

<div><div><div><div><div><div></div></div></div><div>PTT Public Company Limited</div><div>Upstream Petroleum and Gas Business Group</div><div>Natural Gas Transmission</div></div></div></div>		Natural Gas Transmissiione System Inspection & Maintenance Program 2024																				<div><div>Form : S-TH-219-01-0001</div><div>Page : 1 / 1</div><div>Revision : 1</div><div>Issued Date : December 1, 2023</div></div>								
		Item	Inspection / Maintenance Activity	ML	Offshore					Onshore									Reference		Responsible							Remarks		
					TSO	TSO/GSM	TSO			TSO	TSO/GSM	NGR/NGV				All														
					Trunk Line	Branch	Piping	Pressure Vessel	Platform Structure	Mainline	IPP&SPP (Class 3 / 4)	Distribution (Class 3 / 4)	UG asset in Station	Piping in Station	Pressure Vessel in Station	Asset on Pipe Rack	Decommissioned	Abandoned with PM	Abandoned	Schedule / Form	Procedure / WI			Plan Action	Prepare TOR	Procure	Execute & Submit		Analyze & Report	Keep Record
Mechanical damage control : Patrolling																														
1	Patrolling (Vehicle)	ML1	-	-	-	-	-	2W, 2/W	2/W	2/W	-	-	-	-	6M	6M	-	F-พ.ร.ร.ด.-0022	I-พ.ร.ด.-2038	R	-	-	R	R	R/E	Class 1&2 / Class 3&4				
2	Leakage Survey and Ground/ Crossing Patrolling	ML1	-	-	-	-	-	3M	3M	3M	-	-	-	-	1Y	1Y	1Y	F-พ.ร.ร.ด.-0022	I-พ.ร.ด.-2042 I-พ.ร.ด.-2043	R	-	-	R	R	R/E	Visual & Gas Leakage Check without open Vault / Visual & Gas Leakage Check with open Vault				
3	Vault Inspection	ML1	-	-	-	-	-	-	1Y/5Y	1Y/5Y	-	-	-	-	1Y	1Y	1Y	F-พ.ร.ร.ด.-0022	I-พ.ร.ด.-2045	R	-	-	R	R	R/E					
4	Aerial Patrolling	ML1	-	-	-	-	-	3M	3M	-	-	-	-	-	1Y	1Y	1Y	S-พ.ร.ร.ด.-01-0014 F-พ.ร.ร.ด.-0022	I-พ.ร.ด.-2039	E	E	E	R/E	R/E	R/E	Except PL region 4, 7				
5	Soil Erosion Survey	ML1	-	-	-	-	-	1Y	1Y	1Y	-	-	-	-	1Y	1Y	-	S-พ.ร.ร.ด.-01-0021	I-พ.ร.ด.-2043	R	R	R	R	R/E	R/E					
6	Pipeline Settlement Survey	ML2	-	-	-	-	-	-	-	-	-	1Y	-	-	-	-	-	S-พ.ร.ร.ด.-01-0016 F-พ.ร.ร.ด.-0024	I-พ.ร.ด.-2044	R	-	-	R	PE/E	R/E					
7	Offshore platform structure settlement surrey	ML2	-	-	-	-	2Y	-	-	-	-	-	-	-	-	-	-	F-พ.ร.ร.ด.-0001	I-พ.ร.ด.0036	OF	OF	OF	OF	OF/E	OF/E	For platform, Topside will be inspected only				
8	ROV Survey (Visual inspection, Free span)	ML3	5Y	5Y	-	-	-	-	-	-	-	-	-	5Y	5Y	-	-	S-พ.ร.ร.ด.-01-0003	-	OF	OF	OF	OF	OF/E	OF/E					
9	ROV Survey (Visual inspection, FMD)	ML3	-	-	-	-	5Y / 7Y	-	-	-	-	-	-	5Y	5Y	-	-	-	-	OF	OF	OF	OF	OF/E	OF/E	ERP 5 Year / PRP 7 Year				
