

# เอกสารแนบที่ 21

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รายงานการตรวจสอบสภาพและความหนาของระบบท่อ

	<b>PIPING INSPECTION SUMMARY REPORT</b>		Report/ Project	Sheet
			2112012	S 1/1
<b>STT-CC-001-02-01 (TRL 001 G-Base 95 Tank Receiving line (Jetty to Tank No.1,2,3))</b>				

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

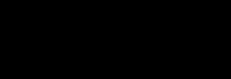

Design and calculations			
Design Pressure P :	285 psi	Tmin (pressure) :	0.84 mm.
Diameter D :	6 inch.	Tmat (Table 6 API574) :	3.3 mm. T struc : 2.8 mm.
Stress S (Table A1) :	20.0 ksi	T minimum measured :	5.96 mm.
Q factor E (Table A1A or A1B) :	1	Service life (from last reading) :	1965 / 51 years
Coefficient 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
<b>Visual Inspection (VT)</b> - Painting deterioration and general corrosion on pipe.
<b>Ultrasonic Thickness Measurement (UTM)</b> - UTM : The actual minimum thickness found as 5.96 mm. - Maximum Corrosion rate: 0.347 mm/yr -Minimum Remaining Life: 10.04 yrs

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




API inspector	LRUT Technician	UT Technician	Chevron
Name : Supajin P.	Name : -	Name : Toednitat T.	Name : Teeranai P.
Date: 30 Jan 2022	Date: -	Date: 30 Jan 2022	Date: -
Sign: 	Sign: -	Sign: 	Sign: -








	<b>PIPING VISUAL INSPECTION LOG</b>						Report/ Project	Sheet									
							2112012	VT 1/9									
<b>STT-CC-001-02-01 (TRL 001 G-Base 95 Tank Receiving line (Jetty to Tank No.1,2,3))</b>																	
Degradation <small>xx-xx mm</small>	N/A	Normal	Minor	Moderate	Severe	Remark											
<input type="checkbox"/> Corrosion	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
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<div style="text-align: right; font-size: small;">             [ INT 505 - TRL 001 - C-Base 95 ] Sheet 1 of 9           </div>																	

	<b>PIPING VISUAL INSPECTION LOG</b>						Report/ Project	Sheet									
							2112012	VT 2/9									
<b>STT-CC-001-02-01 (TRL 001 G-Base 95 Tank Receiving line (Jetty to Tank No.1,2,3))</b>																	
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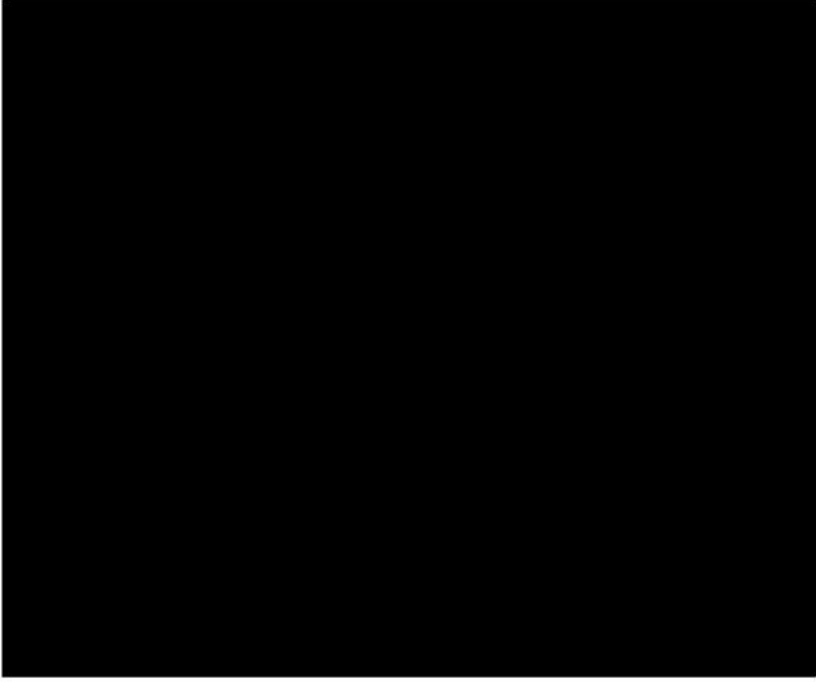





	<b>PIPING VISUAL INSPECTION LOG</b>						Report/ Project	Sheet									
							2112012	VT 3/9									
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		<b>PIPING VISUAL INSPECTION LOG</b>					Report/ Project <b>2112012</b>	Sheet <b>VT 4/9</b>									
<b>STT-CC-001-02-01 (TRL 001 G-Base 95 Tank Receiving line (Jetty to Tank No.1,2,3))</b>																	
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<small>LINE NO. TRL 001 - G-Base 95 SHEET 4 of 5</small>																	

	<b>PIPING VISUAL INSPECTION LOG</b>						Report/ Project	Sheet
							2112012	VT 5/9
<b>STT-CC-001-02-01 (TRL 001 G-Base 95 Tank Receiving line (Jetty to Tank No.1,2,3))</b>								
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<small>FILE NO: TRL 001 - G-Base 95 Sheet 5 of 9</small>								









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<small>FILE NO: TRL 001 - G-Base 95   200911   7 of 8</small>																	

		<b>PIPING VISUAL INSPECTION LOG</b>					Report/ Project <b>2112012</b>	Sheet <b>VT 8/9</b>									
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<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	
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																
<div style="display: flex; align-items: flex-start;"> <div style="margin-right: 10px;"> N   </div> <div style="flex-grow: 1; background-color: black; width: 100%; height: 100%;"></div> </div>																	
<div style="text-align: right; font-size: small;">         LINE NO - TRL 001 - G-Base 95   SHEET - 8 of 9       </div>																	



		PIPING VISUAL INSPECTION LOG							Report/ Project	Sheet									
									2112012	VT 9/9									
STT-CC-001-02-01 (TRL 001 G-Base 95 Tank Receiving line (Jetty to Tank No.1,2,3))																			
Degradation		N/A	Normal	Minor	Moderate	Severe	Remark												
<small>x.x-xx 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	
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																		
<div style="display: flex; align-items: flex-start;"> <div style="width: 10%; text-align: center;"> N   </div> <div style="width: 80%; height: 300px; background-color: black; margin-left: 10px;"></div> <div style="width: 10%;"></div> </div>																			
LINC NO : TRL-001 - G-Base 95 R1011 9 of 9																			

	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		Sheet			
						2112012		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



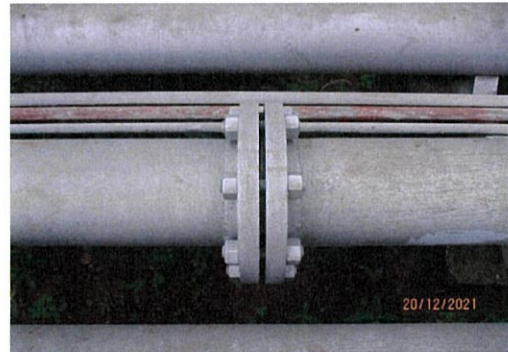
Report/ Project

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				Report/ Project 2112012		Sheet PL 5/9	
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		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



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2112012

Sheet

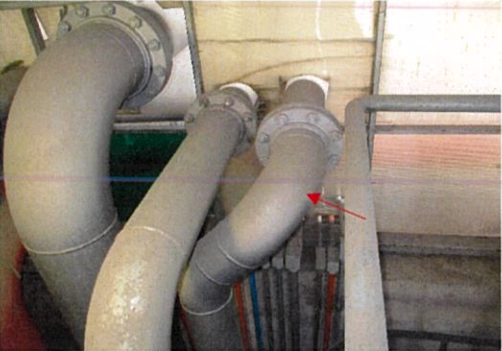
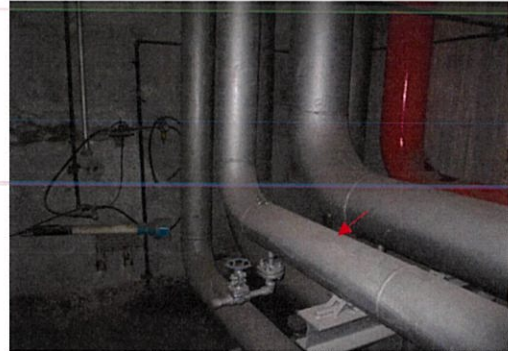
PL 7/9

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


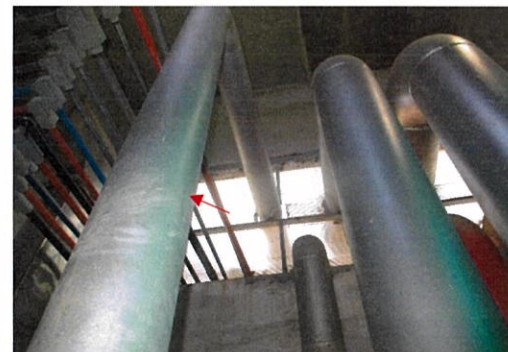


Name of part / Location	Findings	Name of part / Location	Findings
TRL 001 Tank Receiving line (Jetty to Tank No.3,10)	Still in normal condition	TRL 001 Tank Receiving line (Jetty to Tank No.3,10)	Still in normal condition

			
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



		<b>PIPING INSPECTION PICTURE LOG</b>				Report/ Project 2112012		Sheet PL 8/9			
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		
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	



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2112012

Sheet

UTM 1/12

## 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)	(mm)				
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	156.64
			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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2112012

Sheet

UTM 2/12

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	Long term corrosion Rate	Short term remaining life	Long term remaining life
				1-Jan-65		6-Dec-16	20-Dec-21					
				(mm)		(mm)	(mm)	(mm)	(mm)/yr	(mm)/yr	(yr)	(yr)
5	6"	Pipe	0°	7.11	2.80	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°	7.11	2.80	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°	7.11	2.80	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°	7.11	2.80	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°	7.11	2.80	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°	7.11	2.80	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°	7.11	2.80	-	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°	7.11	2.80	-	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





Sheet

UTM 3/12

**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	Long term corrosion Rate	Short term remaining life	Long term remaining life
				1-Jan-65		6-Dec-16	20-Dec-21					
				(mm)		(mm)	(mm)	(mm)				
9C	6"	TEE	0°	8.18	2.80	-	8.66		-0.008	-0.008	No Corrosion	No Corrosion
			90°			-	7.92		0.005	0.005	1122.57	1122.57
			180°			-	8.51		-0.006	-0.006	No Corrosion	No Corrosion
			270°			-	8.40		-0.004	-0.004	No Corrosion	No Corrosion
9D	6"	TEE	0°	8.18	2.80	-	7.98		0.004	0.004	1476.44	1476.44
			90°			-	7.09		0.019	0.019	224.36	224.36
			180°			-	8.00		0.003	0.003	1646.82	1646.82
			270°			-	7.04		0.020	0.020	212.02	212.02
10	6"	Pipe	0°	8.18	2.80	7.15	6.64		0.101	0.027	37.96	142.14
			90°			6.96	6.42		0.107	0.031	33.79	117.25
			180°			7.36	6.49		0.173	0.030	21.38	124.47
			270°			7.13	6.91		0.044	0.022	94.18	184.48
11	6"	Pipe	0°	8.18	2.80	6.96	6.57		0.077	0.028	48.73	133.48
			90°			6.64	6.67		-0.006	0.026	No Corrosion	146.10
			180°			6.55	6.61		-0.012	0.028	No Corrosion	138.34
			270°			6.89	6.96		-0.014	0.021	No Corrosion	194.38
12	6"	Pipe	0°	8.18	2.80	6.53	7.15		-0.123	0.018	No Corrosion	240.75
			90°			6.52	7.02		-0.099	0.020	No Corrosion	207.38
			180°			6.56	7.03		-0.093	0.020	No Corrosion	209.68
			270°			6.62	7.16		-0.107	0.018	No Corrosion	243.67



