NOTES:

REV	DATE	BY	DESCRIPTION	CHK	ENGR	APPR	CLIENT
Z	11.07.13						

Wood Group Engineering (North Sea) Ltd.

MUSTANG INTERNATIONAL, LP
HOUSTON, TEXAS

PROJECT NO. 10910

bp

VALHALL
RE-DEVELOPMENT PROJECT
PROCESS FLOW DIAGRAM
MP GAS COMPRESSION

REGISTRATION CODES			DRAWING NO.					SCALE
AREA	SYSTEM	TYPE	FACILITY CODE	ORIG	DISP	SEQ No	SHEET	NONE
T	23	XA	PH	ME	P	0004	001	REV Z

A3

Field for file specification: 'Field for file specification Automatically inserted during plot'
Field for date and time : 'Field for date and time Automatically inserted during plot'

REFERENCE DOCUMENTS:

SYMBOLS, ABBREVIATION: 837043547
1ST STAGE MACHINE TRAIN P&I-DIAGRAM: 837043543
2ND STAGE MACHINE TRAIN P&I-DIAGRAM: 837043553
3RD STAGE MACHINE TRAIN P&I-DIAGRAM: 837043554
4TH STAGE MACHINE TRAIN P&I-DIAGRAM: 837043555
1ST STAGE DRY GAS SEAL SYSTEM P&I-DIAGRAM: 837043544
2ND STAGE DRY GAS SEAL SYSTEM P&I-DIAGRAM: 837043556
3RD STAGE DRY GAS SEAL SYSTEM P&I-DIAGRAM: 837043557
4TH STAGE DRY GAS SEAL SYSTEM P&I-DIAGRAM: 837043558
2ND STAGE LUBE OIL SUPPLY UNIT P&I-DIAGRAM: 837043559
3RD STAGE LUBE OIL SUPPLY UNIT P&I-DIAGRAM: 837043560
4TH STAGE LUBE OIL SUPPLY UNIT P&I-DIAGRAM: 837043561
1ST STAGE GENERAL ARRANGEMENT: 1-104.430.408
2ND STAGE GENERAL ARRANGEMENT: 1-104.430.409
3RD STAGE GENERAL ARRANGEMENT: 1-104.430.410
4TH STAGE GENERAL ARRANGEMENT: 1-104.430.411
1ST STAGE VRD LINE LIST: 837049747

GENERAL NOTE:

ALL TAGNUMBERS FOR INSTRUMENTS,ORIFICES AND VALVES ARE PREFIXED WITH 23- e.g. 23-TIT 96183

NOTES:

1) OPEN TOP FOR MAIN LUBE OIL RETURN LINE (FULL LINE SIZE)
2) ALL TUBING AND FITTINGS TO BE 6MO
3) THERMOSTATIC VALVE WITH MANUAL OVERRIDE DEVICE.
4) IMPULSE LINE TO CONTROL VALVE HAS TO BE AS SHORT AS POSSIBLE AND WITH A MIN. DIAMETER OF 3/4 INCH.
6) Ø 3 mm
7) ALL SIGNALS INDICATED AS MONITOR DISPLAY IN THE CONTROL UNIT WILL ALSO BE DISPLAYED IN THE MONITOR DISPLAY IN THE DCS (SAS-HMI).
8) NETHERLOCKS FOR LO/LC VALVES (KEY LOCKED VALVES)
9) MAXIMUM ALLOWABLE BACKPRESSURE =< 7 mbarg (50 mmWC)
10) SYSTEM MONITORING INCLUDING VOTING LOGIC (WHERE APPLICABLE) PERFORMED IN COMPRESSOR UCP NO.1
SHUTDOWN FUNCTIONS PERFORMED IN UCP PSD
ALARM FUNCTIONS PERFORMED IN UCP PCS
11) NETHERLOCKS FOR LO/LC VALVES (KEY LOCKED VALVES) e.g. ①
12) THIS INSTRUMENT IS EQUIPED WITH INDICATION.

