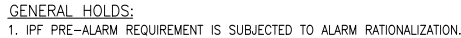


NOTE 7, 9, 12
FROM PORTABLE
METHANOL INJECTION SKID
PID-0113

FROM WELLHEAD
CONTROL PANEL/HPU
WHCP-0110



HOLDS:

1. MINIMUM DESIGN TEMPERATURE TO BE CONFIRMED DURING DETAILED DESIGN.
2. DETAILS OF WELLHEAD TO BE CONFIRMED.
3. RESTRICTION ORIFICE DIAMETER.
4. SAND PROBE LOCATION PENDING WAKE FREQUENCY CALCULATION.
5. WELLHEAD DETAILS TO BE CONFIRMED DURING DETAILED DESIGN.

NOTES CONT'D:

17. OIL OR GAS WELLHEAD DETAILS (HOLD 5)

WELLHEAD TYPE	GAS WELL SINGLE HIGH RATE	GAS WELL SINGLE LOW RATE	OIL WELL SINGLE	D21 SLIMHOLE
CONDUCTOR SIZE ANNULUS A	30" 10-3/4" PRODUCTION CASING X 13-3/8" PRODUCTION CASING	30" 9-5/8" PRODUCTION CASING X 13-3/8" PRODUCTION CASING	30" 9-5/8" PRODUCTION CASING X 13-3/8" PRODUCTION CASING	30" 9-5/8" PRODUCTION CASING X 13-5/8" PRODUCTION CASING
ANNULUS B	10-3/4" PRODUCTION CASING X 7" PRODUCTION TUBING	9-5/8" PRODUCTION CASING X 4-1/2" PRODUCTION TUBING	9-5/8" PRODUCTION CASING X 3-1/2" PRODUCTION TUBING	9-5/8" PRODUCTION CASING X 3-1/2" PRODUCTION TUBING
ANNULUS/TUBING DESIGN RATING	API 5000#	API 5000#	API 5000#	API 5000#

18. DELETED.
19. SAMPLING CONNECTION SHOULD BE PLACED IN THE 4 O'CLOCK POSITION AND SHALL BE NO FURTHER THAN THE 5 O'CLOCK POSITION.
20. LIGHT WEIGHT STRUCTURE IS DESIGNED TO HANDLE FOR 150 MMSCF GAS WELL OR 8000 BPD OIL/LIQUID WELL PRODUCTION
21. 150" TAPPING CONNECTION SHALL BE 150" DIA. WITH 150" DIA. FLANGE.
22. SPACE PROVISION FOR CLAMP--ON TYPE SAND DETECTOR, DISTANCE FROM A BEND TO THE ACOUSTIC SAND DETECTOR SHALL BE 2D. SENSOR HAVE TO BE INSTALLED FACING DOWN.
23. THE INDICATED LINE SIZE IS FOR GAS WELL. FOR OIL WELL, THE FLOWLINE SIZE CAN BE OPTIMIZED TO DN100.
24. USE TARGET TREE WITH BLIND FLANGE FACING FLOW ON FIRST DIRECTION CHANGE AFTER CHOKE VALVE AND TO BE VERTICALLY DOWNSTREAM, SUBSEQUENT DIRECTION CHANGE TO BE 90° BEND OR TEE WITH END CAPS.
25. 1500" PRESSURE RATING IS USED FOR GAS WELL. FOR OIL WELL, THE PRESSURE RATING CAN BE OPTIMIZED TO 900".
26. SPARED CONNECTION FOR PRESSURE TRANSMITTER INSTALLATION IN THE EVENT X-MAS TREE HAS NO DEDICATED PRESSURE TRANSMITTER TAPPING FOR 01PI-310 (UPSTREAM OF WV).

CAD PRODUCED DRAWING - NO MANUAL REVISION ALLOWED

NOTES:

1. ANNULUS BLEED CONNECTION.
2. ACTUATED CHOKE VALVE TO BE CAPABLE OF REMOTE AND LOCAL ACTIVATION.
3. N2 CONNECTION FOR PRESSURIZATION.
4. DELETED.
5. THREE PRESSURE DOWNHOLE GAUGE SYSTEMS ARE PROVIDED ON WELLHEAD W-0110, W-0130 AND W-0150.
6. CONTINUOUS POSITION INDICATOR.
7. METHANOL INJECTION TO ONE WELL AT A TIME DURING START-UP.
8. FLOWLINES TO BE DESIGNED TO MINIMISE SAND EROSION AND ALL CHANGES OF DIRECTION TO BE TARGET TEES.
9. METHANOL INJECTION POINT WITH TUBING SHALL BE ACCESSIBLE AT WHERE THE PORTABLE METHANOL INJECTION PACKAGE WILL BE LOCATED.
10. INTRUSIVE SAND PROBE SHALL BE INSTALLED IN 12 O'CLOCK ON HORIZONTAL PIPE.
11. PROCESS PIPING TO BE SLOPED TO ALLOW FREE DRAINING OF LIQUIDS TO THE EXPORT RISER.
12. METHANOL INJECTION TO BE PROVIDED DURING START-UP ONLY USING PORTABLE METHANOL INJECTION PACKAGE.
13. ALL SET POINTS AS SHOWN ARE FOR GAS WELL. FOR OIL WELL, SET POINT TO BE ADJUSTED ACCORDINGLY.
14. ALL WELLS FITTED WITH SELF EQUALIZING SCSVS.
15. CONTINUOUS CORROSION INHIBITOR INJECTION POINT. FOR PIPELINE CORROSION PROTECTION.
16. DOWNHOLE GAUGE PROBE CONTAINS FOUR PARAMETERS: TUBING PRESSURE AND TEMPERATURE (01PT-301 AND 01TT-301) AND ANNULUS PRESSURE AND TEMPERATURE (01PT-302 AND 01TT-302).

[illegible]

PROJECT TITLE :	PROVISION OF FRONT END ENGINEERING DESIGN (FEED) SERVICES FOR DESIGN ONE BUILD MANY (D1BM) PROJECT
-----------------	---

DRAWING TITLE : PIPING AND INSTRUMENTATION DIAGRAM
PRODUCTION WELLHEAD FACILITIES
(W-0130)

CONTRACTOR LOGO :



AkerSolutions
ENGINEERING MALAYSIA SDN. BHD.(7)



PETROLIAM NASIONAL BERHAD (PETRONAS)
(20076-K)

PETRONAS

THE ORIGINAL AND ALL COPIES OF THE DRAWING TOGETHER WITH
THE COPYRIGHT THEREOF ARE THE SOLE PROPERTY OF PETRONAS

CAD FILE:

D1BM-WHP-FEED-AEM-01-PRO-PID-0103

DRAWING NO:

0103

DISCIPLINE	SHEET NO.	REVISION NO.
------------	-----------	--------------

DISCIPLINE	SHEET NO.	REVISION NO.
BBO	1 of 1	0

PRO	1 of 1	0
-----	--------	---