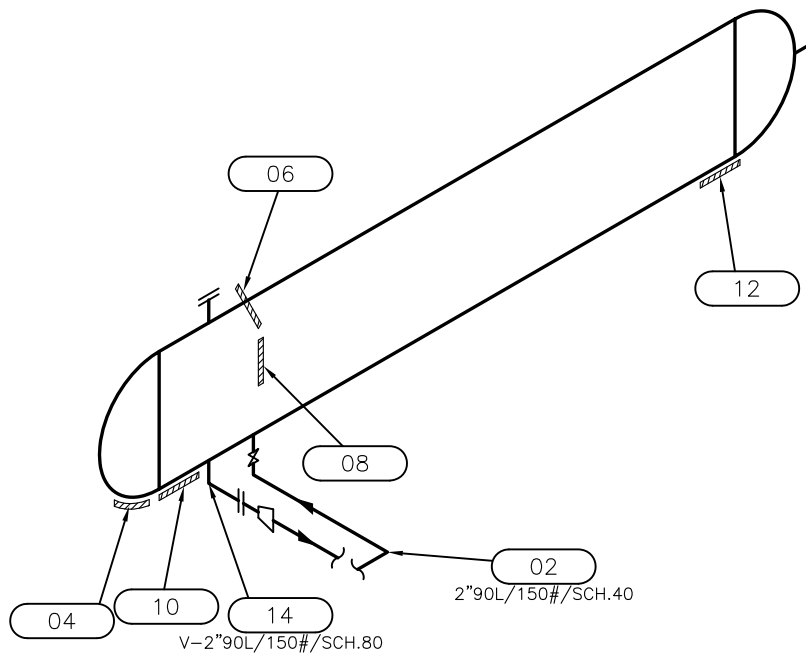
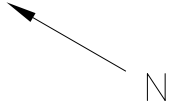




☐ Column ☐ Cooler ☐ Exchanger ☐ Furnace ☐ Heater ☐ Plate Exchanger ☐ Reboiler ☒ Vessel ☐ Other							Client:, District:, LSD:, Etc.:		
Description:		PROPANE BULLET					TAQA NORTH CHINCHAGA GAS PLANT C-032-H/094-H-08		
P.R.N. No.:		0601541	C.R.N.:	N/S					
Equipment No.: OIP		603VP005	N.B. No.:						
Serial No.:		393508	Other:						
HEAD Material:		SA-455-B	Nom.:	11.074mm	C.A.:	0			
HEAD Material:			Nom.:				Tech.: M.A.M. Date: 10/2014 ITS Job No.: 1-2968(I) DWG No.: 123		
SHELL Material:		SA-612-B	Nom.:	17.102mm	C.A.:	0			
SHELL Material:			Nom.:						
MAWP Shell Side:		1724 KPA	@Temp.:	52°C					

TAQA North

Unit: N-603

FACILITY:	CHINCHAGA GAS PLANT	MANUFACTURER:	TRINITY INDUSTRIES
LSD:	C-032-H/094-H-08	DESIGN PRESSURE:	1724 kPa / 250 psi
ITEM DESC.:	PROPANE BULLET	DESIGN TEMP.:	52 C / 126 F
EQUIP / OIP#:	603VP005		
PROV. REG. #:	A0601541	VESSEL CORROSION ALLOWANCE:	
SERIAL #:	393508		
CRN.:	N/S	TOTAL CAUTION / ACTION TML:	6

Item # (123)

COMMENTS:

2008/04 - TML 12.04 TO 12.06 AFTER NOZZLE.
2014/10 - TML 08 - NO ACCESS.

TML No.: 2 2"90L I/L 150 #

DATE BUILT: 01/1973

AVERAGE THICKNESS MEASURED: 3.90 mm.

MATERIAL:

MINIMUM THICKNESS MEASURED: 3.80 mm.

