MARI ENERGIES LIMITED

RFQ FOR PIG QUICK OPENING CLOSURES

DETAILED ENGINEERING OF PIGGING SET UP FOR GORU AND TIPU WELLS

REV	DESCRIPTION	DATE	PREPARED	CHECKED	APPROVED
			Shahzil Raza	M.Arslan	
A	ISSUED FOR USE	Jul-31-2025	SR	MAA	SW
0	ISSUED FOR REVIEW	Jun-25-2025	SR	MAA	SW

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1.0 DEFINITIONS

CLIENT / COMPANY	MARIENERGIES LIMITED
VENDOR	The company which carries out Vent, Dispersion, and Radiation Study of the PROJECT
CONSULTANT	The company which carries out all or part of the Engineering Design of the PROJECT (BRILLANTE ENGINEERS LTD.)
PROJECT	DETAILED ENGINEERING OF PIGGING SET UP FOR GORU AND TIPU WELLS
SHALL	Indicates a mandatory requirement
SHOULD	Indicates a strong recommendation to comply with the requirements of this document

2.0 LIST OF ABBREVIATIONS

SGPC Sachal Gas Processing Complex

QOC Quick Opening Closures

RFQ Request for Quotation

3.0 INTRODUCTION

MariEnergies Gas Field, located at Daharki approximately 96 kilometers North of Sukkur in District Ghotki,

Sindh. Goru-B reservoir was discovered within MariEnergies Field in the year 1997 and Tipu was discovered as a compartmentalized Goru-B reservoir in 2017. Currently Goru / Tipu Gas is being processed in

Sachal Gas Processing Complex (SGPC).

Goru B Reservoir Gas has corrosive nature, attributed to its high CO2 content (partial pressure ~475 psig) with increased water production levels. For internal protection of underground pipelines, pigging/batch inhibition process at regular intervals is imperative to maintain pipeline integrity and maximize the throughput.

Therefore, MPCL intends to install permanent pigging facilities at MariEnergies Deep (MD) Wells. Location are as follows:

1. Location 1: MD-12 to Junction-1 (MD-03)
2. Location 2: MD-04 to Junction-2 (MD-13)

3. Location 7: Tipu-01 to Tipu-02
4. Location 11: SGPC to CMF-02
5. Location 3: Azadi-1 to Junction-1 (MD-03)
6. Location 4: MD-21 to Junction-3 (MD-14)
7. Location 5: Parwaaz Deep-1 to Junction-2 (MD-14)
8. Location 6: MD-17 to Junction-5 (MD-15)
9. Location 8: Junction-1 (MD-03) to Junction-2 (MD-13)
10. Location 9: Junction-2 to Junction-3 (MD-14)
11. Location 10: Tipu-02 to SGPC
12. Location 12: Junction-3 to Junction-4 (MD-04)
13. Location 13: Junction-4 to Junction-5 (MD-15)
14. Location 14: Junction-5 to SGPC
15. Location 15: MD-19 to Junction-1 (MD-03)

4.0 OBJECTIVE

The objective of this document is to outline the requirement basis for supplying quick opening closures for pig launchers and receivers required at the locations as mentioned in above section 3.0.

5.0 SCOPE OF REQUIREMENT

The quick opening closures with side hinges or a swivel davit, shall be supplied in accordance with this specification and provided datasheets.

Moreover, the supplier shall be required to provide the following deliveries:

- Supplies of sealings (O-ring gasket) and locking & safety mechanism in accordance with applicable standards.
- Supply spare parts and consumables that may last for 2-year operation that includes gaskets/ O-rings, Bolts, Nuts and Fasteners, Lubrication for moving parts and protective coating/paint for corrosion resistance (if applicable).
- All relevant documentation for approval.
- The vendor shall design, manufacture, and supply Quick Opening Closures (QOCs) in accordance with applicable international standards, including but not limited to ASME BPVC Section VIII Div. 1 Ed. 2023.

- Equipment must comply with specifications provided in this specification.
- Vendor shall include and identify in the quotation the workshop(s) and location(s) in which the equipment requested would be manufactured.
- The closure frame shall be made from forged or rolled material, with a forged cap for high-pressure resistance. Hinges must comply with the manufacturer's engineering standards for durability. The closure shall feature fail-safe locking mechanisms and high-performance gaskets.
- Installation of Quick Opening Closures is not in VENDOR's scope.

