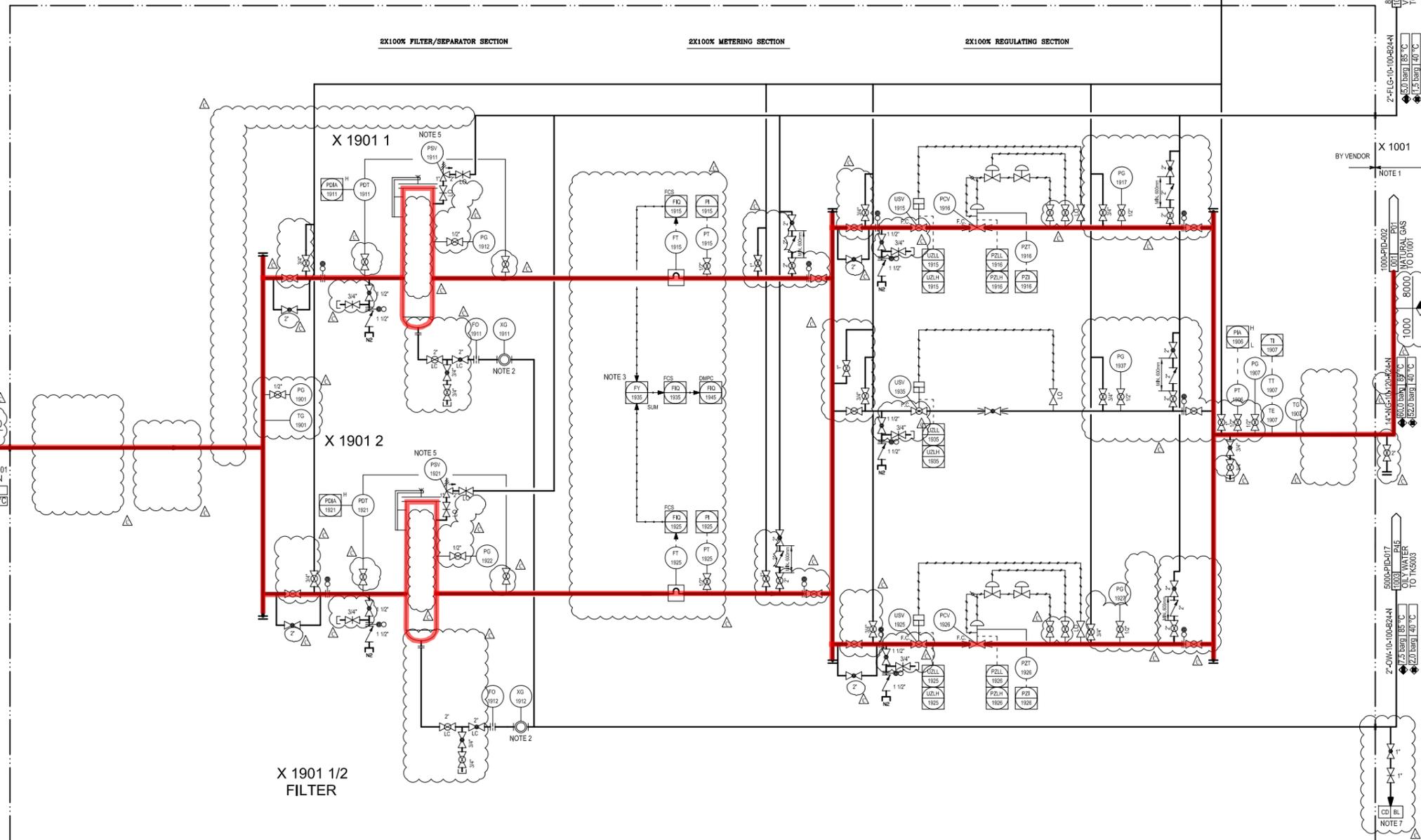


Attachment 4
Mark-up P&ID

X 1001	GAS STATION
FLOW RATE	72000-198000m ³ /h
INLET GAS PRESS.	54.1-62 barg
OUTLET GAS PRESS.	52 barg
DESIGN TEMP.	85 °C



GENERAL NOTES

NOTES:

- 1) DETAILS OF X1001 TO BE UPDATED ACCORDING TO TECHNICAL DOCUMENTS PROVIDED BY VENDOR.
- 2) THE SIGHT GLASS SHOULD BE VISIBLE TO THE OPERATOR AT POSITION OF DRAIN VALVES.
- 3) ADD THE TWO FLOW RATE, AND SEND THE FLOW SIGNAL TO FCS OF THE PLANT, AS WELL AS DAMAVAND SIMULTANEOUSLY.
- 4) VENT TO SAFE AREA, HIGHER THAN GROUND 4.0 M AT LEAST.
- 5) REQUIREMENT OF PSV ON DRY GAS FILTER TO BE CONFIRMED BY VENDOR.
- 6) VENT AND DRAIN TO BE FORESEEN GENERALLY AT HIGH AND LOW POINTS.
- 7) THE CLOSED DRAIN WILL BE COLLECTED IN A PORTABLE SEALED CONTAINER.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