Pts.	Nom. Thick. mm	CA + Steel Mfg.Tol. mm	Nom. -CA -Toll. mm	B/L Survey Thick. mm	Prev. Survey Thick. mm	Last Survey Thick. mm	Short Term CR mm/yr	Long Term CR mm/yr	Rem. Half Life yr	Future UT Reading mm/yy	Action/Caution Required Item
				01/1973	04/2008	10/2014					
2.01	3.91	0.49	3.42	3.91	4.00	3.80	0.0305	0.0025	6.24	.	CAUTION *
2.02	3.91	0.49	3.42	3.91	3.80	3.80	0.0000	0.0025	63.34	.	NO
2.03	3.91	0.49	3.42	3.91	3.80	3.90	0.0000	0.0000	80.00	.	NO
2.04	3.91	0.49	3.42	3.91	3.60	4.00	0.0000	0.0000	96.67	.	NO
2.05	3.91	0.49	3.42	3.91	3.80	4.00	0.0000	0.0000	96.67	.	NO

TML No.: 4 WEST BTM HD T-B

DATE BUILT: 01/1973

AVERAGE THICKNESS MEASURED: 11.48 mm.

MATERIAL: SA455-B

MINIMUM THICKNESS MEASURED: 11.40 mm.

Pts.	Nom. Thick. mm	CA + Steel Mfg.Tol. mm	Nom. -CA -Toll. mm	B/L Survey Thick. mm	Prev. Survey Thick. mm	Last Survey Thick. mm	Short Term CR mm/yr	Long Term CR mm/yr	Rem. Half Life yr	Future UT Reading mm/yy	Action/Caution Required Item
				01/1973	04/2008	10/2014					
4.01	11.07	0.25	10.82	11.07	11.50	11.40	0.0152	0.0000	19.03	.	NO *
4.02	11.07	0.25	10.82	11.07	11.60	11.50	0.0152	0.0000	22.31	.	NO
4.03	11.07	0.25	10.82	11.07	11.50	11.50	0.0000	0.0000	100.00	.	NO
4.04	11.07	0.25	10.82	11.07	11.60	11.60	0.0000	0.0000	100.00	.	NO
4.05	11.07	0.25	10.82	11.07	11.60	11.50	0.0152	0.0000	22.31	.	NO
4.06	11.07	0.25	10.82	11.07	11.60	11.40	0.0305	0.0000	9.52	.	CAUTION *

If Baseline (B/L) Survey Thickness Measurement was not taken at the time of Manufacture, then Nominal Thickness is used as Baseline Thickness.
Minimum Thickness is calculated

Design Minimum Thickness = Nom. Thick. - CA - Manufacturing Steel Tolerance.

Manufacturing Tolerance of pipe and forged fittings is + or -12.5% (May or may not apply dependent upon the Client's Owner-User Integrity Management System).

Manufacturing Tolerance of plate is + or - 0.25mm (0.010") (May or may not apply dependent upon the Client's Owner-User Integrity Management System).

(*) and GREEN Represent 25% of the last thickness readings, which have the shortest remaining half life.

BLUE (Caution TML Point) - If Corrosion Rate exceed a 0.250mm / 0.009 in. per yr. or Half Life is less than 15 years.

RED (Action TML Point) - If Remaining Half Life is 0 and Last Survey Thickness is below Nominal-CA-Tolerance Thickness.

CA - Corrosion Allowance, CR - Corrosion Rate (Brown if CR >= 0.500mm/yr.).

Calculated T-Min. Thickness - Using UPIPE Mathematics.

TAQA North

Unit: N-603

FACILITY:	CHINCHAGA GAS PLANT	MANUFACTURER:	TRINITY INDUSTRIES
LSD:	C-032-H/094-H-08	DESIGN PRESSURE:	1724 kPa / 250 psi
ITEM DESC.:	PROPANE BULLET	DESIGN TEMP.:	52 C / 126 F
EQUIP / OIP#:	603VP005		
PROV. REG. #:	A0601541	VESSEL CORROSION ALLOWANCE:	
SERIAL #:	393508		
CRN.:	N/S	TOTAL CAUTION / ACTION TML:	6

Item # (123)

COMMENTS:

2008/04 - TML 12.04 TO 12.06 AFTER NOZZLE.
2014/10 - TML 08 - NO ACCESS.

