

เอกสารแนบที่ 21

รายงานการตรวจสอบสภาพและความหนาของระบบท่อ

	PIPING INSPECTION SUMMARY REPORT		Report/ Project	Sheet
			2112012	S 1/1
STT-CC-001-02-01 (TRL 001 G-Base 95 Tank Receiving line (Jetty to Tank No.1,2,3))				
Date of inspections: 24 December 2021				

Piping data			
Line ID :	TRL 001 Tank Receiving line	Line Description :	Jetty to Tank No.3,10
Product :	G-Base 95	Diameter/Schedule :	6 inch, Sch. STD. T nom : 7.11 mm.
Material :	API 5L GR.B	Insulation :	N/A

Design and calculations			
Design Pressure P :	285 psi	Tmin (pressure) :	0.84 mm.
Diameter D :	6 inch.	Tmat (Table 6 API574) :	3.3 mm. T struc : 2.8 mm.
Stress S (Table A1) :	20.0 ksi	T minimum measured :	5.96 mm.
Q factor E (Table A1A or a1B) :	1	Service life (from last reading) :	1965 / 51 years
Coefficient Y: (Table 304.1.1) :	0.4	Corrosion Rate :	0.347 mm./year
$T_{min} = \frac{PD}{2(SE+PY)}$			
The estimated remaining life for this line is: 10.04 years			



UT settings			
Procedure :	P-INT12 rev. 01	Material Temperature :	Ambient
Equipment type, s/N :	Olympus 38DL plus ,S/N.130686407	Probe type, s/N :	D790-SM 5 MHz.
Cal block, s/N :	SN 0471	Calibration step :	Low 6 mm. High 10 mm.

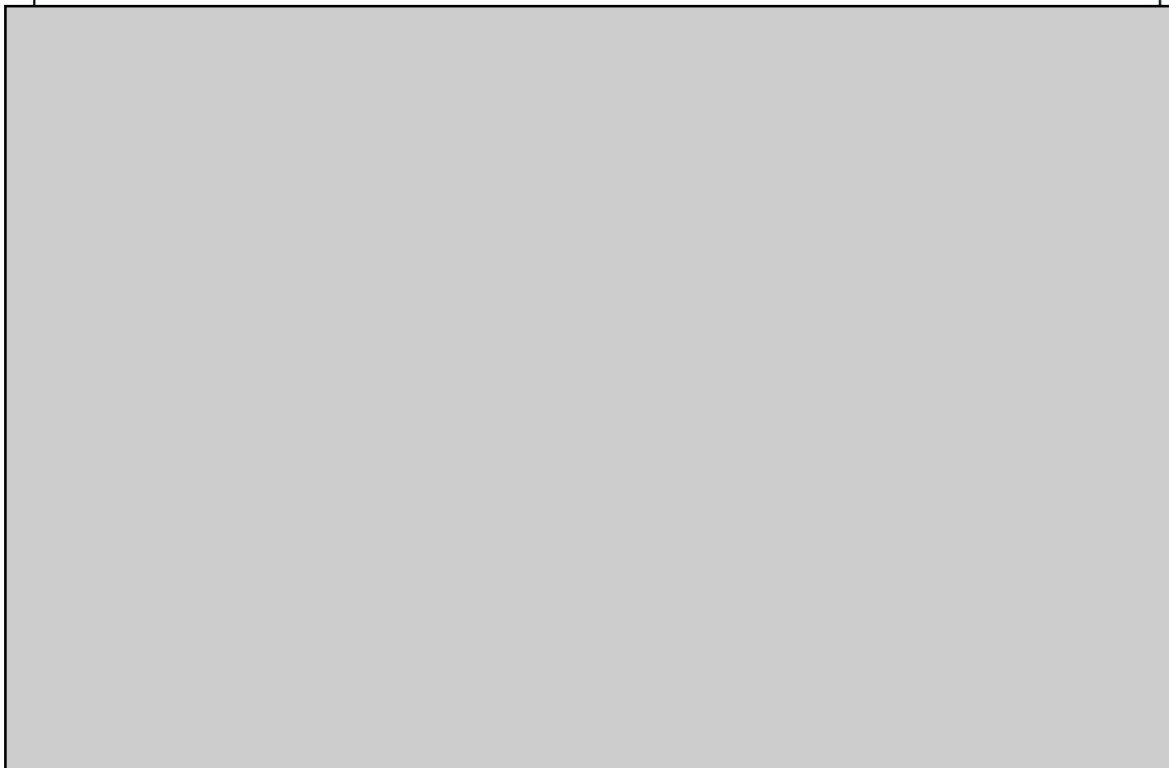
LRUT summary			
Approximate length :	-	Nr. of tool locations :	-
Equipment type, s/N :	-	Probe collar, nr of channels :	-
Nr of LRUT indications :	-	Category 1 :	-
		Category 2 :	-
		Category 3 :	-













Pipe inspection summary
Visual Inspection (VT) - Painting deterioration and general corrosion on pipe.
Ultrasonic Thickness Measurement (UTM) - UTM : The actual minimum thickness found as 5.96 mm. - Maximum Corrosion rate: 0.347 mm/yr - Minimum Remaining Life: 10.04 yrs

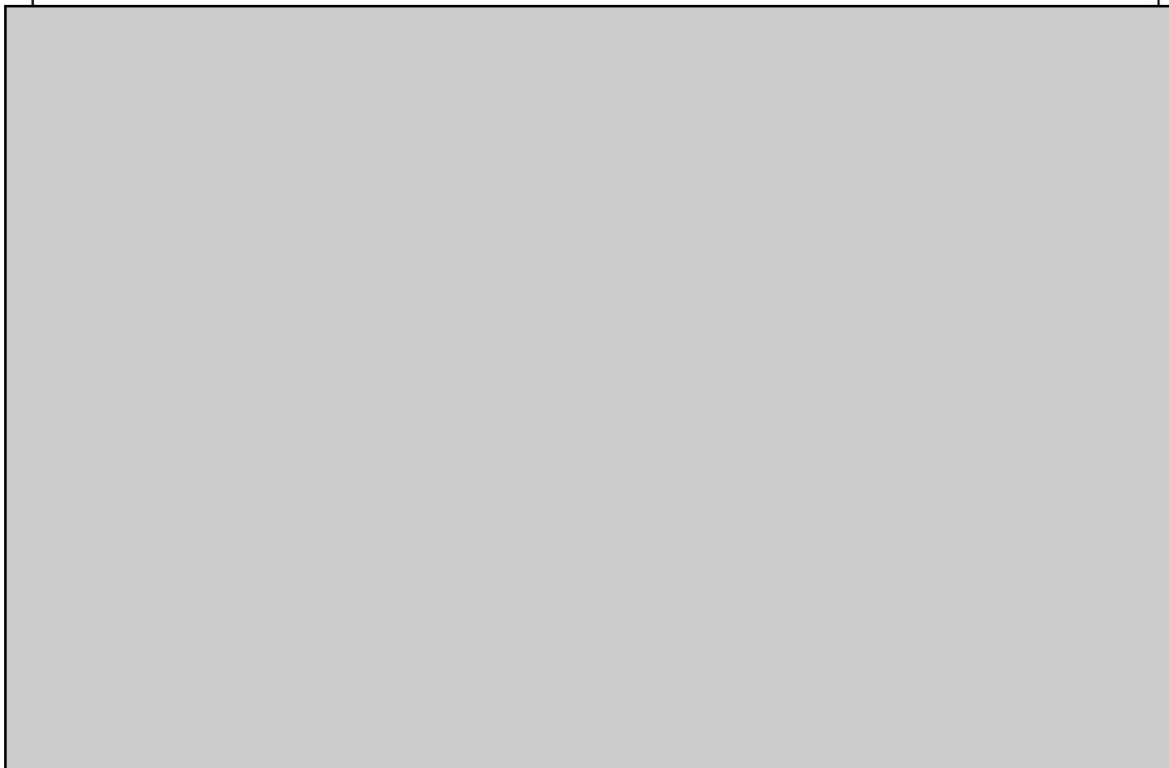
Recommendations
Visual Inspection (VT) - Recommendation to arrest corrosion by sufficient surface preparation (blasting preferred) and application of coating following approved procedures within 6 months.
Ultrasonic Thickness Measurement (UTM) - Thickness monitoring should be performed at next 5 yrs interval.