Acceptance code (Norsok)
Code 1: Accepted
Code 2: Accepted with comments incorporated, revise and resubmit
Code 3: Not accepted, revise and resubmit
Code 4: Issued for Information
Code 5: Interface information as clouded is accepted and frozen

Date 1 March 2010
[redacted]
Printed name and discipline
[redacted]
Signature

PACKAGE NO.	A11-037058GF	CONTRACTOR	
PACKAGE TITLE	ELECTRIC DRIVE COMPRESSORS	MAN TURBO AG SCHWEIZ	
TAG NO.	23-KA-9101	SOL. CODE	6.5
P.O. NO.	037058		
CONTRACT NO.	037058		
bp		VALHALL REDEVELOPMENT PROJECT	
REGISTRATION CODES		DRAWING NO.	SCALE A0

AREA	SYSTEM	TYPE	FACILITY CODE ORIG.	DISP.	SEQ. No.	SHEET	REV.
T	23	XB	PH 25578	P	4110006	001	J

-	J	-	DRAIN	11.12.09	[redacted]
	I		AS BUILT	29.06.09	
	H			17.07.09	
	G		UPDATE	05.12.08	
	F			27.10.08	

Name: AP
Date: 25.07
Checked: 25.07
Approved: 25.07

Material of construction/specification: SC6

BP Valhall 07
7800005.78

MAN

1ST STAGE LUBE OIL SUPPLY UNIT P&I-DIAGRAM

A0 837043545 J

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NOTES:

1. KEY INTERLOCKED VALVE.
2. REMOVABLE MAINTANCE SPOOL.
3. CONDITIONING PLATE. PROVIDE STRAIGHT RUN OF 2D UPSTREAM AND 2D DOWNSTREAM.
4. KEY LOCKED VALVE.
5. MINIMUM 1 METER SEPARATION.
6. DO NOT POCKET.
7. LOCATE ANTI-SURGE VALVE AS CLOSE AS PRACTICAL TO TEE.
8. 2" EQUALIZATION VALVE PARALLEL TO SHUTDOWN VALVE.
9. DISSIMILAR CHECK VALVES.
10. TRANSMITTER TO BE MOUNTED OFF SKID ON WEATHER DECK DUE TO THE ELEVATION OF THE PDT TAPS ON SKID.
11. SEE DETAIL F101 ON P&ID PH-ME-P-0102-001.
12. PERMISSIVE TO OPEN LARGE ESDV VALVE ON LOW DIFFERENTIAL.
13. SIGNAL DIRECT TO PSD, REPEATED TO PCS SYSTEM.
14. INSTRUMENT LINES ARE HEAT TRACED.

REV	DATE	BY	DESCRIPTION	CHK	ENGR	APPR	CLIENT
Z3	07.04.16	[redacted]	AS BUILT, MW-33788	[redacted]			
Z2	28.01.15		AS BUILT, AFA V-4426				
Z1	26.06.14		AS BUILT, MW-19805				
Z	24.06.13		AS BUILT				

Wood Group Engineering (North Sea) Ltd.

MUSTANG INTERNATIONAL, LP
HOUSTON, TEXAS

PROJECT NO. 10910

bp

VALHALL
RE-DEVELOPMENT PROJECT
PIPING & INSTRUMENT DIAGRAM
1st STAGE DISCHARGE COOLER

REGISTRATION CODES			DRAWING NO.						SCALE
AREA	SYSTEM	TYPE	FACILITY CODE	ORIG.	DISP.	SEQ. No.	SHEET		NONE
T33-02	23	XB	PH	ME	P	0160	001		REV. Z3

Field for file specification:
Field for date and time :

A1

REFERENCE DOCUMENTS:

SYMOBLS, ABBREVIATIONS: 837043547
1ST STAGE MACHINE TRAIN P&I-DIAGRAM: 837043543
2ND STAGE MACHINE TRAIN P&I-DIAGRAM: 837043553
3RD STAGE MACHINE TRAIN P&I-DIAGRAM: 837043554
4TH STAGE MACHINE TRAIN P&I-DIAGRAM: 837043555
2ND STAGE DRY GAS SEAL SYSTEM P&I-DIAGRAM: 837043556
3RD STAGE DRY GAS SEAL SYSTEM P&I-DIAGRAM: 837043557
4TH STAGE DRY GAS SEAL SYSTEM P&I-DIAGRAM: 837043558
1ST STAGE LUBE OIL SUPPLY UNIT P&I-DIAGRAM: 837043545
2ND STAGE LUBE OIL SUPPLY UNIT P&I-DIAGRAM: 837043559
3RD STAGE LUBE OIL SUPPLY UNIT P&I-DIAGRAM: 837043560
4TH STAGE LUBE OIL SUPPLY UNIT P&I-DIAGRAM: 837043561
1ST STAGE GENERAL ARRANGEMENT: 1-104.430.408
2ND STAGE GENERAL ARRANGEMENT: 1-104.430.409
3RD STAGE GENERAL ARRANGEMENT: 1-104.430.410
4TH STAGE GENERAL ARRANGEMENT: 1-104.430.411
1ST STAGE VRD LINE LIST: 837049747