TML No.: 6 TOP SH N-S

DATE BUILT: 01/1973 AVERAGE THICKNESS MEASURED: 18.57 mm.
MATERIAL: SA-612-B MINIMUM THICKNESS MEASURED: 18.50 mm.

Pts.	Nom. Thick. mm	CA + Steel Mfg.Tol. mm	Nom. -CA -Toll. mm	B/L Survey Thick. mm	Prev. Survey Thick. mm	Last Survey Thick. mm	Short Term CR mm/yr	Long Term CR mm/yr	Rem. Half Life yr	Future UT Reading mm/yy	Action/Caution Required Item
				01/1973	04/2008	10/2014					
6.01	17.10	0.25	16.85	17.10	18.80	18.70	0.0152	0.0000	60.70	.	NO
6.02	17.10	0.25	16.85	17.10	18.80	18.60	0.0305	0.0000	28.71	.	NO
6.03	17.10	0.25	16.85	17.10	18.70	18.50	0.0305	0.0000	27.07	.	NO
6.04	17.10	0.25	16.85	17.10	18.70	18.50	0.0305	0.0000	27.07	.	NO
6.05	17.10	0.25	16.85	17.10	18.80	18.50	0.0457	0.0000	18.05	.	NO *
6.06	17.10	0.25	16.85	17.10	18.80	18.60	0.0305	0.0000	28.71	.	NO

TML No.: 8 SIDE SH T-B

DATE BUILT: 01/1973 AVERAGE THICKNESS MEASURED: 18.12 mm.
MATERIAL: SA-612-B MINIMUM THICKNESS MEASURED: 18.00 mm.

Pts.	Nom. Thick. mm	CA + Steel Mfg.Tol. mm	Nom. -CA -Toll. mm	B/L Survey Thick. mm	Prev. Survey Thick. mm	Last Survey Thick. mm	Short Term CR mm/yr	Long Term CR mm/yr	Rem. Half Life yr	Future UT Reading mm/yy	Action/Caution Required Item
				01/1973		04/2008					
8.01	17.10	0.25	16.85	17.10	N/A	18.20	0.0000	0.0000	100.00	.	NO
8.02	17.10	0.25	16.85	17.10	N/A	18.20	0.0000	0.0000	100.00	.	NO
8.03	17.10	0.25	16.85	17.10	N/A	18.00	0.0000	0.0000	100.00	.	NO
8.04	17.10	0.25	16.85	17.10	N/A	18.00	0.0000	0.0000	100.00	.	NO
8.05	17.10	0.25	16.85	17.10	N/A	18.20	0.0000	0.0000	100.00	.	NO
8.06	17.10	0.25	16.85	17.10	N/A	18.10	0.0000	0.0000	100.00	.	NO

If Baseline (B/L) Survey Thickness Measurement was not taken at the time of Manufacture, then Nominal Thickness is used as Baseline Thickness.
Minimum Thickness is calculated

Design Minimum Thickness = Nom. Thick. - CA - Manufacturing Steel Tolerance.

Manufacturing Tolerance of pipe and forged fittings is + or -12.5% (May or may not apply dependent upon the Client's Owner-User Integrity Management System).

Manufacturing Tolerance of plate is + or - 0.25mm (0.010") (May or may not apply dependent upon the Client's Owner-User Integrity Management System).

(*) and GREEN Represent 25% of the last thickness readings, which have the shortest remaining half life.

BLUE (Caution TML Point) - If Corrosion Rate exceed 0.250mm / 0.009 in. per yr. or Half Life is less than 15 years.

RED (Action TML Point) - If Remaining Half Life is 0 and Last Survey Thickness is below Nominal-CA-Tolerance Thickness.

CA - Corrosion Allowance, CR - Corrosion Rate (Brown if CR >= 0.500mm/yr.).

