00
5.12	1.10	0.00	25.00
5.16	1.10	0.00	25.00
5.20	1.10	0.00	25.00
5.24	1.10	0.00	25.00
5.28	1.10	0.00	25.00
5.32	1.10	0.00	25.00
5.36	1.10	0.00	25.00
5.40	1.10	0.00	25.00
5.44	1.10	0.00	25.00
5.48	1.10	0.00	25.00
5.52	1.09	0.00	22.50
5.56	1.10	0.00	25.00
5.60	1.10	0.00	25.00
5.64	1.09	0.00	22.50
5.68	1.09	0.00	22.50
5.72	1.10	0.00	25.00
5.76	1.10	0.00	25.00
5.80	1.09	0.00	22.50
5.84	1.09	0.00	22.50
5.88	1.10	0.00	25.00
5.92	1.10	0.00	25.00
5.96	1.10	0.00	25.00
6.00	1.09	0.00	22.50
6.04	1.09	0.00	22.50
6.08	1.09	0.00	22.50
6.12	1.09	0.00	22.50
6.16	1.09	0.00	22.50
6.20	1.09	0.00	22.50

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 Att/Aspx. E Sh E192

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
6.24	1.08	0.00	20.00
6.28	1.09	0.00	22.50
6.32	1.10	0.00	25.00
6.36	1.09	0.00	22.50
6.40	1.10	0.00	25.00
6.44	1.09	0.00	22.50
6.48	1.09	0.00	22.50
6.52	1.09	0.00	22.50
6.56	1.09	0.00	22.50
6.60	1.08	0.00	20.00
6.64	1.09	0.00	22.50
6.68	1.10	0.00	25.00
6.72	1.10	0.00	25.00
6.76	1.10	0.00	25.00
6.80	1.10	0.00	25.00
6.84	1.10	0.00	25.00
6.88	1.10	0.00	25.00
6.92	1.11	0.00	27.50
6.96	1.10	0.00	25.00
7.00	1.10	0.00	25.00
7.04	1.09	0.00	22.50
7.08	1.10	0.00	25.00
7.12	1.10	0.00	25.00
7.16	1.10	0.00	25.00
7.20	1.10	0.00	25.00
7.24	1.10	0.00	25.00
7.28	1.10	0.00	25.00
7.32	1.10	0.00	25.00
7.36	1.09	0.00	22.50
7.40	1.09	0.00	22.50
7.44	1.09	0.00	22.50
7.48	1.09	0.00	22.50
7.52	1.09	0.00	22.50
7.56	1.09	0.00	22.50
7.60	1.08	0.00	20.00
7.64	1.08	0.00	20.00
7.68	1.08	0.00	20.00
7.72	1.08	0.00	20.00
7.76	1.08	0.00	20.00
7.80	1.07	0.00	17.50
7.84	1.07	0.00	17.50
7.88	1.07	0.00	17.50
7.92	1.08	0.00	20.00
7.96	1.09	0.00	22.50
8.00	1.09	0.00	22.50
8.04	1.09	0.00	22.50
8.08	1.09	0.00	22.50
8.12	1.09	0.00	22.50
8.16	1.09	0.00	22.50
8.20	1.09	0.00	22.50
8.24	1.09	0.00	22.50
8.28	1.09	0.00	22.50

Atran Report
 76227-1R-01 Rev. 3
 Att./Appx. E SHE193

Attachment 6 to Calculation No. EF-S-010
 Calculation Revision No. 00
 Sheet 6 of 17

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
8.32	1.09	0.00	22.50
8.36	1.09	0.00	22.50
8.40	1.08	0.00	20.00
8.44	1.08	0.00	20.00
8.48	1.09	0.00	22.50
8.52	1.09	0.00	22.50
8.56	1.08	0.00	20.00
8.60	1.08	0.00	20.00
8.64	1.08	0.00	20.00
8.68	1.08	0.00	20.00
8.72	1.08	0.00	20.00
8.76	1.08	0.00	20.00
8.80	1.07	0.00	17.50
8.84	1.08	0.00	20.00
8.88	1.08	0.00	20.00
8.92	1.07	0.00	17.50
8.96	1.08	0.00	20.00
9.00	1.07	0.00	17.50
9.04	1.07	0.00	17.50
9.08	1.07	0.00	17.50
9.12	1.06	0.00	15.00
9.16	1.06	0.00	15.00
9.20	1.06	0.00	15.00
9.24	1.06	0.00	15.00
9.28	1.06	0.00	15.00
9.32	1.05	0.00	12.50
9.36	1.05	0.00	12.50
9.40	1.05	0.00	12.50
9.44	1.05	0.00	12.50
9.48	1.04	0.00	10.00
9.52	1.04	0.00	10.00
9.56	1.04	0.00	10.00
9.60	1.05	0.00	12.50
9.64	1.05	0.00	12.50
9.68	1.05	0.00	12.50
9.72	1.04	0.00	10.00
9.76	1.04	0.00	10.00
9.80	1.04	0.00	10.00
9.84	1.03	0.00	7.50
9.88	1.03	0.00	7.50
9.92	1.03	0.00	7.50
9.96	1.03	0.00	7.50
10.00	1.02	0.00	5.00
10.04	1.02	0.00	5.00
10.08	1.03	0.00	7.50
10.12	1.03	0.00	7.50
10.16	1.03	0.00	7.50
10.20	1.03	0.00	7.50
10.24	1.03	0.00	7.50
10.28	1.03	0.00	7.50
10.32	1.03	0.00	7.50
10.36	1.02	0.00	5.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
10.40	1.03	0.00	7.50
10.44	1.03	0.00	7.50
10.48	1.02	0.00	5.00
10.52	1.02	0.00	5.00
10.56	1.02	0.00	5.00
10.60	1.02	0.00	5.00
10.64	1.02	0.00	5.00
10.68	1.02	0.00	5.00
10.72	1.01	0.00	2.50
10.76	1.01	0.00	2.50
10.80	1.01	0.00	2.50
10.84	1.01	0.00	2.50
10.88	1.00	0.00	0.00
10.92	1.00	0.00	0.00
10.96	1.00	0.00	0.00
11.00	1.00	0.00	0.00
11.04	1.00	0.00	0.00
11.08	0.99	0.00	-2.50
11.12	0.99	0.00	-2.50
11.16	0.99	0.00	-2.50
11.20	0.99	0.00	-2.50
11.24	0.99	0.00	-2.50
11.28	0.99	0.00	-2.50
11.32	0.99	0.00	-2.50
11.36	0.98	0.00	-5.00
11.40	0.98	0.00	-5.00
11.44	0.97	0.00	-7.50
11.48	0.98	0.00	-5.00
11.52	0.98	0.00	-5.00
11.56	0.97	0.00	-7.50
11.60	0.97	0.00	-7.50
11.64	0.97	0.00	-7.50
11.68	0.97	0.00	-7.50
11.72	0.97	0.00	-7.50
11.76	0.97	0.00	-7.50
11.80	0.96	0.00	-10.00
11.84	0.95	0.00	-12.50
11.88	0.95	0.00	-12.50
11.92	0.96	0.00	-10.00
11.96	0.95	0.00	-12.50
12.00	0.95	0.00	-12.50
12.04	0.95	0.00	-12.50
12.08	0.95	0.00	-12.50
12.12	0.94	0.00	-15.00
12.16	0.95	0.00	-12.50
12.20	0.95	0.00	-12.50
12.24	0.94	0.00	-15.00
12.28	0.94	0.00	-15.00
12.32	0.93	0.00	-17.50
12.36	0.92	0.00	-20.00
12.40	0.92	0.00	-20.00
12.44	0.92	0.00	-20.00

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Att/App: E Sh E195

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
12.48	0.92	0.00	-20.00
12.52	0.91	0.00	-22.50
12.56	0.90	0.00	-25.00
12.60	0.90	0.00	-25.00
12.64	0.90	0.00	-25.00
12.68	0.90	0.00	-25.00
12.72	0.90	0.00	-25.00
12.76	0.90	0.00	-25.00
12.80	0.91	0.00	-22.50
12.84	0.90	0.00	-25.00
12.88	0.90	0.00	-25.00
12.92	0.90	0.00	-25.00
12.96	0.90	0.00	-25.00
13.00	0.90	0.00	-25.00
13.04	0.90	0.00	-25.00
13.08	0.90	0.00	-25.00
13.12	0.90	0.00	-25.00
13.16	0.90	0.00	-25.00
13.20	0.90	0.00	-25.00
13.24	0.90	0.00	-25.00
13.28	0.90	0.00	-25.00
13.32	0.90	0.00	-25.00
13.36	0.90	0.00	-25.00
13.40	0.90	0.00	-25.00
13.44	0.90	0.00	-25.00
13.48	0.90	0.00	-25.00
13.52	0.90	0.00	-25.00
13.56	0.90	0.00	-25.00
13.60	0.90	0.00	-25.00
13.64	0.90	0.00	-25.00
13.68	0.90	0.00	-25.00
13.72	0.90	0.00	-25.00
13.76	0.90	0.00	-25.00
13.80	0.90	0.00	-25.00
13.84	0.90	0.00	-25.00
13.88	0.90	0.00	-25.00
13.92	0.90	0.00	-25.00
13.96	0.90	0.00	-25.00
14.00	0.90	0.00	-25.00
14.04	0.89	0.00	-27.50
14.08	0.89	0.00	-27.50
14.12	0.89	0.00	-27.50
14.16	0.89	0.00	-27.50
14.20	0.89	0.00	-27.50
14.24	0.89	0.00	-27.50
14.28	0.89	0.00	-27.50
14.32	0.89	0.00	-27.50
14.36	0.89	0.00	-27.50
14.40	0.89	0.00	-27.50
14.44	0.89	0.00	-27.50
14.48	0.89	0.00	-27.50
14.52	0.89	0.00	-27.50

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
14.56	0.89	0.00	-27.50
14.60	0.89	0.00	-27.50
14.64	0.89	0.00	-27.50
14.68	0.89	0.00	-27.50
14.72	0.89	0.00	-27.50
14.76	0.90	0.00	-25.00
14.80	0.90	0.00	-25.00
14.84	0.90	0.00	-25.00
14.88	0.90	0.00	-25.00
14.92	0.90	0.00	-25.00
14.96	0.90	0.00	-25.00
15.00	0.90	0.00	-25.00
15.04	0.90	0.00	-25.00
15.08	0.90	0.00	-25.00
15.12	0.90	0.00	-25.00
15.16	0.90	0.00	-25.00
15.20	0.91	0.00	-22.50
15.24	0.91	0.00	-22.50
15.28	0.91	0.00	-22.50
15.32	0.90	0.00	-25.00
15.36	0.90	0.00	-25.00
15.40	0.90	0.00	-25.00
15.44	0.90	0.00	-25.00
15.48	0.90	0.00	-25.00
15.52	0.90	0.00	-25.00
15.56	0.90	0.00	-25.00
15.60	0.89	0.00	-27.50
15.64	0.89	0.00	-27.50
15.68	0.90	0.00	-25.00
15.72	0.89	0.00	-27.50
15.76	0.89	0.00	-27.50
15.80	0.89	0.00	-27.50
15.84	0.88	0.00	-30.00
15.88	0.89	0.00	-27.50
15.92	0.89	0.00	-27.50
15.96	0.89	0.00	-27.50
16.00	0.89	0.00	-27.50
16.04	0.89	0.00	-27.50
16.08	0.89	0.00	-27.50
16.12	0.89	0.00	-27.50
16.16	0.89	0.00	-27.50
16.20	0.89	0.00	-27.50
16.24	0.89	0.00	-27.50
16.28	0.88	0.00	-30.00
16.32	0.88	0.00	-30.00
16.36	0.88	0.00	-30.00
16.40	0.89	0.00	-27.50
16.44	0.88	0.00	-30.00
16.48	0.89	0.00	-27.50
16.52	0.88	0.00	-30.00
16.56	0.88	0.00	-30.00
16.60	0.89	0.00	-27.50

SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
16.64	0.89	0.00	-27.50
16.68	0.89	0.00	-27.50
16.72	0.89	0.00	-27.50
16.76	0.89	0.00	-27.50
16.80	0.89	0.00	-27.50
16.84	0.89	0.00	-27.50
16.88	0.90	0.00	-25.00
16.92	0.90	0.00	-25.00
16.96	0.90	0.00	-25.00
17.00	0.90	0.00	-25.00
17.04	0.90	0.00	-25.00
17.08	0.90	0.00	-25.00
17.12	0.90	0.00	-25.00
17.16	0.90	0.00	-25.00
17.20	0.90	0.00	-25.00
17.24	0.90	0.00	-25.00
17.28	0.91	0.00	-22.50
17.32	0.91	0.00	-22.50
17.36	0.91	0.00	-22.50
17.40	0.91	0.00	-22.50
17.44	0.91	0.00	-22.50
17.48	0.91	0.00	-22.50
17.52	0.92	0.00	-20.00
17.56	0.92	0.00	-20.00
17.60	0.93	0.00	-17.50
17.64	0.93	0.00	-17.50
17.68	0.93	0.00	-17.50
17.72	0.93	0.00	-17.50
17.76	0.93	0.00	-17.50
17.80	0.97	0.00	-7.50
17.84	1.02	0.00	5.00
17.88	1.07	0.00	17.50
17.92	1.07	0.00	17.50
17.96	1.05	0.00	12.50
18.00	1.03	0.00	7.50
18.04	1.06	0.00	15.00
18.08	1.21	0.00	52.50
18.12	1.43	0.00	107.50
18.16	1.45	0.00	112.50
18.20	1.43	0.00	107.50
18.24	1.78	0.00	195.00
18.28	1.81	0.00	202.50
18.32	1.50	0.00	125.00
18.36	1.26	0.00	65.00
18.40	1.14	0.00	35.00
18.44	1.09	0.00	22.50
18.48	1.15	0.00	37.50
18.52	1.44	0.00	110.00
18.56	1.57	0.00	142.50
18.60	1.40	0.00	100.00
18.64	1.28	0.00	70.00
18.68	1.35	0.00	87.50

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
18.72	1.50	0.00	125.00
18.76	1.42	0.00	105.00
18.80	1.26	0.00	65.00
18.84	1.15	0.00	37.50
18.88	1.12	0.00	30.00
18.92	1.22	0.00	55.00
18.96	1.47	0.00	117.50
19.00	1.53	0.00	132.50
19.04	1.38	0.00	95.00
19.08	1.27	0.00	67.50
19.12	1.29	0.00	72.50
19.16	1.38	0.00	95.00
19.20	1.37	0.00	92.50
19.24	1.28	0.00	70.00
19.28	1.21	0.00	52.50
19.32	1.19	0.00	47.50
19.36	1.26	0.00	65.00
19.40	1.41	0.00	102.50
19.44	1.46	0.00	115.00
19.48	1.39	0.00	97.50
19.52	1.31	0.00	77.50
19.56	1.25	0.00	62.50
19.60	1.23	0.00	57.50
19.64	1.23	0.00	57.50
19.68	1.26	0.00	65.00
19.72	1.25	0.00	62.50
19.76	1.19	0.00	47.50
19.80	1.14	0.00	35.00
19.84	1.15	0.00	37.50
19.88	1.22	0.00	55.00
19.92	1.31	0.00	77.50
19.96	1.30	0.00	75.00
20.00	1.24	0.00	60.00
20.04	1.20	0.00	50.00
20.08	1.18	0.00	45.00
20.12	1.19	0.00	47.50
20.16	1.21	0.00	52.50
20.20	1.22	0.00	55.00
20.24	1.20	0.00	50.00
20.28	1.19	0.00	47.50
20.32	1.24	0.00	60.00
20.36	1.37	0.00	92.50
20.40	1.42	0.00	105.00
20.44	1.33	0.00	82.50
20.48	1.23	0.00	57.50
20.52	1.21	0.00	52.50
20.56	1.26	0.00	65.00
20.60	1.32	0.00	80.00
20.64	1.29	0.00	72.50
20.68	1.22	0.00	55.00
20.72	1.18	0.00	45.00
20.76	1.23	0.00	57.50

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
20.80	1.37	0.00	92.50
20.84	1.40	0.00	100.00
20.88	1.30	0.00	75.00
20.92	1.20	0.00	50.00
20.96	1.19	0.00	47.50
21.00	1.25	0.00	62.50
21.04	1.31	0.00	77.50
21.08	1.29	0.00	72.50
21.12	1.23	0.00	57.50
21.16	1.20	0.00	50.00
21.20	1.24	0.00	60.00
21.24	1.35	0.00	87.50
21.28	1.40	0.00	100.00
21.32	1.31	0.00	77.50
21.36	1.22	0.00	55.00
21.40	1.19	0.00	47.50
21.44	1.24	0.00	60.00
21.48	1.33	0.00	82.50
21.52	1.34	0.00	85.00
21.56	1.28	0.00	70.00
21.60	1.25	0.00	62.50
21.64	1.31	0.00	77.50
21.68	1.40	0.00	100.00
21.72	1.37	0.00	92.50
21.76	1.29	0.00	72.50
21.80	1.25	0.00	62.50
21.84	1.26	0.00	65.00
21.88	1.30	0.00	75.00
21.92	1.34	0.00	85.00
21.96	1.34	0.00	85.00
22.00	1.31	0.00	77.50
22.04	1.29	0.00	72.50
22.08	1.31	0.00	77.50
22.12	1.36	0.00	90.00
22.16	1.36	0.00	90.00
22.20	1.30	0.00	75.00
22.24	1.24	0.00	60.00
22.28	1.24	0.00	60.00
22.32	1.28	0.00	70.00
22.36	1.34	0.00	85.00
22.40	1.35	0.00	87.50
22.44	1.31	0.00	77.50
22.48	1.27	0.00	67.50
22.52	1.28	0.00	70.00
22.56	1.33	0.00	82.50
22.60	1.35	0.00	87.50
22.64	1.31	0.00	77.50
22.68	1.26	0.00	65.00
22.72	1.25	0.00	62.50
22.76	1.29	0.00	72.50
22.80	1.35	0.00	87.50
22.84	1.34	0.00	85.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
22.88	1.30	0.00	75.00
22.92	1.27	0.00	67.50
22.96	1.28	0.00	70.00
23.00	1.32	0.00	80.00
23.04	1.34	0.00	85.00
23.08	1.31	0.00	77.50
23.12	1.27	0.00	67.50
23.16	1.25	0.00	62.50
23.20	1.29	0.00	72.50
23.24	1.35	0.00	87.50
23.28	1.35	0.00	87.50
23.32	1.30	0.00	75.00
23.36	1.26	0.00	65.00
23.40	1.27	0.00	67.50
23.44	1.31	0.00	77.50
23.48	1.32	0.00	80.00
23.52	1.30	0.00	75.00
23.56	1.27	0.00	67.50
23.60	1.27	0.00	67.50
23.64	1.28	0.00	70.00
23.68	1.31	0.00	77.50
23.72	1.33	0.00	82.50
23.76	1.30	0.00	75.00
23.80	1.27	0.00	67.50
23.84	1.25	0.00	62.50
23.88	1.27	0.00	67.50
23.92	1.31	0.00	77.50
23.96	1.30	0.00	75.00
24.00	1.27	0.00	67.50
24.04	1.25	0.00	62.50
24.08	1.26	0.00	65.00
24.12	1.29	0.00	72.50
24.16	1.32	0.00	80.00
24.20	1.30	0.00	75.00
24.24	1.26	0.00	65.00
24.28	1.26	0.00	65.00
24.32	1.28	0.00	70.00
24.36	1.31	0.00	77.50
24.40	1.31	0.00	77.50
24.44	1.27	0.00	67.50
24.48	1.25	0.00	62.50
24.52	1.27	0.00	67.50
24.56	1.31	0.00	77.50
24.60	1.32	0.00	80.00
24.64	1.29	0.00	72.50
24.68	1.26	0.00	65.00
24.72	1.26	0.00	65.00
24.76	1.29	0.00	72.50
24.80	1.32	0.00	80.00
24.84	1.31	0.00	77.50
24.88	1.28	0.00	70.00
24.92	1.27	0.00	67.50

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
24.96	1.29	0.00	72.50
25.00	1.32	0.00	80.00
25.04	1.31	0.00	77.50
25.08	1.29	0.00	72.50
25.12	1.26	0.00	65.00
25.16	1.27	0.00	67.50
25.20	1.29	0.00	72.50
25.24	1.31	0.00	77.50
25.28	1.30	0.00	75.00
25.32	1.28	0.00	70.00
25.36	1.28	0.00	70.00
25.40	1.29	0.00	72.50
25.44	1.31	0.00	77.50
25.48	1.31	0.00	77.50
25.52	1.30	0.00	75.00
25.56	1.27	0.00	67.50
25.60	1.27	0.00	67.50
25.64	1.30	0.00	75.00
25.68	1.32	0.00	80.00
25.72	1.30	0.00	75.00
25.76	1.28	0.00	70.00
25.80	1.28	0.00	70.00
25.84	1.31	0.00	77.50
25.88	1.32	0.00	80.00
25.92	1.31	0.00	77.50
25.96	1.29	0.00	72.50
26.00	1.29	0.00	72.50
26.04	1.30	0.00	75.00
26.08	1.31	0.00	77.50
26.12	1.30	0.00	75.00
26.16	1.28	0.00	70.00
26.20	1.27	0.00	67.50
26.24	1.28	0.00	70.00
26.28	1.29	0.00	72.50
26.32	1.30	0.00	75.00
26.36	1.30	0.00	75.00
26.40	1.29	0.00	72.50
26.44	1.28	0.00	70.00
26.48	1.29	0.00	72.50
26.52	1.29	0.00	72.50
26.56	1.29	0.00	72.50
26.60	1.29	0.00	72.50
26.64	1.27	0.00	67.50
26.68	1.27	0.00	67.50
26.72	1.28	0.00	70.00
26.76	1.30	0.00	75.00
26.80	1.29	0.00	72.50
26.84	1.27	0.00	67.50
26.88	1.27	0.00	67.50
26.92	1.27	0.00	67.50
26.96	1.28	0.00	70.00
27.00	1.29	0.00	72.50