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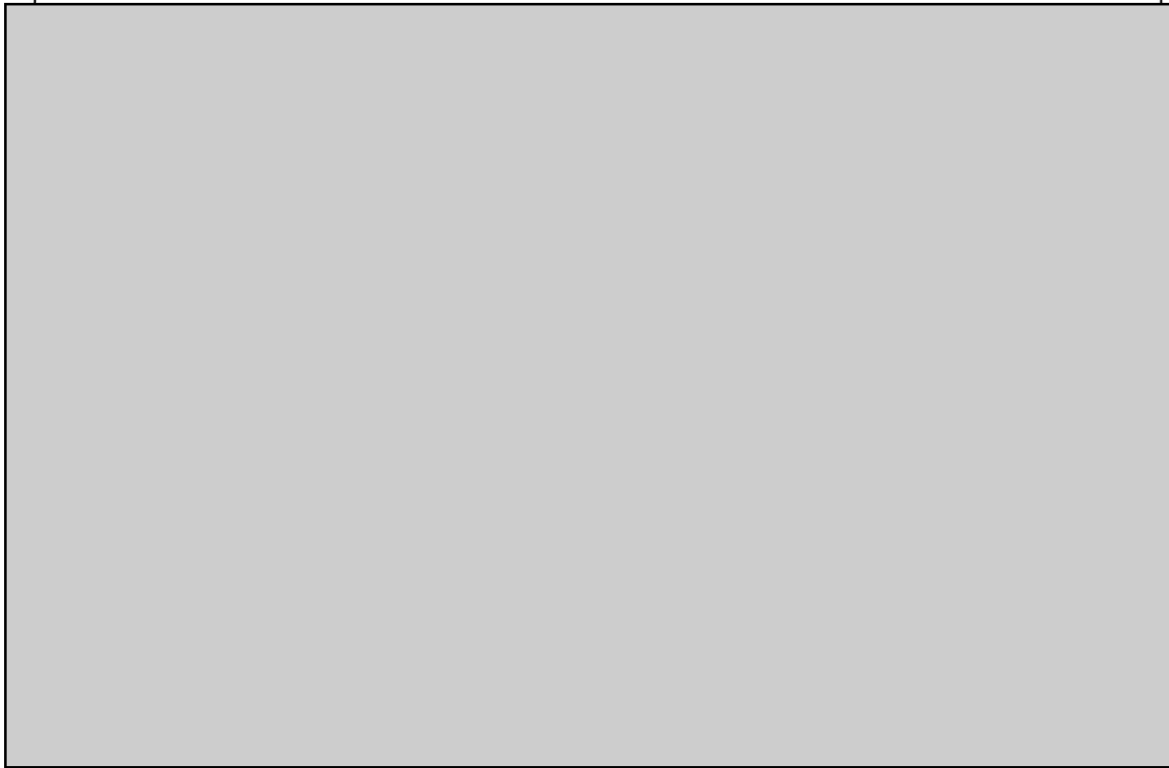
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<input checked="" type="checkbox"/> Insulation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input type="checkbox"/> Supports	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input checked="" type="checkbox"/> Vibration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input type="checkbox"/> Misalignment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input checked="" type="checkbox"/> Mech. Damage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input checked="" type="checkbox"/> Leak	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input checked="" type="checkbox"/> Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
Severity to be determined as follows: <table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Minor:</td> <td style="width: 33%;">For findings that don't require action</td> <td style="width: 33%;">Highlighted in yellow in ISO</td> </tr> <tr> <td>Moderate</td> <td>For findings that require action (specify time)</td> <td>Highlighted in Orange in ISO</td> </tr> <tr> <td>Severe</td> <td>For findings that require immediate action</td> <td></td> </tr> </table>									Minor:	For findings that don't require action	Highlighted in yellow in ISO	Moderate	For findings that require action (specify time)	Highlighted in Orange in ISO	Severe	For findings that require immediate action	
Minor:	For findings that don't require action	Highlighted in yellow in ISO															
Moderate	For findings that require action (specify time)	Highlighted in Orange in ISO															
Severe	For findings that require immediate action																



		PIPING INSPECTION PICTURE LOG				Report/ Project 2112012	Sheet PL 1/9
STT-CC-001-02-01 (TRL 001 G-Base 95 Tank Receiving line (Jetty to Tank No.1,2,3))							
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)		Still in normal condition		TRL 001 Tank Receiving line (Jetty to Tank No.3,10)		Still in normal condition	
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)		Still in normal condition		TRL 001 Tank Receiving line (Jetty to Tank No.3,10)		Still in normal condition	
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)		Still in normal condition		TRL 001 Tank Receiving line (Jetty to Tank No.3,10)		Still in normal condition	

		PIPING INSPECTION PICTURE LOG				Report/ Project 2112012	Sheet PL 2/9
STT-CC-001-02-01 (TRL 001 G-Base 95 Tank Receiving line (Jetty to Tank No.1,2,3))							
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 001 Tank Receiving line (Jetty to Tank No.3,10) Anomaly no : 2.1		Painting deterioration and general corrosion on pipe		TRL 001 Tank Receiving line (Jetty to Tank No.3,10) Anomaly no : 2.1		Painting deterioration and general corrosion on pipe	
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 001 Tank Receiving line (Jetty to Tank No.3,10) Anomaly no : 2.2		Painting deterioration and general corrosion on elbow		TRL 001 Tank Receiving line (Jetty to Tank No.3,10) Anomaly no : 2.2		Painting deterioration and general corrosion on elbow	
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 001 Tank Receiving line (Jetty to Tank No.3,10) Anomaity no : 2.3		Painting deterioration and general corrosion on pipe		TRL 001 Tank Receiving line (Jetty to Tank No.3,10) Anomaly no : 2.3		Painting deterioration and general corrosion on pipe	

		PIPING INSPECTION PICTURE LOG				Report/ Project 2112012		Sheet PL 3/9			
STT-CC-001-02-01 (TRL 001 G-Base 95 Tank Receiving line (Jetty to Tank No.1,2,3))											
Name of part / Location			Findings			Name of part / Location			Findings		
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)			Still in normal condition			TRL 001 Tank Receiving line (Jetty to Tank No.3,10)			Still in normal condition		
Name of part / Location			Findings			Name of part / Location			Findings		
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)			Still in normal condition			TRL 001 Tank Receiving line (Jetty to Tank No.3,10)			Still in normal condition		
Name of part / Location			Findings			Name of part / Location			Findings		
TRL 001 Tank Receiving line (Jetty to Tank No.3,10) Anomaly no : 3.1			Painting deterioration and general corrosion on pipe			TRL 001 Tank Receiving line (Jetty to Tank No.3,10) Anomaly no : 3.1			Painting deterioration and general corrosion on pipe		

	PIPING INSPECTION PICTURE LOG			Report/ Project 2112012	Sheet PL 4/9
STT-CC-001-02-01 (TRL 001 G-Base 95 Tank Receiving line (Jetty to Tank No.1,2,3))					
					
Name of part / Location		Findings	Name of part / Location		Findings
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)		Still in normal condition	TRL 001 Tank Receiving line (Jetty to Tank No.3,10)		Still in normal condition
					
Name of part / Location		Findings	Name of part / Location		Findings
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)		Still in normal condition	TRL 001 Tank Receiving line (Jetty to Tank No.3,10)		Still in normal condition
					
Name of part / Location		Findings	Name of part / Location		Findings
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)		Still in normal condition	TRL 001 Tank Receiving line (Jetty to Tank No.3,10)		Still in normal condition