Calculated T-Min. Thickness - Using UPIPE Mathematics.

FACILITY:	CHINCHAGA GAS PLANT	MANUFACTURER:	TRINITY INDUSTRIES
LSD:	C-032-H/094-H-08	DESIGN PRESSURE:	1724 kPa / 250 psi
ITEM DESC.:	PROPANE BULLET	DESIGN TEMP.:	52 C / 126 F
EQUIP / OIP#:	603VP005		
PROV. REG. #:	A0601541	VESSEL CORROSION ALLOWANCE:	
SERIAL #:	393508		
CRN.:	N/S	TOTAL CAUTION / ACTION TML:	6

Item # (123)
COMMENTS:

2008/04 - TML 12.04 TO 12.06 AFTER NOZZLE.

2014/10 - TML 08 - NO ACCESS.

TML No.: 10 WEST BTM SH W-E

DATE BUILT: 01/1973 AVERAGE THICKNESS MEASURED: 17.87 mm.

MATERIAL: SA-612-B MINIMUM THICKNESS MEASURED: 17.80 mm.

Pts.	Nom. Thick. mm	CA + Steel Mfg.Tol. mm	Nom. -CA -Toll. mm	B/L Survey Thick. mm	Prev. Survey Thick. mm	Last Survey Thick. mm	Short Term CR mm/yr	Long Term CR mm/yr	Rem. Half Life yr	Future UT Reading mm/yy	Action/Caution Required Item
				01/1973	04/2008	10/2014					
10.01	17.10	0.25	16.85	17.10	18.00	17.80	0.0305	0.0000	15.59	.	NO *
10.02	17.10	0.25	16.85	17.10	17.90	17.80	0.0152	0.0000	31.17	.	NO
10.03	17.10	0.25	16.85	17.10	17.90	17.80	0.0152	0.0000	31.17	.	NO
10.04	17.10	0.25	16.85	17.10	17.90	17.90	0.0000	0.0000	100.00	.	NO
10.05	17.10	0.25	16.85	17.10	18.00	17.90	0.0152	0.0000	34.45	.	NO
10.06	17.10	0.25	16.85	17.10	18.30	18.00	0.0457	0.0000	12.58	.	CAUTION *

TML No.: 12 EAST BTM SH W-E

DATE BUILT: 01/1973 AVERAGE THICKNESS MEASURED: 17.78 mm.

MATERIAL: SA-612-B MINIMUM THICKNESS MEASURED: 17.70 mm.

Pts.	Nom. Thick. mm	CA + Steel Mfg.Tol. mm	Nom. -CA -Toll. mm	B/L Survey Thick. mm	Prev. Survey Thick. mm	Last Survey Thick. mm	Short Term CR mm/yr	Long Term CR mm/yr	Rem. Half Life yr	Future UT Reading mm/yy	Action/Caution Required Item
				01/1973	04/2008	10/2014					
12.01	17.10	0.25	16.85	17.10	17.90	17.80	0.0152	0.0000	31.17	.	NO
12.02	17.10	0.25	16.85	17.10	17.90	17.90	0.0000	0.0000	100.00	.	NO
12.03	17.10	0.25	16.85	17.10	17.80	17.80	0.0000	0.0000	100.00	.	NO
12.04	17.10	0.25	16.85	17.10	17.70	17.70	0.0000	0.0000	100.00	.	NO
12.05	17.10	0.25	16.85	17.10	17.70	17.80	0.0000	0.0000	100.00	.	NO
12.06	17.10	0.25	16.85	17.10	17.90	17.70	0.0305	0.0000	13.95	.	CAUTION *

If Baseline (B/L) Survey Thickness Measurement was not taken at the time of Manufacture, then Nominal Thickness is used as Baseline Thickness.
Minimum Thickness is calculated

Design Minimum Thickness = Nom. Thick. - CA - Manufacturing Steel Tolerance.