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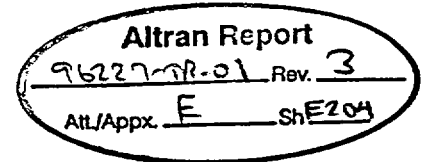
SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
27.04	1.28	0.00	70.00
27.08	1.27	0.00	67.50
27.12	1.27	0.00	67.50
27.16	1.27	0.00	67.50
27.20	1.29	0.00	72.50
27.24	1.29	0.00	72.50
27.28	1.28	0.00	70.00
27.32	1.26	0.00	65.00
27.36	1.26	0.00	65.00
27.40	1.27	0.00	67.50
27.44	1.29	0.00	72.50
27.48	1.28	0.00	70.00
27.52	1.27	0.00	67.50
27.56	1.26	0.00	65.00
27.60	1.27	0.00	67.50
27.64	1.29	0.00	72.50
27.68	1.28	0.00	70.00
27.72	1.27	0.00	67.50
27.76	1.26	0.00	65.00
27.80	1.26	0.00	65.00
27.84	1.27	0.00	67.50
27.88	1.28	0.00	70.00
27.92	1.28	0.00	70.00
27.96	1.27	0.00	67.50
28.00	1.27	0.00	67.50
28.04	1.28	0.00	70.00
28.08	1.30	0.00	75.00
28.12	1.30	0.00	75.00
28.16	1.29	0.00	72.50
28.20	1.27	0.00	67.50
28.24	1.27	0.00	67.50
28.28	1.28	0.00	70.00
28.32	1.29	0.00	72.50
28.36	1.29	0.00	72.50
28.40	1.28	0.00	70.00
28.44	1.28	0.00	70.00
28.48	1.30	0.00	75.00
28.52	1.31	0.00	77.50
28.56	1.31	0.00	77.50
28.60	1.30	0.00	75.00
28.64	1.29	0.00	72.50
28.68	1.29	0.00	72.50
28.72	1.29	0.00	72.50
28.76	1.30	0.00	75.00
28.80	1.30	0.00	75.00
28.84	1.30	0.00	75.00
28.88	1.29	0.00	72.50
28.92	1.31	0.00	77.50
28.96	1.31	0.00	77.50
29.00	1.31	0.00	77.50
29.04	1.30	0.00	75.00
29.08	1.30	0.00	75.00

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SECONDS	XMTR OUTPUT	ATM. PRESS.	CALC. PRESS. VALUES
29.12	1.29	0.00	77.50
29.16	1	0.00	77.50
29.20	1	0.00	77.50
29.24	1.29	0.00	77.50
29.28	1.30	0.00	75.00
29.32	1.30	0.00	75.00
29.36	1.31	0.00	77.50
29.40	1.31	0.00	77.50
29.44	1.30	0.00	75.00
29.48	1.29	0.00	72.50
29.52	1.28	0.00	70.00
29.56	1.29	0.00	72.50
29.60	1.29	0.00	72.50
29.64	1.29	0.00	72.50
29.68	1.29	0.00	72.50
29.72	1.30	0.00	75.00
29.76	1.29	0.00	72.50
29.80	1.29	0.00	72.50
29.84	1.30	0.00	75.00
29.88	1.30	0.00	75.00
29.92	1.30	0.00	75.00
29.96	1.30	0.00	75.00
30.00	1.30	0.00	75.00



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Appendix F - Fluid Structure Interaction

Number of pages including this sheet = 8

Typical SW configuration:

$$\rho_{\text{steel}} := 488 \frac{\text{lb}}{\text{ft}^3}$$

density of steel from Mark's [2] *

$$E_{\text{steel}} := 29 \cdot 10^6 \frac{\text{lb}}{\text{in}^2}$$

modulus of elasticity for steel from Mark's [2]

$$\nu_{\text{steel}} := 0.29$$

poisson's ratio for steel from Mark's [2]

$$a_{\text{steel}} := \sqrt{\frac{E_{\text{steel}}}{\rho_{\text{steel}}}}$$

speed of sound in steel from [1]

$$a_{\text{steel}} = 1.659 \cdot 10^4 \frac{\text{ft}}{\text{sec}}$$

$$a_{\text{wtr}} := 2300 \frac{\text{ft}}{\text{sec}}$$

sonic velocity used in waterhammer calculation

$$\rho_{\text{wtr}} := 61 \frac{\text{lb}}{\text{ft}^3}$$

typical water density

$$i := 0..4 \quad n := 0..3$$

$$OD_i :=$$

$$t_i :=$$

$$L_n :=$$

4.5-in
8.625-in
10.75-in
14-in
24-in

0.237-in
0.322-in
0.365-in
0.438-in
0.688-in

5-ft
10-ft
30-ft
65-ft

typical pipe outside diameters and wall thickness for SCH40 from reference [4] and typical pipe lengths.

$$ID_i := OD_i - 2 \cdot t_i$$

pipe ID

$$K := 1.7 \cdot 10^5 \frac{\text{lbf}}{\text{in}}$$

$$A_{f_i} := \frac{(ID_i)^2 \cdot \pi}{4}$$

flow area

$$A_{m_i} := \frac{\pi}{4} \left[(OD_i)^2 - (ID_i)^2 \right]$$

pipe metal area

$$M_{0,i} := L_0 \cdot (A_{m_i} \cdot \rho_{\text{steel}})$$

mass of pipe

$$M_{1,i} := L_1 \cdot (A_{m_i} \cdot \rho_{\text{steel}})$$

$$M_{2,i} := L_2 \cdot (A_{m_i} \cdot \rho_{\text{steel}})$$

$$M_{3,i} := L_3 \cdot (A_{m_i} \cdot \rho_{\text{steel}})$$

$$M = \begin{bmatrix} 53.782 & 142.321 & 201.779 & 316.21 & 853.778 \\ 107.565 & 284.641 & 403.559 & 632.419 & 1.708 \cdot 10^3 \\ 322.695 & 853.924 & 1.211 \cdot 10^3 & 1.897 \cdot 10^3 & 5.123 \cdot 10^3 \\ 699.172 & 1.85 \cdot 10^3 & 2.623 \cdot 10^3 & 4.111 \cdot 10^3 & 1.11 \cdot 10^4 \end{bmatrix} \cdot \text{lb}$$

* References are listed at the end of Appendix F.

Reference [3] configuration:

$$\rho_{\text{copper}} := 8940 \cdot \frac{\text{kg}}{\text{m}^3} \quad \rho_{\text{copper}} = 558.106 \cdot \frac{\text{lb}}{\text{ft}^3} \quad \text{density of copper from [3]}$$

$$E_{\text{copper}} := 117 \cdot 10^9 \cdot \text{Pa} \quad E_{\text{copper}} = 1.697 \cdot 10^7 \cdot \frac{\text{lb}}{\text{in}^2} \quad \text{Modulus of Elasticity for copper from [3]}$$

$$\nu_{\text{copper}} := 0.34 \quad \text{Poisson's ratio for copper from [3]}$$

$$a_{\text{copper}} := \sqrt{\frac{E_{\text{copper}}}{\rho_{\text{copper}}}} \quad \text{speed of sound in copper from [1]}$$

$$a_{\text{copper}} = 1.187 \cdot 10^4 \cdot \frac{\text{ft}}{\text{sec}}$$

$$\text{OD}_{\text{copper}} := 26 \cdot \text{mm} - 2 \cdot 1.27 \cdot \text{mm} \quad \text{OD}_{\text{copper}} = 0.924 \cdot \text{in} \quad \text{pipe OD from [3]}$$

$$t_{\text{copper}} := 1.27 \cdot \text{mm} \quad t_{\text{copper}} = 0.05 \cdot \text{in} \quad \text{pipe wall from [3]}$$

$$\text{ID}_{\text{copper}} := \text{OD}_{\text{copper}} - 2 \cdot t_{\text{copper}} \quad \text{ID}_{\text{copper}} = 0.824 \cdot \text{in} \quad \text{pipe ID}$$

$$A_{f_copper} := \pi \cdot \frac{\text{ID}_{\text{copper}}^2}{4} \quad A_{f_copper} = 0.533 \cdot \text{in}^2 \quad \text{pipe flow area}$$

$$A_{m_copper} := \pi \cdot \frac{\text{OD}_{\text{copper}}^2}{4} - A_{f_copper} \quad \text{pipe metal cross sectional area}$$

$$j := 0..1$$

$$L_{\text{copper}_j} :=$$

$$\begin{bmatrix} 7.65 \cdot \text{m} \\ 12.27 \cdot \text{m} \end{bmatrix} \quad L_{\text{copper}} = \begin{bmatrix} 25.098 \\ 40.256 \end{bmatrix} \cdot \text{ft} \quad \text{typical copper lengths from [3]}$$

$$M_{\text{copper}_j} := (A_{m_copper} \cdot L_{\text{copper}_j} \cdot \rho_{\text{copper}})$$

$$M_{\text{copper}} = \begin{bmatrix} 13.349 \\ 21.411 \end{bmatrix} \cdot \text{lb}$$

$$K_{\text{copper}} := 90000 \cdot \frac{\text{newton}}{\text{m}} \quad K_{\text{copper}} = 513.925 \cdot \frac{\text{lb}_f}{\text{in}}$$

Most SW lines have lateral restraints with stiffnesses on the order of 10^6 lb/in. A comparison is made using the damping coefficient shown below from reference [5]. A large damping coefficient indicates less potential for large oscillations in pressure at changes in direction. The phenomena being dampened here is the conversion of fluid pressure energy into structural kinetic energy (pipe movement) and the subsequent conversion of the kinetic energy back to internal pressure energy.

$$\text{Damp}(\rho, C, A, K, M) := \frac{\rho \cdot C \cdot A}{2 \cdot \sqrt{K \cdot M}} \quad \text{where}$$

ρ = fluid density
 C = fluid sonic velocity
 A = cross sectional area of pipe
 K = flexural stiffness
 M = mass of pipe

The damping coefficients for copper are then:

$$D_{\text{copper}_j} := \text{Damp}(\rho_{\text{wtr}}, a_{\text{wtr}}, A_{f_copper}, K_{\text{copper}}, M_{\text{copper}_j})$$

The damping coefficients for the steel are calculated next:

$$n := 0..3$$

$$D_{\text{steel}_{n,i}} := \text{Damp}(\rho_{\text{wtr}}, a_{\text{wtr}}, A_{f_i}, K, M_{n,i})$$

The steel and copper results are compared below:

	4"	8"	10"	14"	24"	
$D_{\text{steel}} =$	0.104	0.252	0.334	0.457	0.827	$L_0 = 5\text{-ft}$
	0.074	0.178	0.236	0.323	0.585	$L_1 = 10\text{-ft}$
	0.043	0.103	0.136	0.187	0.338	$L_2 = 30\text{-ft}$
	0.029	0.07	0.093	0.127	0.229	$L_3 = 65\text{-ft}$

$D_{\text{copper}} =$	$\begin{bmatrix} 0.159 \\ 0.126 \end{bmatrix}$	$L_{\text{copper}_0} = 25.098\text{-ft}$
		$L_{\text{copper}_1} = 40.256\text{-ft}$

The majority of SW system configurations have greater damping than the configuration evaluated in reference [3] and are less likely to experience pressure oscillations and fluid/structure interaction effects.