6.0 DATA REQUIRED FROM VENDOR

Below are the documents required along with bid from vendor:

- GA Drawings of QOC
- Vendor datasheets of QOC
- Inspection & test plan

7.0 DATASHEETS

EQUIPMENT LIST

Location No.	Description	Launcher/Receiver Tag No.	P&ID No.	Location
1	6" Pig Launcher	D12-V-001	DHK-2052-PRO-PID-0032 (Sheet 1 of 1)	MD-12
	6" Pig Receiver	D03-V-003	DHK-2052-PRO-PID-0033 (Sheet 1 of 1)	Junction-1 (MD-03)
2	6" Pig Launcher	D04-V-002	DHK-2052-PRO-PID-0034 (Sheet 1 of 1)	MD-04
	6" Pig Receiver	D13-V-005	DHK-2052-PRO-PID-0035 (Sheet 1 of 1)	Junction-2 (MD-13)
3	8" Pig Launcher	A01-V-001	0603284-A-01-PID-002 (Sheet 1 of 1)	Azadi-1
	8" Pig Receiver	D03-V-1001	2981-D-03-PID-001 (Sheet 1 of 1)	Junction-1 (MD-03)
4	8" Pig Launcher	D21-V-001	0603284-D-21-PID-002 (Sheet 1 of 1)	MD-21
	8" Pig Receiver	D14-V-006	2981-D-14-PID-001 (Sheet 2 of 2)	Junction-3 (MD-14)
5	8" Pig Launcher	PD-V-107	DHK-2052-PRO-PID-0008 (Sheet 1 of 1)	Parwaz Deep-1
	8" Pig Receiver	D14-V-005	2981-D-14-PID-001 (Sheet 2 of 2)	Junction-3 (MD-14)
6	8" Pig Launcher	D17-V-109	DHK-2052-PRO-PID-0010 (Sheet 1 of 1)	MD-17
	8" Pig Receiver	D15-V-004	2981-D-15-PID-001 (Sheet 2 of 3)	Junction-5 (MD-15)
7	10" Pig Launcher	T1-V-001	0903582-T1-PRO-PID-0002 (Sheet 1 of 1)	Tipu-01
	10" Pig Receiver	T2-V-003	0903582-T2-PRO-PID-0002 (Sheet 1 of 1)	Tipu-02
8	12" Pig Launcher	D03-V-004	2981-D-03-PID-001 (Sheet 2 of 2)	Junction-1 (MD-03)
	12" Pig Receiver	D13-V-002	2981-D13-PID-001 (Sheet 2 of 2)	Junction-2 (MD-13)
9	12" Pig Launcher	D13-V-006	2981-D13-PID-001 (Sheet 2 of 2)	Junction-2 (MD-13)
	12" Pig Receiver	D14-V-007	DHK-2052-PRO-PID-0017 (Sheet 1 of 1)	Junction-3 (MD-14)
10	14" Pig Launcher	T2-V-002	0903582-T2-PRO-PID-0002 (Sheet 1 of 1)	Tipu-02
	14" Pig Receiver	SGPC-V-003	DHK-2052-PRO-PID-0019 (Sheet 1 of 1)	SGPC Plant
11	14" Pig Launcher	SGPC-V-001	DHK-2052-PRO-PID-0020 (Sheet 1 of 1)	SGPC Plant
	14" Pig Receiver	CMFII-V-002	DHK-2052-PRO-PID-0021 (Sheet 1 of 1)	CMF-02
12	16" Pig Launcher	D14-V-009	DHK-2052-PRO-PID-0022 (Sheet 1 of 1)	Junction-3 (MD-14)
	16" Pig Receiver	D02-V-003	2981-D-02-PID-001 (Sheet 2 of 2)	Junction-4 (MD-02)
13	20" Pig Launcher	D02-V-002	2981-D-02-PID-001 (Sheet 2 of 2)	Junction-4 (MD-02)
	20" Pig Receiver	D15-V-005	2981-D-15-PID-001 (Sheet 2 of 3)	Junction-5 (MD-15)
14	20" Pig Launcher	D15-V-003	2981-D-15-PID-001 (Sheet 2 of 3)	Junction-5 (MD-15)
	20" Pig Receiver	SGPC-V-002	DHK-2052-PRO-PID-0027 (Sheet 1 of 1)	SGPC Plant
15	8" Pig Launcher	D19-V-001	0603284-D-19-PID-002 (Sheet 1 of 1)	MD-19
	8" Pig Receiver	D03-V-005	DHK-2052-PRO-PID-0029 (Sheet 1 of 1)	Junction-1 (MD-03)
16	6" Pig Launcher	WH-V-001	DHK-2052-PRO-PID-0002 (Sheet 1 of 1)	6" NEW LOCATION
	6" Pig Receiver	WH-V-002	DHK-2052-PRO-PID-0003 (Sheet 1 of 1)	6" NEW LOCATION
17	10" Pig Launcher	WH-V-003	DHK-2052-PRO-PID-0030 (Sheet 1 of 1)	10" NEW LOCATION
	10" Pig Receiver	WH-V-004	DHK-2052-PRO-PID-0031 (Sheet 1 of 1)	10" NEW LOCATION