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CML	Size	Type	Direction	Nom.(Thk)	Min Required (mm)	UTM date	UTM date	UTM date	Short term corrosion Rate	Long term corrosion Rate	Short term remaining life	Long term remaining life
				1-Dec-16		21-Dec-21						
				(mm)		(mm)	(mm)	(mm)	(mm)/yr	(mm)/yr	(yr)	(yr)
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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CML	Size	Type	Direction	Nom.(Thk)	Min Required (mm)	UTM date	UTM date	UTM date	Short term	Long term	Short term	Long term
				1-Dec-16		21-Dec-21		corrosion Rate	corrosion Rate	remaining life	remaining life	
				(mm)		(mm)	(mm)	(mm)/yr	(mm)/yr	(yr)	(yr)	
17A	6"	Elbow	0°	8.18	2.80	7.21	-		0.192	0.192	22.99	22.99
			90°			7.85	-		0.065	0.065	77.40	77.40
			180°			7.47	-		0.140	0.140	33.27	33.27
			270°			7.57	-		0.121	0.121	39.55	39.55
17B	6"	Elbow	0°	8.18	2.80	7.24	-		0.186	0.186	23.89	23.89
			90°			7.42	-		0.150	0.150	30.74	30.74
			180°			7.43	-		0.148	0.148	31.22	31.22
			270°			7.68	-		0.099	0.099	49.36	49.36
17C	6"	Elbow	0°	8.18	2.80	7.29	-		0.176	0.176	25.51	25.51
			90°			7.39	-		0.156	0.156	29.38	29.38
			180°			7.32	-		0.170	0.170	26.58	26.58
			270°			7.37	-		0.160	0.160	28.53	28.53

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UTM 6/12

## 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	Long term corrosion Rate	Short term remaining life	Long term remaining life
				1-Dec-16		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





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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		21-Dec-21						
				(mm)		(mm)	(mm)	(mm)				
22	6"	Pipe	0°	8.18	2.80	7.41	-		0.152	0.152	30.28	30.28
			90°			7.18	-		0.198	0.198	22.15	22.15
			180°			7.00	-		0.233	0.233	18.00	18.00
			270°			7.35	-		0.164	0.164	27.73	27.73
23A	6"	Elbow	0°	8.18	2.80	7.80	-		0.075	0.075	66.55	66.55
			90°			7.41	-		0.152	0.152	30.28	30.28
			180°			7.61	-		0.113	0.113	42.68	42.68
			270°			7.91	-		0.053	0.053	95.72	95.72
23B	6"	Elbow	0°	8.18	2.80	7.34	-		0.166	0.166	27.33	27.33
			90°			7.44	-		0.146	0.146	31.71	31.71
			180°			7.62	-		0.111	0.111	43.53	43.53
			270°			7.88	-		0.059	0.059	85.64	85.64
23C	6"	Elbow	0°	8.18	2.80	7.19	-		0.196	0.196	22.43	22.43
			90°			7.58	-		0.119	0.119	40.29	40.29
			180°			7.48	-		0.138	0.138	33.81	33.81
			270°			7.95	-		0.045	0.045	113.24	113.24
24A	6"	Elbow	0°	8.18	2.80	7.69	-		0.097	0.097	50.47	50.47
			90°			7.50	-		0.134	0.134	34.96	34.96
			180°			7.42	-		0.150	0.150	30.74	30.74
			270°			8.26	-		-0.016	-0.016	No Corrosion	No Corrosion
24B	6"	Elbow	0°	8.18	2.80	7.41	-		0.152	0.152	30.28	30.28
			90°			7.86	-		0.063	0.063	79.97	79.97
			180°			7.39	-		0.156	0.156	29.38	29.38
			270°			8.29	-		-0.022	-0.022	No Corrosion	No Corrosion
24C	6"	Elbow	0°	8.18	2.80	7.27	-		0.180	0.180	24.84	24.84
			90°			7.73	-		0.089	0.089	55.41	55.41
			180°			7.41	-		0.152	0.152	30.28	30.28
			270°			7.95	-		0.045	0.045	113.24	113.24
25A	6"	Elbow	0°	8.18	2.80	6.78	-		0.277	0.277	14.38	14.38
			90°			7.24	-		0.186	0.186	23.89	23.89
			180°			7.19	-		0.196	0.196	22.43	22.43
			270°			7.34	-		0.166	0.166	27.33	27.33



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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		21-Dec-21						
				(mm)		(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



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UTM 9/12

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	Long term	Short term	Long term
				1-Dec-16		21-Dec-21			corrosion Rate	corrosion Rate	remaining life	remaining life
				(mm)		(mm)	(mm)	(mm)	(mm)/yr	(mm)/yr	(yr)	(yr)
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





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UTM 10/12

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		21-Dec-21						
				(mm)		(mm)	(mm)	(mm)				
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





Sheet

UTM 11/12

[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	(Max. Operating Pressure)	Tmin (pressure) :
Diameter D :	6 inch.		Tmat (Table 6 API574) :
Stress S (Table A1) :	20.0 ksi		T minimum measured :
Q factor E (Table A1A or a1B) :	1		Service life (from last reading) :
Coefficient Y: (Table 304.1.1) :	0.4		Corrosion Rate :
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 :	-




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




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

API Inspector		LRUT Technician		UT Technician		Chevron	
Name	Supajin P.	Name	-	Name	Toednitat T.	Name	Teeranai P.
Date:	30 Jan 2022	Date:	-	Date:	30 Jan 2022	Date:	
Sign:		Sign:		Sign:		Sign:	




	<b>PIPING VISUAL INSPECTION LOG</b>						Report/ Project	Sheet									
							2112012	VT 1/7									
<b>TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&amp;Tank No.2)</b>																	
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"/>												
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<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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<div style="text-align: right; font-size: small;">             LIND 503 - TRL 002 - G-Base 91 - SHEET 1 of 1           </div>																	






	<b>PIPING VISUAL INSPECTION LOG</b>						Report/ Project	Sheet									
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<b>TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&amp;Tank No.2)</b>																	
Degradation	N/A	Normal	Minor	Moderate	Severe	Remark											
<small>x,x-x,x mm</small> <input type="checkbox"/> Corrosion	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Slight corrosion on piping.											
<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"/>												
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<input type="checkbox"/> Misalignment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
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<input checked="" type="checkbox"/> Leak	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
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<div style="text-align: right; font-size: small;"> LINE 501    TRL 002 - G-Base 91    SHEET    2 of 7 </div>																	




	<b>PIPING VISUAL INSPECTION LOG</b>						Report/ Project	Sheet									
							2112012	VT 3/7									
<b>TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&amp;Tank No.2)</b>																	
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 type="checkbox"/> Vibration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
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<input checked="" type="checkbox"/> Leak	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
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		PIPING VISUAL INSPECTION LOG							Report/ Project	Sheet									
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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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Severe corrosion under sealing.												
<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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	- Painting deterioration on pipe was observed. - Coating damage on whole underground pipe section 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"/>													
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<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 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.												
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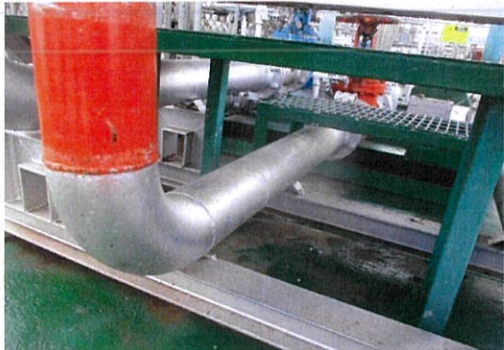



	<b>PIPING VISUAL INSPECTION LOG</b>						Report/ Project	Sheet									
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<b>TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&amp;Tank No.2)</b>																	
Degradation	N/A	Normal	Minor	Moderate	Severe	Remark											
<small>x.x-x.x mm</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"/>												
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	<b>PIPING VISUAL INSPECTION LOG</b>						Report/ Project	Sheet									
							2112012	VT 6/7									
<b>TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&amp;Tank No.2)</b>																	
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"/>												
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<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"/>												
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<small>LINE NO.: TRL 002 - G-Base 91   SHEET: 6 of 7</small>																	

	<b>PIPING VISUAL INSPECTION LOG</b>						Report/ Project	Sheet									
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<b>TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&amp;Tank No.2)</b>																	
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"/>												
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<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"/>												
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<small>LINE NO: TRL 002 - G-Base 91 SHEET: 7 of 7</small>																	









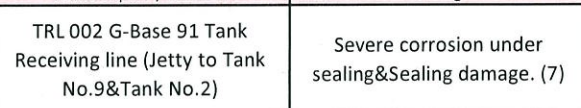
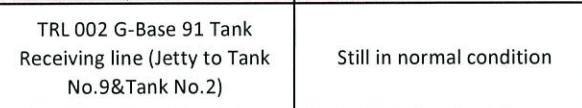


	<b>PIPING INSPECTION PICTURE LOG</b>			Report/ Project <b>2112012</b>	Sheet <b>PL 1/7</b>
<b>TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&amp;Tank No.2)</b>					
					
Name of part / Location		Findings	Name of part / Location		Findings
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition	TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition
					
Name of part / Location		Findings	Name of part / Location		Findings
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition	TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition
					
Name of part / Location		Findings	Name of part / Location		Findings
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition	TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition


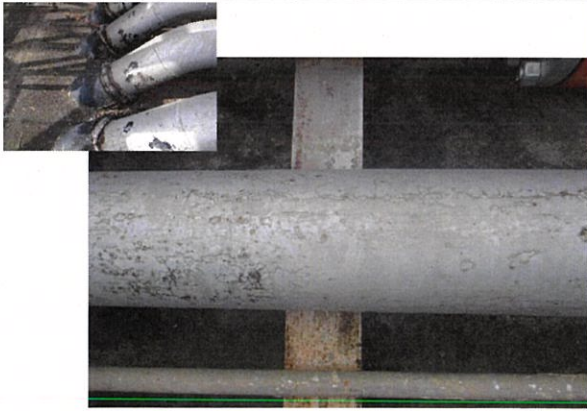


		PIPING INSPECTION PICTURE LOG				Report/ Project	Sheet
						2112012	PL 2/7
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)							
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition		TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition	
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Slight corrosion on piping&Painting deterioration (1)		TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition	
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition		TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Painting deterioration (2)	











	PIPING INSPECTION PICTURE LOG			Report/ Project 2112012	Sheet PL 3/7
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)					
					
Name of part / Location		Findings			
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Slight corrosion on flange (3)			
					
Name of part / Location		Findings			
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Painting deterioration (5)			
					
Name of part / Location		Findings			
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Severe corrosion under sealing&Sealing damage. (7)			
					
Name of part / Location		Findings			
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition			



		<b>PIPING INSPECTION PICTURE LOG</b>				Report/ Project	Sheet
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TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)							
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Severe corrosion under pipe sleeve & Sealing damage. (8)		TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition	
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition		TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Painting deterioration (9)	
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9)		Painting deterioration (10)		TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9)		Painting deterioration (11)	



		<b>PIPING INSPECTION PICTURE LOG</b>				Report/ Project 2112012	Sheet PL 5/7
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)							
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Painting deterioration (13)		TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition	
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition		TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition	
							
Name of part / Location		Findings		Name of part / Location		Findings	
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9)		Painting deterioration (14)		TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9)		Still in normal condition	



	<b>PIPING INSPECTION PICTURE LOG</b>		Report/ Project <b>2112012</b>	Sheet <b>PL 6/7</b>
<b>TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&amp;Tank No.2)</b>				
				
Name of part / Location		Findings		
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition		
				
Name of part / Location		Findings		
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition		
				
Name of part / Location		Findings		
TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)		Still in normal condition		





## PIPING INSPECTION PICTURE LOG



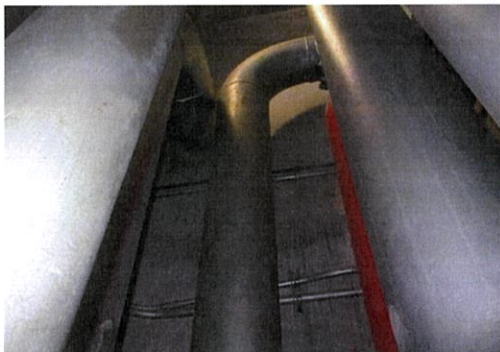
Report/ Project

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Sheet

PL 7/7

### TRL 002 G-Base 91 Tank Receiving line (Jetty to Tank No.9&Tank No.2)

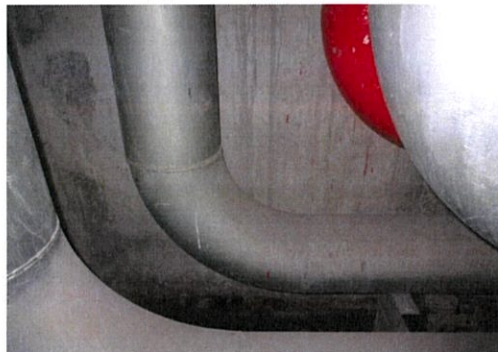


Name of part / Location

Findings

TRL 002 G-Base 91 Tank  
Receiving line (Under road)