▲ Issued for Approval	24.06.2016	Jiang Yu	Xu Hang	Liu Shengkal			
▲ Issued for Comments	29.4.2016	Jiang Yu	Xu Hang	Liu Shengkal			
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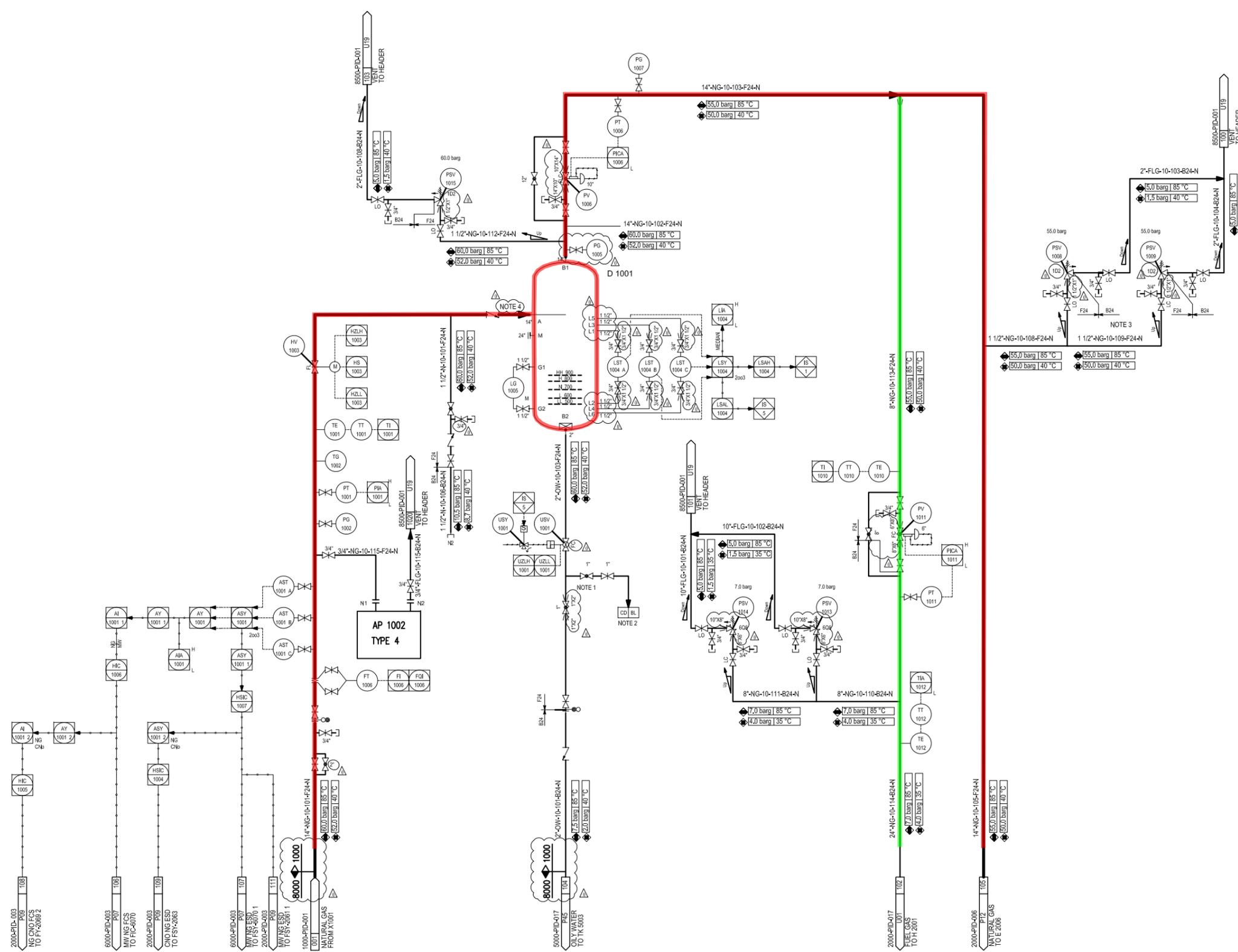
**Middle East
Kimiaye Pars Company**

LENDOR	HALDOR TOPSØE A/S	DOCUMENT NAME:		JOB NO.:		DOC. GRP.:	
CONTRACTOR	TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO.	MKP-11-DE-1000-PS07-PID-001	SHEET	01	TOTAL	01
SUB-CONTRACTOR		SUB-CONTRACTOR DRAWING NO.		SHEET		TOTAL	

GAS STATION PIPING AND INSTRUMENT DIAGRAM	PROJECT	MKP Methanol Project			
	UNIT	Desulphurisation Unit			
	PHASE	Detail Engineering			
SCALE: -	SHEET: 1	TOT.: 1	SIZE: A1	OWNER DWG NO.	MKP-11-DE-1000-PR-PID-001

Counter	Sign	Date

D 1001	NATURAL GAS K.O. DRUM
ID x LENGTH(T)	1550 x 2550mm
DESIGN PRESS.	60 barg
DESIGN TEMP.	85 °C
INSULATION	NO
CLADDING/LINING	NONE



GENERAL NOTES

↑NOTES:

- 1) TO BE VISIBLE FROM LG 1005.
- 2) THE CLOSED DRAIN WILL BE COLLECTED IN A PORTABLE SEALED CONTAINER.
- 3) BETWEEN THESE TWO PSV, ALWAYS ONE INLET BLOCK VALVE SHALL BE L.O. AND THE OTHER ONE SHALL BE L.C.
- 4) THE MIN. DISTANCE OF CHECK VALVE BEFORE D 1001 SHALL BE AT LEAST 10 TIMES OF LINE INNER DIAMETER.

↑GENERAL NOTE:

LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Approved For Construction	24.06.2016	Jiang Yu	Xu Hang	Liu Shengqiang			
Issued for Comments	29.04.2016	Jiang Yu	Xu Hang	Liu Shengqiang			
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Kimiaye Pars Company**