OPERATING/ MECHANICAL DATA

	DESCRIPTION		QUICK OPENING TYPE END CLOSURE								Units
3	END CLOSURE DESIGN CODE		ASME SEC VIII, DIV.1								
4	END CLOSURE MATERIALS	HUB	ASTM A694 Gr. F52								
5		DOOR	SA 516 GR.70N								
6		SEALING GASKET	FEPM / FKM (AFLAS or Eq.)								
7		CLAMP	SA 105N								
8		CLAMP PIVOT PLATE	SA 516 GR.70								
9		CLAMP RING PIVOT PIN	SA 516 GR.70								
10		HANDLE	SA 516 GR.70								
11		DOOR HING ASSY	SA 516 GR.70								
12		CLAMP RING HANDLE	SA 106 GR.B								
13		DOOR HING PLATE	SA 516 GR.70								
14		VENT/BLEEDER SCREW	MANUFACTURE FROM CARBON STEEL								
15		END CLOSURE OPENING	HINGED	YES	RIGHT	YES	LEFT	-	UP	-	
16	QTY.		6								
17	LOCATION NO.		1, 2, New location 16								
18	PIPELINE DESCRIPTION		MD-12 to Junction-1(MD-03), MD-04 to Junction-2(MD-13)								
19	DESIGN CODE FOR HUB NECK THK.		ASME SEC VIII, DIV.1		Other:		---				
20	DESIGN FACTOR		0.6								
21	PIPE OUTSIDE DIAMETER		219.0								mm
22	PIPE WALL THICKNESS		12.70								mm
23	CORROSION ALLOWANCE		3.00								mm
24	PIPE MATERIAL		API 5L X52								
25	DESIGN PRESSURE		1350.00								Psig
26	DESIGN TEMPERATURE	MINIMUM	-20								˚F
27		MAXIMIM	212								˚F
28	FLUID		Raw Gas								
29	SOUR SERVICE		YES	-		NO		√			
30	POSITION		HORIZONTAL	√		VERTICAL		-			
31	RATING		ASME CL600#								
32	THIRD PARTY INSPECTION AGENCY		YES (NOTE-1)								
33											
34											

GENERAL NOTES:

1. The closure shall be approved by ASME & approved by third party inspection agency.
2. All material shall be complied with NACE MR 0175 / ISO 15156 as per section A.2 of annexure - A of part - 2.
3. All CS plates, castings & forgings shall be supplied in normalized condition.
4. Material inspection shall correspond to type 3.1-EN10204.
5. A safety locking device shall be installed to prevent opening the door when the pig trap is pressurized. Additionally, the door shall be fail closed upon failure of the opening mechanism. Quick opening closure gasket shall be a single replaceable O-ring type in Viton and suitable for anti-explosive decompression. There shall be no leakage of contents of the trap prior to disengagement of locking element and release of the closure.
6. Bolt holes shall be straddle of the main axis.
7. Flange facing to be in accordance with ANSI B16.5 and with a roughness surface finish of 3.2 to 6.3 µm according to ASME B46.1.
8. Manufacturer shall provide a paint and protection coating system proven and established for the service and environmental conditions. However, manufacturer shall provide details of the paint system proposed with his offer which shall be approved by client prior to purchase. Paint may be Zinc Rich (Transit Primer) -RAL 5010.
9. Materials to be supplied fully killed.
10. QOC shall have a design life of 25 years.
11. The barrel closure shall be a quick opening door with side hinges or a swivel davit, provided with lubrication facilities.
12. The closure fully closed position shall be marked to aid in subsequent closure position.
13. The closure shall be girth welded to the major barrel.
14. The end closure shall be installed in the vertical plane.
15. Large size heavy closures shall be fitted with mechanical means to break seal when opening door and compress seal when closing.
16. Closure door shall be equipped with an interlocking device to prevent it being opened while the barrel is still under pressure more than 5 kpa. Pressure alert vent/bleeder plug to be provided.
17. A stainless-steel plate shall be fitted to the end closure with permanent marking stating that the operator shall refer to the manufacturer's instruction for safe operation of the closure.
18. Name plate should be of SS 304L material.
19. The end closures of each scraper launcher / receiver shall be hand operated by a single operator. Closing or opening time shall be approximately 1 minute. The end closure door shall be kept closed during operational standby.
20. The frame of closure door shall be manufactured from forged or rolled material. The cap shall be made from forged material. Hinges in accordance with manufacturer engineering standard shall be supplied for all closures.
21. All pressure containing metallic shell component shall be subject to Charpy v-notch impact testing in accordance with impact test provision of ISO 13847 or in accordance with the requirements specified in specification for connected line pipe. The test temperature shall be minimum design temperature or lower.