Still in normal condition



Name of part / Location

Findings

TRL 002 G-Base 91 Tank  
Receiving line (Under road)

Still in normal condition



Name of part / Location

Findings

TRL 002 G-Base 91 Tank  
Receiving line (Jetty to Tank  
No.9&Tank No.2)

Still in normal condition



Name of part / Location

Findings

TRL 002 G-Base 91 Tank  
Receiving line (Jetty to Tank  
No.9&Tank No.2)

Still in normal condition



Name of part / Location

Findings

TRL 002 G-Base 91 Tank  
Receiving line (Jetty to Tank  
No.9&Tank No.2)

Slight corrosion on pipe. (15)



Name of part / Location

Findings

TRL 002 G-Base 91 Tank  
Receiving line (Jetty to Tank  
No.9&Tank No.2)

Still in normal condition

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Sheet

UTM 1/8

## STT-CC-001-03-01\_Gbase 91

CML	Size	Type	Direction	Nom.(Thk)	Min Required (mm)	UTM date	UTM date	UTM date	Short term corrosion Rate	Long term corrosion Rate	Short term remaining life	Long term remaining life
				1-Jan-95		6-Dec-16	16-Dec-21					
				(mm)		(mm)	(mm)	(mm)	(mm)/yr	(mm)/yr	(yr)	(yr)
1A	6"	Elbow	0°	7.11	2.80	6.57	7.31		-0.147	-0.007	No Corrosion	No Corrosion
			90°			6.98	7.51		-0.105	-0.015	No Corrosion	No Corrosion
			180°			6.47	7.37		-0.179	-0.010	No Corrosion	No Corrosion
			270°			6.99	7.86		-0.173	-0.028	No Corrosion	No Corrosion
1B	6"	Elbow	0°	7.11	2.80	6.42	6.96		-0.107	0.006	No Corrosion	748.12
			90°			6.95	7.51		-0.111	-0.015	No Corrosion	No Corrosion
			180°			7.08	7.41		-0.066	-0.011	No Corrosion	No Corrosion
			270°			6.76	7.44		-0.135	-0.012	No Corrosion	No Corrosion
1C	6"	Elbow	0°	7.11	2.80	6.64	7.17		-0.105	-0.002	No Corrosion	No Corrosion
			90°			6.87	7.36		-0.097	-0.009	No Corrosion	No Corrosion
			180°			6.67	7.01		-0.068	0.004	No Corrosion	1135.66
			270°			6.59	7.39		-0.159	-0.010	No Corrosion	No Corrosion
2	6"	Pipe	0°	7.11	2.80	6.44	6.96		-0.103	0.006	No Corrosion	748.12
			90°			6.65	6.80		-0.030	0.011	No Corrosion	348.07
			180°			6.03	7.21		-0.235	-0.004	No Corrosion	No Corrosion
			270°			6.99	7.22		-0.046	-0.004	No Corrosion	No Corrosion
3A	6"	Elbow	0°	7.11	2.80	5.92	5.95		-0.006	0.043	No Corrosion	73.25
			90°			5.70	6.05		-0.070	0.039	No Corrosion	82.71
			180°			6.63	6.80		-0.034	0.011	No Corrosion	348.07
			270°			6.30	6.58		-0.056	0.020	No Corrosion	192.39
3B	6"	Elbow	0°	7.11	2.80	6.19	6.15		0.008	0.036	421.27	94.13
			90°			6.29	6.65		-0.072	0.017	No Corrosion	225.77
			180°			6.66	6.79		-0.026	0.012	No Corrosion	336.35
			270°			6.38	6.04		0.068	0.040	47.93	81.68
3C	6"	Elbow	0°	7.11	2.80	6.27	6.52		-0.050	0.022	No Corrosion	170.08
			90°			6.57	6.61		-0.008	0.019	No Corrosion	205.55
			180°			6.44	6.65		-0.042	0.017	No Corrosion	225.77
			270°			6.33	6.16		0.034	0.035	99.42	95.41
4	6"	Pipe	0°	7.11	2.80	6.83	6.66		0.034	0.017	114.21	231.39
			90°			6.59	7.02		-0.085	0.003	No Corrosion	1264.84
			180°			6.41	6.65		-0.048	0.017	No Corrosion	225.77
			270°			6.42	6.81		-0.078	0.011	No Corrosion	360.57





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Sheet

UTM 2/8

STT-CC-001-03-01\_Gbase 91

CML	Size	Type	Direction	Nom.(Thk)	Min Required (mm)	UTM date	UTM date	UTM date	Short term corrosion Rate	Long term corrosion Rate	Short term remaining life	Long term remaining life
				1-Jan-95		6-Dec-16	16-Dec-21					
				(mm)		(mm)	(mm)	(mm)				
5	6"	Pipe	0°	7.11	2.80	6.90	6.91		-0.002	0.007	No Corrosion	554.34
			90°			6.60	6.85		-0.050	0.010	No Corrosion	420.19
			180°			6.50	6.88		-0.076	0.009	No Corrosion	478.52
			270°			7.07	6.95		0.024	0.006	173.96	699.67
6	6"	Pipe	0°	7.11	2.80	6.16	5.64		0.103	0.054	27.47	52.12
			90°			5.91	6.17		-0.052	0.035	No Corrosion	96.71
			180°			5.72	5.81		-0.018	0.048	No Corrosion	62.46
			270°			5.73	6.16		-0.085	0.035	No Corrosion	95.41
7	6"	Pipe	0°	7.11	2.80	6.87	6.93		-0.012	0.007	No Corrosion	618.93
			90°			6.66	6.79		-0.026	0.012	No Corrosion	336.35
			180°			6.82	6.62		0.040	0.018	96.08	210.30
			270°			7.00	7.05		-0.010	0.002	No Corrosion	1910.75
8	6"	Pipe	0°	7.11	2.80	6.87	7.08		-0.042	0.001	No Corrosion	3848.48
			90°			6.42	6.87		-0.089	0.009	No Corrosion	457.46
			180°			6.32	6.90		-0.115	0.008	No Corrosion	526.66
			270°			6.74	6.91		-0.034	0.007	No Corrosion	554.34
9A	6"	Elbow	0°	7.11	2.80	6.38	6.32		0.012	0.029	295.10	120.19
			90°			6.19	6.21		-0.004	0.033	No Corrosion	102.21
			180°			6.95	6.21		0.147	0.033	23.18	102.21
			270°			7.32	7.31		0.002	-0.007	2268.59	No Corrosion
9B	6"	Elbow	0°	7.11	2.80	6.47	6.61		-0.028	0.019	No Corrosion	205.55
			90°			6.23	6.35		-0.024	0.028	No Corrosion	126.00
			180°			6.49	6.28		0.042	0.031	83.36	113.10
			270°			7.39	7.48		-0.018	-0.014	No Corrosion	No Corrosion
9C	6"	Elbow	0°	7.11	2.80	6.49	6.69		-0.040	0.016	No Corrosion	249.84
			90°			6.61	6.68		-0.014	0.016	No Corrosion	243.41
			180°			6.23	6.28		-0.010	0.031	No Corrosion	113.10
			270°			8.06	7.55		0.101	-0.016	46.85	No Corrosion
10	6"	Pipe	0°	7.11	2.80	6.73	6.83		-0.020	0.010	No Corrosion	388.25
			90°			6.73	6.64		0.018	0.017	214.62	220.39
			180°			6.75	6.80		-0.010	0.011	No Corrosion	348.07
			270°			6.99	6.43		0.111	0.025	32.61	144.00



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UTM 3/8

STT-CC-001-03-01\_Gbase 91

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-95		6-Dec-16	16-Dec-21					
				(mm)		(mm)	(mm)	(mm)				
11	6"	Pipe	0°	7.11	2.80	6.95	6.77		0.036	0.013	110.94	314.98
			90°			6.66	7.08		-0.083	0.001	No Corrosion	3848.48
			180°			6.76	6.83		-0.014	0.010	No Corrosion	388.25
			270°			7.11	7.08		0.006	0.001	717.63	3848.48
12A	6"	Elbow	0°	7.11	2.80	6.93	6.60		0.066	0.019	57.92	200.99
			90°			7.14	7.22		-0.016	-0.004	No Corrosion	No Corrosion
			180°			6.53	6.69		-0.032	0.016	No Corrosion	249.84
			270°			7.19	6.90		0.058	0.008	71.12	526.66
12B	6"	Elbow	0°	7.11	2.80	6.65	6.50		0.030	0.023	124.08	163.62
			90°			7.32	7.45		-0.026	-0.013	No Corrosion	No Corrosion
			180°			6.92	6.93		-0.002	0.007	No Corrosion	618.93
			270°			7.22	6.52		0.139	0.022	26.73	170.08
12C	6"	Elbow	0°	7.11	2.80	6.90	6.59		0.062	0.019	61.50	196.61
			90°			7.23	6.72		0.101	0.014	38.66	271.14
			180°			6.37	6.98		-0.121	0.005	No Corrosion	867.36
			270°			7.38	6.83		0.109	0.010	36.86	388.25
13	6"	Pipe	0°	7.11	2.80	6.63	6.78		-0.030	0.012	No Corrosion	325.34
			90°			6.46	6.71		-0.050	0.015	No Corrosion	263.68
			180°			6.77	7.06		-0.058	0.002	No Corrosion	2298.30
			270°			6.64	6.77		-0.026	0.013	No Corrosion	314.98
14	6"	Pipe	0°	7.11	2.80	6.86	6.71		0.030	0.015	131.12	263.68
			90°			7.30	7.13		0.034	-0.001	128.12	No Corrosion
			180°			6.90	6.43		0.093	0.025	38.85	144.00
			270°			6.82	6.79		0.006	0.012	669.01	336.35
15	6"	Pipe	0°	7.11	2.80	6.94	6.86		0.016	0.009	255.28	438.08
			90°			7.03	6.74		0.058	0.014	68.34	287.25
			180°			7.11	6.88		0.046	0.009	89.23	478.52
			270°			7.11	7.13		-0.004	-0.001	No Corrosion	No Corrosion
16A	6"	Elbow	0°	7.11	2.80	6.37	6.45		-0.016	0.024	No Corrosion	149.18
			90°			7.02	6.61		0.082	0.019	46.74	205.55
			180°			7.13	6.83		0.060	0.010	67.57	388.25
			270°			6.42	6.05		0.074	0.039	44.18	82.71