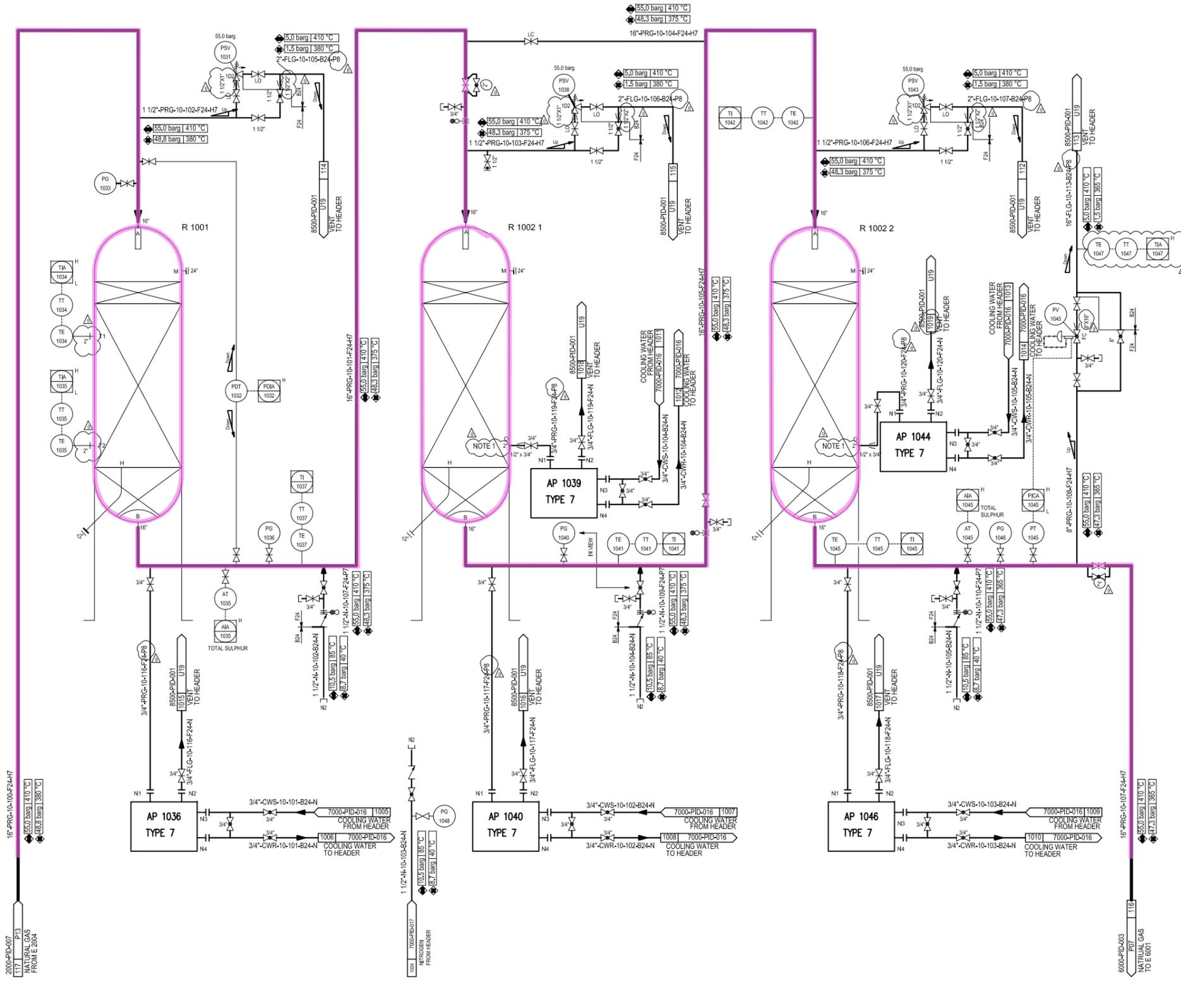
CONTRACTOR	HALDOR TOPSØE A/S	DOCUMENT NAME	NATURAL GAS DISTRIBUTION PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	DOC. GRP.	42	REV.	4
CONTRACTOR	TCC 中國天辰工程有限有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO.	MKP-11-DE-1000-PS07-PID-002	DWG. NO.	1341711	DISG. NO.	PO1	SHEET 01 TOTAL 01	
SUB-CONTRACTOR		SUB-CONTRACTOR DRAWING NO.		SHEET - TOTAL -					

Node 2002

NATURAL GAS DISTRIBUTION PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	Desulphurisation Unit
		PHASE	Detail Engineering
SCALE: -	SHEET: 1	TOT.: 1	SIZE: A1
OWNER	MKP-11-DE-1000-PR-PID-002		

R 1001	HYDROGENATOR
ID x LENGTH(T)-T)	4450x3100 mm
DESIGN PRESS.	55 barg
DESIGN TEMP.	410 °C
INSULATION	YES
CLADDING/LINING	NONE

R 1002 1/2	SULPHUR ABSORBER
ID x LENGTH(T)-T)	4000x1500 mm
DESIGN PRESS.	55 barg
DESIGN TEMP.	410 °C
INSULATION	YES
CLADDING/LINING	NONE



GENERAL NOTES

NOTES:
 1) NOZZLE O IS AN INNER EXTENSION TUBE, CONNECTING PIPE OF AP 1039/1046 BY 1/2" NPT.

R 1002 1/2

†GENERAL NOTE:
 LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Approved For Construction	24.06.2016	Jiang Yu	Xu Hang	Liu Shengqiang			
Issued for Comments	29.04.2016	Jiang Yu	Xu Hang	Liu Shengqiang			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER:
Middle East Kimiaye Pars Company

LICENSOR HALDOR TOPSØE A/S	DOCUMENT NAME: DESULPHURISATION PIPING AND INSTRUMENT DIAGRAM	JOB NO.: S-02115	DOC. GRP.: 42	REV.: 5
	DWG. NO.: 1341714	DATE: PO4		
CONTRACTOR TCC 中國天辰工程有限有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO. MKP-11-DE-1000-PS07-PID-003			
	SHEET 01 TOTAL 01			
SUB-CONTRACTOR	SUB-CONTRACTOR DRAWING NO.			
	SHEET - TOTAL -			

DESULPHURISATION PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	Desulphurisation Unit
		PHASE	Detail Engineering
SCALE: -	SHEET: 1	TOT.: 1	SIZE: A1
OWNER	MKP-11-DE-1000-PR-PID-003		

Counter Signing	Sign	Date

X 6002A/B	
FILTER SURFACE	N/A m ²
CAPACITY	32200 kg/h
DESIGN PRESS.	71 barg
DESIGN TEMP.	200 °C
MATERIAL SHELL	SS
MATERIAL FILTER ELEMENT	SS
ELEV. OF FOUNDATION	EL +100.450m