PIPING INSPECTION PICTURE LOG



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STT-CC-001-02-01 (TRL 001 G-Base 95 Tank Receiving line (Jetty to Tank No.1,2,3))



Name of part / Location

Findings

TRL 001 Tank Receiving line
(Jetty to Tank No.3,10)

Still in normal condition

Name of part / Location

Findings

TRL 001 Tank Receiving line
(Jetty to Tank No.3,10)

Still in normal condition



Name of part / Location

Findings

TRL 001 Tank Receiving line
(Jetty to Tank No.3,10)

Still in normal condition

Name of part / Location

Findings

TRL 001 Tank Receiving line
(Jetty to Tank No.3,10)

Still in normal condition



Name of part / Location

Findings

TRL 001 Tank Receiving line
(Jetty to Tank No.3,10)

Still in normal condition









Name of part / Location

Findings

TRL 001 Tank Receiving line
(Jetty to Tank No.3,10)

Still in normal condition

		PIPING INSPECTION PICTURE LOG				Report/ Project	Sheet
						2112012	PL 6/9
STT-CC-001-02-01 (TRL 001 G-Base 95 Tank Receiving line (Jetty to Tank No.1,2,3))							
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 001 Tank Receiving line (Jetty to Tank No.3,10) Anomaly no : 6.1		general corrosion on U-bolt support		TRL 001 Tank Receiving line (Jetty to Tank No.3,10) Anomaly no : 6.1		general corrosion on U-bolt support	
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)		Still in normal condition		TRL 001 Tank Receiving line (Jetty to Tank No.3,10)		Still in normal condition	
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)		Still in normal condition		TRL 001 Tank Receiving line (Jetty to Tank No.3,10)		Still in normal condition	

		PIPING INSPECTION PICTURE LOG				Report/ Project 2112012		Sheet PL 7/9	
STT-CC-001-02-01 (TRL 001 G-Base 95 Tank Receiving line (Jetty to Tank No.1,2,3))									
									
Name of part / Location			Findings		Name of part / Location			Findings	
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)			Still in normal condition		TRL 001 Tank Receiving line (Jetty to Tank No.3,10)			Still in normal condition	
									
Name of part / Location			Findings		Name of part / Location			Findings	
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)			Still in normal condition		TRL 001 Tank Receiving line (Jetty to Tank No.3,10)			Still in normal condition	
									
Name of part / Location			Findings		Name of part / Location			Findings	
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)			Still in normal condition		TRL 001 Tank Receiving line (Jetty to Tank No.3,10)			Still in normal condition	



PIPING INSPECTION PICTURE LOG



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STT-CC-001-02-01 (TRL 001 G-Base 95 Tank Receiving line (Jetty to Tank No.1,2,3))












Name of part / Location	Findings	Name of part / Location	Findings
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)	Still in normal condition	TRL 001 Tank Receiving line (Jetty to Tank No.3,10)	Still in normal condition

Name of part / Location	Findings	Name of part / Location	Findings
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)	Still in normal condition	TRL 001 Tank Receiving line (Jetty to Tank No.3,10)	Still in normal condition

Name of part / Location	Findings	Name of part / Location	Findings
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)	Still in normal condition	TRL 001 Tank Receiving line (Jetty to Tank No.3,10)	Still in normal condition

Name of part / Location	Findings	Name of part / Location	Findings
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)	Still in normal condition	TRL 001 Tank Receiving line (Jetty to Tank No.3,10)	Still in normal condition

		PIPING INSPECTION PICTURE LOG				Report/ Project 2112012		Sheet PL 9/9	
STT-CC-001-02-01 (TRL 001 G-Base 95 Tank Receiving line (Jetty to Tank No.1,2,3))									
									
Name of part / Location			Findings		Name of part / Location			Findings	
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)			Still in normal condition		TRL 001 Tank Receiving line (Jetty to Tank No.3,10)			Still in normal condition	
									
Name of part / Location			Findings		Name of part / Location			Findings	
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)			Still in normal condition		TRL 001 Tank Receiving line (Jetty to Tank No.3,10)			Still in normal condition	
									
Name of part / Location			Findings		Name of part / Location			Findings	
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)			Still in normal condition		TRL 001 Tank Receiving line (Jetty to Tank No.3,10)			Still in normal condition	

						Report/ Project		Sheet				
						2112012		UTM 1/12				
STT-CC-001-02-01(G Base 95)												
CML	Size	Type	Direction	Nom. (Thk) 1-Jan-65 (mm)	Min Required (mm)	UTM date 6-Dec-16 (mm)	UTM date 20-Dec-21 (mm)	UTM date (mm)	Short term corrosion Rate (mm)/yr	Long term corrosion Rate (mm)/yr	Short term remaining life (yr)	Long term remaining life (yr)
1A	6"	Elbow	0°	7.11	2.80	6.55	6.59		-0.008	0.009	No Corrosion	415.48
			90°			6.68	6.99	-0.061	0.002	No Corrosion	1990.44	
			180°			6.60	7.04	-0.087	0.001	No Corrosion	3452.90	
			270°			6.52	6.99	-0.093	0.002	No Corrosion	1990.44	
1B	6"	Elbow	0°	7.11	2.80	6.35	6.52		-0.034	0.010	No Corrosion	359.42
			90°			6.87	6.96	-0.018	0.003	No Corrosion	1580.95	
			180°			6.76	7.07	-0.061	0.001	No Corrosion	6085.33	
			270°			6.94	6.94	0.000	0.003	No Corrosion	1388.25	
1C	6"	Elbow	0°	7.11	2.80	6.41	6.68		-0.054	0.008	No Corrosion	514.38
			90°			6.79	6.91	-0.024	0.004	No Corrosion	1171.46	
			180°			6.55	6.71	-0.032	0.007	No Corrosion	557.23	
			270°			6.24	6.82	-0.115	0.005	No Corrosion	790.21	
2	6"	Pipe	0°	7.11	2.80	6.78	6.53		0.050	0.010	75.21	366.60
			90°			6.97	6.71	0.052	0.007	75.81	557.23	
			180°			6.88	6.76	0.024	0.006	166.36	644.98	
			270°			6.51	6.92	-0.081	0.003	No Corrosion	1236.12	
3A	6"	Elbow	0°	7.11	2.80	6.25	6.66		-0.081	0.008	No Corrosion	488.98
			90°			6.43	6.07	0.071	0.018	45.79	179.24	
			180°			6.48	6.54	-0.012	0.010	No Corrosion	374.04	
			270°			6.07	6.41	-0.067	0.012	No Corrosion	293.99	
3B	6"	Elbow	0°	7.11	2.80	6.25	6.85		-0.119	0.005	No Corrosion	887.97
			90°			6.26	5.96	0.060	0.020	53.10	156.54	
			180°			7.40	6.66	0.147	0.008	26.30	488.98	
			270°			5.67	6.25	-0.115	0.015	No Corrosion	228.68	
3C	6"	Elbow	0°	7.11	2.80	6.52	6.89		-0.073	0.004	No Corrosion	1059.78
			90°			6.33	6.30	0.006	0.014	588.13	246.32	
			180°			7.29	6.83	0.091	0.005	44.16	820.47	
			270°			6.16	6.27	-0.022	0.015	No Corrosion	235.49	
4	6"	Pipe	0°	7.11	2.80	6.40	6.45		-0.010	0.012	No Corrosion	315.26
			90°			6.72	6.86	-0.028	0.004	No Corrosion	925.77	
			180°			6.10	6.33	-0.046	0.014	No Corrosion	257.99	
			270°			6.24	6.28	-0.008	0.015	No Corrosion	239.01	





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STT-CC-001-02-01(G Base 95)