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UTM 4/8

STT-CC-001-03-01\_Gbase 91

CML	Size	Type	Direction	Nom.(Thk)	Min Required (mm)	UTM date	UTM date	UTM date	Short term corrosion Rate	Long term corrosion Rate	Short term remaining life	Long term remaining life
				1-Jan-95		6-Dec-16	16-Dec-21					
				(mm)		(mm)	(mm)	(mm)				
16B	6"	Elbow	0°	7.11	2.80	7.00	6.39		0.121	0.027	29.60	134.50
			90°			6.94	6.90		0.008	0.008	515.59	526.66
			180°			7.12	6.70		0.083	0.015	46.71	256.59
			270°			5.76	5.89		-0.026	0.045	No Corrosion	68.32
			0°			6.32	6.32		0.000	0.029	No Corrosion	120.19
16C	6"	Elbow	90°	7.11	2.80	7.19	6.97		0.044	0.005	95.34	803.48
			180°			7.27	6.75		0.103	0.013	38.21	295.98
			270°			5.22	5.44		-0.044	0.062	No Corrosion	42.64
			0°			7.04	7.16		-0.024	-0.002	No Corrosion	No Corrosion
			90°			6.93	6.93		0.000	0.007	No Corrosion	618.93
17	6"	Pipe	180°	7.11	2.80	7.25	7.41		-0.032	-0.011	No Corrosion	No Corrosion
			270°			6.87	7.08		-0.042	0.001	No Corrosion	3848.48
			0°			7.17	-		-0.003	-0.003	No Corrosion	No Corrosion
			90°			6.95	-		0.007	0.007	569.20	569.20
			180°			6.83	-		0.013	0.013	315.85	315.85
18	6"	Pipe	270°	7.11	2.80	6.67	-		0.020	0.020	193.02	193.02
			0°			7.35	7.41		-0.012	-0.011	No Corrosion	No Corrosion
			90°			7.68	7.66		0.004	-0.020	1222.32	No Corrosion
			180°			7.29	7.68		-0.078	-0.021	No Corrosion	No Corrosion
			270°			7.60	7.11		0.097	0.000	44.24	No Corrosion
19A	6"	Elbow	0°	7.11	2.80	7.14	7.21		-0.014	-0.004	No Corrosion	No Corrosion
			90°			7.57	7.38		0.038	-0.010	121.25	No Corrosion
			180°			7.84	7.82		0.004	-0.026	1262.56	No Corrosion
			270°			7.50	6.96		0.107	0.006	38.75	748.12
			0°			7.19	7.77		-0.115	-0.024	No Corrosion	No Corrosion
19B	6"	Elbow	90°	7.11	2.80	7.52	7.60		-0.016	-0.018	No Corrosion	No Corrosion
			180°			7.66	7.66		0.000	-0.020	No Corrosion	No Corrosion
			270°			7.49	6.91		0.115	0.007	35.64	554.34
			0°			7.06	7.07		-0.002	0.001	No Corrosion	2879.62
			90°			7.05	7.30		-0.050	-0.007	No Corrosion	No Corrosion
19C	6"	Pipe	180°	7.11	2.80	6.78	6.84		-0.012	0.010	No Corrosion	403.63
			270°			7.12	7.18		-0.012	-0.003	No Corrosion	No Corrosion

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UTM 5/8

## STT-CC-001-03-01\_Gbase 91

CML	Size	Type	Direction	Nom.(Thk)	Min Required (mm)	UTM date	UTM date	UTM date	Short term corrosion Rate	Long term corrosion Rate	Short term remaining life	Long term remaining life
				1-Jan-95		6-Dec-16	16-Dec-21					
				(mm)		(mm)	(mm)	(mm)	(mm)/yr	(mm)/yr	(yr)	(yr)
21	6"	Pipe	0°	7.11	2.80	6.95	6.77		0.036	0.013	110.94	314.98
			90°			6.66	7.08		-0.083	0.001	No Corrosion	3848.48
			180°			6.76	6.83		-0.014	0.010	No Corrosion	388.25
			270°			7.11	7.08		0.006	0.001	717.63	3848.48
22A	6"	Elbow	0°	7.11	2.80	7.04	7.17		-0.026	-0.002	No Corrosion	No Corrosion
			90°			6.96	6.98		-0.004	0.005	No Corrosion	867.36
			180°			6.71	6.60		0.022	0.019	173.77	200.99
			270°			6.80	6.80		0.000	0.011	No Corrosion	348.07
22B	6"	Elbow	0°	7.11	2.80	7.35	6.94		0.082	0.006	50.79	656.93
			90°			7.68	7.37		0.062	-0.010	74.15	No Corrosion
			180°			7.29	7.47		-0.036	-0.013	No Corrosion	No Corrosion
			270°			7.60	7.18		0.083	-0.003	52.46	No Corrosion
22C	6"	Elbow	0°	7.11	2.80	7.14	7.11		0.006	0.000	722.66	No Corrosion
			90°			7.57	7.45		0.024	-0.013	194.92	No Corrosion
			180°			7.84	7.42		0.083	-0.011	55.33	No Corrosion
			270°			7.60	7.27		0.066	-0.006	68.14	No Corrosion
23A	6"	Reducer	0°	7.11	2.80	0.00	7.10		-1.411	0.000	No Corrosion	11599.40
			90°			0.00	7.43		-1.477	-0.012	No Corrosion	No Corrosion
			180°			0.00	7.40		-1.471	-0.011	No Corrosion	No Corrosion
			270°			0.00	7.36		-1.463	-0.009	No Corrosion	No Corrosion
23B	6"	Reducer	0°	7.11	2.80	0.00	6.71		-1.334	0.015	No Corrosion	263.68
			90°			0.00	7.13		-1.417	-0.001	No Corrosion	No Corrosion
			180°			0.00	6.43		-1.278	0.025	No Corrosion	144.00
			270°			0.00	6.79		-1.350	0.012	No Corrosion	336.35
23C	6"	Reducer	0°	7.11	2.80	0.00	6.86		-1.364	0.009	No Corrosion	438.08
			90°			0.00	6.74		-1.340	0.014	No Corrosion	287.25
			180°			0.00	6.88		-1.368	0.009	No Corrosion	478.52
			270°			0.00	7.13		-1.417	-0.001	No Corrosion	No Corrosion
24A	6"	Elbow	0°	7.11	2.80	6.46	6.67		-0.042	0.016	No Corrosion	237.26
			90°			6.64	6.87		-0.046	0.009	No Corrosion	457.46
			180°			5.76	5.88		-0.024	0.046	No Corrosion	67.55
			270°			6.87	7.21		-0.068	-0.004	No Corrosion	No Corrosion



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STT-CC-001-03-01\_Gbase 91

CML	Size	Type	Direction	Nom.(Thk)	Min Required (mm)	UTM date	UTM date	UTM date	Short term corrosion Rate	Long term corrosion Rate	Short term remaining life	Long term remaining life
				1-Jan-95		6-Dec-16	16-Dec-21					
				(mm)		(mm)	(mm)	(mm)				
24B	6"	Elbow	0°	7.11	2.80	6.35	6.45		-0.020	0.024	No Corrosion	149.18
			90°			6.55	6.92		-0.074	0.007	No Corrosion	584.94
			180°			5.72	6.31		-0.117	0.030	No Corrosion	118.35
			270°			6.75	7.06		-0.062	0.002	No Corrosion	2298.30
24C	6"	Elbow	0°	7.11	2.80	6.35	6.35		0.000	0.028	No Corrosion	126.00
			90°			6.54	6.87		-0.066	0.009	No Corrosion	457.46
			180°			5.74	6.00		-0.052	0.041	No Corrosion	77.77
			270°			6.80	6.09		0.141	0.038	23.31	87.01
25	6"	Pipe	0°	7.11	2.80	6.66	6.96		-0.060	0.006	No Corrosion	748.12
			90°			6.11	6.95		-0.167	0.006	No Corrosion	699.67
			180°			6.54	6.88		-0.068	0.009	No Corrosion	478.52
			270°			6.84	7.11		-0.054	0.000	No Corrosion	No Corrosion
26	6"	Pipe	0°	7.11	2.80	7.09	7.14		-0.010	-0.001	No Corrosion	No Corrosion
			90°			6.84	7.14		-0.060	-0.001	No Corrosion	No Corrosion
			180°			6.94	6.97		-0.006	0.005	No Corrosion	803.48
			270°			7.34	6.67		0.133	0.016	29.05	237.26
27	6"	Pipe	0°	7.11	2.80	6.73	6.79		-0.012	0.012	No Corrosion	336.35
			90°			6.52	6.78		-0.052	0.012	No Corrosion	325.34
			180°			6.69	6.87		-0.036	0.009	No Corrosion	457.46
			270°			6.76	7.02		-0.052	0.003	No Corrosion	1264.84
28A	6"	Elbow	0°	7.11	2.80	6.33	6.21		0.024	0.033	142.94	102.21
			90°			6.89	6.77		0.024	0.013	166.41	314.98
			180°			6.66	6.72		-0.012	0.014	No Corrosion	271.14
			270°			7.94	7.44		0.099	-0.012	46.68	No Corrosion
28B	6"	Elbow	0°	7.11	2.80	6.06	6.13		-0.014	0.036	No Corrosion	91.66
			90°			6.79	6.89		-0.020	0.008	No Corrosion	501.50
			180°			6.64	6.65		-0.002	0.017	No Corrosion	225.77
			270°			7.32	7.25		0.014	-0.005	319.77	No Corrosion
28C	6"	Elbow	0°	7.11	2.80	6.68	6.17		0.101	0.035	33.24	96.71
			90°			6.78	6.86		-0.016	0.009	No Corrosion	438.08
			180°			6.72	6.71		0.002	0.015	1966.78	263.68
			270°			7.97	7.33		0.127	-0.008	35.60	No Corrosion

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Sheet

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## STT-CC-001-03-01\_Gbase 91

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-95		6-Dec-16	16-Dec-21					
				(mm)		(mm)	(mm)	(mm)				
29	6"	Pipe	0°	7.11	2.80	7.33	7.25		0.016	-0.005	279.80	No Corrosion
			90°			7.05	7.10		-0.010	0.000	No Corrosion	11599.40
			180°			7.46	6.98		0.095	0.005	43.80	867.36
			270°			6.88	6.79		0.018	0.012	223.00	336.35
30A	6"	Elbow	0°	7.11	2.80	-	6.11		0.199	0.199	16.65	16.65
			90°			-	6.39		0.143	0.143	25.08	25.08
			180°			-	6.10		0.201	0.201	16.44	16.44
			270°			-	6.62		0.097	0.097	39.21	39.21
30B	6"	Elbow	0°	7.11	2.80	-	6.05		0.211	0.211	15.42	15.42
			90°			-	6.42		0.137	0.137	26.39	26.39
			180°			-	6.24		0.173	0.173	19.89	19.89
			270°			-	6.60		0.101	0.101	37.48	37.48
30C	6"	Elbow	0°	7.11	2.80	-	6.08		0.205	0.038	16.02	85.90
			90°			-	6.63		0.095	0.018	40.14	215.24
			180°			-	6.19		0.183	0.034	18.53	99.40
			270°			-	6.50		0.121	0.023	30.51	163.62
31A	6"	Elbow	0°	7.11	2.80	-	7.56		-0.089	-0.089	No Corrosion	No Corrosion
			90°			-	7.66		-0.109	-0.109	No Corrosion	No Corrosion
			180°			-	6.80		0.062	0.062	64.90	64.90
			270°			-	8.21		-0.219	-0.219	No Corrosion	No Corrosion
31B	6"	Elbow	0°	7.11	2.80	-	7.40		-0.058	-0.058	No Corrosion	No Corrosion
			90°			-	7.61		-0.099	-0.099	No Corrosion	No Corrosion
			180°			-	7.16		-0.010	-0.010	No Corrosion	No Corrosion
			270°			-	8.29		-0.235	-0.235	No Corrosion	No Corrosion
31C	6"	Elbow	0°	7.11	2.80	-	7.36		-0.050	-0.050	No Corrosion	No Corrosion
			90°			-	7.76		-0.129	-0.129	No Corrosion	No Corrosion
			180°			-	7.23		-0.024	-0.024	No Corrosion	No Corrosion
			270°			-	7.69		-0.115	-0.115	No Corrosion	No Corrosion
32A	6"	Elbow	0°	7.11	2.80	-	7.22		-0.022	-0.022	No Corrosion	No Corrosion
			90°			-	6.91		0.040	0.040	103.37	103.37
			180°			-	7.07		0.008	0.008	536.97	536.97
			270°			-	8.20		-0.217	-0.217	No Corrosion	No Corrosion





Sheet

UTM 8/8

STT-CC-001-03-01\_Gbase 91

[illegible]

	<b>PIPING INSPECTION SUMMARY REPORT</b>		Report/ Project	Sheet
			2112012	S 1/1
<b>STT-CC-003-01-01 (TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8))</b>				

Date of inspections: 23 December 2021

Piping data				
Line ID :	TRL 003 Diesel Tank Receiving Line	Line Description :	Jetty to Tank No.6,8	
Product :	G-Base 95	Diameter/Schedule :	6 inch, Sch. STD.	T nom : 7.11 mm.
Material :	API 5L GR.B	Insulation :	N/A	

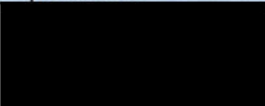

Design and calculations					
Design Pressure P :	285 psi	$T_{min} = \frac{PD}{2(SE+PY)}$	Tmin (pressure) :	0.84 mm.	
Diameter D :	6 inch.		Tmat (Table 6 API574) :	3.3 mm.	T struc : 2.8 mm.
Stress S (Table A1) :	20.0 ksi		T minimum measured :	5.26 mm.	
Q factor E (Table A1A or A1B) :	1		Service life (from last reading) :	1992 / 24 years	
Coefficient Y: (Table 304.1.1) :	0.4		Corrosion Rate :	0.054 mm./year	
The estimated remaining life for this line is: 71.72 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 : N/A Category 3 : N/A