External corrosion control : Cathodic Protection System, Protective Coating system																														
1	P/S Potential Survey (on-off) @ Test Post	ML2	-	-	-	-	-	6M	6M	6M	6M	-	-	-	1Y	1Y	-	F-พ.ร.ร.ด.-0004	I-พ.ร.ด.-2003	R	-	-	R	E	R/E					
2	Casing Inspection	ML2	-	-	-	-	-	6M	6M	6M	-	-	-	-	1Y	1Y	-	F-พ.ร.ร.ด.-0006	I-พ.ร.ด.-2005	R	-	-	R	E	R/E					
3	Bond Box Inspection	ML2	-	-	-	-	-	1M/6M	1M/6M	1M/6M	1M/6M	-	-	-	1Y	1Y	-	F-พ.ร.ร.ด.-0003	I-พ.ร.ด.-2014	R	-	-	R	E	R/E	Not interrupt CP current / Full inspection				
4	Anode Groundbed Inspection (ICCP) ROV (Anode/Electrolyte Potential Survey)	ML2	5Y	5Y	-	-	5Y / 7Y	-	-	1Y	1Y	-	-	-	5Y	5Y	-	S-พ.ร.ร.ด.-01-0018 F-พ.ร.ร.ด.-0007	I-พ.ร.ด.-2006	R	-	-	R	E	R/E	ERP 5 Year / PRP 7 Year				
5	CP Transformer Rectifier Inspection	ML1	-	-	-	-	-	-	-	-	-	1M	-	-	1Y	1Y	-	F-พ.ร.ร.ด.-0005	I-พ.ร.ด.-2004	R	-	-	R	E	R/E					
6	AC Mitigation Inspection (DC Decoupler, Surge protecting device, Zn ground wire/mat)	ML2	-	-	-	-	-	1Y	1Y	1Y	1Y	1Y	-	-	-	-	-	F-พ.ร.ร.ด.-0004	I-พ.ร.ด.-2003	R	-	-	R	E	R/E					
7	Close Interval P/S Potential Survey (CIPs) ROV (Pipe/Electrolyte Potential Survey)	ML3	5Y	5Y	-	-	-	5Y	5Y	5Y	5Y	-	-	-	10Y	10Y	-	S-พ.ร.ร.ด.-01-0008 S-พ.ร.ร.ด.-01-0009 F-พ.ร.ร.ด.-0008	I-พ.ร.ด.-2009	R	R	R	R	E	R/E					
8	Coating Defect Survey (DCVG), ACVG, PCM ROV (Voltage Gradient Survey)	ML3	5Y	5Y	-	-	-	5Y	5Y	5Y	5Y	-	-	-	10Y	10Y	-	S-พ.ร.ร.ด.-01-0008 S-พ.ร.ร.ด.-01-0009 F-พ.ร.ร.ด.-0026 F-พ.ร.ร.ด.-0027	I-พ.ร.ด.-2018 I-พ.ร.ด.-2019	R	R	R	R	E	R/E					
9	Insulating Joint or Flange Inspection	ML1	-	-	-	-	-	-	-	-	-	1Y	-	1Y	-	-	-	F-พ.ร.ร.ด.-0011 F-พ.ร.ร.ด.-0025	I-พ.ร.ด.-2015 I-พ.ร.ด.-2016	R	-	-	R	E	R/E					
10	CP Online Calibration (P/S, TR-V,TR-C)	ML2	-	-	-	-	-	-	-	-	-	1Y	-	-	-	-	-	F-พ.ร.ร.ด.-0009 F-พ.ร.ร.ด.-0010 F-พ.ร.ร.ด.-0039	I-พ.ร.ด.-2013 I-พ.ร.ด.-2012 I-พ.ร.ด.-2046	R	-	-	R	E	R/E					
External Inspection / Direct Examination																														
1	General surface / coating condition inspection	ML1	-	-	1Y	-	1Y	-	-	-	-	1Y	5Y	1Y/5Y	-	-	-	F-พ.ร.ร.ด.-0053	-	R/OF	-	-	R/OF	E	R/OF/E	For platform, Topside will be inspected only				
2	Splash zone / soil to air piping inspection	ML1	-	-	1Y	-	1Y	-	-	-	-	1Y/5Y	-	1Y/5Y	-	-	-	F-พ.ร.ร.ด.-0017	I-พ.ร.ด.-2024	R/OF	-	-	R/OF	E	R/OF/E	For riserack_Visual/Close Visual Inspection				