Next a comparison of piping frequencies is made:

$$\omega_N(L, E, I, M) := \frac{\pi^2}{L^2} \sqrt{\frac{E \cdot I \cdot g}{M}}$$

this is the circular fundamental natural frequency of the pipe [6]

where

L = length of pipe

E = modulus of elasticity of the pipe

I = moment of inertia

M = mass of the pipe

$$\omega_1(\omega_{nat}, v, v_{crit}) := \omega_{nat} \sqrt{1 - \left(\frac{v}{v_{crit}}\right)^2}$$

this is the first natural frequency of the pipe with flow in it [6]

where:

ω_{nat} = circular fundamental natural frequency

v = fluid velocity in the pipe

v_{crit} = critical velocity of flow for buckling the pipe

$$v_c(L, E, I, \rho, A) := \frac{\pi}{L} \sqrt{\frac{E \cdot I \cdot g}{\rho \cdot A}}$$

this is the critical velocity of flow for buckling the pipe [6]

where

ρ = fluid density

A = fluid flow area

$$\text{Inertia}(OD, ID) := \frac{\pi}{64} \cdot (OD^4 - ID^4) \quad \text{moment of inertia from Marks}$$

$$I_{steel_i} := \text{Inertia}(OD_i, ID_i)$$

$$\omega_{steel_{n,i}} := \omega_N(L_n, E_{steel}, I_{steel_i}, M_{n,i})$$

$$v_{crit_steel_{n,i}} := v_c(L_n, E_{steel}, I_{steel_i}, \rho_{wtr}, A_{f_i})$$

$$I_{copper} := \text{Inertia}(OD_{copper}, ID_{copper})$$

$$\omega_{copper_j} := \omega_N(L_{copper_j}, E_{copper}, I_{copper}, M_{copper_j})$$

$$v_{crit_copper_j} := v_c(L_{copper_j}, E_{copper}, I_{copper}, \rho_{wtr}, A_{f_copper})$$

$$\omega_{n_steel} = \begin{bmatrix} 824.028 & 1.604 \cdot 10^3 & 2.006 \cdot 10^3 & 2.619 \cdot 10^3 & 4.501 \cdot 10^3 \\ 206.007 & 400.92 & 501.385 & 654.706 & 1.125 \cdot 10^3 \\ 22.89 & 44.547 & 55.709 & 72.745 & 125.032 \\ 4.876 & 9.489 & 11.867 & 15.496 & 26.634 \end{bmatrix} \cdot \text{Hz}$$

$$\omega_{n_copper} = \begin{bmatrix} 4.794 \\ 1.864 \end{bmatrix} \cdot \text{Hz}$$

$$v_{crit_steel} = \begin{bmatrix} 1.852 \cdot 10^3 & 2.958 \cdot 10^3 & 3.508 \cdot 10^3 & 4.379 \cdot 10^3 & 7.174 \cdot 10^3 \\ 926.115 & 1.479 \cdot 10^3 & 1.754 \cdot 10^3 & 2.189 \cdot 10^3 & 3.587 \cdot 10^3 \\ 308.705 & 493.003 & 584.732 & 729.765 & 1.196 \cdot 10^3 \\ 142.479 & 227.54 & 269.876 & 336.815 & 551.812 \end{bmatrix} \cdot \text{ft} \cdot \text{sec}^{-1}$$

$$v_{crit_copper} = \begin{bmatrix} 58.797 \\ 36.658 \end{bmatrix} \cdot \text{ft} \cdot \text{sec}^{-1}$$

$$\omega_{l_steel_n,i} := \omega_1 \left(\omega_{n_steel_n,i}, 10 \cdot \frac{\text{ft}}{\text{sec}}, v_{crit_steel_n,i} \right)$$

$$\omega_{l_copper_j} := \omega_1 \left(\omega_{n_copper_j}, 10 \cdot \frac{\text{ft}}{\text{sec}}, v_{crit_copper_j} \right)$$

$$\omega_{l_steel} = \begin{bmatrix} 824.016 & 1.604 \cdot 10^3 & 2.006 \cdot 10^3 & 2.619 \cdot 10^3 & 4.501 \cdot 10^3 \\ 205.995 & 400.911 & 501.376 & 654.699 & 1.125 \cdot 10^3 \\ 22.878 & 44.538 & 55.701 & 72.738 & 125.028 \\ 4.864 & 9.48 & 11.859 & 15.489 & 26.63 \end{bmatrix} \cdot \text{Hz}$$

$$\omega_{l_copper} = \begin{bmatrix} 4.724 \\ 1.793 \end{bmatrix} \cdot \text{Hz}$$

$$f_{o_o}(\text{order, sonic, Length}) := \frac{\text{order} \cdot \text{sonic}}{2 \cdot \text{Length}} \quad \begin{array}{l} \text{open-open systems [6]} \\ \text{where} \\ \text{order} = 1, 2, 3, \dots \end{array}$$

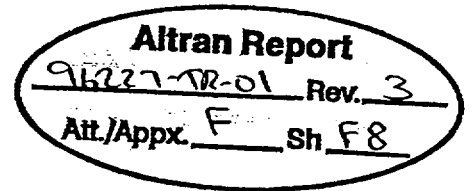
$$f_{o_c}(\text{order, sonic, Length}) := \frac{\text{order} \cdot \text{sonic}}{4 \cdot \text{Length}} \quad \begin{array}{l} \text{open-closed systems [6]} \\ \text{where order} = 1, 3, 5 \end{array}$$

$$f_{o_o}\left(1, 2300 \cdot \frac{\text{ft}}{\text{sec}}, 400 \cdot \text{ft}\right) = 2.875 \cdot \text{Hz} \quad \text{pulse frequency of SW piping system}$$

$$f_{o_c}\left(1, 4000 \cdot \frac{\text{ft}}{\text{sec}}, 48 \cdot \text{m}\right) = 6.35 \cdot \text{Hz} \quad \text{pulse frequency of copper test}$$

It is apparent that the frequency of the source of the displacements is equal to or greater than the frequency of the piping system for the copper case. It is apparent that the frequency of the source of the displacement is less than the frequency of the piping system for typical SW systems. The frequency of typical SW systems is larger than the reference [3] test configuration. It is unlikely that typical SW systems would experience the pressure amplification described in ref. [3] considering these comparisons.

THE COPPER TEST ARRANGEMENT IS THINNER AND MORE SUSCEPTIBLE TO STRAIN THAN SW SYSTEMS AS WELL. THIS RESULTS IN A HIGHER PROBABILITY OF BREATHING EFFECTS AS WELL.



References

- [1] Wiggert, Stuckenbruck, & Otwell, "The Influence of Pipe Motion on Acoustic Wave Propagation", Journal of Fluids Engineering, December 1985, Vol. 107.
- [2] Mark's Standard Handbook for Mechanical Engineers, Ninth Edition.
- [3] Wiggert, Otwell, & Hatfield, "The Effect of Elbow Restraint on Pressure Transients", Transactions of The ASME, Vol. 107, September 1985.
- [4] Crane Technical Paper 410, 25th printing.
- [5] Moody, Introduction to Unsteady Thermofluid Mechanics, 1990, John Wiley & Sons.
- [6] Blevins, Flow Induced Vibration, 1990, Van Nostrand Reinhold.

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APPENDIX G. CIWH

This appendix determines the magnitudes of the Condensation Induced Waterhammers (CIWH) that will occur during system draining for the combined LOOP/LOCA event. This method is in general agreement with that described in NUREG CR/5220 [16]. CIWH is expected to occur as hot steam generated in the Fan Coolers enters horizontal piping. The stratified condition with steam passing over the sub-cooled water in the pipe presents the potential for transition to slug flow, trapping a steam bubble. This trapped steam bubble will rapidly condense, drawing water into the void which will impact as the void completes condensation. This impact is a condensation induced waterhammer and produces a pressure pulse that travels through the water solid portion of the pipe. The pressure pulse can lead to differential pressure forces in pipe segments and therefore load the pipe. A diagram of a condensation induced event is presented in Figure G-1 (from NUREG/CR-6519 [13]), below.

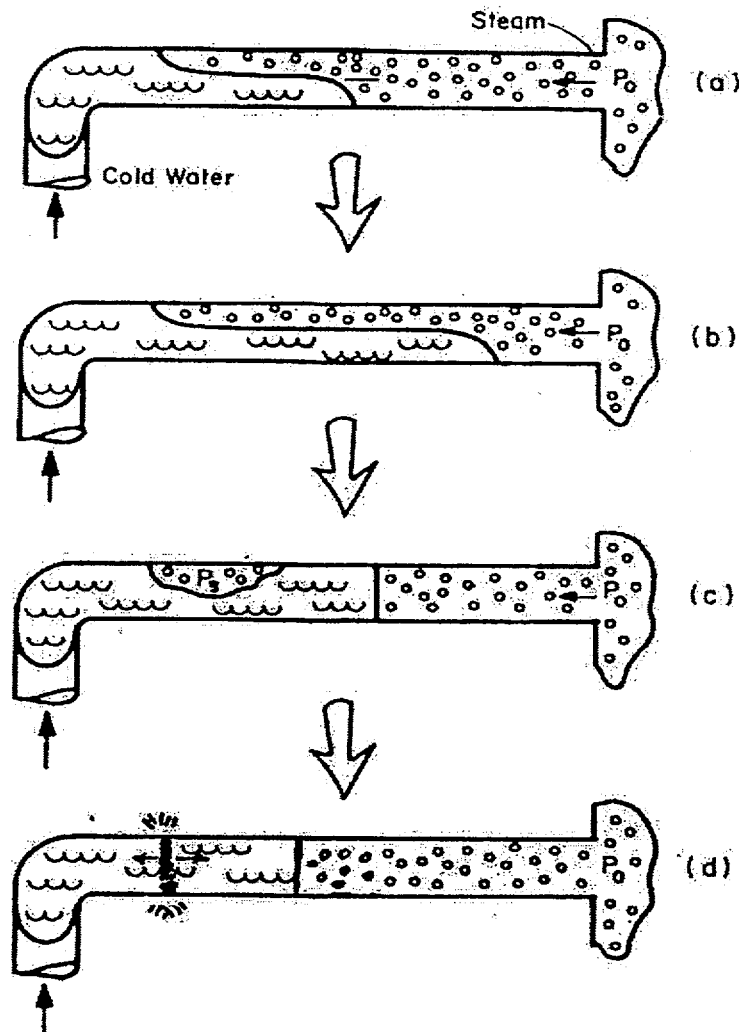


Figure G-1: Condensation Induced Waterhammer

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The primary driving force for the CIWH is the differential pressure between the system steam and the void pressure. The acceleration of the water into the void is determined from an energy balance Ref. [13].