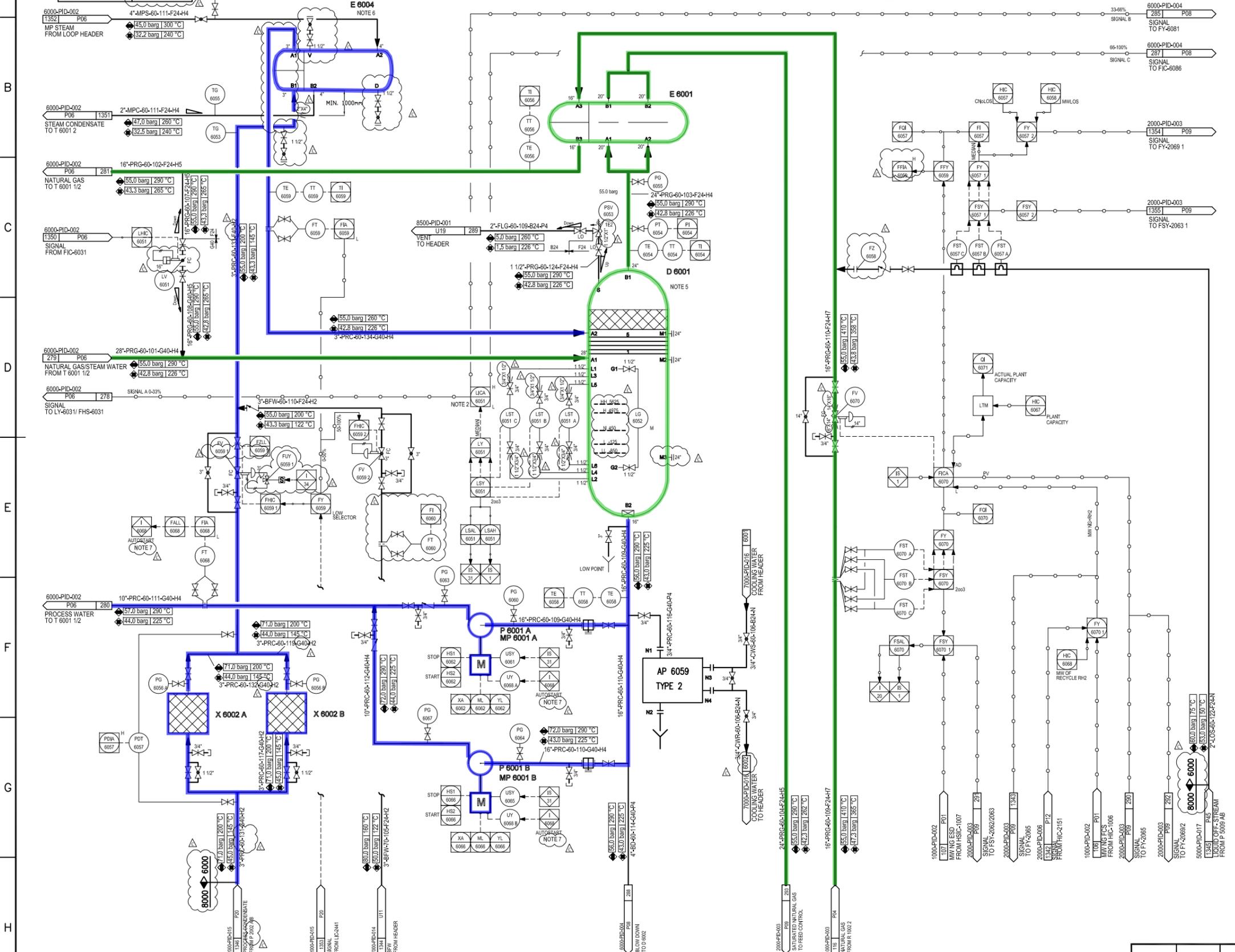
E6004	
DUTY	2.9 MW
DESIGN PRESS.(TL/SH)	55/45 barg
DESIGN TEMP.(TL/SH)	260/300 °C
INSULATION	YES
ELEV. OF FOUNDATION	EL +121.350m

P 6001 A/B	
RATED CAPACITY	416.8 m ³ /h
HEAD	43.5 M
DENSITY@T	832 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	By Vendor
ELEV. OF FOUNDATION	EL +100.550m

D 6001	
ID x LENGTH-T	3400 x 12400 mm
DESIGN PRESS.	55/FV barg
DESIGN TEMP.	290 °C
INSULATION	YES
CLADDING/LINING	NONE
ELEV. OF FOUNDATION	EL +100.540m

E6001	
DUTY	10.0 MW
DESIGN PRESS.(TL/SH)	55/55 barg
DESIGN TEMP.(TL/SH)	410/290 °C
INSULATION	YES
ELEV. OF FOUNDATION	EL +124.750m

Node 1003



GENERAL NOTES

† GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

NOTES:

- 1) TO BE LOCATED ABOVE FLARE HEADER.
 - 2) FUNCTION OF LIC-6051
-
- VALVE OPENING, %
- OUTPUT, %
- 3) DELETED.
 - 4) NOZZLE B2 ON D 6001 MUST BE LOCATED MIN 2 m ABOVE PUMP 6001 A/B. (TO BE CONFIRMED BY PUMP VENDOR.)
 - 5) E 6004 TO BE LOCATED MIN. 5m ABOVE MAX LEVEL IN T 6001 1/2.
 - 6) THE SPARE PUMP OF P 6001 A/B WOULD AUTOSTART WHEN THE OUTLET FLOWRATE DECREASED.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

▲ Issued for Approval	25.06.2016	Jiang Yu	Xu Hang	Shi Jing			
▲ Issued for Comments	29.04.2016	Jiang Yu	Xu Hang	Shi Jing			
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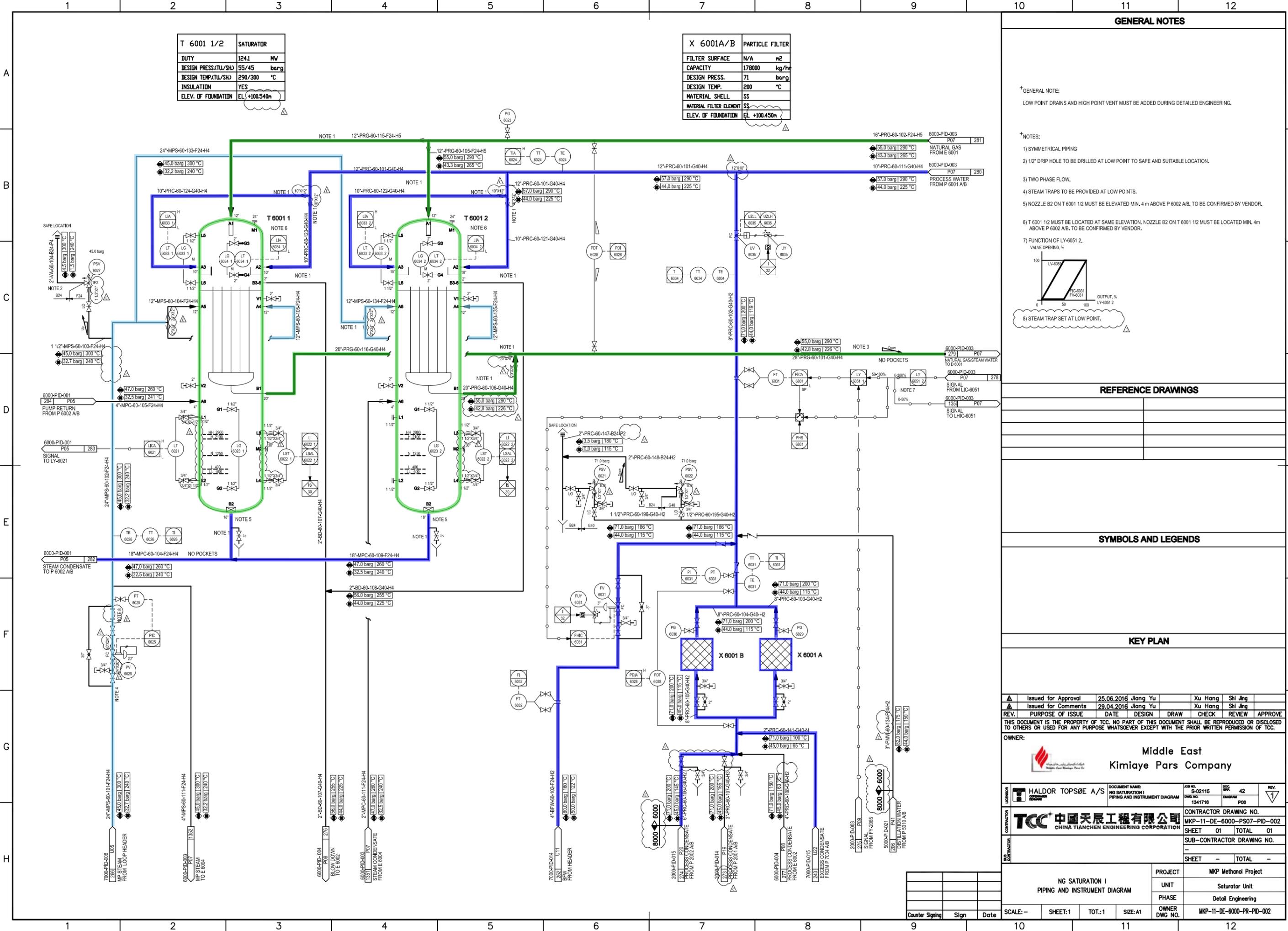
LEADER	HALDOR TOPSØE A/S	DOCUMENT NAME	NG SATURATION II PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	DOC. NO.	42	REV.	
CONTRACTOR	TCC 中國天辰工程有限有限公司	CONTRACTOR DRAWING NO.	MKP-11-DE-6000-PS07-PID-003	DWG. NO.	1341717	DATE	2016.07		
SUB CONTRACTOR		SHEET - CONTRACTOR DRAWING NO.	SHEET 01 TOTAL 01						
		SHEET - TOTAL							