OPERATING/ MECHANICAL DATA

DESCRIPTION		QUICK OPENING TYPE END CLOSURE	Units
END CLOSURE DESIGN CODE		ASME SEC VIII, DIV.1	
END CLOSURE MATERIALS	HUB	ASTM A694 Gr. F52	
	DOOR	SA 516 GR.70N	
	SEALING GASKET	FEPM / FKM (AFLAS or Eq.)	
	CLAMP	SA 105N	
	CLAMP PIVOT PLATE	SA 516 GR.70	
	CLAMP RING PIVOT PIN	SA 516 GR.70	
	HANDLE	SA 516 GR.70	
	DOOR HING ASSY	SA 516 GR.70	
	CLAMP RING HANDLE	SA 106 GR.B	
	DOOR HING PLATE	SA 516 GR.70	
	VENT/BLEEDER SCREW	MANUFACTURE FROM CARBON STEEL	
	END CLOSURE OPENING	HINGED YES RIGHT YES LEFT - UP -	
QTY.		10	
LOCATION NO.		3, 4, 5, 6, 15	
PIPELINE DESCRIPTION		Azadi-1 to Junction-1(MD-03), MD-21 to Junction-3(MD-14), Parwaz Deep-1 to Junction-3(MD-14), MD-17 to Junction-5(MD-15), MD-19 to Junction-1(MD-03)	
DESIGN CODE FOR HUB NECK THK.		ASME SEC VIII, DIV.1 Other: --------	
DESIGN FACTOR		0.6	
PIPE OUTSIDE DIAMETER		273.0	mm
PIPE WALL THICKNESS		15.09	mm
CORROSION ALLOWANCE		3.00	mm
PIPE MATERIAL		API 5L X52	
DESIGN PRESSURE		1350.00	Psig
DESIGN TEMPERATURE	MINIMUM	-20	˚F
	MAXIMIM	212	˚F
FLUID		Raw Gas	
SOUR SERVICE		YES - NO √	
POSITION		HORIZONTAL √ VERTICAL -	
RATING		ASME CL600#	
THIRD PARTY INSPECTION AGENCY		YES (NOTE-1)	

GENERAL NOTES:

1. The closure shall be approved by ASME & approved by third party inspection agency.
2. All material shall be complied with NACE MR 0175 / ISO 15156 as per section A.2 of annexure - A of part - 2.
3. All CS plates, castings & forgings shall be supplied in normalized condition.
4. Material inspection shall correspond to type 3.1-EN10204.
5. A safety locking device shall be installed to prevent opening the door when the pig trap is pressurized. Additionally, the door shall be fail closed upon failure of the opening mechanism. Quick opening closure gasket shall be a single replaceable O-ring type in Viton and suitable for anti-explosive decompression. There shall be no leakage of contents of the trap prior to disengagement of locking element and release of the closure.
6. Bolt holes shall be straddle of the main axis.
7. Flange facing to be in accordance with ANSI B16.5 and with a roughness surface finish of 3.2 to 6.3 µm according to ASME B46.1.
8. Manufacturer shall provide a paint and protection coating system proven and established for the service and environmental conditions. However, manufacturer shall provide details of the paint system proposed with his offer which shall be approved by client prior to purchase. Paint may be Zinc Rich (Transit Primer) -RAL 5010.
9. Materials to be supplied fully killed.
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12. The closure fully closed position shall be marked to aid in subsequent closure position.
13. The closure shall be girth welded to the major barrel.
14. The end closure shall be installed in the vertical plane.
15. Large size heavy closures shall be fitted with mechanical means to break seal when opening door and compress seal when closing.
16. Closure door shall be equipped with an interlocking device to prevent it being opened while the barrel is still under pressure more than 5 kpa. Pressure alert vent/bleeder plug to be provided.
17. A stainless-steel plate shall be fitted to the end closure with permanent marking stating that the operator shall refer to the manufacturer's instruction for safe operation of the closure.
18. Name plate should be of SS 304L material.
19. The end closures of each scraper launcher / receiver shall be hand operated by a single operator. Closing or opening time shall be approximately 1 minute. The end closure door shall be kept closed during operational standby.
20. The frame of closure door shall be manufactured from forged or rolled material. The cap shall be made from forged material. Hinges in accordance with manufacturer engineering standard shall be supplied for all closures.
21. All pressure containing metallic shell component shall be subject to Charpy v-notch impact testing in accordance with impact test provision of ISO 13847 or in accordance with the requirements specified in specification for connected line pipe. The test temperature shall be minimum design temperature or lower.