CML	Size	Type	Direction	Nom. (Thk)		Min Required (mm)	UTM date		UTM date	UTM date	Short term corrosion Rate (mm)/yr	Long term corrosion Rate (mm)/yr	Short term remaining life (yr)	Long term remaining life (yr)
				1-Jan-65			6-Dec-16	20-Dec-21						
				(mm)			(mm)	(mm)						
5	6"	Pipe	0°				6.66	6.64		0.004	0.008	967.89	465.75	
			90°				7.11	6.42		0.137	0.012	26.45	299.07	
			180°				6.56	6.49		0.014	0.011	265.74	339.27	
			270°				6.96	6.91		0.010	0.004	414.38	1171.46	
6A	6"	Elbow	0°				6.57	6.65		-0.016	0.008	No Corrosion	477.11	
			90°				6.47	6.74		-0.054	0.006	No Corrosion	607.03	
			180°				6.71	6.75		-0.008	0.006	No Corrosion	625.48	
			270°				6.70	6.15		0.109	0.017	30.70	198.93	
6B	6"	Elbow	0°				6.22	6.27		-0.010	0.015	No Corrosion	235.49	
			90°				6.90	6.82		0.016	0.005	253.32	790.21	
			180°				7.08	7.13		-0.010	0.000	No Corrosion	No Corrosion	
			270°				6.79	6.87		-0.016	0.004	No Corrosion	966.72	
6C	6"	Elbow	0°				6.36	6.39		-0.006	0.013	No Corrosion	284.24	
			90°				6.41	6.39		0.004	0.013	904.88	284.24	
			180°				6.92	6.94		-0.004	0.003	No Corrosion	1388.25	
			270°				6.63	6.67		-0.008	0.008	No Corrosion	501.39	
7	6"	Pipe	0°				6.50	6.56		-0.012	0.010	No Corrosion	389.71	
			90°				6.98	6.88		0.020	0.004	205.68	1011.23	
			180°				6.72	6.58		0.028	0.009	136.11	406.57	
			270°				6.66	6.71		-0.010	0.007	No Corrosion	557.23	
8	6"	Pipe	0°				6.73	6.45		0.056	0.012	65.71	315.26	
			90°				6.93	6.86		0.014	0.004	292.38	925.77	
			180°				6.64	6.33		0.061	0.014	57.40	257.99	
			270°				6.66	6.28		0.075	0.015	46.17	239.01	
9A	6"	TEE	0°				-	8.88		-	-	No Corrosion	No Corrosion	
			90°				-	8.10		-	-	No Corrosion	No Corrosion	
			180°				-	8.65		-	-	No Corrosion	No Corrosion	
			270°				-	8.66		-	-	No Corrosion	No Corrosion	
9B	6"	TEE	0°				-	9.07		-	-	No Corrosion	No Corrosion	
			90°				-	8.77		-	-	No Corrosion	No Corrosion	
			180°				-	-		-	-	No Corrosion	No Corrosion	
			270°				-	9.37		-	-	No Corrosion	No Corrosion	

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STT-CC-001-02-01(G Base 95)												
CML	Size	Type	Direction	Nom. (Thk) 1-Dec-16 (mm)	Min Required (mm)	UTM date	UTM date	UTM date	Short term corrosion Rate (mm)/yr	Long term corrosion Rate (mm)/yr	Short term remaining life (yr)	Long term remaining life (yr)
						21-Dec-21 (mm)	(mm)	(mm)				
13A	6"	Elbow	0°	8.18	2.80	6.45	-		0.342	0.342	10.67	10.67
			90°			7.55	-		0.125	0.125	38.13	38.13
			180°			7.59	-		0.117	0.117	41.06	41.06
			270°			7.38	-		0.158	0.158	28.95	28.95
13B	6"	Elbow	0°	8.18	2.80	6.59	-		0.314	0.314	12.06	12.06
			90°			7.79	-		0.077	0.077	64.71	64.71
			180°			7.51	-		0.132	0.132	35.55	35.55
			270°			7.56	-		0.123	0.123	38.83	38.83
13C	6"	Elbow	0°	8.18	2.80	6.82	-		0.269	0.269	14.95	14.95
			90°			7.56	-		0.123	0.123	38.83	38.83
			180°			7.46	-		0.142	0.142	32.73	32.73
			270°			7.24	-		0.186	0.186	23.89	23.89
14	6"	Pipe	0°	8.18	2.80	6.76	-		0.281	0.281	14.10	14.10
			90°			7.01	-		0.231	0.231	18.20	18.20
			180°			7.09	-		0.216	0.216	19.91	19.91
			270°			6.97	-		0.239	0.239	17.43	17.43
15A	6"	Elbow	0°	8.18	2.80	7.69	-		0.097	0.097	50.47	50.47
			90°			7.38	-		0.158	0.158	28.95	28.95
			180°			7.57	-		0.121	0.121	39.55	39.55
			270°			7.53	-		0.129	0.129	36.80	36.80
15B	6"	Elbow	0°	8.18	2.80	7.28	-		0.178	0.178	25.18	25.18
			90°			7.21	-		0.192	0.192	22.99	22.99
			180°			7.65	-		0.105	0.105	46.28	46.28
			270°			7.50	-		0.134	0.134	34.96	34.96
15C	6"	Elbow	0°	8.18	2.80	7.51	-		0.132	0.132	35.55	35.55
			90°			7.21	-		0.192	0.192	22.99	22.99
			180°			7.85	-		0.065	0.065	77.40	77.40
			270°			7.48	-		0.138	0.138	33.81	33.81
16	6"	Pipe	0°	8.18	2.80	6.57	-		0.318	0.318	11.84	11.84
			90°			6.61	-		0.310	0.310	12.27	12.27
			180°			6.62	-		0.308	0.308	12.38	12.38
			270°			6.61	-		0.310	0.310	12.27	12.27

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STT-CC-001-02-01(G Base 95)

CML	Size	Type	Direction	Nom. (Thk)		Min Required (mm)	UTM date	UTM date	UTM date	Short term corrosion Rate (mm)/yr	Long term corrosion Rate (mm)/yr	Short term remaining life (yr)	Long term remaining life (yr)
				1-Dec-16 (mm)	21-Dec-21 (mm)		(mm)	(mm)	(mm)				
18A	6"	Elbow	0°	8.18	2.80		0.00	-		0.129	0.129	36.80	36.80
			90°				7.51	-		0.132	0.132	35.55	35.55
			180°				7.33	-		0.168	0.168	26.95	26.95
			270°				7.61	-		0.113	0.113	42.68	42.68
18B	6"	Elbow	0°	8.18	2.80		7.14	-		0.206	0.206	21.11	21.11
			90°				7.85	-		0.065	0.065	77.40	77.40
			180°				7.20	-		0.194	0.194	22.71	22.71
			270°				7.75	-		0.085	0.085	58.22	58.22
18C	6"	Elbow	0°	8.18	2.80		7.10	-		0.214	0.214	20.14	20.14
			90°				7.81	-		0.073	0.073	68.48	68.48
			180°				7.64	-		0.107	0.107	45.33	45.33
			270°				7.72	-		0.091	0.091	54.09	54.09
19	6"	Pipe	0°	8.18	2.80		6.97	-		0.239	0.239	17.43	17.43
			90°				6.89	-		0.255	0.255	16.04	16.04
			180°				6.62	-		0.308	0.308	12.38	12.38
			270°				6.62	-		0.308	0.308	12.38	12.38
20	6"	Pipe	0°	8.18	2.80		7.28	-		0.178	0.178	25.18	25.18
			90°				7.16	-		0.202	0.202	21.62	21.62
			180°				7.33	-		0.168	0.168	26.95	26.95
			270°				7.56	-		0.123	0.123	38.83	38.83
21A	6"	Elbow	0°	8.18	2.80		7.20	-		0.194	0.194	22.71	22.71
			90°				7.29	-		0.176	0.176	25.51	25.51
			180°				7.59	-		0.117	0.117	41.06	41.06
			270°				7.38	-		0.158	0.158	28.95	28.95
21B	6"	Elbow	0°	8.18	2.80		7.18	-		0.198	0.198	22.15	22.15
			90°				7.31	-		0.172	0.172	26.22	26.22
			180°				7.32	-		0.170	0.170	26.58	26.58
			270°				7.75	-		0.085	0.085	58.22	58.22
21C	6"	Elbow	0°	8.18	2.80		7.04	-		0.225	0.225	18.81	18.81
			90°				7.44	-		0.146	0.146	31.71	31.71
			180°				7.37	-		0.160	0.160	28.53	28.53
			270°				7.43	-		0.148	0.148	31.22	31.22