NG SATURATION II PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	Saturator Unit
		PHASE	Detail Engineering
SCALE: -	SHEET: 1	TOT.: 1	SIZE: A1
OWNER	MKP-11-DE-6000-PR-PID-003	OWNER DWG NO.	

Counter Signing	Sign	Date

T 6001 1/2	SATURATOR
DUTY	MV
DESIGN PRESS.(TL/SH)	55/45 barg
DESIGN TEMP.(TL/SH)	290/300 °C
INSULATION	YES
ELEV. OF FOUNDATION	EL.+100.540m

X 6001A/B	PARTICLE FILTER
FILTER SURFACE	N/A m ²
CAPACITY	178000 kg/hr
DESIGN PRESS.	71 barg
DESIGN TEMP.	200 °C
MATERIAL SHELL	SS
MATERIAL FILTER ELEMENT	SS
ELEV. OF FOUNDATION	EL.+100.450m



GENERAL NOTES

- †GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.
- †NOTES:
1) SYMMETRICAL PIPING
2) 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
3) TWO PHASE FLOW.
4) STEAM TRAPS TO BE PROVIDED AT LOW POINTS.
5) NOZZLE B2 ON T 6001 1/2 MUST BE ELEVATED MIN. 4 m ABOVE P 6002 A/B, TO BE CONFIRMED BY VENDOR.
6) T 6001 1/2 MUST BE LOCATED AT SAME ELEVATION. NOZZLE B2 ON T 6001 1/2 MUST BE LOCATED MIN. 4m ABOVE P 6002 A/B, TO BE CONFIRMED BY VENDOR.
7) FUNCTION OF LY-6051 2.
VALVE OPENING, %
-
- 8) STEAM TRAP SET AT LOW POINT.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

▲ Issued for Approval	25.06.2016	Jiang Yu	Xu Hang	Shi Jing			
▲ Issued for Comments	29.04.2016	Jiang Yu	Xu Hang	Shi Jing			
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OWNER:

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CONTRACTOR	TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO.	MKP-11-DE-6000-PS07-PID-002	DWG. NO.	1341716	DATE	POB		
SUB-CONTRACTOR		SHEET	01	TOTAL	01				
		SHEET	-	TOTAL	-				

PROJECT	MKP Methanol Project
UNIT	Saturator Unit
PHASE	Detail Engineering
OWNER DWG. NO.	MKP-11-DE-6000-PR-PID-002

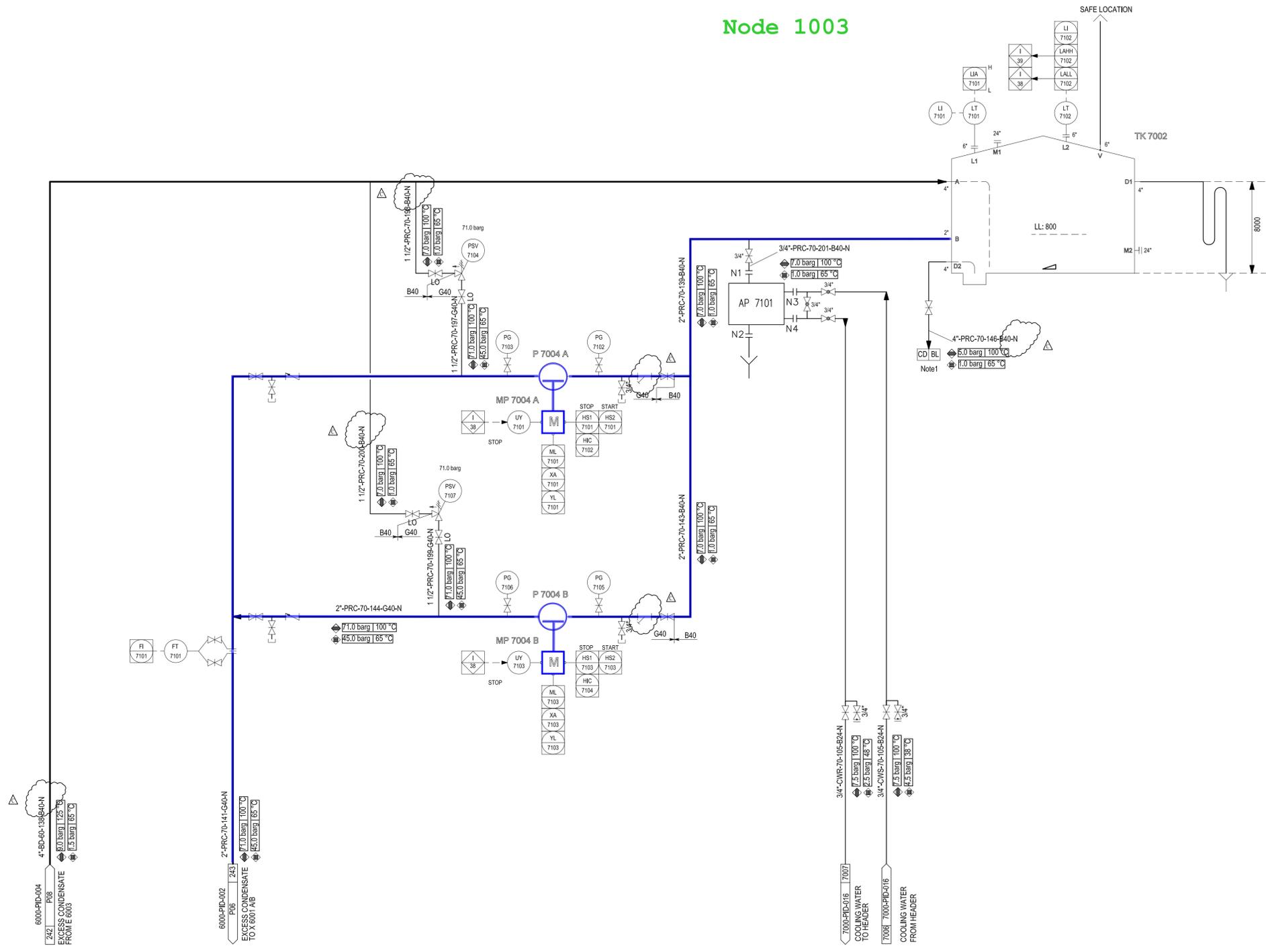
SCALE: -	SHEET: 1	TOT.: 1	SIZE: A1
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Counter	Sign	Date