OPERATING/ MECHANICAL DATA

	DESCRIPTION		QUICK OPENING TYPE END CLOSURE								Units
3	END CLOSURE DESIGN CODE		ASME SEC VIII, DIV.1								
4	END CLOSURE MATERIALS	HUB	ASTM A694 Gr. F52								
5		DOOR	SA 516 GR.70N								
6		SEALING GASKET	FEPM / FKM (AFLAS or Eq.)								
7		CLAMP	SA 105N								
8		CLAMP PIVOT PLATE	SA 516 GR.70								
9		CLAMP RING PIVOT PIN	SA 516 GR.70								
10		HANDLE	SA 516 GR.70								
11		DOOR HING ASSY	SA 516 GR.70								
12		CLAMP RING HANDLE	SA 106 GR.B								
13		DOOR HING PLATE	SA 516 GR.70								
14		VENT/BLEEDER SCREW	MANUFACTURE FROM CARBON STEEL								
15		END CLOSURE OPENING	HINGED	YES	RIGHT	YES	LEFT	-	UP	-	
16	QTY.		4								
17	LOCATION NO.		7, New location 17								
18	PIPELINE DESCRIPTION		Tipu-01 to Tipu-02								
19	DESIGN CODE FOR HUB NECK THK.		ASME SEC VIII, DIV.1		Other:		---------				
20	DESIGN FACTOR		0.6								
21	PIPE OUTSIDE DIAMETER		323.9								mm
22	PIPE WALL THICKNESS		17.48								mm
23	CORROSION ALLOWANCE		3.00								mm
24	PIPE MATERIAL		API 5L X52								
25	DESIGN PRESSURE		1350.00								Psig
26	DESIGN TEMPERATURE	MINIMUM	-20								˚F
27		MAXIMIM	212								˚F
28	FLUID		Raw Gas								
29	SOUR SERVICE		YES	-		NO	√				
30	POSITION		HORIZONTAL	√		VERTICAL	-				
31	RATING		ASME CL600#								
32	THIRD PARTY INSPECTION AGENCY		YES (NOTE-1)								
33											
34											

GENERAL NOTES:

1. The closure shall be approved by ASME & approved by third party inspection agency.
2. All material shall be complied with NACE MR 0175 / ISO 15156 as per section A.2 of annexure - A of part - 2.
3. All CS plates, castings & forgings shall be supplied in normalized condition.
4. Material inspection shall correspond to type 3.1-EN10204.
5. A safety locking device shall be installed to prevent opening the door when the pig trap is pressurized. Additionally, the door shall be fail closed upon failure of the opening mechanism. Quick opening closure gasket shall be a single replaceable O-ring type in Viton and suitable for anti-explosive decompression. There shall be no leakage of contents of the trap prior to disengagement of locking element and release of the closure.
6. Bolt holes shall be straddle of the main axis.
7. Flange facing to be in accordance with ANSI B16.5 and with a roughness surface finish of 3.2 to 6.3 µm according to ASME B46.1.
8. Manufacturer shall provide a paint and protection coating system proven and established for the service and environmental conditions. However, manufacturer shall provide details of the paint system proposed with his offer which shall be approved by client prior to purchase. Paint may be Zinc Rich (Transit Primer) -RAL 5010.
9. Materials to be supplied fully killed.
10. QOC shall have a design life of 25 years.
11. The barrel closure shall be a quick opening door with side hinges or a swivel davit, provided with lubrication facilities.
12. The closure fully closed position shall be marked to aid in subsequent closure position.
13. The closure shall be girth welded to the major barrel.
14. The end closure shall be installed in the vertical plane.
15. Large size heavy closures shall be fitted with mechanical means to break seal when opening door and compress seal when closing.
16. Closure door shall be equipped with an interlocking device to prevent it being opened while the barrel is still under pressure more than 5 kpa. Pressure alert vent/bleeder plug to be provided.
17. A stainless-steel plate shall be fitted to the end closure with permanent marking stating that the operator shall refer to the manufacturer's instruction for safe operation of the closure.
18. Name plate should be of SS 304L material.
19. The end closures of each scraper launcher / receiver shall be hand operated by a single operator. Closing or opening time shall be approximately 1 minute. The end closure door shall be kept closed during operational standby.
20. The frame of closure door shall be manufactured from forged or rolled material. The cap shall be made from forged material. Hinges in accordance with manufacturer engineering standard shall be supplied for all closures.
21. All pressure containing metallic shell component shall be subject to Charpy v-notch impact testing in accordance with impact test provision of ISO 13847 or in accordance with the requirements specified in specification for connected line pipe. The test temperature shall be minimum design temperature or lower.