NOTES :

1) MAXIMUM ALLOWABLE BACKPRESSURE =< 7 mbarg (50 mmWC).
2) NORMAL FLARE BACKPRESSURE = 0.25 barg.
   MAXIMUM ALLOWABLE FLARE BACKPRESSURE = 1.5 barg.
3) ALL HC INSTRUMENT TUBING SELF-DRAINING OR WITH LOW POINT DRAIN VALVE
4) TUBING ELEMENTS AND COMPRESSION FITTINGS SHALL BE
   USED ONLY FOR INSTRUMENT TUBING DOWNSTREAM OF WELDED
   AND FLANGED LINE VALVES AND FOR NON-HAZARDOUS
   FLUID LIKE AIR OR N2 (SIZES 1/2 TO 1 INCH).
5) COALESCING TYPE FILTER
6) ALL TUBING TO BE 6MO
7) LAGGED AND HEAT TRACED
8) INTEGRATED IN PCV
9) 4" PIPE LENGTH TO BE SELECTED SO, THAT RESULTING
   PIPE VOLUME EQUALS 4 LITERS
10) DRY AND CLEAN
    MAX. FILTRATION 5µm ABS.
11) NETHERLOCKS FOR LO/LC VALVES (KEY LOCKED VALVES) e.g. (1)
12) ALL SIGNALS INDICATED AS MONITOR DISPLAY
    IN THE CONTROL UNIT WILL ALSO
    BE DISPLAYED IN THE MONITOR DISPLAY
    IN THE DCS (SAS-HMI).
13) SYSTEM MONITORING INCLUDING VOTING LOGIC (WHERE APPLICABLE)
    PERFORMED IN COMPRESSOR UCP NO.1
    SHUTDOWN FUNCTIONS PERFORMED IN UCP PSD
    ALARM FUNCTIONS PERFORMED IN UCP PCS
14) DRY AND CLEAN NITROGEN
    PURITY >= 95%
    MIN. 5 BARG
15) THIS INSTRUMENT IS EQUIPED WITH AN INDICATION

GENERAL NOTE:

ALL TAGNUMBERS FOR INSTRUMENTS,ORIFICES AND VALVES
ARE PREFIXED WITH 23- e.g. 23-TE 96168

Acceptance code (Norsok)

Code 1: Accepted
Code 2: Accepted with comments incorporated, revise and resubmit
Code 3: Not accepted, revise and resubmit
Code 4: Issued for information
Code 5: Interface information as clouded is accepted and frozen

Date [redacted]
Printed name and discipline
Signature

Microfilm Verfilmt	Rev. Index	Number	Nature of Revision Art der Änderung	Date Datum	Drawn/Checked Bearb./Geprüft
	-	K	-	THYRISTOR CONTROL	24.05.11
		J	AS BUILT	30.08.09	
		I	UPDATE	17.07.09	
		H	-	04.12.08	
		G	-	27.10.08	

CAD-Drawing / CAD-Zeichnung: AP
Format Dex. / Zul. Abw.: DIN ISO 2768-mK
SURFACE / OBERFLÄCHE: DIN ISO 1302
Drawing No. of Recipient / Zeich.-Nr. des Empfängers
Material / Werkstoff: Pattern No. / Modell-Nr.
Microfilm / Verfilmt
Scale / Massst.: Kg
Weight / Gewicht: Kg
TYPE / TYP: YES / JA; NO / NEIN
Ass. / BG: Part / TA
Field of application / Verwendungsbereich: BP Valhall 07 7800005.78
Dept. / Abt.: SC6
Title / Benennung: 1ST STAGE DRY GAS SEAL SYSTEM P&I-DIAGRAM
Drawn / Bearb.: 03.05.07
Checked / Geprüft: 04.05.07
Size / Format: A0
DRAWING NO. / ZEICHNUNGS-NR.: 837043544
Rev. Index: K
Sheet/Bl.: 001 / 001
Prev. dwg. / Zuletzt ausg.
Dept. for / Erz. für
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PACKAGE NO.	411-037058GF	CONTRACTOR
PACKAGE TITLE	ELECTRIC DRIVE COMPRESSORS	MAN TURBO AG SCHWEIZ
TAG NO.	23-KA-9101	SDL CODE 6.5
P.O. NO.	037058	
CONTRACT NO.	037058	
		VALHALL REDEVELOPMENT PROJECT