TK7002	PROCESS CONDENSATE TANK
ID x LENGTH	12000x10000 mm
NOMINAL CAPACITY	1130 m3
DESIGN PRESS.	0.02 barg
DESIGN TEMP.	100 °C
INSULATION	NDNE
ELEV. of FOUNDATION	EL+100.550m

P7004A/B	EXCESS CONDENSATE PUMP
RATED CAPACITY	6.1 m3/h
HEAD	546.0 m
DENSITY@OT	980 kg/m3
INSULATION/TRACING	NDNE
AUXILIARY PIPING	By Vendor
ELEV. of FOUNDATION	EL+100.550m

Node 1003



GENERAL NOTES

- † GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.
- † NOTES:
1) THE CLOSED DRAIN WILL BE COLLECTED IN A POTABLE SEALED CONTAINER.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

△	Issued for Approval	29.06.2016	Luo Jiaqi	Xu Hang	Shi Jing		
▽	Issued for Comments	29.04.2016	Luo Jiaqi	Xu Hang	Shi Jing		
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OWNER:

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LICENSOR	HALDOR TOPSØE A/S	DOCUMENT NAME:	PROCESS CONDENSATE STORAGE UTILITY DIAGRAM	JOB NO.:	S-02115	DWG. NO.:	1353319	DOC. GRP.:	42	REV.:	UZZ
		CONTRACTOR:	TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO.:	MKP-11-DE-7000-PS09-PID-015	SHEET:	01	TOTAL:	01		

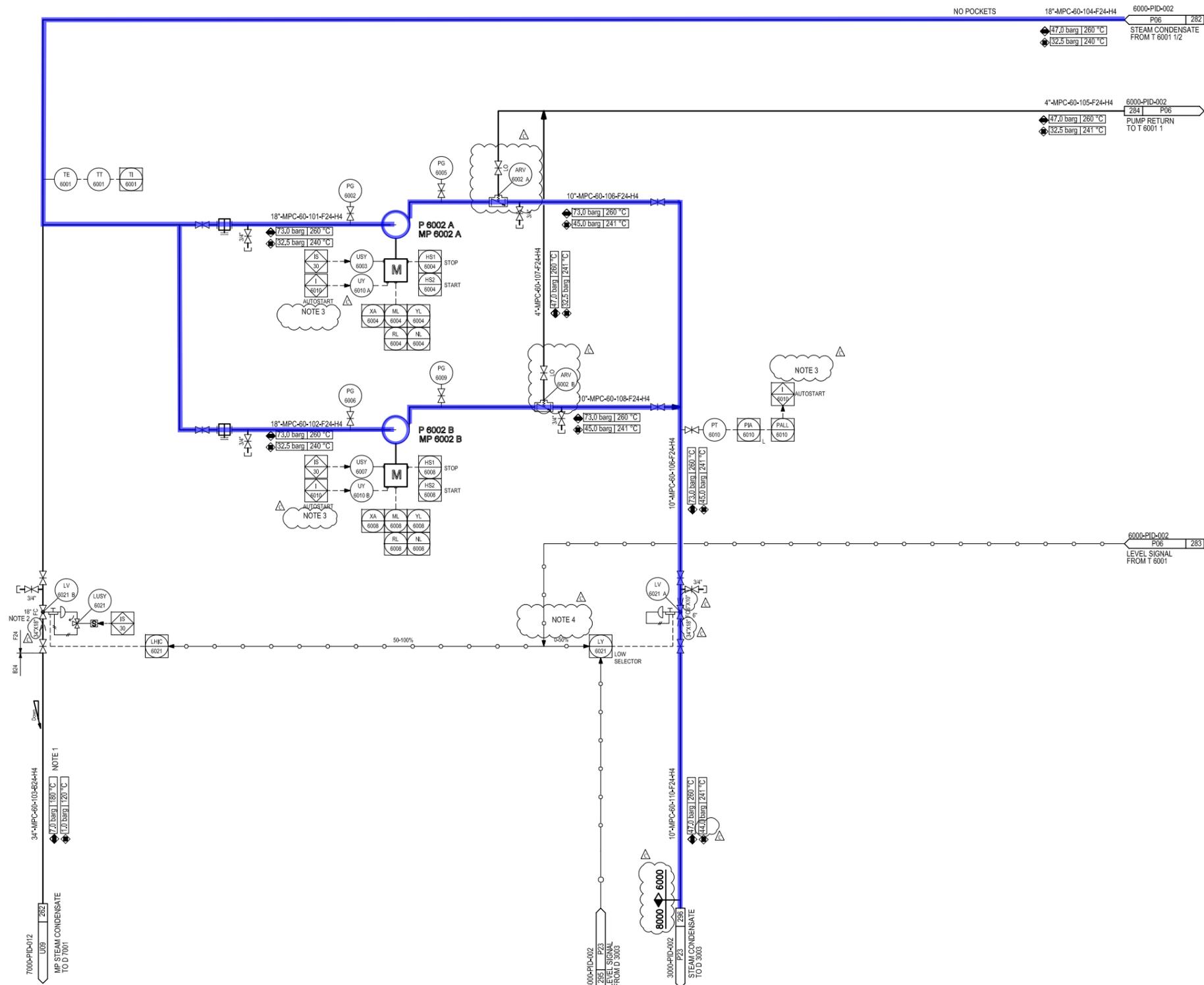
CONTRACTOR:	TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO.:	MKP-11-DE-7000-PS09-PID-015
SUB-CONTRACTOR:	SUB-CONTRACTOR LOGO	SUB-CONTRACTOR DRAWING NO.:	-
SHEET:	01	TOTAL:	01