OPERATING/ MECHANICAL DATA

	DESCRIPTION		QUICK OPENING TYPE END CLOSURE								Units
3	END CLOSURE DESIGN CODE		ASME SEC VIII, DIV.1								
4	END CLOSURE MATERIALS	HUB	ASTM A694 Gr. F52								
5		DOOR	SA 516 GR.70N								
6		SEALING GASKET	FEPM / FKM (AFLAS or Eq.)								
7		CLAMP	SA 105N								
8		CLAMP PIVOT PLATE	SA 516 GR.70								
9		CLAMP RING PIVOT PIN	SA 516 GR.70								
10		HANDLE	SA 516 GR.70								
11		DOOR HING ASSY	SA 516 GR.70								
12		CLAMP RING HANDLE	SA 106 GR.B								
13		DOOR HING PLATE	SA 516 GR.70								
14		VENT/BLEEDER SCREW	MANUFACTURE FROM CARBON STEEL								
15		END CLOSURE OPENING	HINGED	YES	RIGHT	YES	LEFT	-	UP	-	
16	QTY.		8								
17	LOCATION NO.		8, 9, 10, 11								
18	PIPELINE DESCRIPTION		Junction-01(MD-03) to Junction-02(MD-13), Junction-02(MD-13) to Junction-03(MD-14), Tipu-02 to SGPC Plant, SGPC Plant to CMF-2								
19	DESIGN CODE FOR HUB NECK THK.		ASME SEC VIII, DIV.1			Other:		--------			
20	DESIGN FACTOR		0.6								
21	PIPE OUTSIDE DIAMETER		406.4								mm
22	PIPE WALL THICKNESS		21.44								mm
23	CORROSION ALLOWANCE		3.00								mm
24	PIPE MATERIAL		API 5L X52								
25	DESIGN PRESSURE		1350.00								Psig
26	DESIGN TEMPERATURE	MINIMUM	-20								˚F
27		MAXIMIM	212								˚F
28	FLUID		Raw Gas								
29	SOUR SERVICE		YES		-		NO		√		
30	POSITION		HORIZONTAL		√		VERTICAL		-		
31	RATING		ASME CL600#								
32	THIRD PARTY INSPECTION AGENCY		YES (NOTE-1)								
33											
34											

GENERAL NOTES:

1. The closure shall be approved by ASME & approved by third party inspection agency.
2. All material shall be complied with NACE MR 0175 / ISO 15156 as per section A.2 of annexure - A of part - 2.
3. All CS plates, castings & forgings shall be supplied in normalized condition.
4. Material inspection shall correspond to type 3.1-EN10204.
5. A safety locking device shall be installed to prevent opening the door when the pig trap is pressurized. Additionally, the door shall be fail closed upon failure of the opening mechanism. Quick opening closure gasket shall be a single replaceable O-ring type in Viton and suitable for anti-explosive decompression. There shall be no leakage of contents of the trap prior to disengagement of locking element and release of the closure.
6. Bolt holes shall be straddle of the main axis.
7. Flange facing to be in accordance with ANSI B16.5 and with a roughness surface finish of 3.2 to 6.3 µm according to ASME B46.1.
8. Manufacturer shall provide a paint and protection coating system proven and established for the service and environmental conditions. However, manufacturer shall provide details of the paint system proposed with his offer which shall be approved by client prior to purchase. Paint may be Zinc Rich (Transit Primer) -RAL 5010.
9. Materials to be supplied fully killed.
10. QOC shall have a design life of 25 years.
11. The barrel closure shall be a quick opening door with side hinges or a swivel davit, provided with lubrication facilities.
12. The closure fully closed position shall be marked to aid in subsequent closure position.
13. The closure shall be girth welded to the major barrel.
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15. Large size heavy closures shall be fitted with mechanical means to break seal when opening door and compress seal when closing.
16. Closure door shall be equipped with an interlocking device to prevent it being opened while the barrel is still under pressure more than 5 kpa. Pressure alert vent/bleeder plug to be provided.
17. A stainless-steel plate shall be fitted to the end closure with permanent marking stating that the operator shall refer to the manufacturer's instruction for safe operation of the closure.
18. Name plate should be of SS 304L material.
19. The end closures of each scraper launcher / receiver shall be hand operated by a single operator. Closing or opening time shall be approximately 1 minute. The end closure door shall be kept closed during operational standby.
20. The frame of closure door shall be manufactured from forged or rolled material. The cap shall be made from forged material. Hinges in accordance with manufacturer engineering standard shall be supplied for all closures.
21. All pressure containing metallic shell component shall be subject to Charpy v-notch impact testing in accordance with impact test provision of ISO 13847 or in accordance with the requirements specified in specification for connected line pipe. The test temperature shall be minimum design temperature or lower.