$$\frac{1}{2} \rho_L (Vol_L) V^2 = (P_o - P_v) Vol_b$$

Where:

Vol_L, Vol_b	= Volumes of the water slug and steam bubble, respectively
ρ_L	= density of liquid
V	= velocity
P_o	= system driving pressure
P_v	= pressure in void

As an approximation, the relative steam and water volumes can be related to the average void fraction (α) by:

$$\frac{Vol_b}{Vol_L} = \frac{\alpha}{1-\alpha}$$

The velocity term (V) is therefore:

$$\Delta V = V = \sqrt{\frac{2(P_o - P_v)}{\rho_L} \frac{\alpha}{1-\alpha}}$$

If the entire velocity is instantly stopped at impact ($V = \Delta V$), the waterhammer pressure magnitude can then be determined using the Joukowski equation [13, 31]:

$$\Delta P = k \rho C \Delta V$$

Where:

ΔP	= waterhammer pressure pulse magnitude (psf, correct to psi)
k	= constant (0.5 for water/water closure, 1.0 for water/valve or end closure)
ρ	= density of the liquid (lb/ft ³ /g, g = 32.2 ft/sec)
C	= sonic velocity (2300 ft/sec per Appendix H)
ΔV	= impact velocity (ft/sec)

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To determine the inputs to the above formulae, the conditions at the time of waterhammer need to be defined. The screening for a CIWH event (Section 5.4) did not consider the beneficial effects of steam condensation during a draining transient. Since the void fraction of steam to total section, α , can vary along with the pressure in the void and both impact the calculated slug impact velocity, this investigation considers steam condensation. As the system drains and the steam void enters a horizontal pipe, the condensation surface will increase and much of the mass of steam in the void will be consumed. This condensation will lower the steam pressure. Conversely, heat added to the steam void will increase the temperature and therefore the steam pressure. The calculation on the attached sheets shows that the steam condensation rate will far outpace the heat addition, and the steam void will stabilize at about 127°F. Therefore, the saturation pressure at this temperature will determine the driving force for the condensation induced waterhammer.

The calculation for the temperature in the void and resulting maximum waterhammer is included on the following pages and the results are summarized below. To conservatively maximize the waterhammer, the following inputs are used:

- α = 0.5, As the pipe becomes drained beyond this point, the transition to slug flow is unlikely [13, 14, 15]
- ρ_L = density of liquid (use lb/ft³ at 100°F to maximize waterhammer and 60 lb/ft³ to maximize impact velocity)
- P_o = system driving pressure. Conservatively use saturation pressure at 130°F (2.22 psia)
- P_v = pressure in void. Conservatively use the pressure for the minimum water temperature (1.35 psia)
- k = 0.5 [13, 31]

$$\Delta V = V = \sqrt{\frac{2(P_o - P_v)}{\rho_L} \frac{\alpha}{1 - \alpha}} = \sqrt{\frac{2(144)(2.084 - 1.622)}{60 / 32.2} \cdot \frac{.654}{1 - .654}} = 11.5 \text{ ft/sec}$$

$$\Delta P = k \rho C \Delta V$$

$$\Delta P = 1/2 (62/g)(2300/144)(11.59) = 178 \text{ psi}$$

The pressure duration is calculated by determining the time it takes the sonic wave to travel from the impact point to the free end of the moving slug and back. Using a void ratio of .5 the moving slug length is assumed to be equal to half of the length of the horizontal piping in the slug closing region.

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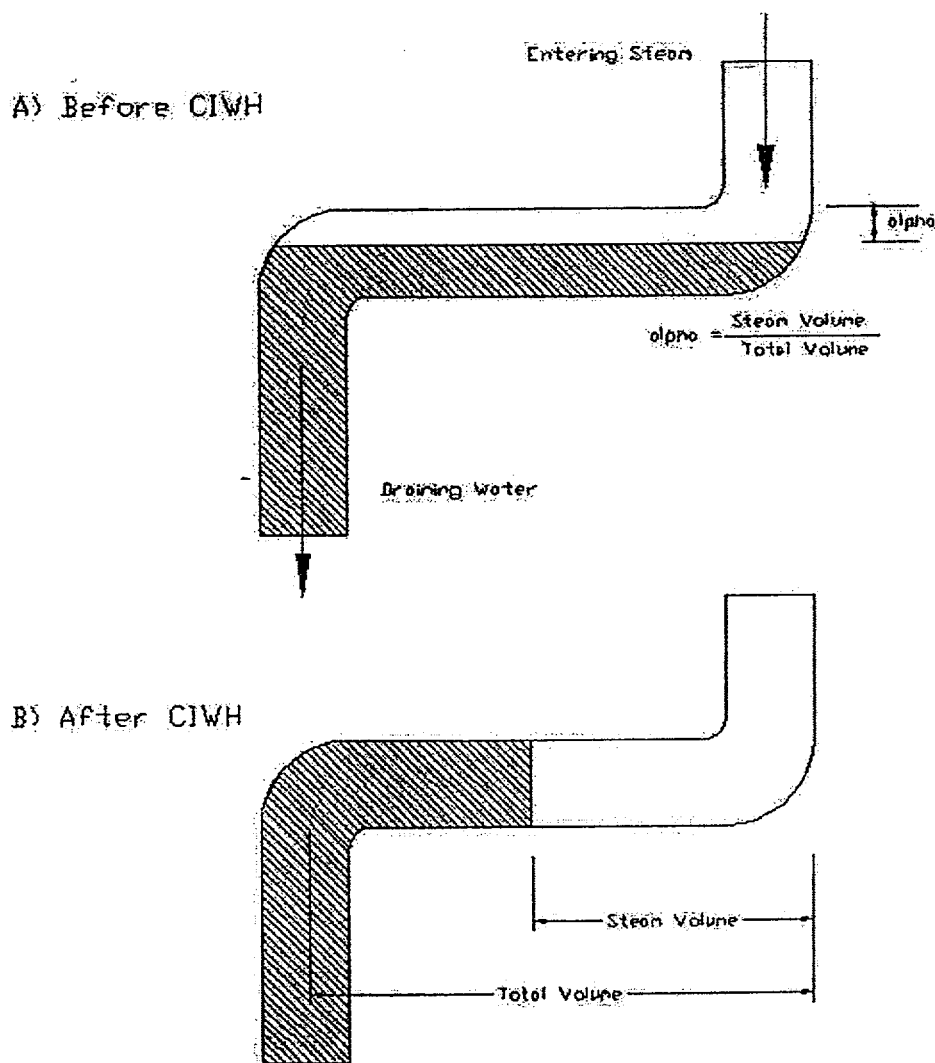


Figure G-2: Water Column Length

Train A (Ref. C-1) has a horizontal pipe length of 78.41 ft (Segments 1, 5, 6, and 7). Hence, the assumed length of the moving slug is 39.2 ft. With a sonic velocity of 2300 fps this results in a pressure pulse duration of 0.0341 seconds for Train A CIWH as noted below:

$$\text{Duration} = 39.2 \times 2 / 2300 = 0.0341 \text{ seconds}$$

$$\text{Pulse rise time} = 0.0341 / 2 = 0.0170 \text{ seconds}$$

Train B (Ref. C-1) has a horizontal pipe length of 61.93 ft (Segment 11). Hence, the assumed length of the moving slug is 31.0 ft. With a sonic velocity of 2300 fps this results in a pressure pulse duration of 0.0270 seconds for Train B CIWH as noted below:

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Duration = $31.0 \times 2 / 2300 = 0.0270$ seconds

Pulse rise time = $0.0270/2 = 0.0135$ seconds

The pulse rise time is limited to the time that the sonic wave can reach the free surface. Since the free surface is very close to the closure location, the shape of the pressure pulse is triangular. The triangular pulse shape can be seen in the test data for pump restart (CCWH), and it is even more likely for the shorter CIWH events.

This calculation determines the temperature in the steam void as a horizontal pipe drains and the void fraction increases. The steam void temperature is a function of condensation removing mass at the water interface while heat is being added at the heat exchanger as shown in Equation 1. The heat exchanger heat transfer and condensation heat transfer are expressed in Equations 2 and 3, respectively. This supplementary calculation shows behaviour of the steam void after the pressurization occurs as calculated in Appendix A.

Heat Balance:
$$M_S \cdot C_{PS} \cdot \frac{d}{dt} T_S = Q_{IN} - Q_{OUT} \quad \text{Eq (1)}$$

Heat Exchanger Heat Transfer:
$$Q_{IN} = U_{HX} \cdot A_{HX} \cdot (T_C - T_S) \quad \text{Eq (2)}$$

Condensation Heat Transfer:
$$- Q_{OUT} = U_{CDS} \cdot A_{CDS} \cdot (T_S - T_W) \quad \text{Eq (3)}$$

At any time t_i the steam temperature T_{S_i} is then calculated by combining Eq (1), (2), and (3):

$$T_{S_i} = T_{S_{i-1}} + \frac{\Delta t}{M_{S_{i-1}} \cdot C_{PS_{i-1}}} \left[U_{HX} \cdot A_{HX} \cdot (T_C - T_{S_{i-1}}) - U_{CDS} \cdot A_{CDS_{i-1}} \cdot (T_{S_{i-1}} - T_W) \right] \quad \text{Eq (4)}$$

Definition of terms:

- T_S = Temperature of steam
- Δt = time step
- M_S = Mass of steam in the void
- C_{PS} = Specific heat of steam
- U_{HX} = Overall heat transfer coefficient for heat exchanger
- A_{HX} = Heat transfer area for heat exchanger
- T_C = Containment temperature
- U_{CDS} = Condensation heat transfer coefficient
- A_{HX} = Condensation heat transfer surface area
- T_W = Condensation surface temperature

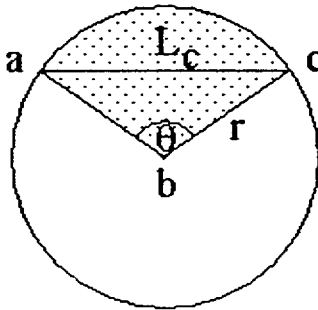
THIS COMPUTERIZED CALCULATION HAS BEEN CONFIRMED BY:

☒ DETAILED CHECKING OF ALL FORMULATION

☐ COMPARISON TO AN IDENTICAL VERIFIED FILE IN:

BY: GB DATE: 12/11/00

The condensation heat transfer area is conservatively assumed to just be the water surface area (i.e. cold piping not credited). The condensation surface area is developed below. A direct solution method is not readily available to solve for the area formed by the chord length and the pipe segment length. The area is determined by first solving for the angle θ shown in the figure below. Then the chord length is calculated from simple geometry. The angle θ is solved for at any void fraction by using a subroutine that guesses the value of θ , then calculates the voided area using the guess value and compares the calculated area against the known voided area ($A_{\text{void}} = \alpha \times A_{\text{pipe}}$). Guesses continue until the guess value area exceeds the voided area. By applying a small change in the angle at each guess, error is negligible.



```

angle( $\alpha, r$ ) :=
  Acalc ← 0
  step ←  $\frac{1}{10^4}$ 
   $\theta \leftarrow \text{step}$ 
  Avoid ←  $\alpha \cdot \pi \cdot r^2$ 
  while Avoid > Acalc
    Acalc ←  $\frac{r^2}{2} \cdot (\theta - \sin(\theta))$  if  $\theta \leq \frac{\pi}{2}$ 
    Acalc ←  $\frac{r^2}{2} \cdot (\theta - \sin(\pi - \theta))$  otherwise
     $\theta \leftarrow \theta + \text{step}$ 
   $\theta$ 

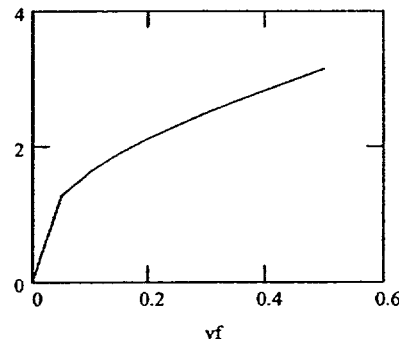
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$$L_{\text{chord}}(\alpha, r) := 2 \cdot r \cdot \sin\left(\frac{\text{angle}(\alpha, r)}{2}\right)$$

$$A_{\text{CDS}}(L_{\text{pipe}}, \alpha, ID) := L_{\text{chord}}\left(\alpha, \frac{ID}{2}\right) \cdot L_{\text{pipe}}$$

$$vf := 0, 0.05 \dots 0.5$$

angle(vf, 1)



A low condensing heat transfer coefficient is assumed:

$$U_{\text{CDS}} := 5000 \cdot \frac{\text{BTU}}{\text{hr} \cdot \text{ft}^2 \cdot \text{degF}}$$

Liang & Griffith's paper "Experimental and analytical study of direct contact condensation of steam in water", August 1991, Nuclear Engineering and Design indicates that direct contact heat transfer coefficients can reach 103 kW/m²K (176,000 BTU/hr ft² R). This is significantly greater than the 5000 BTU/hr ft² R applied herein. Uncertainty here is bound by ignoring the piping metal as an available heat sink (see margin assessment shown below).

The heat exchanger heat transfer area is calculated below.

$$n_{\text{tubes}} := 384 \quad \text{per 96227-TR-01}$$

$$L_{\text{tubes}} := 54 \cdot \text{ft}$$

$$\text{OD} := \frac{5}{8} \cdot \text{in}$$

$$A_{\text{HX}} := n_{\text{tubes}} \cdot L_{\text{tubes}} \cdot \pi \cdot \text{OD} \quad A_{\text{HX}} = 3392.92 \text{ ft}^2$$

Steam and water properties are taken from Incropera & Dewitt.



The highest steam pressure in the horizontal headers of concern is 8.2 psia per Appendix A of 96227-TR-01

$$P_{\text{So}} := 8.2 \cdot \text{psi}$$

$$T_{\text{So}} := \text{valueP}(P_{\text{So}}, T) \quad T_{\text{So}} = 184.01 \text{ degF} \quad \text{sensitivity was evaluated and high temp results in conservatively high convective heat transfer in HX}$$

$$Pr_{\text{So}} := \text{valueT}(T_{\text{So}}, Pr_g) \quad Pr_{\text{So}} = 0.96$$

$$\mu_{\text{So}} := \text{valueT}(T_{\text{So}}, \mu_g) \quad \mu_{\text{So}} = 0 \text{ poise}$$

$$\rho_{\text{So}} := \text{valueT}(T_{\text{So}}, \rho_g)^{-1} \quad \rho_{\text{So}} = 0.02 \frac{\text{lb}}{\text{ft}^3}$$

$$k_{\text{So}} := \text{valueT}(T_{\text{So}}, K_g) \quad k_{\text{So}} = 0.01 \frac{\text{BTU}}{\text{hr} \cdot \text{ft} \cdot \text{degF}}$$

$$Cp_{\text{So}} := \text{valueT}(T_{\text{So}}, Cp_g) \quad Cp_{\text{So}} = 0.47 \frac{\text{BTU}}{\text{lb} \cdot \text{degF}}$$

$$V_S := 50 \cdot \frac{\text{ft}}{\text{sec}} \quad \text{a conservatively high steam velocity is assumed; note that negligible steam velocities are expected since no water is available for steam generation.}$$

$$Re_S := \frac{\text{OD} \cdot V_S \cdot \rho_{\text{So}}}{\mu_{\text{So}}} \quad Re_S = 7354.08 \quad \text{Reynolds number}$$

$$Nu_S := 0.023 \cdot Re_S^{0.8} \cdot Pr_{\text{So}}^{0.4} \quad Nu_S = 27.99 \quad \text{Nusselt number}$$

$$U_{\text{HX}} := \frac{Nu_S \cdot k_{\text{So}}}{\text{OD}} \quad U_{\text{HX}} = 7.3 \frac{\text{BTU}}{\text{hr} \cdot \text{ft}^2 \cdot \text{degF}}$$

The available steam volume is calculated:

$$V_{HX} := 103.7 \cdot \text{ft}^3 \quad \text{per 96227-TR-01 (page 18) for two coolers}$$

$$V_{\text{pipeA}} := (9.3 + 32.8 + 10.8 + 64.2 + 75.2) \cdot \text{ft}^3 \quad \text{train A piping volume down to but not including piping at elevation 2018'8" where CIWH may occur}$$

$$V_{\text{pipeB}} := (18.71 + 61.96 + 78.84) \cdot \text{ft}^3 \quad \text{train B piping volume down to but not including piping at elevation 2027' 6" where CIWH may occur}$$

$$V_{\text{pipe}} := \begin{cases} V_{\text{pipeA}} & \text{if } V_{\text{pipeA}} < V_{\text{pipeB}} \\ V_{\text{pipeB}} & \text{otherwise} \end{cases}$$

$$V_{\text{pipe}} = 159.51 \text{ ft}^3 \quad \text{the smaller piping volume is applied to ensure a conservatively bounding volume is used}$$

$$V_{\text{total}} := V_{\text{pipe}} + V_{HX} \quad V_{\text{total}} = 263.21 \text{ ft}^3$$

An assessment is made of the margin that is available by not accounting for condensation on piping:

for 14" piping, the equivalent length of piping is:

$$L_{\text{pipe}} := \frac{V_{\text{total}}}{0.9394 \cdot \text{ft}^2} \quad L_{\text{pipe}} = 280.19 \text{ ft}$$

the mass of steel in the piping is:

$$M_{\text{metal}} := L_{\text{pipe}} \cdot 490 \cdot \frac{\text{lb}}{\text{ft}^3} \cdot 18.66 \cdot \text{in}^2 \quad M_{\text{metal}} = 17790.86 \text{ lb}$$

the metal can absorb the following average heat assuming the temperature drops proportionally with time:

$$Q_{\text{metal}} := M_{\text{metal}} \cdot 0.11 \cdot \frac{\text{BTU}}{\text{lb} \cdot \text{degF}} \cdot \frac{(278 - 110) \cdot \text{degF}}{37 \cdot \text{sec}} \cdot \frac{1}{2} \quad Q_{\text{metal}} = 1.6 \times 10^7 \frac{\text{BTU}}{\text{hr}}$$

the heat exchanger is capable of transferring upto the following heat when its empty:

$$Q_{\text{hxmax}} := U_{HX} \cdot A_{HX} \cdot (278 - 110) \cdot \text{degF} \cdot \frac{1}{2} \quad Q_{\text{hxmax}} = 2.08 \times 10^6 \frac{\text{BTU}}{\text{hr}}$$

the metal is capable of absorbing all the heat generated in the heat exchanger during the transient

$$\text{the available margin is then:} \quad \frac{Q_{\text{metal}}}{Q_{\text{hxmax}}} = 7.69$$

In other words the heat transfer rates herein are conservative by a factor of approximately seven just as a result of not crediting the heat removal by piping.

The initial steam mass in the system is then:

$$M_{S0} := \rho_{S0} \cdot V_{\text{total}} \quad M_{S0} = 5.69 \text{ lb}$$



The drainage rates when the horizontal headers of concern are encountered are taken from Appendix A of 96227-TR-01:

$$Q_A := 2500 \cdot \frac{\text{gal}}{\text{min}} \quad \text{nominal flow rate for supply \& return headers}$$

$$Q_B := 3100 \cdot \frac{\text{gal}}{\text{min}} \quad \text{nominal flow rate for supply \& return headers}$$

$$Q_A := \frac{1}{2} \cdot Q_A \quad \text{horizontal header of concern has half total flow considering only return or supply side}$$

$$Q_B := \frac{1}{2} \cdot Q_B \quad \text{" "}$$

$$Q_A = 1250 \frac{\text{gal}}{\text{min}}$$

$$Q_B = 1550 \frac{\text{gal}}{\text{min}}$$

$$ID_A := 13.124 \cdot \text{in} \quad \text{internal diameter of A train return piping header of concern}$$

$$ID_B := 10.02 \cdot \text{in} \quad \text{internal diameter of B train return piping header of concern}$$

$Vol_A := 142.3 \cdot ft^3$ train A piping volume at 2018' 8" elevation from page 19 of 96227-TR-01

$Vol_A := \frac{1}{2} \cdot Vol_A$ since only supply or return piping being evaluated

$Vol_B := 144.8 \cdot ft^3$ train B piping volume at 2027' 6" elevation from page 20 of 96227-TR-01

$Vol_A := \frac{1}{2} \cdot Vol_B$ since only supply or return being evaluated

$time_A := \frac{Vol_A}{Q_A}$ simulation time for A train

$time_B := \frac{Vol_B}{Q_B}$ simulation time for B train

$time_A = 26 \text{ sec}$

$time_B = 41.93 \text{ sec}$

$dt := 0.01 \cdot \text{sec}$ $d\alpha_A := \frac{dt}{time_A}$ $d\alpha_A = 0$

$d\alpha_B := \frac{dt}{time_B}$ $d\alpha_B = 0$

The minimum water temperature in the header is considered to be the mixed water temperature shown on page 31 of 96227-TR-01.

$T_W := 112 \cdot \text{degF}$

$Mw_A := Vol_A \cdot \text{valueT}(T_W, v_f)^{-1}$ $Mw_B := Vol_B \cdot \text{valueT}(T_W, v_f)^{-1}$

$Mw_A = 4474.73 \text{ lb}$

$Mw_B = 8949.46 \text{ lb}$

The highest possible containment temperature is found from Appendix A of 96227-TR-01:

$T_C := 278 \cdot \text{degF}$

$T_{S_i} = T_{S_{i-1}} + \frac{\Delta t}{M_{S_{i-1}} \cdot Cp_{S_{i-1}}} \left[U_{HX} \cdot A_{HX} (T_C - T_{S_{i-1}}) - U_{CDS} \cdot A_{CDS_{i-1}} (T_{S_{i-1}} - T_W) \right]$

transient(t_{\max} , $d\alpha$, ID , vol , $Mass$) :=