Manufacturing Tolerance of pipe and forged fittings is + or -12.5% (May or may not apply dependent upon the Client's Owner-User Integrity Management System).

Manufacturing Tolerance of plate is + or - 0.25mm (0.010") (May or may not apply dependent upon the Client's Owner-User Integrity Management System).

(*) and GREEN Represent 25% of the last thickness readings, which have the shortest remaining half life.

BLUE (Caution TML Point) - If Corrosion Rate exceed a 0.250mm / 0.009 in. per yr. or Half Life is less than 15 years.

RED (Action TML Point) - If Remaining Half Life is 0 and Last Survey Thickness is below Nominal-CA-Tolerance Thickness.

CA - Corrosion Allowance, CR - Corrosion Rate (Brown if CR >= 0.500mm/yr.).

Calculated T-Min. Thickness - Using UPipe Mathematics.

TAQA North

Unit: N-603

FACILITY:	CHINCHAGA GAS PLANT	MANUFACTURER:	TRINITY INDUSTRIES
LSD:	C-032-H/094-H-08	DESIGN PRESSURE:	1724 kPa / 250 psi
ITEM DESC.:	PROPANE BULLET	DESIGN TEMP.:	52 C / 126 F
EQUIP / OIP#:	603VP005		
PROV. REG. #:	A0601541	VESSEL CORROSION ALLOWANCE:	
SERIAL #:	393508		
CRN.:	N/S	TOTAL CAUTION / ACTION TML:	6

Item # (123)

COMMENTS:

2008/04 - TML 12.04 TO 12.06 AFTER NOZZLE.

2014/10 - TML 08 - NO ACCESS.

TML No.: **14** **2"90L NOZ 150#**

DATE BUILT: 01/1973

AVERAGE THICKNESS MEASURED: 5.50 mm.

MATERIAL:

MINIMUM THICKNESS MEASURED: 5.40 mm.

Pts.	Nom. Thick. mm	CA + Steel Mfg.Tol. mm	Nom. -CA -Toll. mm	B/L Survey Thick. mm	Prev. Survey Thick. mm	Last Survey Thick. mm	Short Term CR mm/yr	Long Term CR mm/yr	Rem. Half Life yr	Future UT Reading mm/yy	Action/Caution Required Item
				01/1973	04/2008	10/2014					
14.01	5.54	0.69	4.85	5.54	5.60	5.60	0.0000	0.0000	100.00	.	NO
14.02	5.54	0.69	4.85	5.54	5.70	5.50	0.0305	0.0000	10.67	.	CAUTION *
14.03	5.54	0.69	4.85	5.54	5.10	5.50	0.0000	0.0000	100.00	.	NO
14.04	5.54	0.69	4.85	5.54	5.70	5.40	0.0457	0.0025	6.02	.	CAUTION *
14.05	5.54	0.69	4.85	5.54	5.60	5.50	0.0152	0.0000	21.33	.	NO *

If Baseline (B/L) Survey Thickness Measurement was not taken at the time of Manufacture, then Nominal Thickness is used as Baseline Thickness.
Minimum Thickness is calculated

Design Minimum Thickness = Nom. Thick. - CA - Manufacturing Steel Tolerance.

Manufacturing Tolerance of pipe and forged fittings is + or -12.5% (May or may not apply dependent upon the Client's Owner-User Integrity Management System).

Manufacturing Tolerance of plate is + or -0.25mm (0.010") (May or may not apply dependent upon the Client's Owner-User Integrity Management System).

(*) and GREEN Represent 25% of the last thickness readings, which have the shortest remaining half life.

BLUE (Caution TML Point) - If Corrosion Rate exceed a 0.250mm / 0.009 in. per yr. or Half Life is less than 15 years.

RED (Action TML Point) - If Remaining Half Life is 0 and Last Survey Thickness is below Nominal-CA-Tolerance Thickness.

CA - Corrosion Allowance, CR - Corrosion Rate (Brown if CR >= 0.500mm/yr.).

Calculated T-Min. Thickness - Using UPIPE Mathematics.