PROJECT:	MKP Methanol Project
UNIT:	Steam System & Utilities
PHASE:	Detail Engineering
OWNER DWG. NO.:	MKP-11-DE-7000-PR-PID-015

Counter	Sign	Date

SCALE: -	SHEET: 01	TOT.: 01	SIZE: A1
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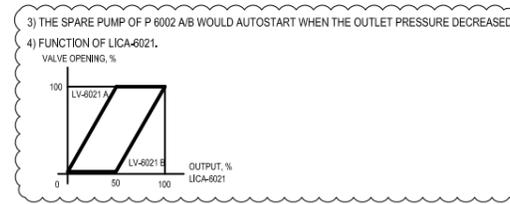
P 6002 A/B	STEAM CONDENSATE RETURN PUMP
RATED CAPACITY	351.6 m ³ /h
HEAD	155.7 m
DENSITY@0T	814 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	By Vendor
ELEV. OF FOUNDATION	EL +100.550m



GENERAL NOTES

†GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

- †NOTES:
- 1) TWO PHASE FLOW.
 - 2) LV-6021 B MUST BE LOCATED AS CLOSE AS POSSIBLE TO D-7001. ELEVATION ABOVE D 7001.
 - 3) THE SPARE PUMP OF P 6002 A/B WOULD AUTOSTART WHEN THE OUTLET PRESSURE DECREASED.
 - 4) FUNCTION OF LICA-6021.



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

▲	Issued for Approval	25.06.2016	Jiang Yu	Xu Hang	Shi Jing	
▲	Issued for Comments	29.04.2016	Jiang Yu	Xu Hang	Shi Jing	
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LIBRARIAN	HALDOR TOPSØE A/S	DOCUMENT NAME	STEAM CONDENSATE RETURN PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	DOC. NO.	42	REV.	
CONTRACTOR	TCC 中國天辰工程有限有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	DWG. NO.	1341715	DIAGRAM	POS				
SUB-CONTRACTOR		CONTRACTOR DRAWING NO.	MKP-11-DE-6000-PS07-PID-001	SHEET	01	TOTAL	01		
		SUB-CONTRACTOR DRAWING NO.		SHEET	-	TOTAL	-		

STEAM CONDENSATE RETURN PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	Saturator Unit
		PHASE	Detail Engineering
SCALE: -	SHEET: 1	TOT.: 1	SIZE: A1
OWNER	MKP-11-DE-6000-PR-PID-001		

Counter	Sign	Date

E 6002	PROCESS CONDENSATE PREHEATER
DUTY	0.7 MW
DESIGN PRESS.(TLU/SH)	71/56 barg
DESIGN TEMP.(TLU/SH)	255/ 255 °C
INSULATION	YES
ELEV. OF FOUNDATION	EL +100.840m

P 7003 A/B	EXCESS PROCESS CONDENSATE PUMP
RATED CAPACITY	59.8 m ³ /h
HEAD	63.22 M
DENSITY@RT	959 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	By Vendor
ELEV. OF FOUNDATION	EL +100.550m

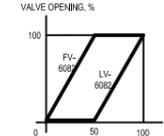
D 6002	SATURATOR BLOW DOWN DRUM
ID x LENGTH(T)	1300 x 4375mm
DESIGN PRESS.	3.5 barg
DESIGN TEMP.	125 °C
INSULATION	NO
CLADDING/LINING	PERSIMEL PROTECTION
ELEV. OF FOUNDATION	EL +100.54m

E 6003	SATURATOR BLOW DOWN COOLER
DUTY	1.9 MW
DESIGN PRESS.(TLU/SH)	7.5/9.9 barg
DESIGN TEMP.(TLU/SH)	100/125 °C
INSULATION	YES
ELEV. OF FOUNDATION	EL +101.240m