3	Corrosion under pipe support Inspection	ML1	-	-	1Y/5Y	-	-	-	-	-	-	1Y/5Y	-	1Y/5Y	-	-	-	F-พ.ร.ร.ด.-0033	I-พ.ร.ด.-2023	R/OF	-	-	R/OF	E	R/OF/E	Visual / Full Inspection				
4	Corrosion under insulation (CUI) Inspection	ML1	-	-	1Y/5Y	-	-	-	-	-	-	1Y/5Y	-	-	-	-	-	F-พ.ร.ร.ด.-0036	-	R/OF	R/OF	R/OF	R/OF	E	R/OF/E	Visual / Full Inspection				
5	Wall Thickness Inspection @ critical location	ML1	-	-	5Y	5Y	-	-	-	-	-	5Y	5Y	5Y	10Y	-	-	F-พ.ร.ร.ด.-0020 S-พ.ร.ร.ด.-01-0013	P-พ.ร.ด.-0502 I-พ.ร.ด.-2058	R/OF	-	-	R/OF	E	R/OF/E	Only for process gas				
6	Crack inspection	ML1	-	-	-	EA	-	-	-	-	-	EA	-	-	-	-	-	S-พ.ร.ร.ด.-01-0013	-	OF	OF	OF	OF	E	OF/E	Crack inspection at weld joint				
7	Hottapped Coupon Measurement	ML1	EH	EH	-	-	-	EH	EH	EH	-	EH	-	-	-	-	-	Coupon Inspection	-	-	E	E	R	E	R/E					
8	Excavation & Direct Examination	ML3	-	-	-	-	-	EP	EP	EA	-	-	-	-	-	-	-	S-พ.ร.ร.ด.-01-0019	-	E	R	R	R/E	E	R/E	Dig site verify after Pigging, DCVG, Hottap				
Internal corrosion control : Chemical Threatment , Moisture dewpoint control																														
1	Moisture control		Monitoring	Monitoring	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OF	OF	OF	OF	OF	OF	OF				
2	Inhibitor Injection		Monitoring	Monitoring	-	-	-	-	-	-	-	-	-	-	-	-	-	-	I-พ.ร.ด.0-1064	OF	OF	OF	OF	OF	OF	OF				
Internal Inspection : Cleaning, Inline & Sample Inspection																														
1	Cleaning Pig	ML2	Cond.	-	-	-	-	Cond.	Cond.	-	-	-	-	-	-	-	-	S-พ.ร.ร.ด.-01-0007	-	E/R/OF	R/OF	R/OF	R/OF	E	R/E/OF	R to sampling & send desposit/liiquid to Q				
2	Corrosion (MFL) Pig	ML3	3Y	-	-	-	-	3Y	3Y	-	-	-	-	-	-	-	-	S-พ.ร.ร.ด.-01-0003 S-พ.ร.ร.ด.-01-0007 S-พ.ร.ร.ด.-01-0008	-	E/R/OF	E	E	R/E/OF	E	R/E/OF					
3	Geometry (Caliper, Gauge, 3D) Pig	ML3	3Y	-	-	-	-	3Y	3Y	-	-	-	-	-	-	-	-	S-พ.ร.ร.ด.-01-0003 S-พ.ร.ร.ด.-01-0007 S-พ.ร.ร.ด.-01-0008	-	E/R/OF	E	E	R/E/OF	E	R/E/OF					
4	Chemical analysis (Deposit, Liquid)	ML2	EP	-	-	-	-	EP	EP	-	-	-	-	-	-	-	-	S-พ.ร.ร.ด.-01-0003 S-พ.ร.ร.ด.-01-0007 S-พ.ร.ร.ด.-01-0008	-	E	Q	Q	R/E/OF	Q	E	From Pig, Filter, Sperator, Slug catcher				
5	Corrosion Probe / Coupon Measurement	ML2	3Y	-	-	-	-	3Y	-	-	-	-	-	-	-	-	-	S-พ.ร.ร.ด.-01-0015	I-พ.ร.ด.-2035	E	E	R/OF	R/OF	R/E/OF	R/E/OF					
Other																														
1	Location Class Survey	ML2	-	-	-	-	-	5Y	5Y	-	-	-	-	-	-	-	-	S-พ.ร.ร.ด.-01-0003	-	A	A	A	A	A/E	A/E	Including aerial photo procurement				