```

i ← 0
Tsi ← TSo
Twi ← Tw
Msi ← MSo
Cpsi ← CpSo
L ←  $\frac{vol}{\pi \cdot ID^2} \cdot in^{-1}$ 
VFi ← 0
Acdsi ←  $Ac_{DS} \left( L, VF_i, \frac{ID}{in} \right) \cdot in^2$ 
ti ← 0·sec
Qini ← UHX·AHX·(TC - Tsi)
Qouti ← UCDS·Acdsi-1·(Tsi-1 - Twi-1)
while ti < tmax·sec
| i ← i + 1
| Qini ← UHX·AHX·(TC - Tsi-1)
| Qouti ← UCDS·Acdsi-1·(Tsi-1 - Twi-1)
| Tsi ← Tsi-1 +  $\frac{dt}{Ms_{i-1} \cdot Cps_{i-1}} \cdot (Q_{in_i} - Q_{out_i})$ 
| Twi ← Twi-1 +  $\frac{Q_{out_i} \cdot dt}{(1 - VF_{i-1}) \cdot Mass \cdot l \cdot \frac{BTU}{lb \cdot degF}}$ 
| Tsi ← Twi if Tsi < Twi
| Tsi ← TC if Tsi > TC
| VFi ← VFi-1 + dα
| Acdsi ←  $Ac_{DS} \left( L, VF_i, \frac{ID}{in} \right) \cdot in^2$ 
| ρs ← valueT(Tsi, vg)-1
| Cpsi ← valueT(Tsi, Cpg)
| Msi ← ρs·Vtotal
| ti ← ti-1 + dt
return0 ←  $\frac{t}{sec}$ 
return1 ←  $\frac{Ts}{Ts}$ 

```

$$\begin{aligned} & \text{degF} \\ \text{return}_2 & \leftarrow \frac{Q_{in}}{\frac{\text{BTU}}{\text{hr}}} \\ \text{return}_3 & \leftarrow \frac{Q_{out}}{\frac{\text{BTU}}{\text{hr}}} \\ \text{return}_4 & \leftarrow VF \\ \text{return}_5 & \leftarrow \frac{Tw}{\text{degF}} \\ \text{return} & \end{aligned}$$

$$\text{tranA} := \text{transient}(15, d\alpha A, ID_A, Vol_A, Mw_A) \quad \text{tranB} := \text{transient}(0.5, d\alpha B, ID_B, Vol_B, Mw_B)$$

$$tA := \text{tranA}_0 \quad TsA := \text{tranA}_1 \quad QinA := \text{tranA}_2 \quad QoutA := \text{tranA}_3 \quad VFA := \text{tranA}_4 \quad TwA := \text{tranA}_5$$

$$tB := \text{tranB}_0 \quad TsB := \text{tranB}_1 \quad QinB := \text{tranB}_2 \quad QoutB := \text{tranB}_3 \quad VFB := \text{tranB}_4 \quad TwB := \text{tranB}_5$$

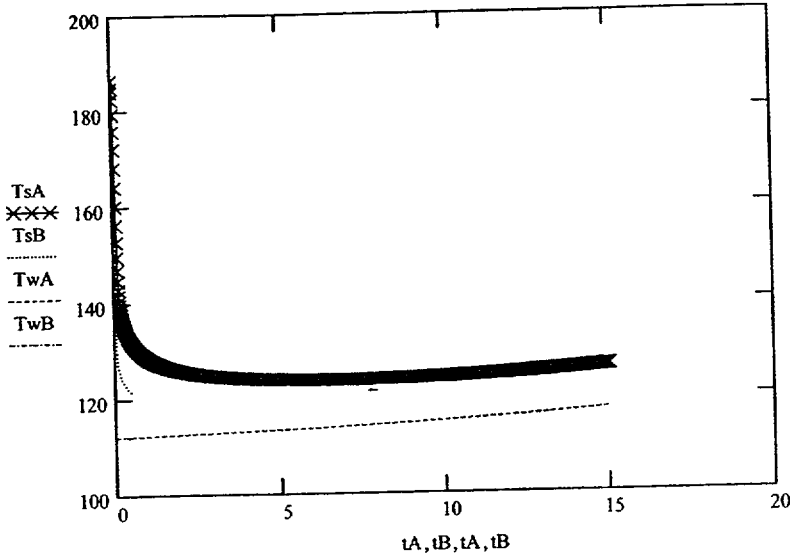
$$i := 0.. \text{rows}(tA) - 1 \quad PsA_i := \text{valueT}(TsA_i - \text{degF}, P)$$

$$PwA_i := \text{valueT}(TwA_i - \text{degF}, P)$$

$$V_{\text{impact}_i} := \sqrt{2 \cdot \frac{(PsA_i - PwA_i) \cdot VFA_i}{60 \cdot \frac{\text{lb}}{\text{ft}^3} \cdot (1 - VFA_i)}}$$

$$V_{\text{max}} := \max(V_{\text{impact}}) \quad V_{\text{max}} = 9.65 \frac{\text{ft}}{\text{sec}}$$

$$\Delta P := \frac{1}{2} \cdot 62 \cdot \frac{\text{lb}}{\text{ft}^3} \cdot 2300 \cdot \frac{\text{ft}}{\text{sec}} \cdot V_{\text{max}} \quad \Delta P = 148.44 \text{ psi}$$



$$\max(VFA) = 0.577$$

$$TsA_{1501} = 126.25 \quad \text{use } 130F$$

$$PsA_{1501} = 2.009 \text{ psi}$$

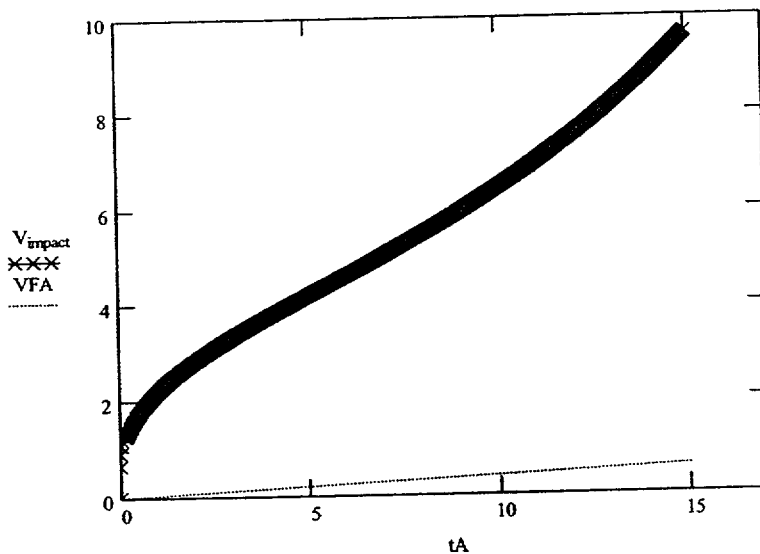
$$\text{valueT}(130-F, P) = 2.22 \text{ psi}$$

$$TwA_{1501} = 117.27 \quad \text{Max water Temp}$$

$$\min(TwA) = 112 \quad \text{Min water Temp}$$

$$\min(PwA) = 1.35 \text{ psi} \quad \text{Min void Press}$$

The "A" train CIWH magnitude is limiting since its steam pressure exceeds the "B" train.



Conservatively using a bounding temperature of 130F (P=2.22 psia) and a minimum void pressure of 1.35 psia:

Impact Velocity:

$$V_{imp} := \sqrt{2 \cdot \frac{(2.22 \cdot \text{psi} - 1.35 \cdot \text{psi}) \cdot .5}{60 \cdot \frac{\text{lb}}{\text{ft}^3} \cdot 1 - .5}}$$

$$V_{imp} = 11.59 \frac{\text{ft}}{\text{sec}}$$

Pressure Pulse:

$$\Delta P := \frac{1}{2} \cdot 62 \cdot \frac{\text{lb}}{\text{ft}^3} \cdot 2300 \cdot \frac{\text{ft}}{\text{sec}} \cdot 11.59 \cdot \frac{\text{ft}}{\text{sec}}$$

$$\Delta P = 178.36 \text{ psi}$$

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APPENDIX H

This appendix provides additional justification for the sonic velocity used in the calculation of waterhammer magnitudes and pulse travel speeds.

As the Wolf Creek piping system loses pump pressure due to the LOOP event, the local pressure in the system is determined by the relative elevation of the piping and fluid reservoir. As described previously, the local fluid pressure will drop to the saturation point, and vapor voids will form as the system drains. The system will drain to the long horizontal piping located at the 2018' (A train) and 2027' (B train) elevations. The pressure above this level will be the saturation pressure for the liquid vapor.

The Wolf Creek system is a raw water system that will experience evolution of dissolved gases in the water close to the void region. The raw water is saturated with air at atmospheric pressure, and the pressure in the region of the void will approach approximately 2 psia, as discussed in Section 5.7. This represents a significant dissolved gas over-pressure for a fluid which was saturated at atmospheric pressure. This is a condition of super-saturation. The pressure drop, heat transfer leading to steam formation, and water flow cause the dissolved gas to be released, forming tiny bubbles in the liquid. The released air only needs to occupy a relatively small volume to have a significant affect on the sonic velocity, far less than 1% of the liquid volume. A simplified drawing the draining pipe scenario is depicted in Figure H-1.

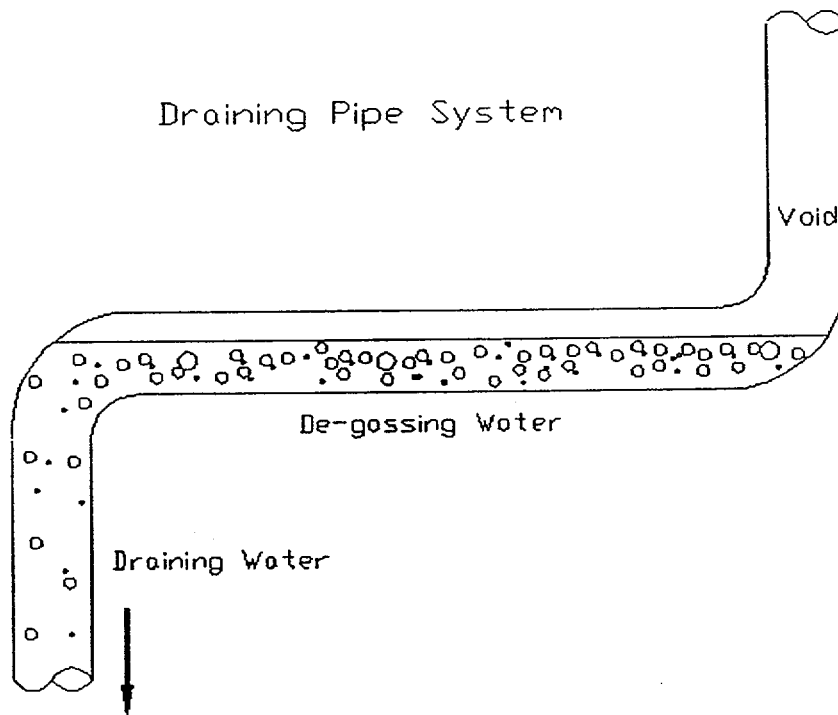


Figure H-1: Draining Pipe System

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The release of air is especially acute during the formation of a trapped/condensing steam void during a condensation induced waterhammer event. The local pressure around the trapped void drops so low that the water can become opaque due to tiny air bubbles in the region adjacent to the void. This dynamic release of air can significantly alter the sonic velocity of the water during the bubble collapse event. This can be seen in Figure H-2, obtained from [13].

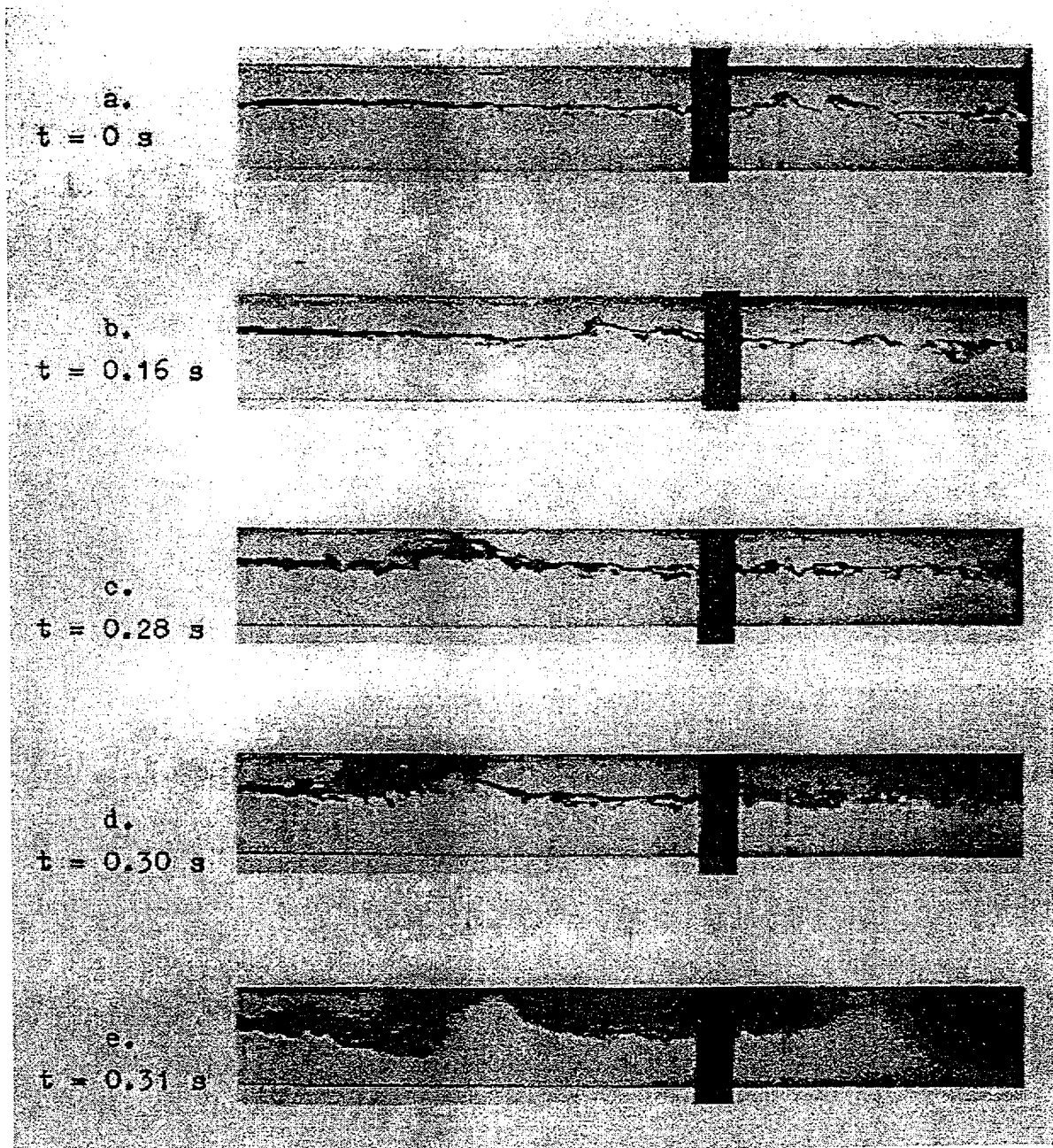


Figure H-2: Condensation Induced Waterhammer/Air Release