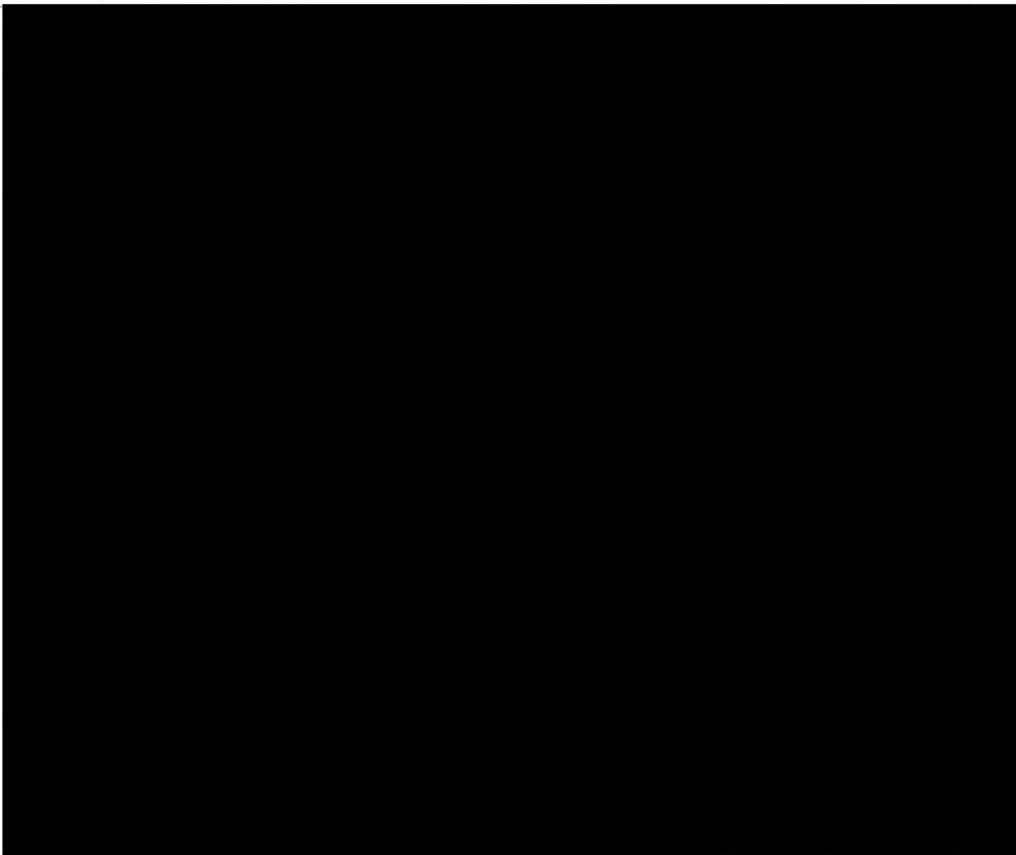
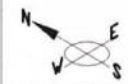
Pipe inspection summary
<b>Visual Inspection (VT)</b> 1. Sealing sleeve underground pipe was found degradation, damage and corrosion under sleeve underground pipe. Approximate corrosion depth 1.5 mm. (as mark) 2. Sealing sleeve underground pipe was found degradation, damage and corrosion under sleeve underground pipe. Approximate corrosion depth 1 mm. (as mark)
<b>Ultrasonic Thickness Measurement (UTM)</b> - UTM : The actual minimum thickness found as 5.26 mm. - Maximum Corrosion rate: 0.054 mm/yr -Minimum Remaining Life: 71.72 yrs

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




API inspector		LRUT Technician		UT Technician		Chevron	
Name	Supajin P.	Name	-	Name	Toednitat T.	Name	Teeranai P.
Date:	30 Jan 2022	Date:	-	Date:	30 Jan 2022	Date:	
Sign:		Sign:		Sign:		Sign:	



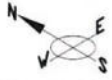
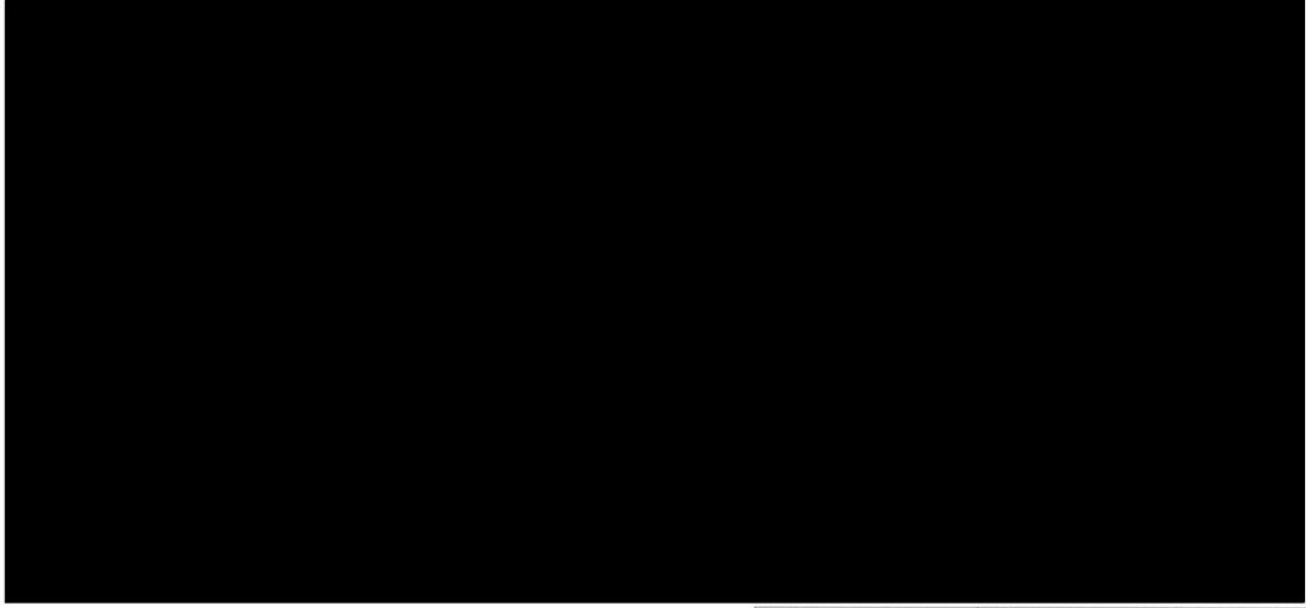





	<b>PIPING VISUAL INSPECTION LOG</b>						Report/ Project	Sheet						
							2112012	VT 1/8						
<b>STT-CC-003-01-01 (TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8))</b>														
Degradation	N/A	Normal	Minor	Moderate	Severe	Remark								
<small>x.x-x.x mm</small> <input type="checkbox"/> 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="display: inline-table; vertical-align: top; margin-left: 20px;"> <tr> <td>Minor:</td> <td>For findings that don't require action</td> </tr> <tr> <td>Moderate</td> <td>For findings that require action (specify time)</td> </tr> <tr> <td>Severe</td> <td>For findings that require immediate action</td> </tr> </table> <div style="display: inline-block; vertical-align: top; margin-left: 20px;">             Highlighted in yellow in ISO              Highlighted in Orange in ISO           </div>									Minor:	For findings that don't require action	Moderate	For findings that require action (specify time)	Severe	For findings that require immediate action
Minor:	For findings that don't require action													
Moderate	For findings that require action (specify time)													
Severe	For findings that require immediate action													
 <b>CHEVRON (Thailand) LIMITED</b>						Project Number : Chevron Surathani								
Service/Product : Diesel						Title : Tank Receiving Line (Diesel)								
Pipe size/Mat : 6 inch / Carbon steel						Detail Number : XXX-CC-XXX-XX-XX								
Max Pressure : -						Line Number : 6~TRL 003 (Diesel)								
Max Temp : -						Area : Chevron								
Job Number : 2112012						Location : Surathani Terminal								
Sketch by : Teedhitat T.						Scale :								
Drawn by : Teedhitat T.						Sheet : 01 OF 08								
Approved by : Supajin P.						Rev : 00								



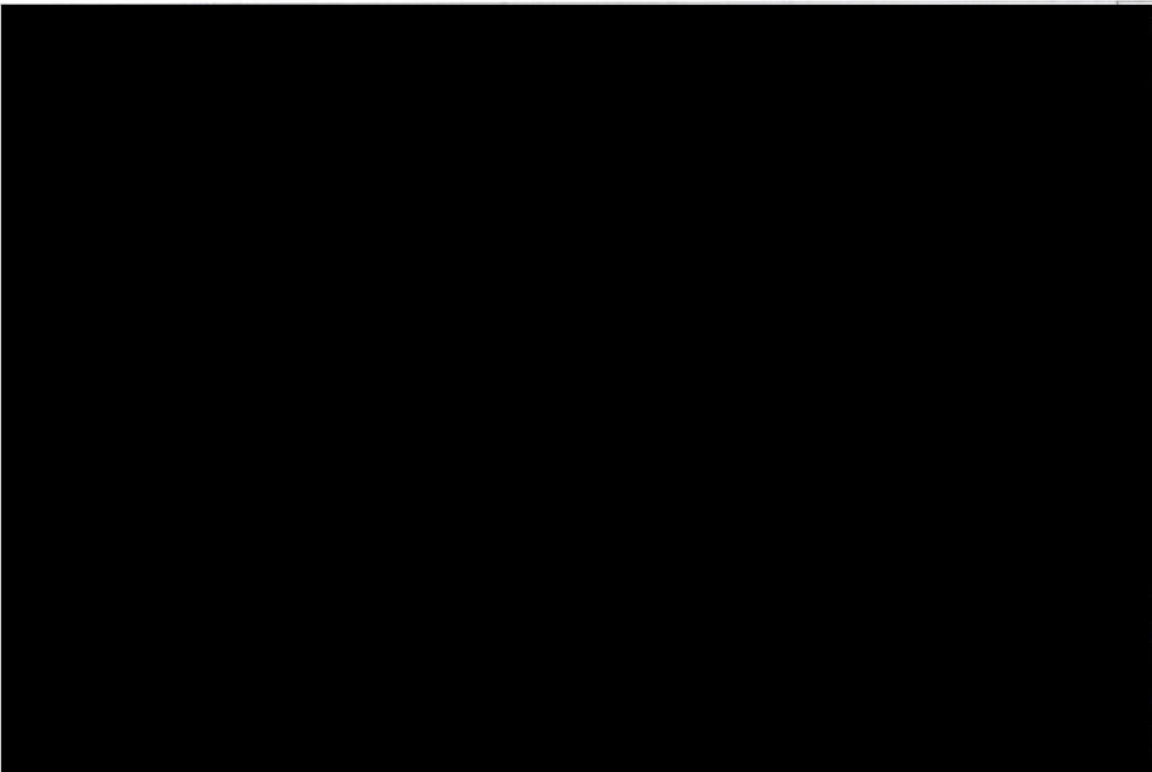

	<b>PIPING VISUAL INSPECTION LOG</b>						Report/ Project	Sheet									
							2112012	VT 2/8									
<b>STT-CC-003-01-01 (TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8))</b>																	
Degradation	N/A	Normal	Minor	Moderate	Severe	Remark											
<small>x.x-x.x mm</small> <input type="checkbox"/> 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"/>												
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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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Moderate	For findings that require action (specify time)	Highlighted in Orange in ISO															
Severe	For findings that require immediate action																
																	