Report/
Project



2112012

Sheet



UTM 7/12



STT-CC-001-02-01(G Base 95)

CML	Size	Type	Direction	Nom.(Thk) 1-Dec-16 (mm)	Min Required (mm)	UTM date 21-Dec-21 (mm)	UTM date (mm)	UTM date (mm)	Short term corrosion Rate (mm)/yr	Long term corrosion Rate (mm)/yr	Short term remaining life (yr)	Long term remaining life (yr)
22	6"	Pipe	0°	8.18	2.80	7.41	-	0.152	0.152	30.28	30.28	30.28
			90°			7.18	-	0.198	0.198	22.15	22.15	22.15
			180°			7.00	-	0.233	0.233	18.00	18.00	18.00
			270°			7.35	-	0.164	0.164	27.73	27.73	27.73
23A	6"	Elbow	0°	8.18	2.80	7.80	-	0.075	0.075	66.55	66.55	66.55
			90°			7.41	-	0.152	0.152	30.28	30.28	30.28
			180°			7.61	-	0.113	0.113	42.68	42.68	42.68
			270°			7.91	-	0.063	0.063	95.72	95.72	95.72
23B	6"	Elbow	0°	8.18	2.80	7.34	-	0.166	0.166	27.33	27.33	27.33
			90°			7.44	-	0.146	0.146	31.71	31.71	31.71
			180°			7.62	-	0.111	0.111	43.53	43.53	43.53
			270°			7.88	-	0.059	0.059	85.64	85.64	85.64
23C	6"	Elbow	0°	8.18	2.80	7.19	-	0.196	0.196	22.43	22.43	22.43
			90°			7.58	-	0.119	0.119	40.29	40.29	40.29
			180°			7.48	-	0.138	0.138	33.81	33.81	33.81
			270°			7.95	-	0.045	0.045	113.24	113.24	113.24
24A	6"	Elbow	0°	8.18	2.80	7.69	-	0.097	0.097	50.47	50.47	50.47
			90°			7.50	-	0.134	0.134	34.96	34.96	34.96
			180°			7.42	-	0.150	0.150	30.74	30.74	30.74
			270°			8.26	-	-0.016	-0.016	No Corrosion	No Corrosion	No Corrosion
24B	6"	Elbow	0°	8.18	2.80	7.41	-	0.152	0.152	30.28	30.28	30.28
			90°			7.86	-	0.063	0.063	79.97	79.97	79.97
			180°			7.39	-	0.156	0.156	29.38	29.38	29.38
			270°			8.29	-	-0.022	-0.022	No Corrosion	No Corrosion	No Corrosion
24C	6"	Elbow	0°	8.18	2.80	7.27	-	0.180	0.180	24.84	24.84	24.84
			90°			7.73	-	0.089	0.089	55.41	55.41	55.41
			180°			7.41	-	0.152	0.152	30.28	30.28	30.28
			270°			7.95	-	0.045	0.045	113.24	113.24	113.24
25A	6"	Elbow	0°	8.18	2.80	6.78	-	0.277	0.277	14.38	14.38	14.38
			90°			7.24	-	0.186	0.186	23.89	23.89	23.89
			180°			7.19	-	0.196	0.196	22.43	22.43	22.43
			270°			7.34	-	0.166	0.166	27.33	27.33	27.33

												Report/ Project	Sheet
STT-CC-001-02-01(G Base 95)												2112012	UTM 8/12
CML	Size	Type	Direction	Nom. (Thk) 1-Dec-16 (mm)	Min Required (mm)	UTM date	UTM date	UTM date	Short term corrosion Rate (mm)/yr	Long term corrosion Rate (mm)/yr	Short term remaining life (yr)	Long term remaining life (yr)	
						21-Dec-21 (mm)	(mm)	(mm)					
25B	6"	Elbow	0°	8.18	2.80	6.93	-		0.247	0.247	16.71	16.71	
			90°			7.33	-		0.168	0.168	26.95	26.95	
			180°			7.30	-		0.174	0.174	25.86	25.86	
			270°			7.41	-		0.152	0.152	30.28	30.28	
25C	6"	Elbow	0°	8.18	2.80	7.03	-		0.227	0.227	18.60	18.60	
			90°			6.86	-		0.261	0.261	15.56	15.56	
			180°			6.83	-		0.267	0.267	15.10	15.10	
			270°			6.95	-		0.243	0.243	17.06	17.06	
26	6"	Pipe	0°	8.18	2.80	7.40	-		0.154	0.154	29.83	29.83	
			90°			7.04	-		0.225	0.225	18.81	18.81	
			180°			7.15	-		0.204	0.204	21.36	21.36	
			270°			7.13	-		0.208	0.208	20.86	20.86	
27	6"	Pipe	0°	8.18	2.80	6.78	-		0.277	0.277	14.38	14.38	
			90°			6.64	-		0.304	0.304	12.61	12.61	
			180°			6.84	-		0.265	0.265	15.25	15.25	
			270°			6.69	-		0.295	0.295	13.20	13.20	
28A	6"	Elbow	0°	8.18	2.80	6.84	-		0.265	0.265	15.25	15.25	
			90°			7.68	-		0.099	0.099	49.36	49.36	
			180°			7.11	-		0.212	0.212	20.37	20.37	
			270°			7.52	-		0.130	0.130	36.17	36.17	
28B	6"	Elbow	0°	8.18	2.80	7.16	-		0.202	0.202	21.62	21.62	
			90°			7.78	-		0.079	0.079	62.97	62.97	
			180°			7.40	-		0.154	0.154	29.83	29.83	
			270°			7.74	-		0.087	0.087	56.78	56.78	
28C	6"	Elbow	0°	8.18	2.80	7.25	-		0.184	0.184	24.20	24.20	
			90°			7.50	-		0.134	0.134	34.96	34.96	
			180°			6.97	-		0.239	0.239	17.43	17.43	
			270°			7.49	-		0.136	0.136	34.38	34.38	
29A	6"	Elbow	0°	8.18	2.80	7.03	-		0.227	0.227	18.60	18.60	
			90°			7.79	-		0.077	0.077	64.71	64.71	
			180°			7.12	-		0.210	0.210	20.61	20.61	
			270°			7.80	-		0.075	0.075	66.55	66.55	