OPERATING/ MECHANICAL DATA

	DESCRIPTION		QUICK OPENING TYPE END CLOSURE								Units
3	END CLOSURE DESIGN CODE		ASME SEC VIII, DIV.1								
4	END CLOSURE MATERIALS	HUB	ASTM A694 Gr. F52								
5		DOOR	SA 516 GR.70N								
6		SEALING GASKET	FEPM / FKM (AFLAS or Eq.)								
7		CLAMP	SA 105N								
8		CLAMP PIVOT PLATE	SA 516 GR.70								
9		CLAMP RING PIVOT PIN	SA 516 GR.70								
10		HANDLE	SA 516 GR.70								
11		DOOR HING ASSY	SA 516 GR.70								
12		CLAMP RING HANDLE	SA 106 GR.B								
13		DOOR HING PLATE	SA 516 GR.70								
14		VENT/BLEEDER SCREW	MANUFACTURE FROM CARBON STEEL								
15		END CLOSURE OPENING	HINGED	YES	RIGHT	YES	LEFT	-	UP	-	
16	QTY.		2								
17	LOCATION NO.		12								
18	PIPELINE DESCRIPTION		Junction-3(MD-14) to Junction-4(MD-02)								
19	DESIGN CODE FOR HUB NECK THK.		ASME SEC VIII, DIV.1		Other:		--------				
20	DESIGN FACTOR		0.6								
21	PIPE OUTSIDE DIAMETER		457.2								mm
22	PIPE WALL THICKNESS		23.88								mm
23	CORROSION ALLOWANCE		3.00								mm
24	PIPE MATERIAL		API 5L X52								
25	DESIGN PRESSURE		1350.00								Psig
26	DESIGN TEMPERATURE	MINIMUM	-20								˚F
27		MAXIMIM	212								˚F
28	FLUID		Raw Gas								
29	SOUR SERVICE		YES	-		NO	√				
30	POSITION		HORIZONTAL	√		VERTICAL	-				
31	RATING		ASME CL600#								
32	THIRD PARTY INSPECTION AGENCY		YES (NOTE-1)								
33											
34											

GENERAL NOTES:

1. The closure shall be approved by ASME & approved by third party inspection agency.
2. All material shall be complied with NACE MR 0175 / ISO 15156 as per section A.2 of annexure - A of part - 2.
3. All CS plates, castings & forgings shall be supplied in normalized condition.
4. Material inspection shall correspond to type 3.1-EN10204.
5. A safety locking device shall be installed to prevent opening the door when the pig trap is pressurized. Additionally, the door shall be fail closed upon failure of the opening mechanism. Quick opening closure gasket shall be a single replaceable O-ring type in Viton and suitable for anti-explosive decompression. There shall be no leakage of contents of the trap prior to disengagement of locking element and release of the closure.
6. Bolt holes shall be straddle of the main axis.
7. Flange facing to be in accordance with ANSI B16.5 and with a roughness surface finish of 3.2 to 6.3 µm according to ASME B46.1.
8. Manufacturer shall provide a paint and protection coating system proven and established for the service and environmental conditions. However, manufacturer shall provide details of the paint system proposed with his offer which shall be approved by client prior to purchase. Paint may be Zinc Rich (Transit Primer) -RAL 5010.
9. Materials to be supplied fully killed.
10. QOC shall have a design life of 25 years.
11. The barrel closure shall be a quick opening door with side hinges or a swivel davit, provided with lubrication facilities.
12. The closure fully closed position shall be marked to aid in subsequent closure position.
13. The closure shall be girth welded to the major barrel.
14. The end closure shall be installed in the vertical plane.
15. Large size heavy closures shall be fitted with mechanical means to break seal when opening door and compress seal when closing.
16. Closure door shall be equipped with an interlocking device to prevent it being opened while the barrel is still under pressure more than 5 kpa. Pressure alert vent/bleeder plug to be provided.
17. A stainless-steel plate shall be fitted to the end closure with permanent marking stating that the operator shall refer to the manufacturer's instruction for safe operation of the closure.
18. Name plate should be of SS 304L material.
19. The end closures of each scraper launcher / receiver shall be hand operated by a single operator. Closing or opening time shall be approximately 1 minute. The end closure door shall be kept closed during operational standby.
20. The frame of closure door shall be manufactured from forged or rolled material. The cap shall be made from forged material. Hinges in accordance with manufacturer engineering standard shall be supplied for all closures.
21. All pressure containing metallic shell component shall be subject to Charpy v-notch impact testing in accordance with impact test provision of ISO 13847 or in accordance with the requirements specified in specification for connected line pipe. The test temperature shall be minimum design temperature or lower.