							Chevron Suratthani										
							Tank Receiving Line (Diesel)										
							XXX-CC-XXX-XX-XX										
							<table border="1" style="width: 100%;"> <tr> <td>Sketch by</td> <td>Toedhitat T.</td> <td>6"-TRL 003 (Diesel)</td> </tr> <tr> <td>Drawn by</td> <td>Toedhitat T.</td> <td>P&amp;ID Number</td> </tr> <tr> <td>Approved by</td> <td>Supajin P.</td> <td></td> </tr> </table>		Sketch by	Toedhitat T.	6"-TRL 003 (Diesel)	Drawn by	Toedhitat T.	P&ID Number	Approved by	Supajin P.	
Sketch by	Toedhitat T.	6"-TRL 003 (Diesel)															
Drawn by	Toedhitat T.	P&ID Number															
Approved by	Supajin P.																
<table border="1" style="width: 100%;"> <tr> <td>Area</td> <td>Location</td> </tr> <tr> <td>Chevron</td> <td>Suratthani Terminal</td> </tr> <tr> <td>Scale</td> <td>Sheet</td> </tr> <tr> <td>N/A</td> <td>02 OF 08</td> </tr> <tr> <td></td> <td>Rev</td> </tr> <tr> <td></td> <td>00</td> </tr> </table>	Area	Location	Chevron	Suratthani Terminal	Scale	Sheet	N/A	02 OF 08		Rev		00					
Area	Location																
Chevron	Suratthani Terminal																
Scale	Sheet																
N/A	02 OF 08																
	Rev																
	00																





		PIPING VISUAL INSPECTION LOG							Report/ Project	Sheet								
							2112012		VT 3/8									
STT-CC-003-01-01 (TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8))																		
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"/>													
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<input type="checkbox"/> Paint	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
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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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Moderate	For findings that require action (specify time)	Highlighted in Orange in ISO																
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 CHEVRON (Thailand) LIMITED						Project Number: Chevron Surathani												
Service/Product: Diesel						Title: Tank Receiving Line (Diesel)												
Pipe size/Mat: 6 inch / Carbon steel						Circuit Number: XXX-CC-XXX-XX-XX												
Max Pressure: -																		
Max Temp: -																		
Job Number: 2112012						Line Number: 6'-TRL 003 (Diesel)		Area: Chevron	Location: Surathani Terminal									
Sketch by: Toedritat T.						P&ID Number: -		Scale: N/A	Sheet: 03 OF 08									
Drawn by: Toedritat T.								Rev: 00										
Approved by: Supajin P.																		

		PIPING VISUAL INSPECTION LOG							Report/ Project	Sheet																																																																																									
							2112012		VT 4/8																																																																																										
STT-CC-003-01-01 (TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8))																																																																																																			
Degradation	N/A	Normal	Minor	Moderate	Severe	Remark																																																																																													
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<table border="1"> <tr> <td colspan="4">  CHEVRON (Thailand) LIMITED         </td> <td colspan="6">Project Number : Chevron Surathani</td> </tr> <tr> <td colspan="4">Service/Product : Diesel</td> <td colspan="6">Title : Tank Receiving Line (Diesel)</td> </tr> <tr> <td colspan="4">Pipe size/Mat : 6 inch / Carbon steel</td> <td colspan="6">Circuit Number : XXX-CC-XXX-XX-XX</td> </tr> <tr> <td colspan="4">Max Pressure : -</td> <td colspan="6"></td> </tr> <tr> <td colspan="4">Max Temp : -</td> <td colspan="6"></td> </tr> <tr> <td colspan="4">Job Number : 2112012</td> <td colspan="2">Line Number : 01-TRL 003 (Diesel)</td> <td colspan="2">Area : Chevron</td> <td colspan="2">Location : Surathani Terminal</td> </tr> <tr> <td colspan="4">Sketch by : Toechitai T</td> <td colspan="2">P&amp;ID Number : -</td> <td colspan="2">Scale : N/A</td> <td colspan="2">Sheet : 04 OF 08</td> </tr> <tr> <td colspan="4">Drawn by : Toechitai T</td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2">Rev : 00</td> </tr> <tr> <td colspan="4">Approved by : Supajin P</td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> </tr> </table>										 CHEVRON (Thailand) LIMITED				Project Number : Chevron Surathani						Service/Product : Diesel				Title : Tank Receiving Line (Diesel)						Pipe size/Mat : 6 inch / Carbon steel				Circuit Number : XXX-CC-XXX-XX-XX						Max Pressure : -										Max Temp : -										Job Number : 2112012				Line Number : 01-TRL 003 (Diesel)		Area : Chevron		Location : Surathani Terminal		Sketch by : Toechitai T				P&ID Number : -		Scale : N/A		Sheet : 04 OF 08		Drawn by : Toechitai T								Rev : 00		Approved by : Supajin P									
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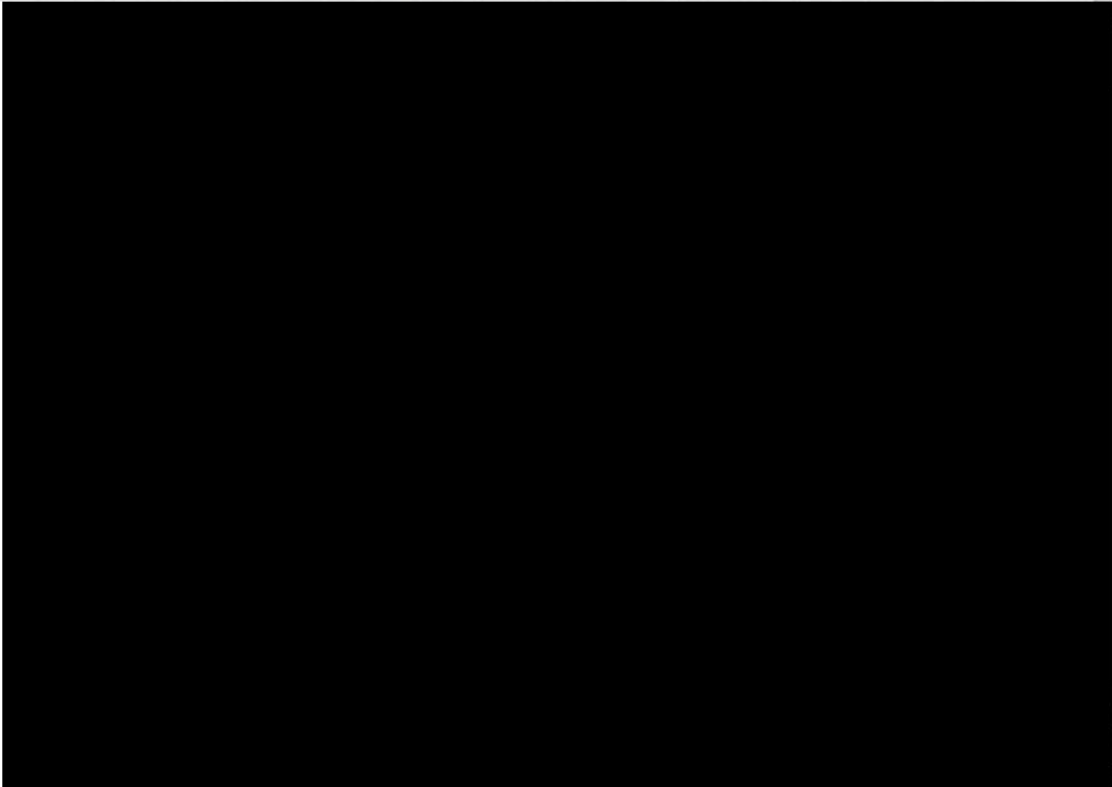
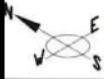
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									2112012	VT 5/8
STT-CC-003-01-01 (TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8))										
Degradation	N/A	Normal	Minor	Moderate	Severe	Remark				
<div> <div>x.x-x.x mm</div> <input type="checkbox"/> Corrosion </div>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. Sealing sleeve underground pipe was found degradation, damage and corrosion under sleeve underground pipe. Approximate corrosion depth 1.5 mm. (as mark) 2. Sealing sleeve underground pipe was found degradation, damage and corrosion under sleeve underground pipe. Approximate corrosion depth 1 mm. (as mark)				
<div> <input checked="" type="checkbox"/> CUS </div>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<div> <input type="checkbox"/> Paint </div>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<div> <input checked="" type="checkbox"/> Insulation </div>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<div> <input type="checkbox"/> Supports </div>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<div> <input checked="" type="checkbox"/> Vibration </div>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<div> <input type="checkbox"/> Misalignment </div>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<div> <input checked="" type="checkbox"/> Mech. Damage </div>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<div> <input checked="" type="checkbox"/> Leak </div>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
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Severity to be determined as follows: <div> <div>Minor:</div> <div>Moderate</div> <div>Severe</div> </div> <div> <div>For findings that don't require action</div> <div>For findings that require action (specify time)</div> <div>For findings that require immediate action</div> </div> <div> <div>Highlighted in yellow in ISO</div> <div>Highlighted in Orange in ISO</div> </div>										
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		PIPING VISUAL INSPECTION LOG							Report/ Project	Sheet
							2112012		VT 6/8	
STT-CC-003-01-01 (TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8))										
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"/>					
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Severity to be determined as follows:






Minor:	For findings that don't require action	Highlighted in yellow in ISO
Moderate	For findings that require action (specify time)	
Severe	For findings that require immediate action	



Highlighted in Orange in ISO

Job Number	2112012	Line Number	6"-TRL 003 (Diesel)	Area	Location
Sketch by	Toedntal T	P&ID Number		Scale	Sheet
Drawn by	Toedntal T			N/A	06 OF 08
Approved by	Supajin P				Rev 00

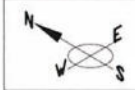


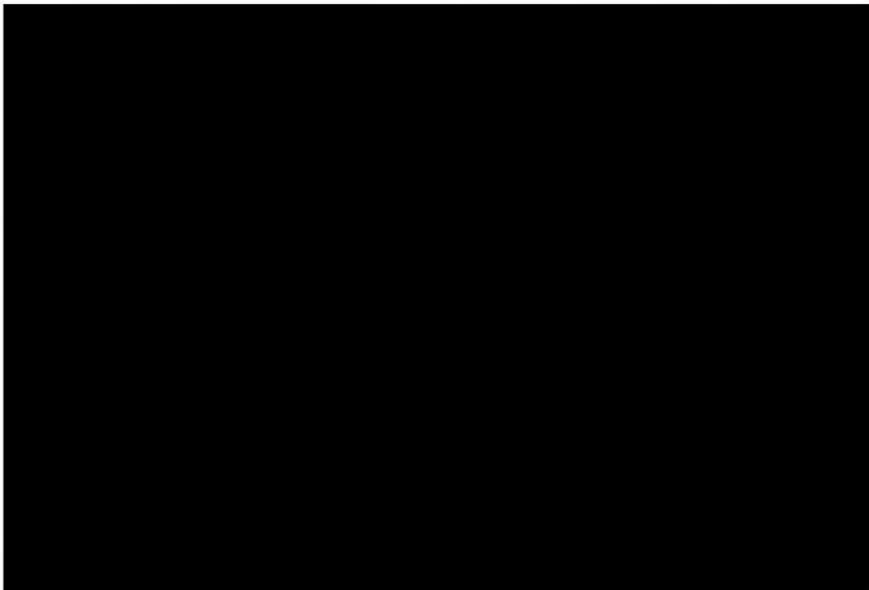
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STT-CC-003-01-01 (TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8))																																																																																	
Degradation		N/A	Normal	Minor	Moderate	Severe	Remark																																																																										
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<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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<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="4">  CHEVRON (Thailand) (LIMITED)         </td> <td colspan="4">Chevron Surathani</td> </tr> <tr> <td colspan="2">Service/Product</td> <td colspan="2">Diesel</td> <td colspan="2">Title</td> <td colspan="2">Tank Receiving Line (Diesel)</td> </tr> <tr> <td colspan="2">Pipe size/Mat</td> <td colspan="2">6 inch / Carbon steel</td> <td colspan="2">Circuit Number</td> <td colspan="2">XXX-CC-XXX-XX-XX</td> </tr> <tr> <td colspan="2">Max Pressure</td> <td colspan="2">-</td> <td colspan="2">Line Number</td> <td colspan="2">4"-TRL 003 (Diesel)</td> </tr> <tr> <td colspan="2">Max Temp</td> <td colspan="2">-</td> <td colspan="2">Area</td> <td colspan="2">Chevron</td> </tr> <tr> <td colspan="2">Job Number</td> <td colspan="2">2112012</td> <td colspan="2">Location</td> <td colspan="2">Surathani Terminal</td> </tr> <tr> <td colspan="2">Sketch by</td> <td colspan="2">Toednolal T.</td> <td colspan="2">Scale</td> <td colspan="2">N/A</td> </tr> <tr> <td colspan="2">Drawn by</td> <td colspan="2">Toednolal T.</td> <td colspan="2">Sheet</td> <td colspan="2">07 OF 08</td> </tr> <tr> <td colspan="2">Approved by</td> <td colspan="2">Supajin P.</td> <td colspan="2">Rev</td> <td colspan="2">00</td> </tr> </table>										 CHEVRON (Thailand) (LIMITED)				Chevron Surathani				Service/Product		Diesel		Title		Tank Receiving Line (Diesel)		Pipe size/Mat		6 inch / Carbon steel		Circuit Number		XXX-CC-XXX-XX-XX		Max Pressure		-		Line Number		4"-TRL 003 (Diesel)		Max Temp		-		Area		Chevron		Job Number		2112012		Location		Surathani Terminal		Sketch by		Toednolal T.		Scale		N/A		Drawn by		Toednolal T.		Sheet		07 OF 08		Approved by		Supajin P.		Rev		00	
 CHEVRON (Thailand) (LIMITED)				Chevron Surathani																																																																													
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Approved by		Supajin P.		Rev		00																																																																											