														Report/ Project	Sheet	
STT-CC-001-02-01(G Base 95)															2112012	UTM 9/12
CML	Size	Type	Direction	Nom.(Thk)		Min Required (mm)	UTM date 21-Dec-21 (mm)	UTM date (mm)	Short term corrosion Rate (mm)/yr	Long term corrosion Rate (mm)/yr	Short term remaining life (yr)	Long term remaining life (yr)				
				1-Dec-16 (mm)												
29B	6"	Elbow	0°	8.18	2.80	6.78	-	-	0.277	0.277	14.38	14.38				
			90°			7.84	-	-	0.067	0.067	74.97	74.97				
			180°			7.24	-	-	0.186	0.186	23.89	23.89				
			270°			7.33	-	-	0.168	0.168	26.95	26.95				
29C	6"	Elbow	0°	8.18	2.80	7.09	-	-	0.216	0.216	19.91	19.91				
			90°			7.58	-	-	0.119	0.119	40.29	40.29				
			180°			6.53	-	-	0.326	0.326	11.43	11.43				
			270°			7.52	-	-	0.130	0.130	36.17	36.17				
30A	6"	Elbow	0°	8.18	2.80	7.41	-	-	0.152	0.152	30.28	30.28				
			90°			7.52	-	-	0.130	0.130	36.17	36.17				
			180°			7.45	-	-	0.144	0.144	32.22	32.22				
			270°			7.20	-	-	0.194	0.194	22.71	22.71				
30B	6"	Elbow	0°	8.18	2.80	7.40	-	-	0.154	0.154	29.83	29.83				
			90°			7.43	-	-	0.148	0.148	31.22	31.22				
			180°			7.47	-	-	0.140	0.140	33.27	33.27				
			270°			7.03	-	-	0.227	0.227	18.60	18.60				
30C	6"	Elbow	0°	8.18	2.80	7.48	-	-	0.138	0.138	33.81	33.81				
			90°			7.48	-	-	0.138	0.138	33.81	33.81				
			180°			7.41	-	-	0.152	0.152	30.28	30.28				
			270°			7.02	-	-	0.229	0.229	18.40	18.40				
31	6"	Pipe	0°	8.18	2.80	6.80	-	-	0.273	0.273	14.66	14.66				
			90°			6.75	-	-	0.283	0.283	13.97	13.97				
			180°			7.31	-	-	0.172	0.172	26.22	26.22				
			270°			6.81	-	-	0.271	0.271	14.80	14.80				
32	6"	Pipe	0°	8.18	2.80	6.91	-	-	0.251	0.251	16.37	16.37				
			90°			7.18	-	-	0.198	0.198	22.15	22.15				
			180°			6.86	-	-	0.261	0.261	15.56	15.56				
			270°			6.58	-	-	0.316	0.316	11.95	11.95				
33	6"	Pipe	0°	8.18	2.80	7.35	-	-	0.164	0.164	27.73	27.73				
			90°			7.25	-	-	0.184	0.184	24.20	24.20				
			180°			7.48	-	-	0.138	0.138	33.81	33.81				
			270°			7.28	-	-	0.178	0.178	25.18	25.18				

													Report/ Project	Sheet	
STT-CC-001-02-01(G Base 95)														2112012	UTM 10/12
CML	Size	Type	Direction	Nom. (Thk) 1-Dec-16 (mm)	Min Required (mm)	UTM date 21-Dec-21 (mm)	UTM date (mm)	UTM date (mm)	Short term corrosion Rate (mm)/yr	Long term corrosion Rate (mm)/yr	Short term remaining life (yr)	Long term remaining life (yr)			
34A	6"	Elbow	0°	8.18	2.80	7.11	-	-	0.212	0.212	20.37	20.37			
			90°			7.75	-	-	0.085	0.085	58.22	58.22			
			180°			6.68	-	-	0.297	0.297	13.08	13.08			
			270°			7.49	-	-	0.136	0.136	34.38	34.38			
34B	6"	Elbow	0°	8.18	2.80	6.76	-	-	0.281	0.281	14.10	14.10			
			90°			7.90	-	-	0.055	0.055	92.12	92.12			
			180°			6.96	-	-	0.241	0.241	17.25	17.25			
			270°			7.76	-	-	0.083	0.083	59.73	59.73			
34C	6"	Elbow	0°	8.18	2.80	7.01	-	-	0.231	0.231	18.20	18.20			
			90°			7.77	-	-	0.081	0.081	61.31	61.31			
			180°			6.86	-	-	0.261	0.261	15.56	15.56			
			270°			7.47	-	-	0.140	0.140	33.27	33.27			
35	6"	Pipe	0°	8.18	2.80	7.73	-	-	0.089	0.089	55.41	55.41			
			90°			7.28	-	-	0.178	0.178	25.18	25.18			
			180°			6.52	-	-	0.328	0.328	11.33	11.33			
			270°			7.06	-	-	0.221	0.221	19.24	19.24			
36A	6"	Elbow	0°	8.18	2.80	7.17	-	-	0.200	0.200	21.88	21.88			
			90°			7.50	-	-	0.134	0.134	34.96	34.96			
			180°			7.04	-	-	0.225	0.225	18.81	18.81			
			270°			6.99	-	-	0.235	0.235	17.81	17.81			
36B	6"	Elbow	0°	8.18	2.80	6.98	-	-	0.237	0.237	17.62	17.62			
			90°			7.62	-	-	0.111	0.111	43.53	43.53			
			180°			7.37	-	-	0.160	0.160	28.53	28.53			
			270°			7.18	-	-	0.198	0.198	22.15	22.15			
36C	6"	Elbow	0°	8.18	2.80	6.92	-	-	0.249	0.249	16.54	16.54			
			90°			7.44	-	-	0.146	0.146	31.71	31.71			
			180°			7.18	-	-	0.198	0.198	22.15	22.15			
			270°			6.98	-	-	0.237	0.237	17.62	17.62			
37A	6"	Elbow	0°	8.18	2.80	6.53	-	-	0.326	0.326	11.43	11.43			
			90°			7.60	-	-	0.115	0.115	41.86	41.86			
			180°			7.24	-	-	0.186	0.186	23.89	23.89			
			270°			7.45	-	-	0.144	0.144	32.22	32.22			

Dacon		Chevron										Report/ Project	Sheet
		STT-CC-001-02-01(G Base 95)										2112012	UTM 11/12
CML	Size	Type	Direction	Nom. (Thk) 1-Dec-16 (mm)	Min Required (mm)	UTM date	UTM date	UTM date	Short term corrosion Rate (mm)/yr	Long term corrosion Rate (mm)/yr	Short term remaining life (yr)	Long term remaining life (yr)	
						21-Dec-21 (mm)	(mm)	(mm)					
37B	6"	Elbow	0°	8.18	2.80	6.65	-		0.303	0.303	12.73	12.73	
			90°			7.59	-		0.117	0.117	41.06	41.06	
			180°			7.36	-		0.162	0.162	28.12	28.12	
			270°			7.59	-		0.117	0.117	41.06	41.06	
37C	6"	Elbow	0°	8.18	2.80	7.27	-		0.180	0.180	24.84	24.84	
			90°			7.25	-		0.184	0.184	24.20	24.20	
			180°			7.10	-		0.214	0.214	20.14	20.14	
			270°			7.26	-		0.182	0.182	24.52	24.52	
38	6"	Pipe	0°	8.18	2.80	7.41	-		0.152	0.152	30.28	30.28	
			90°			7.07	-		0.219	0.219	19.46	19.46	
			180°			7.00	-		0.233	0.233	18.00	18.00	
			270°			6.78	-		0.277	0.277	14.38	14.38	
39A	6"	Elbow	0°	8.18	2.80	7.02	-		0.229	0.229	18.40	18.40	
			90°			7.63	-		0.109	0.109	44.41	44.41	
			180°			6.47	-		0.338	0.338	10.85	10.85	
			270°			7.83	-		0.069	0.069	72.68	72.68	
39B	6"	Elbow	0°	8.18	2.80	7.12	-		0.210	0.210	20.61	20.61	
			90°			7.79	-		0.077	0.077	64.71	64.71	
			180°			6.75	-		0.283	0.283	13.97	13.97	
			270°			7.95	-		0.045	0.045	113.24	113.24	
39C	6"	Elbow	0°	8.18	2.80	7.46	-		0.142	0.142	32.73	32.73	
			90°			7.22	-		0.190	0.190	23.29	23.29	
			180°			6.42	-		0.348	0.348	10.40	10.40	
			270°			7.50	-		0.134	0.134	34.96	34.96	
40	6"	Pipe	0°	8.18	2.80	7.58	-		0.119	0.119	40.29	40.29	
			90°			6.53	-		0.326	0.326	11.43	11.43	
			180°			7.01	-		0.231	0.231	18.20	18.20	
			270°			7.58	-		0.119	0.119	40.29	40.29	

[illegible]

	PIPING INSPECTION SUMMARY REPORT		Report/ Project	Sheet
			2112012	S 1/1
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9)				

Date of inspections: 16 December 2021

Piping data				
Line ID :	TRL 002 Tank Receiving line		Line Description :	Jetty to Tank No.9
Product :	G-Base 91		Diameter/Schedule :	6 inch, Sch. STD. T nom : 7.11 mm.
Material :	API 5L GR.B		Insulation :	N/A

Design and calculations				
Design Pressure P :	285 psi	$T_{min} = \frac{PD}{2(SE+PY)}$	Tmin (pressure) :	0.84 mm.
Diameter D :	6 inch.		Tmat (Table 6 API574) :	3.3 mm. T struc : 2.8 mm.
Stress S (Table A1) :	20.0 ksi		T minimum measured :	5.44 mm.
Q factor E (Table A1A or A1B) :	1		Service life (from last reading) :	1995 / 27 years
Coefficient Y: (Table 304.1.1) :	0.4		Corrosion Rate :	0.147 mm./year
The estimated remaining life for this line is: 23.18 years				













UT settings				
Procedure :	P-INT12 rev. 01		Material Temperature :	Ambient
Equipment type, s/N :	Olympus 38DL plus ,S/N.151036202		Probe type, s/N :	D790-SM 5 MHz.
Cal block, s/N :	CS 0541		Calibration step :	Low 6 mm. High 10 mm.