OPERATING/ MECHANICAL DATA

	DESCRIPTION		QUICK OPENING TYPE END CLOSURE								Units
3	END CLOSURE DESIGN CODE		ASME SEC VIII, DIV.1								
4	END CLOSURE MATERIALS	HUB	ASTM A694 Gr. F52								
5		DOOR	SA 516 GR.70N								
6		SEALING GASKET	FEPM / FKM (AFLAS or Eq.)								
7		CLAMP	SA 105N								
8		CLAMP PIVOT PLATE	SA 516 GR.70								
9		CLAMP RING PIVOT PIN	SA 516 GR.70								
10		HANDLE	SA 516 GR.70								
11		DOOR HING ASSY	SA 516 GR.70								
12		CLAMP RING HANDLE	SA 106 GR.B								
13		DOOR HING PLATE	SA 516 GR.70								
14		VENT/BLEEDER SCREW	MANUFACTURE FROM CARBON STEEL								
15		END CLOSURE OPENING	HINGED	YES	RIGHT	YES	LEFT	-	UP	-	
16	QTY.		4								
17	LOCATION NO.		13, 14								
18	PIPELINE DESCRIPTION		Junction-4(MD-02) to Junction-5(MD-15), Junction-5 to SGPC Plant								
19	DESIGN CODE FOR HUB NECK THK.		ASME SEC VIII, DIV.1		Other:		--------				
20	DESIGN FACTOR		0.6								
21	PIPE OUTSIDE DIAMETER		609.6								mm
22	PIPE WALL THICKNESS		30.96								mm
23	CORROSION ALLOWANCE		3.00								mm
24	PIPE MATERIAL		API 5L X52								
25	DESIGN PRESSURE		1350.00								Psig
26	DESIGN TEMPERATURE	MINIMUM	-20								˚F
27		MAXIMIM	212								˚F
28	FLUID		Raw Gas								
29	SOUR SERVICE		YES	-			NO	√			
30	POSITION		HORIZONTAL	√			VERTICAL	-			
31	RATING		ASME CL600#								
32	THIRD PARTY INSPECTION AGENCY		YES (NOTE-1)								
33											
34											

35	**GENERAL NOTES:**
36	1.The closure shall be approved by ASME & approved by third party inspection agency.
37	2.All material shall be complied with NACE MR 0175 / ISO 15156 as per section A.2 of annexure - A of part - 2.
38	3.All CS plates, castings & forgings shall be supplied in normalized condition.
39	4.Material inspection shall correspond to type 3.1-EN10204.
40	5.A safety locking device shall be installed to prevent opening the door when the pig trap is pressurized. Additionally, the door shall be fail closed upon failure of the opening mechanism. Quick opening closure gasket shall be a single replaceable O-ring type in Viton and suitable for anti-explosive decompression. There shall be no leakage of contents of the trap prior to disengagement of locking element and release of the closure.
41	6.Bolt holes shall be straddle of the main axis.
42	7.Flange facing to be in accordance with ANSI B16.5 and with a roughness surface finish of 3.2 to 6.3 µm according to ASME B46.1.
43	8.Manufacturer shall provide a paint and protection coating system proven and established for the service and environmental conditions. However, manufacturer shall provide details of the paint system proposed with his offer which shall be approved by client prior to purchase. Paint may be Zinc Rich (Transit Primer) -RAL 5010.
44	9.Materials to be supplied fully killed.
45	10.QOC shall have a design life of 25 years.
46	11.The barrel closure shall be a quick opening door with side hinges or a swivel davit, provided with lubrication facilities.
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48	13.The closure shall be girth welded to the major barrel.
49	14.The end closure shall be installed in the vertical plane.
50	15.Large size heavy closures shall be fitted with mechanical means to break seal when opening door and compress seal when closing.
51	16.Closure door shall be equipped with an interlocking device to prevent it being opened while the barrel is still under pressure more than 5 kpa. Pressure alert vent/bleeder plug to be provided.
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56	21.All pressure containing metallic shell component shall be subject to Charpy v-notch impact testing in accordance with impact test provision of ISO 13847 or in accordance with the requirements specified in specification for connected line pipe. The test temperature shall be minimum design temperature or lower.