Remarks : The above inspection intervals are minimum requirement, more frequent inspection may required at specific location.														Schedule / Form:					8) S-พ.ร.ร.ด.-01-0009, Distribution PL Indirect Inspection							16) S-พ.ร.ร.ด.-01-0017, Offshore Pipeline ROV survey & Free span correction				
- W = Weekly, M = Monthly, Y = Yearly, Cond. = depend on cleanness condition of pipeline or within 2Y before ILI Pig														1) S-พ.ร.ร.ด.-01-0002, MAOP revised for PTT network					9) S-พ.ร.ร.ด.-01-0010, NGV Pipeline Indirect Inspection							17) S-พ.ร.ร.ด.-01-0018, ICCP Anode Groundbed Replacement Plan				
- R = Regional Operations, PE= Pipeline engineering division, E = Pipeline maintenance management division, OF = Offshore Operations, Q = PTT Lab, A = Academy division														2) S-พ.ร.ร.ด.-01-0003, TSO Pipeline Integrity Plan					10) S-พ.ร.ร.ด.-01-0011, Natural Gas Pipeline Inspection & Maintenance Program for GSP							18) S-พ.ร.ร.ด.-01-0019, Direct Assessment				
- EH = Each Hottap, EP = Each Pigging, DCVG,Aging - EA = Each Assessment - Trunk line = Pipeline segment of the transmission system - Branch = Unpiggable Pipeline														3) S-พ.ร.ร.ด.-01-0004, NGR Pipeline Integrity Plan					11) S-พ.ร.ร.ด.-01-0012, Ageing pipeline integrity management							19) S-พ.ร.ร.ด.-01-0020, Soil Settlement Repair plan				
- Preserved pipeline= Pipeline temporarily removed from service and reserve to use in the near future. The pipeline must store the gas inside all the time after stop using it .														4) S-พ.ร.ร.ด.-01-0005, NGV Pipeline Integrity Plan					12) S-พ.ร.ร.ด.-01-0013, Risk-Based Inspection Plan							20) S-พ.ร.ร.ด.-01-0021 Soil Erosion Repair plan				
- Abandoned pipeline = Pipeline permanently removed from service and subject to "an irreversible process of discontinuing the use of a P/L The internal P/L must fill up with concrete material or nitrogen.														5) S-พ.ร.ร.ด.-01-0006, Offshore SIM program					13) S-พ.ร.ร.ด.-01-0014, Aerial Patrolling Survey Schedule							21) S-พ.ร.ร.ด.-01-0022, SaleTap and Vent/Drain Pipe Indirect Inspection				
- Preserve P/L = Isolated P/L, N2 pack, No Gas inside P/L														6) S-พ.ร.ร.ด.-01-0007, Cleaning PIG Instrument PIG Schedule					14) S-พ.ร.ร.ด.-01-0015, Corrosion Coupon Inspection Schedule											
														7) S-พ.ร.ร.ด.-01-0008, Transmission Pipeline Indirect Inspection					15) S-พ.ร.ร.ด.-01-0016, Soil Settlement Inspection Plan											