REGISTRATION CODES				DRAWING NO.				SCALE
AREA	SYSTEM	TYPE	FACILITY CODE ORIG.	DISP.	SEQ. No.	SHEET	REV.	A0
T	23	XB	PH 25578	P	4110010	001	Z1	

MEI Project: 10910 - I:\10910\PID\PFD\PH-ME-P-0003-001.DWG 20JUL09 1424 SF 0.00 IMP J1KELLE

NOTES:

1. PRESSURE CONTROL BY 1ST STAGE CCC PERFORMANCE CONTROL.
2. FOR FUTURE COMPRESSOR.

REV	DATE	BY	DESCRIPTION	CHK	ENGR	APPR	CLIENT
Z1	30.11.15		[redacted]				
Z	04.07.13		[redacted]				

Wood Group Engineering (North Sea) Ltd.

MUSTANG INTERNATIONAL, LP
HOUSTON, TEXAS

PROJECT NO. 10910

bp

VALHALL
RE-DEVELOPMENT PROJECT
PROCESS FLOW DIAGRAM
LP GAS COMPRESSION

REGISTRATION CODES			DRAWING NO					SCALE
AREA	SYSTEM	TYPE	FACILITY CODE	ORIG	DISP	SEQ. No	SHEET	NONE
T	23	XA	PH	ME	P	0003	001	REV Z1

Field for file specification: 'Field for file specification Automatically inserted during plot'
Field for date and time : 'Field for date and time Automatically inserted during plot'

A3

23-XX-9106
1ST STAGE COMPRESSOR SKID

23-KA-9101
1ST STAGE COMPRESSOR
CAPACITY: 4.8M SM3/D AT 8.9 DELTA BAR
POWER: 9340 kW
SPEED: 6273 rpm

THIS P&ID IS BASED ON DOCUMENT: PH-25578-P-4110002-001, REV. I PROVIDED BY MAN TURBO AG. IT REMAINS THE PROPERTY OF MAN TURBO AG. IT CANNOT BE REPRODUCED AND/OR TRANSMITTED WITHOUT AUTHORIZATION FROM MAN TURBO AG.

NOTES:

1. ALL TUBING AND FITTINGS TO BE 6MO.
2. ALL SIGNALS INDICATED AS MONITOR DISPLAY IN THE CONTROL UNIT WILL ALSO BE DISPLAYED IN THE MONITOR DISPLAY IN THE DCS (SAS-HM).
3. TRIP ON VIBRATION ONLY IF ONE PROBE REACHES TRIP AND THE SECOND PROBE ALARM VALUE.
4. SYSTEM MONITORING INCLUDING VOTING LOGIC (WHERE APPLICABLE) PERFORMED IN COMPRESSOR UCP NO.1. VIBRATION AND TEMPERATURE MONITORING INCLUDING SHUTDOWN VOTING PERFORMED IN UCP CONDITION MONITORING SYSTEM (BN). REMAINING SHUTDOWN FUNCTIONS PERFORMED IN UCP PSD.
5. CMS SIGNALS TRANSFERRED TO PCS VIA MODBUS.
6. TRIP W/O BLOWDOWN.
7. REFERENCE FOR HIGH SPEED.
8. OIL PUMP AUTOMATIC CONTROL.
9. STARTUP INTERLOCKING SYSTEM.

REV	DATE	BY	DESCRIPTION	CHK	ENGR	APPR	CLIENT
Z	08.07.13		AS BUILT				

Wood Group Engineering (North Sea) Ltd.
MUSTANG INTERNATIONAL, LP
HOUSTON, TEXAS
PROJECT NO. 10910

bp

VALHALL
RE-DEVELOPMENT PROJECT
PIPING & INSTRUMENT DIAGRAM
1ST STAGE COMPR. TEMP. & VIBRATION MONITORING

REGISTRATION CODES			DRAWING NO.					SCALE
AREA	SYSTEM	TYPE	FACILITY CODE	ORIG.	DISP.	SEQ. No.	SHEET	NONE
T	23	XB	PH	ME	P	0156	002	REV. Z

Field for file specification:
Field for date and time :