		PIPING VISUAL INSPECTION LOG						Report/ Project	Sheet
						2112012		VT 8/8	
STT-CC-003-01-01 (TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8))									
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:

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
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 CHEVRON (Thailand) LIMITED		Project Number		Chevron Surathani	
Service/Product		Diesel		Title	
Pipe size/Mat		6 Inch / Carbon steel		Tank Receiving Line (Diesel)	
Max Pressure		-		Circuit Number	
Max Temp		-		XXX-CC-XXX-XX-XX	
Job Number		2112012		Line Number	
Sketch by		Teedritat T		6"-TRL 003 (Diesel)	
Drawn by		Teedritat T		Area	
Approved by		Supajin P		Chevron	
		P&ID Number		Location	
		-		Surathani Terminal	
		Scale		Sheet	
		N/A		08 OF 08	
				Rev	
				00	



## STT-CC-003-01-01 (TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8))



Name of part / Location

Findings

TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)

Still in normal condition

Name of part / Location

Findings

TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)

Still in normal condition



Name of part / Location

Findings

TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)

Still in normal condition

Name of part / Location

Findings

TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)

Still in normal condition



Name of part / Location

Findings

TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)

Still in normal condition

Name of part / Location

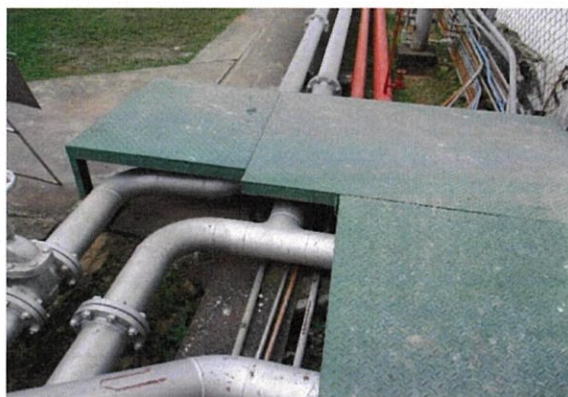
Findings

TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)

Still in normal condition



## STT-CC-003-01-01 (TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8))



Name of part / Location

Findings

TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)

Still in normal condition

Name of part / Location

Findings

TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)

Still in normal condition



Name of part / Location

Findings

TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)

Still in normal condition

Name of part / Location

Findings

TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)

Still in normal condition



Name of part / Location

Findings

TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)

Still in normal condition



Name of part / Location

Findings

TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)

Still in normal condition










	PIPING INSPECTION PICTURE LOG		Report/ Project	Sheet
			2112012	PL 3/7
STT-CC-003-01-01 (TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8))				
				
Name of part / Location		Findings		
TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)		Still in normal condition		
				
Name of part / Location		Findings		
TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)		Still in normal condition		
				
Name of part / Location		Findings		
TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)		Still in normal condition		










PIPING INSPECTION PICTURE LOG			Report/ Project	Sheet
			2112012	PL 4/7
STT-CC-003-01-01 (TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8))				
				
Name of part / Location	Findings	Name of part / Location	Findings	
TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	
				
Name of part / Location	Findings	Name of part / Location	Findings	
TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	
				
Name of part / Location	Findings	Name of part / Location	Findings	
TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	



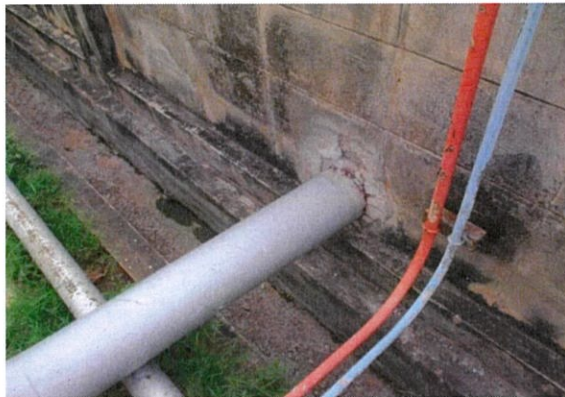






PIPING INSPECTION PICTURE LOG			Report/ Project	Sheet
			2112012	PL 5/7
STT-CC-003-01-01 (TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8))				
				
Name of part / Location	Findings	Name of part / Location	Findings	
TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Sealing sleeve underground pipe was found degradation, damage and corrosion under sleeve underground pipe.	TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Sealing sleeve underground pipe was found degradation, damage and corrosion under sleeve underground pipe.	
				
Name of part / Location	Findings	Name of part / Location	Findings	
TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Sealing sleeve underground pipe was found degradation, damage and corrosion under sleeve underground pipe.	TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Sealing sleeve underground pipe was found degradation, damage and corrosion under sleeve underground pipe.	
				
Name of part / Location	Findings	Name of part / Location	Findings	
TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	



PIPING INSPECTION PICTURE LOG			Report/ Project	Sheet
			2112012	PL 6/7
STT-CC-003-01-01 (TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8))				
				
Name of part / Location	Findings	Name of part / Location	Findings	
TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	
				
Name of part / Location	Findings	Name of part / Location	Findings	
TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	
				
Name of part / Location	Findings	Name of part / Location	Findings	
TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	



PIPING INSPECTION PICTURE LOG			Report/ Project	Sheet
			2112012	PL 7/7
STT-CC-003-01-01 (TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8))				
				
Name of part / Location	Findings	Name of part / Location	Findings	
TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	
				
Name of part / Location	Findings	Name of part / Location	Findings	
TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	
				
Name of part / Location	Findings	Name of part / Location	Findings	
TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	TRL 003 Diesel Tank Receiving Line (Jetty to Tank No.6,8)	Still in normal condition	





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Sheet

UTM 1/7

STT-CC-003-01-01 (Diesel)

CML	Size	Type	Direction	Nom.(Thk)	Min Required (mm)	UTM date	UTM date	UTM date	Short term corrosion Rate	Long term corrosion Rate	Short term remaining life	Long term remaining life
				1-Jan-65		15-Dec-16	20-Dec-21					
				(mm)		(mm)	(mm)	(mm)	(mm)/yr	(mm)/yr	(yr)	(yr)
1A	6"	Elbow	0°	8.18	2.80	6.31	6.53		-0.044	0.029	No Corrosion	128.87
			90°			6.93	6.66		0.054	0.027	71.72	144.76
			180°			7.01	7.04		-0.006	0.020	No Corrosion	212.02
			270°			6.80	6.83		-0.006	0.024	No Corrosion	170.17
1B	6"	Elbow	0°	8.18	2.80	6.61	6.52		0.018	0.029	207.35	127.75
			90°			6.79	6.63		0.032	0.027	120.08	140.86
			180°			6.57	6.54		0.006	0.029	625.38	130.00
			270°			6.74	6.54		0.040	0.029	93.81	130.00
1C	6"	Elbow	0°	8.18	2.80	6.37	6.39		-0.004	0.031	No Corrosion	114.33
			90°			6.88	7.02		-0.028	0.020	No Corrosion	207.38
			180°			7.03	7.03		0.000	0.020	No Corrosion	209.68
			270°			6.78	6.98		-0.040	0.021	No Corrosion	198.57
2	6"	Pipe	0°	8.18	2.80	6.55	6.66		-0.022	0.027	No Corrosion	144.76
			90°			6.86	6.81		0.010	0.024	402.32	166.86
			180°			6.90	6.99		-0.018	0.021	No Corrosion	200.72
			270°			6.83	6.83		0.000	0.024	No Corrosion	170.17
3A	6"	Elbow	0°	8.18	2.80	6.81	6.87		-0.012	0.023	No Corrosion	177.11
			90°			7.24	7.17		0.014	0.018	313.17	246.65
			180°			7.10	7.04		0.012	0.020	354.49	212.02
			270°			6.93	7.00		-0.014	0.021	No Corrosion	202.90
3B	6"	Elbow	0°	8.18	2.80	7.15	7.14		0.002	0.018	2177.13	237.89
			90°			7.41	7.56		-0.030	0.011	No Corrosion	437.65
			180°			6.75	6.79		-0.008	0.024	No Corrosion	163.63
			270°			7.20	7.13		0.014	0.018	310.30	235.08
3C	6"	Elbow	0°	8.18	2.80	7.07	7.02		0.010	0.020	423.39	207.38
			90°			7.53	7.51		0.004	0.012	1181.37	400.74
			180°			6.90	6.90		0.000	0.022	No Corrosion	182.60
			270°			6.99	6.96		0.006	0.021	695.61	194.38
4	6"	Pipe	0°	8.18	2.80	6.09	6.23		-0.028	0.034	No Corrosion	100.27
			90°			6.60	6.44		0.032	0.031	114.12	119.25
			180°			7.20	7.11		0.018	0.019	240.23	229.62
			270°			6.54	6.59		-0.010	0.028	No Corrosion	135.88





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UTM 2/7

STT-CC-003-01-01 (Diesel)

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		15-Dec-16	20-Dec-21					
				(mm)		(mm)	(mm)	(mm)				
5	6"	Pipe	0°	8.18	2.80	6.99	6.83		0.032	0.024	126.35	170.17
			90°			6.99	8.85		-0.371	-0.012	No Corrosion	No Corrosion
			180°			6.38	6.52		-0.028	0.029	No Corrosion	127.75
			270°			7.01	6.98		0.006	0.021	698.96	198.57
6	6"	Pipe	0°	8.18	2.80	6.81	6.88		-0.014	0.023	No Corrosion	178.91
			90°			6.73	6.84		-0.022	0.024	No Corrosion	171.87
			180°			6.66	6.79		-0.026	0.024	No Corrosion	163.63
			270°			6.56	6.51		0.010	0.029	372.22	126.64
7	6"	Pipe	0°	8.18	2.80	6.95	6.95		0.000	0.022	No Corrosion	192.34
			90°			6.72	6.77		-0.010	0.025	No Corrosion	160.50
			180°			6.56	6.54		0.004	0.029	938.07	130.00
			270°			6.55	6.54		0.002	0.029	1876.15	130.00
8	6"	Pipe	0°	8.18	2.80	7.01	7.07		-0.012	0.019	No Corrosion	219.29
			90°			6.78	6.79		-0.002	0.024	No Corrosion	163.63
			180°			6.75	6.75		0.000	0.025	No Corrosion	157.46
			270°			6.60	6.63		-0.006	0.027	No Corrosion	140.86
9A	6"	Elbow	0°	8.18	2.80	7.24	7.21		0.006	0.017	737.42	259.17
			90°			7.12	7.15		-0.006	0.018	No Corrosion	240.75
			180°			6.85	6.93		-0.016	0.022	No Corrosion	188.35
			270°			6.70	6.72		-0.004	0.026	No Corrosion	153.06
9B	6"	Elbow	0°	8.18	2.80	6.87	6.87		0.000	0.023	No Corrosion	177.11
			90°			6.99	6.82		0.034	0.024	118.62	168.50
			180°			7.05	7.11		-0.012	0.019	No Corrosion	229.62
			270°			6.53	6.51		0.004	0.029	930.55	126.64
9C	6"	Elbow	0°	8.18	2.80	6.87	6.88		-0.002	0.023	No Corrosion	178.91
			90°			7.00	7.05		-0.010	0.020	No Corrosion	214.40
			180°			6.45	6.49		-0.008	0.030	No Corrosion	124.47
			270°			6.57	6.55		0.004	0.029	940.58	131.15
10	6"	Pipe	0°	8.18	2.80	6.63	6.72		-0.018	0.026	No Corrosion	153.06
			90°			6.64	6.72		-0.016	0.026	No Corrosion	153.06
			180°			7.31	7.24		0.014	0.016	318.19	269.26
			270°			7.08	7.12		-0.008	0.019	No Corrosion	232.32