LRUT summary				
Approximate length :	-	Nr. of tool locations :	-	
Equipment type, s/N :	-	Probe collar, nr of channels :	-	
Nr of LRUT indications :	-	Category 1 :	-	Category 2 : - Category 3 : -

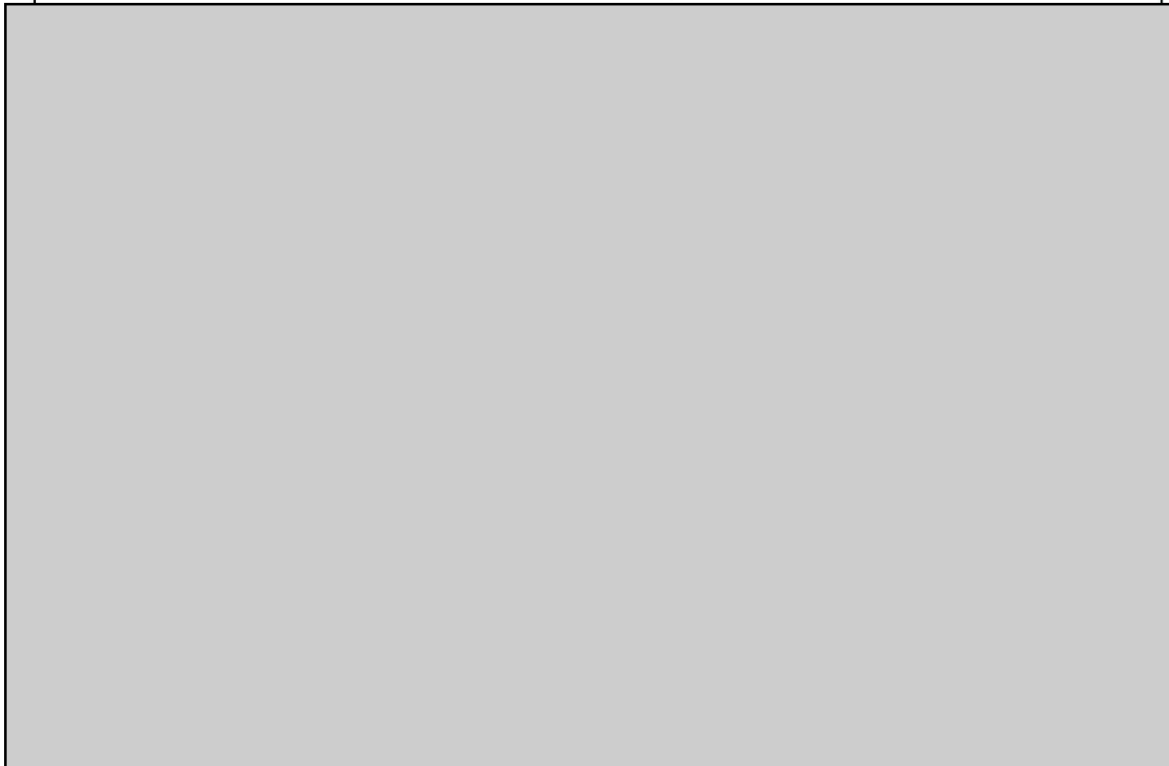
Pipe inspection summary
Visual Inspection (VT) 1. Sealing sleeve underground pipe was found degradation,damage and corrosion under sleeve underground pipe. Approximate corrosion depth 1.5 mm.
Ultrasonic Thickness Measurement (UTM) - UTM : The actual minimum thickness found as 5.44 mm. - Maximum Corrosion rate: 0.147 mm/yr -Minimum Remaining Life: 23.18 yrs













Recommendations
Visual Inspection (VT) 1. Carry out alternative NDE (LRUT) to determine condition within 2 months.,Then re-painting as per original design to prevention future corrosion.
Ultrasonic Thickness Measurement (UTM) - Thickness monitoring should be performed at next 10 yrs interval.















		PIPING VISUAL INSPECTION LOG					Report/ Project 2112012	Sheet VT 1/7									
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)																	
Degradation		N/A	Normal	Minor	Moderate	Severe	Remark										
 Corrosion	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
 CUS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
 Paint	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
 Insulation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
 Supports	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
 Vibration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
 Misalignment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
 Mech. Damage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
 Leak	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
 Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
Severity to be determined as follows: <table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Minor:</td> <td style="width: 33%;">For findings that don't require action</td> <td style="width: 33%;">Highlighted in yellow in ISO</td> </tr> <tr> <td>Moderate</td> <td>For findings that require action (specify time)</td> <td>Highlighted in Orange in ISO</td> </tr> <tr> <td>Severe</td> <td>For findings that require immediate action</td> <td></td> </tr> </table>									Minor:	For findings that don't require action	Highlighted in yellow in ISO	Moderate	For findings that require action (specify time)	Highlighted in Orange in ISO	Severe	For findings that require immediate action	
Minor:	For findings that don't require action	Highlighted in yellow in ISO															
Moderate	For findings that require action (specify time)	Highlighted in Orange in ISO															
Severe	For findings that require immediate action																

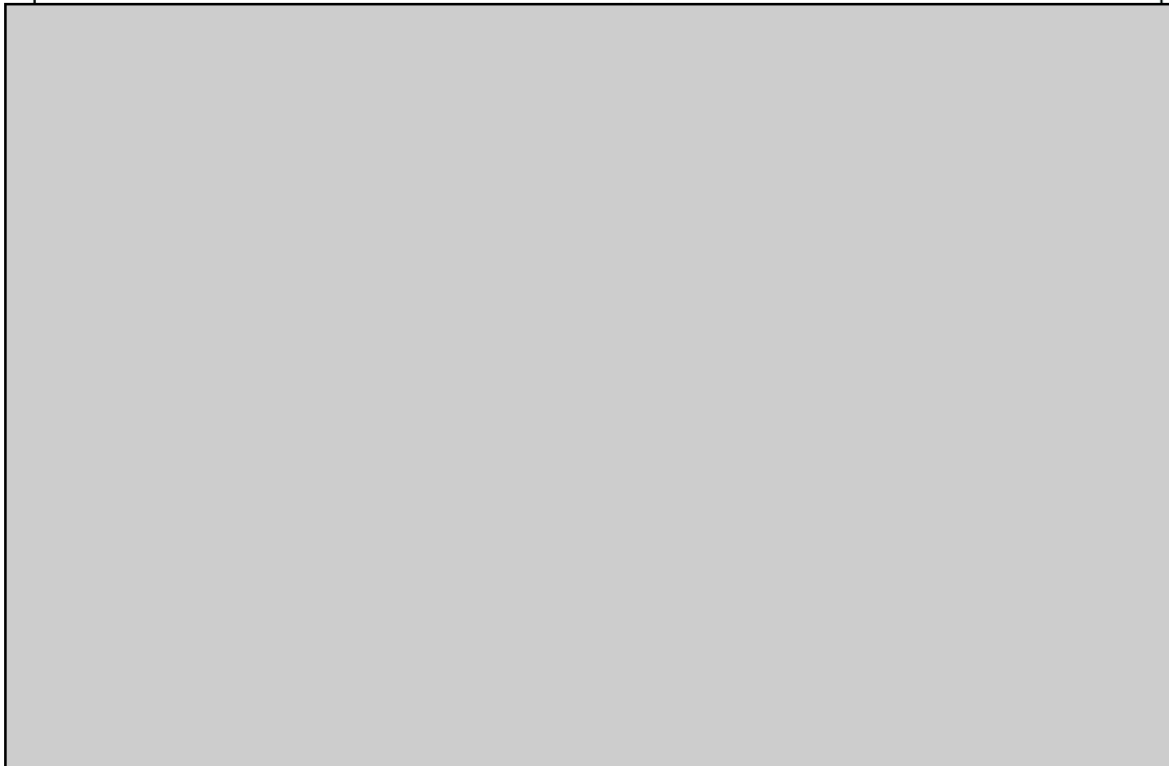
	PIPING VISUAL INSPECTION LOG						Report/ Project	Sheet									
							2112012	VT 2/7									
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)																	
Degradation	N/A	Normal	Minor	Moderate	Severe	Remark											
 Corrosion	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Slight corrosion on piping.											
 CUS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Paint	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Painting deterioration on pipe was observed.											
 Insulation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Supports	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Vibration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Misalignment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Mech. Damage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Leak	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
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Minor:	For findings that don't require action	Highlighted in yellow in ISO															
Moderate	For findings that require action (specify time)	Highlighted in Orange in ISO															
Severe	For findings that require immediate action																