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The expression for the modified sonic velocity due to the influence of released non-condensable gas is obtained from Wylie and Streeter [31] equation 8-12.

$$a' = \sqrt{\frac{a_{\text{pipe}}^2}{1 + m \cdot \rho_L \cdot R_{\text{gas}} \cdot T \cdot \frac{a_{\text{pipe}}^2}{p_g^2}}}$$

Equation (1)

where:

- a' = sonic velocity with entrained gas (fps)
- a_{pipe} = sonic velocity considering pipe flexibility (fps)
- m = mass of free gas per volume of fluid (lb/ft³)
- ρ_L = liquid density (lb/ft³)
- R_{gas} = individual gas constant
- T = liquid temperature (Rankine)
- p_g = partial pressure of the gas (psia)

Since air has such an influence on the sonic velocity and therefore on waterhammer magnitude, a prediction of the release of non-condensables from a depressurized liquid is required. The method used was obtained from *Gas Release in Transient Pipe Flow* which was written by Zielke, Perko, and Keller [32]. The test apparatus for this project consisted of a loop of flowing water that was rapidly depressurized. The evolved air bubbles were measured using optical scattered light and acoustical methods. The results of these tests also showed an exponential relationship for the mass of gas released with the supersaturation of the liquid. This is shown in equation 5 of the referenced paper and is as follows:

$$m_{\text{rate}} := k_1 \cdot \frac{(p_e - p_g)}{p_o} \cdot \exp\left(-9.2 \cdot \frac{p_g}{p_e}\right) \cdot \text{Re}^{.86}$$

Equation (2)

where:

- m_{rate} = mass release rate of dissolved gas per m³ of liquid (kg/s m³)
- k_1 = constant based on the pipe diameter = $7.1 \times 10^{-11}/D^2$ (kg/m³sec)
- Re = Reynolds number

Given enough time, the amount of gas released reaches a maximum value that corresponds to equation 6 of the referenced paper.

$$m_{\text{max}} := k_2 \cdot \left(\frac{p_e - p_g}{p_o}\right)^{2.59} \cdot \exp\left(-9.3 \cdot \frac{p_g}{p_e}\right)$$

Equation (3)

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where:

$$m_{\max} = \text{maximum free gas concentration reached after the gas release activity phase per m}^3 \text{ of liquid (kg/s m}^3\text{)}$$

$$k_2 = \text{constant based on the pipe diameter } = 1.8 \times 10^{-4} / D \text{ (kg/m}^3\text{)}$$

Since the gas evolution will reach the maximum value in approximately 15 seconds as shown in the Zielke tests, the more conservative (limiting) Equation 3 will be used.

$$p_e := 14.7 \text{ psi} \quad \text{equilibrium pressure (if saturated at atm, } p_e = 14.7\text{)}$$

$$p_g := 4 \text{ psi} \quad \text{gas pressure. A low pressure will exist in the fluid near the void. Use 4 psia to capture all fluid within about 5 vertical feet from the 1 psia void.}$$

$$p_o := 14.7 \text{ psi} \quad \text{atmospheric pressure}$$

$$D := \frac{8}{39.25} \quad \text{Pipe diameter (for 8" pipe, in meters)}$$

$$V_L := 5 \frac{\text{ft}}{\text{s}} \quad \text{Based on typical velocity during the drainage of the system}$$

$$\mu := 1225 \cdot 10^{-6} \cdot \text{N} \cdot \frac{\text{s}}{\text{m}^2} \quad \text{Viscosity for water at 12C (checks w/ Crane 410 of ~1.3 centipoise)}$$

$$\rho_L := 62.4 \frac{\text{lb}}{\text{ft}^3}$$

$$Re := \frac{(\rho_L \cdot V_L \cdot D \cdot m)}{\mu} \quad Re = 2.535 \times 10^5$$

The total mass release for dissolved gas in a flowing fluid is given by equation 6 and the constant k_2 :

$$k_2 := \frac{1.8 \cdot 10^{-4} \cdot \text{kg}}{D \cdot \text{m}^3}$$

$$m_{\max} := k_2 \cdot \left[\frac{(p_e - p_g)}{p_o} \right]^{2.59} \cdot \left(\exp \left(-9.3 \cdot \frac{p_g}{p_e} \right) \right)$$

$$m_{\max} = 3.088 \times 10^{-5} \text{ kg m}^{-3}$$

The mass of gas released per cubic meter of liquid.

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Substituting the mass of gas into Equation 1 provides the sonic velocity. It can be seen that the sonic velocity in the (low pressure) region of the void is quite low, and the sonic velocity of 2300 ft/sec is conservative for the determination of pressure pulse magnitude:

$$a'_2 := \sqrt{\frac{a_{\text{pipe}}^2}{1 + (m_{\text{gas}2} \cdot R_{\text{gas}} \cdot T_{\text{gas}} \cdot \rho_L) \cdot \left(\frac{a_{\text{pipe}}^2}{p_g^2} \right)}} \quad a'_2 = 1702 \frac{\text{ft}}{\text{s}}$$

If one re-evaluates the gas release away from the void, in regions where the hydrostatic pressure is in the order of 10 psia, the mass of gas released is far less:

The total mass release for dissolved gas in a flowing fluid is given by equation 6 and the constant k₂:

$$k_2 := \frac{1.8 \cdot 10^{-4} \cdot \text{kg}}{\text{D} \cdot \text{m}^3}$$

$$m_{\text{max}} := k_2 \cdot \left[\frac{(p_e - p_g)}{p_o} \right]^{2.59} \cdot \left(\exp \left(-9.3 \cdot \frac{p_g}{p_e} \right) \right) \quad m_{\text{max}} = 8.238 \times 10^{-8} \text{ kg m}^{-3}$$

The mass of gas released per cubic meter of liquid.

The resulting sonic velocity is:

$$a'_2 := \sqrt{\frac{a_{\text{pipe}}^2}{1 + (m_{\text{gas}2} \cdot R_{\text{gas}} \cdot T_{\text{gas}} \cdot \rho_L) \cdot \left(\frac{a_{\text{pipe}}^2}{p_g^2} \right)}} \quad a'_2 = 4324 \frac{\text{ft}}{\text{s}}$$

Therefore, the pressure pulse will travel much faster in the piping at elevations lower than the void interface.

Additional References:

31. Wylie, E. B. and Streeter, V. L., Fluid Transients in Systems, Prentice Hall, 1993.
32. W. Zielke, H-D Perko, and A. Keller, "Gas Flow in Transient Pipe Flow", Pressure Surges- Proceedings of the 6th International Conference pp. 3-14, 1990.