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UTM 3/7

STT-CC-003-01-01 (Diesel)

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		15-Dec-16	20-Dec-21					
				(mm)		(mm)	(mm)	(mm)				
11	6"	Pipe	0°	7.11	2.80	6.54	6.44		0.020	0.012	182.60	309.70
			90°			6.88	6.85		0.006	0.005	677.22	887.97
			180°			6.79	6.63		0.032	0.008	120.08	454.86
			270°			6.84	6.77		0.014	0.006	284.50	665.62
12	6"	Pipe	0°	7.11	2.80	6.78	6.78		0.000	0.006	No Corrosion	687.52
			90°			6.42	6.39		0.006	0.013	600.30	284.24
			180°			7.11	7.09		0.004	0.000	1076.03	12227.68
			270°			7.13	7.11		0.004	0.000	1081.04	No Corrosion
13	6"	Pipe	0°	7.11	2.80	6.67	6.63		0.008	0.008	480.32	454.86
			90°			6.84	6.89		-0.010	0.004	No Corrosion	1059.78
			180°			6.18	6.11		0.014	0.018	237.21	188.69
			270°			6.47	6.35		0.024	0.013	148.40	266.28
14A	6"	Elbow	0°	7.11	2.80	6.90	6.82		0.016	0.005	252.08	790.21
			90°			6.66	6.54		0.024	0.010	156.35	374.04
			180°			5.17	5.26		-0.018	0.032	No Corrosion	75.80
			270°			6.87	6.77		0.020	0.006	199.15	665.62
14B	6"	Elbow	0°	7.11	2.80	6.45	6.43		0.004	0.012	910.48	304.31
			90°			6.86	6.86		0.000	0.004	No Corrosion	925.77
			180°			5.86	5.92		-0.012	0.021	No Corrosion	149.46
			270°			6.88	6.71		0.034	0.007	115.38	557.23
14C	6"	Elbow	0°	7.11	2.80	6.75	6.79		-0.008	0.006	No Corrosion	710.79
			90°			6.80	6.79		0.002	0.006	2001.56	710.79
			180°			5.62	5.83		-0.042	0.022	No Corrosion	134.94
			270°			6.99	6.74		0.050	0.006	79.06	607.03
15	6"	Pipe	0°	7.11	2.80	6.70	6.72		-0.004	0.007	No Corrosion	572.98
			90°			6.62	6.63		-0.002	0.008	No Corrosion	454.86
			180°			6.61	6.61		0.000	0.009	No Corrosion	434.38
			270°			6.69	6.76		-0.014	0.006	No Corrosion	644.98
16	6"	Pipe	0°	7.11	2.80	6.41	6.40		0.002	0.012	1805.92	289.04
			90°			6.98	6.77		0.042	0.006	94.83	665.62
			180°			6.59	6.63		-0.008	0.008	No Corrosion	454.86
			270°			6.67	6.63		0.008	0.008	480.32	454.86





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Sheet

UTM 4/7

STT-CC-003-01-01 (Diesel)

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		15-Dec-16	20-Dec-21					
				(mm)		(mm)	(mm)	(mm)				
17	6"	Pipe	0°	7.11	2.80	6.68	6.65		0.006	0.008	643.78	477.11
			90°			6.62	6.64		-0.004	0.008	No Corrosion	465.75
			180°			6.33	6.31		0.004	0.014	880.38	250.11
			270°			6.76	6.72		0.008	0.007	491.61	572.98
18A	6"	Elbow	0°	7.11	2.80	6.87	6.85		0.004	0.005	1015.83	887.97
			90°			7.02	7.06		-0.008	0.001	No Corrosion	4856.87
			180°			7.03	7.04		-0.002	0.001	No Corrosion	3452.90
			270°			7.06	7.05		0.002	0.001	2131.99	4037.89
18B	6"	Elbow	0°	7.11	2.80	6.76	6.79		-0.006	0.006	No Corrosion	710.79
			90°			7.01	7.04		-0.006	0.001	No Corrosion	3452.90
			180°			7.54	7.37		0.034	-0.005	134.85	No Corrosion
			270°			6.78	6.78		0.000	0.006	No Corrosion	687.52
18C	6"	Elbow	0°	7.11	2.80	6.85	6.85		0.000	0.005	No Corrosion	887.97
			90°			7.21	7.22		-0.002	-0.002	No Corrosion	No Corrosion
			180°			7.38	7.34		0.008	-0.004	569.37	No Corrosion
			270°			7.03	7.03		0.000	0.001	No Corrosion	3014.16
19	6"	Pipe	0°	7.11	2.80	6.67	6.69		-0.004	0.007	No Corrosion	527.98
			90°			6.84	6.87		-0.006	0.004	No Corrosion	966.72
			180°			6.99	6.94		0.010	0.003	415.36	1388.25
			270°			6.86	6.85		0.002	0.005	2031.66	887.97
20	6"	Pipe	0°	7.11	2.80	6.41	6.38		0.006	0.013	598.63	279.56
			90°			6.90	6.90		0.000	0.004	No Corrosion	1112.96
			180°			6.44	6.41		0.006	0.012	603.64	293.99
			270°			6.55	6.49		0.012	0.011	308.51	339.27
21	6"	Pipe	0°	7.11	2.80	7.12	7.09		0.006	0.000	717.35	12227.68
			90°			6.71	6.68		0.006	0.008	648.79	514.38
			180°			6.68	6.68		0.000	0.008	No Corrosion	514.38
			270°			6.53	6.54		-0.002	0.010	No Corrosion	374.04
22	6"	Pipe	0°	7.11	2.80	6.68	6.68		0.000	0.008	No Corrosion	514.38
			90°			6.79	6.79		0.000	0.006	No Corrosion	710.79
			180°			6.73	6.77		-0.008	0.006	No Corrosion	665.62
			270°			6.68	6.65		0.006	0.008	643.78	477.11





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Sheet

UTM 5/7

STT-CC-003-01-01 (Diesel)

CML	Size	Type	Direction	Nom.(Thk)	Min Required (mm)	UTM date	UTM date	UTM date	Short term corrosion Rate	Long term corrosion Rate	Short term remaining life	Long term remaining life
				1-Jan-65		15-Dec-16	20-Dec-21					
				(mm)		(mm)	(mm)	(mm)	(mm)/yr	(mm)/yr	(yr)	(yr)
23	6"	Pipe	0°	7.11	2.80	6.26	6.17		0.018	0.016	187.84	204.37
			90°			6.92	6.74		0.036	0.006	109.80	607.03
			180°			6.35	6.36		-0.002	0.013	No Corrosion	270.59
			270°			6.41	6.37		0.008	0.013	447.72	275.01
24A	6"	Elbow	0°	7.11	2.80	6.80	6.72		0.016	0.007	245.81	572.98
			90°			6.61	6.60		0.002	0.009	1906.25	424.75
			180°			6.72	6.72		0.000	0.007	No Corrosion	572.98
			270°			6.84	6.88		-0.008	0.004	No Corrosion	1011.23
24B	6"	Elbow	0°	7.11	2.80	6.92	6.88		0.008	0.004	511.68	1011.23
			90°			6.60	6.67		-0.014	0.008	No Corrosion	501.39
			180°			6.86	6.84		0.004	0.005	1013.32	852.97
			270°			6.80	6.84		-0.008	0.005	No Corrosion	852.97
24C	6"	Elbow	0°	7.11	2.80	6.68	6.66		0.004	0.008	968.17	488.98
			90°			6.55	6.51		0.008	0.011	465.27	352.48
			180°			6.85	6.74		0.022	0.006	179.68	607.03
			270°			6.73	6.78		-0.010	0.006	No Corrosion	687.52
25	6"	Pipe	0°	7.11	2.80	6.90	6.88		0.004	0.004	1023.35	1011.23
			90°			7.14	7.08		0.012	0.001	357.84	8132.78
			180°			6.47	6.45		0.004	0.012	915.50	315.26
			270°			6.62	6.61		0.002	0.009	1911.26	434.38
26	6"	Pipe	0°	7.11	2.80	6.61	6.61		0.000	0.009	No Corrosion	434.38
			90°			6.52	6.58		-0.012	0.009	No Corrosion	406.57
			180°			6.73	6.78		-0.010	0.006	No Corrosion	687.52
			270°			6.89	6.84		0.010	0.005	405.33	852.97
27	6"	Pipe	0°	7.11	2.80	6.75	6.77		-0.004	0.006	No Corrosion	665.62
			90°			6.54	6.56		-0.004	0.010	No Corrosion	389.71
			180°			6.85	6.81		0.008	0.005	502.90	761.97
			270°			6.63	6.62		0.002	0.009	1916.28	444.41
28A	6"	Elbow	0°	7.11	2.80	6.90	6.71		0.038	0.007	103.23	557.23
			90°			6.73	6.73		0.000	0.007	No Corrosion	589.56
			180°			6.70	6.74		-0.008	0.006	No Corrosion	607.03
			270°			6.48	6.55		-0.014	0.010	No Corrosion	381.73





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Sheet

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STT-CC-003-01-01 (Diesel)

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		15-Dec-16	20-Dec-21					
				(mm)		(mm)	(mm)	(mm)				
28B	6"	Elbow	0°	7.11	2.80	6.68	6.60		0.016	0.009	238.28	424.75
			90°			6.29	6.21		0.016	0.016	213.83	215.99
			180°			7.41	7.38		0.006	-0.005	765.84	No Corrosion
			270°			6.79	6.79		0.000	0.006	No Corrosion	710.79
28C	6"	Elbow	0°	7.11	2.80	6.76	6.74		0.004	0.006	988.24	607.03
			90°			6.28	6.36		-0.016	0.013	No Corrosion	270.59
			180°			7.18	7.15		0.006	-0.001	727.38	No Corrosion
			270°			6.83	6.77		0.012	0.006	331.92	665.62
29	6"	Pipe	0°	7.11	2.80	6.85	6.77		0.016	0.006	248.94	665.62
			90°			7.12	7.09		0.006	0.000	717.35	12227.68
			180°			7.32	7.22		0.020	-0.002	221.73	No Corrosion
			270°			6.94	6.91		0.006	0.004	687.25	1171.46
30	6"	Pipe	0°	7.11	2.80	6.75	6.74		0.002	0.006	1976.48	607.03
			90°			6.95	6.92		0.006	0.003	688.92	1236.12
			180°			6.43	6.41		0.004	0.012	905.47	293.99
			270°			7.02	7.05		-0.006	0.001	No Corrosion	4037.89
31	6"	Pipe	0°	7.11	2.80	6.92	6.99		-0.014	0.002	No Corrosion	1990.44
			90°			7.10	7.02		0.016	0.002	264.62	2672.92
			180°			6.25	6.21		0.008	0.016	427.65	215.99
			270°			6.96	6.94		0.004	0.003	1038.40	1388.25
32	6"	Pipe	0°	7.11	2.80	6.56	6.46		0.020	0.011	183.60	320.98
			90°			7.41	7.33		0.016	-0.004	284.06	No Corrosion
			180°			6.58	6.54		0.008	0.010	469.04	374.04
			270°			6.57	6.53		0.008	0.010	467.78	366.60
33	6"	Pipe	0°	7.11	2.80	6.92	6.97		-0.010	0.002	No Corrosion	1697.95
			90°			7.35	7.27		0.016	-0.003	280.29	No Corrosion
			180°			7.14	7.21		-0.014	-0.002	No Corrosion	No Corrosion
			270°			6.73	6.71		0.004	0.007	980.71	557.23
34A	6"	Elbow	0°	7.11	2.80	6.60	6.60		0.000	0.009	No Corrosion	424.75
			90°			6.89	7.02		-0.026	0.002	No Corrosion	2672.92
			180°			6.77	6.82		-0.010	0.005	No Corrosion	790.21
			270°			7.35	7.31		0.008	-0.004	565.60	No Corrosion



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[illegible]