A1

STATUS

1. Accepted
2. Accepted with comments incorporated
3. Not accepted, revise and resubmit
4. For information only

Date

Printed name and discipline

Signature

PROJECT NO.	Mech-Tool Engineering
PROJECT TITLE	Valhall Re-Development Project
DRAWN	G.S.
DATE	
DISCIPLINE	7470/0001-09
ACTIVITY	07

STAGE 1 - P & I DIAGRAM

REGISTRATION CODES			DRAWING NO.	SHEET
AREA	SYSTEM	TYPE		001
T	23	XB	PH-25578-P-4110119	REV Z

REV	DATE	DESCRIPTION	DRAWN	CHECKED	PROCESS DESIGN	MECHANICAL DESIGN	APPROVED
07	14/06/2012	TAG NUMBER ADDED TO CONTROL DAMPER	[redacted]				
06	29/05/12	VOLUME AMENDED AND VCD ADDED					
05	28/04/10	REMOVED "TEMPERATURE SWITCH LOW" FROM WATER MIST SYSTEM	[redacted]				
04	03/04/09	REVISED TO SUIT CLIENT COMMENTS					
03	04/12/08	REVISED TO SUIT CLIENT COMMENTS					
02	11/11/08	REVISED TO SUIT CLIENT COMMENTS					
01	30/04/08	ISSUED FOR APPROVAL					

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LAST PLOT :-

MECH-TOOL ENGINEERING LIMITED
MECH-TOOL House, Milne Works, Whessoe Road, Darlington, Co. DURHAM. DL3 0QT
Telephone:- Darlington (+044) 01325 355141 FAX:- (+044) 01325 487053
Website :- www.mechtool.co.uk E-Mail :- mail@mechtool.co.uk

CLIENT: SULZER / MAN VALHALL COMPRESSOR ENCLOSURES

TITLE: STAGE 1 - P & I DIAGRAM

ORIG DRAWING SIZE: A1 | SCALE: NTS | DRAWING No. 7470/0001-09 | REV 07

G:\Drawing Office\Acoustic\Project\EC7326 Sulzer MAN Enclosure\GKV\1001-01.dwg

NOTES:

1. KEY INTERLOCKED VALVE.
2. LIQUID ULTRASONIC METER. PROVIDE STRAIGHT RUN OF 10D UPSTREAM AND 5D DOWNSTREAM.
3. LOCATED AS CLOSE TO THE VESSEL AS PRACTICAL.
4. MINIMUM 1 METER SEPARATION.
5. DO NOT POCKET.
6. KEY LOCKED VALVE.
7. N2 AND STEAM INJECTION AT 2" DRAIN VALVE.
8. INTERNALS.
9. ANTISLAM DESIGN.
10. SPADE & SPACER TYPE. PROVIDE SPADE STAND AT EACH LOCATION TO PREVENT MISPLACING SPADE.
11. 6" NOZZLE FOR PROFILER TO DETECT FOAMING. MOUNT NOZZLE 45° FROM THE VERTICAL.
12. ACTUATOR TO HAVE TRAVEL STOP SET AT A POSITION EQUIVALENT TO CV=1500 (TO LIMIT CLOSURE).
13. 4C INSULATION IS NOT REQUIRED ON TRIM IN VAPOR SERVICE.
14. INSTRUMENT LINES ARE HEAT TRACED.
15. TRACTION DEVIATION 2016-EVENT-520989B.

REV	DATE	BY	DESCRIPTION	CHK	ENGR	APPR	CLIENT
Z5	14.04.16	[redacted]	AS BUILT, MW-33788	[redacted]			
Z4	01.04.16		AS BUILT, MW-33517				
Z3	28.01.15		AS BUILT, AFA V-4426				
Z2	26.09.14		AS BUILT, MW-25619				
Z1	30.05.14		AS BUILT, MW-19144				
Z	26.06.13		AS BUILT				

Wood Group Engineering (North Seas) Ltd.