	PIPING VISUAL INSPECTION LOG						Report/ Project	Sheet									
							2112012	VT 3/7									
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)																	
Degradation	N/A	Normal	Minor	Moderate	Severe	Remark											
 Corrosion	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 CUS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Paint	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Painting deterioration on pipe was observed.											
 Insulation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Supports	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Vibration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Misalignment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Mech. Damage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Leak	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
Severity to be determined as follows: <table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Minor:</td> <td style="width: 33%;">For findings that don't require action</td> <td style="width: 33%;">Highlighted in yellow in ISO</td> </tr> <tr> <td>Moderate</td> <td>For findings that require action (specify time)</td> <td>Highlighted in Orange in ISO</td> </tr> <tr> <td>Severe</td> <td>For findings that require immediate action</td> <td></td> </tr> </table>									Minor:	For findings that don't require action	Highlighted in yellow in ISO	Moderate	For findings that require action (specify time)	Highlighted in Orange in ISO	Severe	For findings that require immediate action	
Minor:	For findings that don't require action	Highlighted in yellow in ISO															
Moderate	For findings that require action (specify time)	Highlighted in Orange in ISO															
Severe	For findings that require immediate action																





	PIPING VISUAL INSPECTION LOG						Report/ Project	Sheet									
							2112012	VT 4/7									
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)																	
Degradation	N/A	Normal	Minor	Moderate	Severe	Remark											
 Corrosion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Severe corrosion under sealing.											
 CUS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Paint	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	- Painting deterioration on pipe was observed. - Coating damage on whole underground pipe section was observed.											
 Insulation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Supports	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Vibration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Misalignment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Mech. Damage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Leak	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
 Other	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sealing sleeve underground pipe damage was observed may cause to corrosion under pipe sleeve.											
Severity to be determined as follows: <table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Minor:</td> <td style="width: 33%;">For findings that don't require action</td> <td style="width: 33%;">Highlighted in yellow in ISO</td> </tr> <tr> <td>Moderate</td> <td>For findings that require action (specify time)</td> <td>Highlighted in Orange in ISO</td> </tr> <tr> <td>Severe</td> <td>For findings that require immediate action</td> <td></td> </tr> </table>									Minor:	For findings that don't require action	Highlighted in yellow in ISO	Moderate	For findings that require action (specify time)	Highlighted in Orange in ISO	Severe	For findings that require immediate action	
Minor:	For findings that don't require action	Highlighted in yellow in ISO															
Moderate	For findings that require action (specify time)	Highlighted in Orange in ISO															
Severe	For findings that require immediate action																



	PIPING VISUAL INSPECTION LOG						Report/ Project	Sheet			
							2112012	VT 5/7			
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)											
Degradation	N/A	Normal	Minor	Moderate	Severe	Remark					
<small>x.x-x.x mm</small> <input type="checkbox"/> Corrosion	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<input checked="" type="checkbox"/> CUS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<input type="checkbox"/> Paint	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<input checked="" type="checkbox"/> Insulation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<input type="checkbox"/> Supports	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<input checked="" type="checkbox"/> Vibration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<input type="checkbox"/> Misalignment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<input checked="" type="checkbox"/> Mech. Damage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<input checked="" type="checkbox"/> Leak	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<input checked="" type="checkbox"/> Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Severity to be determined as follows: <table style="width: 100%; border: none;"> <tr> <td style="width: 33%; vertical-align: top;"> Minor: Moderate Severe </td> <td style="width: 33%; vertical-align: top;"> For findings that don't require action For findings that require action (specify time) For findings that require immediate action </td> <td style="width: 33%; vertical-align: top;"> Highlighted in yellow in ISO Highlighted in Orange in ISO </td> </tr> </table>									Minor: Moderate Severe	For findings that don't require action For findings that require action (specify time) For findings that require immediate action	Highlighted in yellow in ISO Highlighted in Orange in ISO
Minor: Moderate Severe	For findings that don't require action For findings that require action (specify time) For findings that require immediate action	Highlighted in yellow in ISO Highlighted in Orange in ISO									

	PIPING VISUAL INSPECTION LOG						Report/ Project	Sheet									
							2112012	VT 6/7									
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)																	
Degradation	N/A	Normal	Minor	Moderate	Severe	Remark											
<small>x,x-x,x mm</small> <input type="checkbox"/> Corrosion	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input checked="" type="checkbox"/> CUS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input type="checkbox"/> Paint	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Painting deterioration on pipe was observed.											
<input checked="" type="checkbox"/> Insulation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input type="checkbox"/> Supports	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input checked="" type="checkbox"/> Vibration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input type="checkbox"/> Misalignment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input checked="" type="checkbox"/> Mech. Damage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input checked="" type="checkbox"/> Leak	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input checked="" type="checkbox"/> Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
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Minor:	For findings that don't require action	Highlighted in yellow in ISO															
Moderate	For findings that require action (specify time)	Highlighted in Orange in ISO															
Severe	For findings that require immediate action																



	PIPING VISUAL INSPECTION LOG						Report/ Project	Sheet									
							2112012	VT 7/7									
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)																	
Degradation	N/A	Normal	Minor	Moderate	Severe	Remark											
<small>x.x-x.x mm</small> <input type="checkbox"/> Corrosion	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input checked="" type="checkbox"/> CUS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input type="checkbox"/> Paint	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input checked="" type="checkbox"/> Insulation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input type="checkbox"/> Supports	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input checked="" type="checkbox"/> Vibration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input type="checkbox"/> Misalignment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input checked="" type="checkbox"/> Mech. Damage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input checked="" type="checkbox"/> Leak	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<input checked="" type="checkbox"/> Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
Severity to be determined as follows: <table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Minor:</td> <td style="width: 33%;">For findings that don't require action</td> <td style="width: 33%;">Highlighted in yellow in ISO</td> </tr> <tr> <td>Moderate</td> <td>For findings that require action (specify time)</td> <td>Highlighted in Orange in ISO</td> </tr> <tr> <td>Severe</td> <td>For findings that require immediate action</td> <td></td> </tr> </table>									Minor:	For findings that don't require action	Highlighted in yellow in ISO	Moderate	For findings that require action (specify time)	Highlighted in Orange in ISO	Severe	For findings that require immediate action	
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