MUSTANG INTERNATIONAL, LP
HOUSTON, TEXAS

PROJECT NO. 10910

bp

VALHALL
RE-DEVELOPMENT PROJECT
PIPING & INSTRUMENT DIAGRAM
1ST STAGE SUCTION SCRUBBER

REGISTRATION CODES			DRAWING NO.					SCALE
AREA	SYSTEM	TYPE	FACILITY CODE	ORIG.	DISP.	SEQ. No.	SHEET	NONE
T33-02	23	XB	PH	ME	P	0152	001	REV. Z5

Field for file specification:
Field for date and time :

A1

NOTES:

1. PURGE VALVE.23-KA-9101-PIC-92538.
2. REMOVABLE MAINTENANCE SPOOL.23-KA-9101-PIC-92538.
3. CONDITIONING PLATE. PROVIDE STRAIGHT RUN OF 20 UPSTREAM AND 20 DOWNSTREAM.
4. LOCATE STRAINER AS CLOSE AS POSSIBLE TO COMPRESSOR SUCTION FLANGE.
5. DO NOT POCKET.
6. BOROSCOPE CONNECTION MINIMUM DISTANCE FROM COMPRESSOR.
7. ALL ITEMS IN SKID BOUNDRY SUPPLY BY SKID VENDOR.
8. LUBE OIL, SEAL GAS & VIB. TEMPT. DETAILS ON P&ID'S (0154, 0155, & 0156).
9. NON-SLAM AXIAL FLOW DESIGN.
10. COMPRESSOR SUCTION & DISCHARGE PIPING TO HAVE MIN. OF 3 DIA. STRAIGHT RUN.
11. MAINTENANCE DROP OUT SPOOL. DOWNSTREAM FLANGE TO BE BD20 SPEC FOR INSTALLATION OF STRAINER.
12. INTERLOCK INSTALLED FOR PSV PILOT AND PSV INLET VALVES.
13. 23-PT-92540 IS USED TO CALCULATE SUCTION/SEAL PRESSURE DIFFERENTIAL PER MT'S C&E.
14. KEY INTERLOCKED VALVE.
15. THIS IS USED IN CONJUCTION WITH SEAL TRANSMITTERS 23-PT-96149-01/02 AND 23-PT-96150-01/02 TO AVOID SEAL DAMAGE.
16. DB&B VALVE LOCATED CLOSE TO THE PSV PILOT VALVE.
17. INPUT INTO CCC PERFORMANCE CONTROLLER 23-KA-9101-PIC-92538. BOTH VALVES HAVE TO BE OPEN OR CLOSED AT THE SAME TIME IN ORDER TO AVOID GAS LEAKAGE WHEN PSV MAINTENANCE IS PERFORMED.
18. BOTH VALVES HAVE TO BE OPEN OR CLOSED AT THE SAME TIME IN ORDER TO AVOID GAS LEAKAGE.
19. INSTRUMENT LINES ARE HEAT TRACED.
20. PIPING VALVES INSTALLED UPSTREAM OF FT'S. REF. LEGEND PH-ME-P-0102-001 FOR REPRESENTATION AND TAG NUMBERS.

NOTES:

REV	DATE	BY	DESCRIPTION	CHK	ENGR	APPR	CLIENT
Z4	06.04.16	[redacted]	AS BUILT, MW-33788	[redacted]			
Z3	11.06.15		AS BUILT, MW-29084				
Z2	28.01.15		AS BUILT, AFA V-4426				
Z1	25.09.14		AS BUILT, MW-18548, MW-25682				
Z	16.08.13		AS BUILT				

Wood Group Engineering (North Sea) Ltd.

MUSTANG INTERNATIONAL, LP
HOUSTON, TEXAS

PROJECT NO. 10910

bp

VALHALL
RE-DEVELOPMENT PROJECT
PIPING & INSTRUMENT DIAGRAM
1ST STAGE COMPRESSOR

REGISTRATION CODES			DRAWING NO.					SCALE
AREA	SYSTEM	TYPE	FACILITY CODE	ORIG.	DISP.	SEQ. No.	SHEET	NONE
T43-02	23	XB	PH	ME	P	0153	001	REV. Z4

Field for file specification:
Field for date and time :

A1

NOTES:
1. KEY INTERLOCKED VALVE.
2. REMOVABLE MAINTENANCE SPOOL.
3. CONDITIONING PLATE. PROVIDE STRAIGHT RUN OF 2D UPSTREAM AND 2D DOWNSTREAM.
4. DO NOT POCKET.
5. 2" EQUALIZATION VALVE PARALLEL TO ESDV VALVE.
6. ANTI-SLAM DESIGN.
7. FOR FUTURE RECOMPRESSOR CONNECTION.
8. GAS ULTRASONIC METER. PROVIDED STRAIGHT RUN OF 7D UPSTREAM AND 3D DOWNSTREAM.
9. KEY LOCKED VALVE.
10. MINIMUM ONE METER SEPARATION.
11. PERMISSIVE TO OPEN LARGE ESDV VALVE ON LOW DIFFERENTIAL.
12. INSTRUMENT LINES ARE HEAT TRACED.
13. INJECTION QUILL (SP-S-98861), ACCESS FITTING (SP-S-98860)
14. ATTACHMENT POINT FOR QUILL RETRIEVAL TOOL.

Z5

REV	DATE	BY	DESCRIPTION	CHK	ENGR	APPR	CLIENT
Z5	20.02.17		AS BUILT, AFA-004732				
Z4	28.06.16		AS BUILT, AFA-004732				
Z3	06.04.16		AS BUILT, MW-33788				
Z2	28.01.15		AS BUILT, AFA V-4426				
Z1	04.07.14		AS BUILT, MW-19671				
Z	26.06.13		AS BUILT				

Wood Group Engineering (North Sea) Ltd.
MUSTANG INTERNATIONAL, LP
HOUSTON, TEXAS
PROJECT NO. 10910

bp

VALHALL
RE-DEVELOPMENT PROJECT
PIPING & INSTRUMENT DIAGRAM
1ST STAGE SUCTION COOLER

REGISTRATION CODES			DRAWING NO.					SCALE
AREA	SYSTEM	TYPE	FACILITY CODE	ORIG	DISP	SEQ No.	SHEET	NONE
T33-02	23	XB	PH	ME	P	0151	001	REV Z5

Field for file specification:
Field for date and time :
A1

MEI Project: 10910 — I:\10910\PID\WORKING P&ID FOLLOW-ON 2009\PH-ME-P-0156-001.DWG 24AUG09 1138 SF 1.00 IMP J1KELLE

NOTES:

1. ALL TUBING AND FITTINGS TO BE 6MO.
2. ALL SIGNALS INDICATED AS MONITOR DISPLAY IN THE CONTROL UNIT WILL ALSO BE DISPLAYED IN THE MONITOR DISPLAY IN THE DCS (SAS-HMI)
3. TRIP ON VIBRATION ONLY IF ONE PROBE REACHES TRIP AND THE SECOND PROBE ALARM VALUE.
4. SYSTEM MONITORING INCLUDING VOTING LOGIC (WHERE APPLICABLE) PERFORMED IN COMPRESSOR UCP NOLL VIBRATION AND TEMPERATURE MONITORING INCLUDING SHUTDOWN VOTING PERFORMED IN UCP CONDITION MONITORING SYSTEM (BN). REMAINING SHUTDOWN FUNCTIONS PERFORMED IN UCP PSD.
5. CMS SIGNALS TRANSFERRED TO PCS VIA MODBUS.
6. TRIP W/O BLOWDOWN.
7. REFERENCE FOR LOW SPEED VIBRATION SIGNAL.
8. REFERENCE FOR HIGH SPEED.
9. KEY PHASOR REFERENCE FOR MOTOR VIBRATION SIGNAL.
10. SHUTDOWN INITIATED BY MOTOR ELECTRICAL PROTECTION SIGNAL.
11. STARTUP INTERLOCKING SYSTEM.
12. PARTIAL DISCHARGE (INSULATION) SENSORS BY VENDOR.
13. ELECTROMAGNETIC FLOWMETER DOWNSTREAM OF CONCENTRIC REDUCER. PROVIDE STRAIGHT RUN OD UPSTREAM AND OD DOWNSTREAM.
14. FOR PURGE UNIT DETAILS REFER TO PH-ME-P-0100-001 AND PH-ME-P-0108-002.
15. PURGE UNIT OUTLET LINE WITH SPARK ARRESTOR.

REV	DATE	BY	DESCRIPTION	CHK	ENGR	APPR	CLIENT
Z	11.07.13		AS BUILT				

Field for file specification:
Field for date and time :

Wood Group Engineering (North Sea) Ltd.

MUSTANG INTERNATIONAL, LP
HOUSTON, TEXAS

PROJECT NO. 10910

bp

VALHALL
RE-DEVELOPMENT PROJECT
PIPING & INSTRUMENT DIAGRAM
1ST STAGE COMPR. TEMP. & VIBRATION MONITORING

REGISTRATION CODES			DRAWING NO.					SCALE
AREA	SYSTEM	TYPE	FACILITY CODE	ORIG.	DISP.	SEQ. No.	SHEET	NONE
T	23	XB	PH	ME	P	0156	001	REV. Z

A1