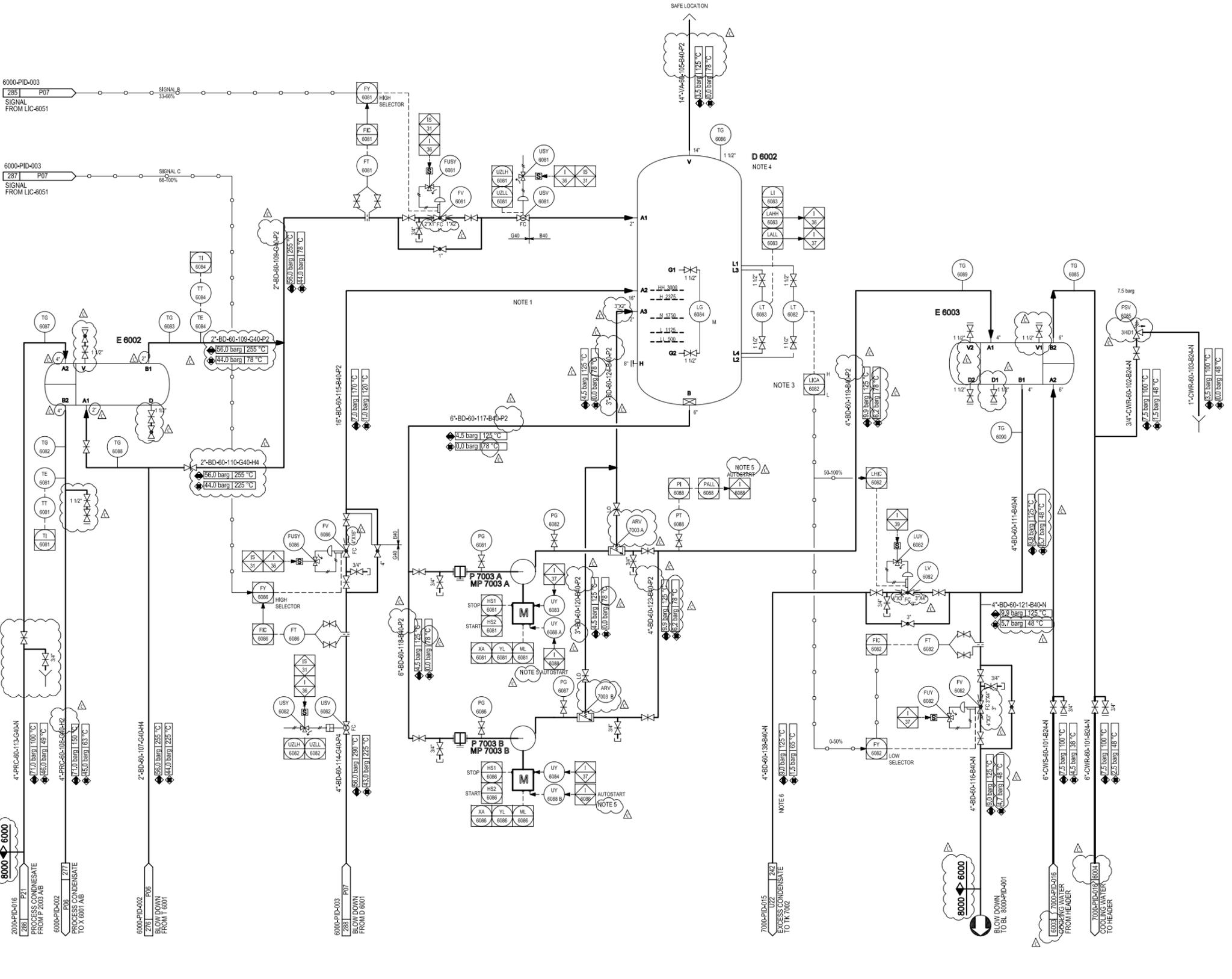
GENERAL NOTES

⁺GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

- ⁺NOTES:
1) TWO PHASE FLOW.
2) FV-6081 MUST BE LOCATED CLOSE TO D-6002.
3) FUNCTION OF LIC-6082



- ⁺4) NOZZLE B ON D 6002 MUST BE LOCATED MIN. 5m ABOVE P 7003 A/B (TO BE CONFIRMED BY PUMP VENDOR).
5) THE SPARE PUMP OF P 7003 A/B WOULD AUTOSTART WHEN THE OUTLET PRESSURE DECREASED.
6) IN NORMAL CONDITION, THE FLOW RATE OF LINE 4"-BD-60-138-B40-N IS 0, THE MAXIMUM OPERATING TEMPERATURE OF THIS LINE IS 65°C WHEN ITS FLOW RATE ACHIEVED THE MAXIMUM VALUE.



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

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OWNER:
Middle East Kimiaye Pars Company

PROJECT	MKP Methanol Project
UNIT	Saturator Unit
PHASE	Detail Engineering
OWNER DWG NO.	MKP-11-DE-6000-PR-PID-004

X 2001A/B	OXYGEN FILTER
FILTER SURFACE	BY VENDOR m ²
CAPACITY	93939 kg/hr
DESIGN PRESS.	55 barg
DESIGN TEMP.	85 °C

E 2008	OXYGEN PREHEATER
DUTY	4.8 MW
ID x LENGTH	650x5200 mm
DESIGN PRESS.(TL/SH)	55/52 barg
DESIGN TEMP.(TL/SH)	290/310 °C
Insulation	YES

D 2011	STEAM CONDENSATE K.D. DRUM FOR E2008
ID x LENGTH	700 x 3275 mm
DESIGN PRESS.	FV/S2 barg
DESIGN TEMP.	290 °C
Insulation	YES
CLADDING/LINING	NONE

Node 2003

GENERAL NOTES

- NOTES:
- 1) PROPER PIPING SUPPORT FOR TWO PHASE FLOW.
 - 2) X 2001 A/B MUST BE LOCATED CLOSE TO E 2008 AT GROUND LEVEL. BOTH FILTERS TO BE PRESSURIZED SIMULTANEOUSLY DURING START UP. ONCE PRESSURIZED, ONE BLOCK INLET FILTER MAY BE CLOSED. FILTERS NOT TO BE REPLACED ON STREAM.
 - 3) ORIFICE FLANGE TO BE PROVIDED WITH INDIVIDUAL PRESSURE TAPPING FOR EACH TRANSMITTERS.
 - 4) ALL INTERNALS FOR VALVES IN OXYGEN SERVICE MUST BE MONEL.
 - 5) IN OXYGEN PIPES ALL SHARP BENDS MUST BE AVOIDED. LONG RADIUS BENDS 3D.
 - 6) SAFE AREA FOR EMERGENCY ISOLATION OF OXYGEN SUPPLY. THE OXYGEN VALVE SHOULD BE POSITIONED IN SUCH A WAY THAT IT CAN BE SAFELY OPERATED. FIRE SHIELDS (CONCRETE) MUST BE PROVIDED.
 - 7) 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT AND ROUTED TO SAFE AND SUITABLE LOCATION BELOW TAPPING POINT.
 - 8) E 2008 CONDENSATE OUTLET NOZZLE TO BE ELEVATED ABOVE A NOZZLE ON D 2011. E 2008 MUST BE LOCATED ABOVE SEC. REFORMER BURNER.
 - 9) BY PASS FOR PRESSURIZATION SHALL BE MADE OF MONEL. CONNECTIONS HAVE TO BE TOP OF MAIN LINE.
 - 10) VALVE TO BE IN MONEL INCL. MIN. 8 DIAMETERS DOWNSTREAM PIPING.
 - 11) SOLENOID VALVES TO BE IN 2oo2 CONFIGURATION FOR SAFETY AND AVAILABILITY.
 - 12) 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT AND ROUTED TO SAFE AND SUITABLE LOCATION BELOW TAPPING POINT.
 - 13) AUTOMATIC VALVE AT BL IS OPTIONAL. NOT A HTAS REQUIREMENT.
 - 14) DOWNWARDS SLOPE MINIMUM 0.5 % IN COLD CONDITIONS AS WELL AS AT MAX. OPERATING TEMPERATURE.
- GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Approval for Construction	16.06.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
Issued for Comments	29.04.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
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OWNER:

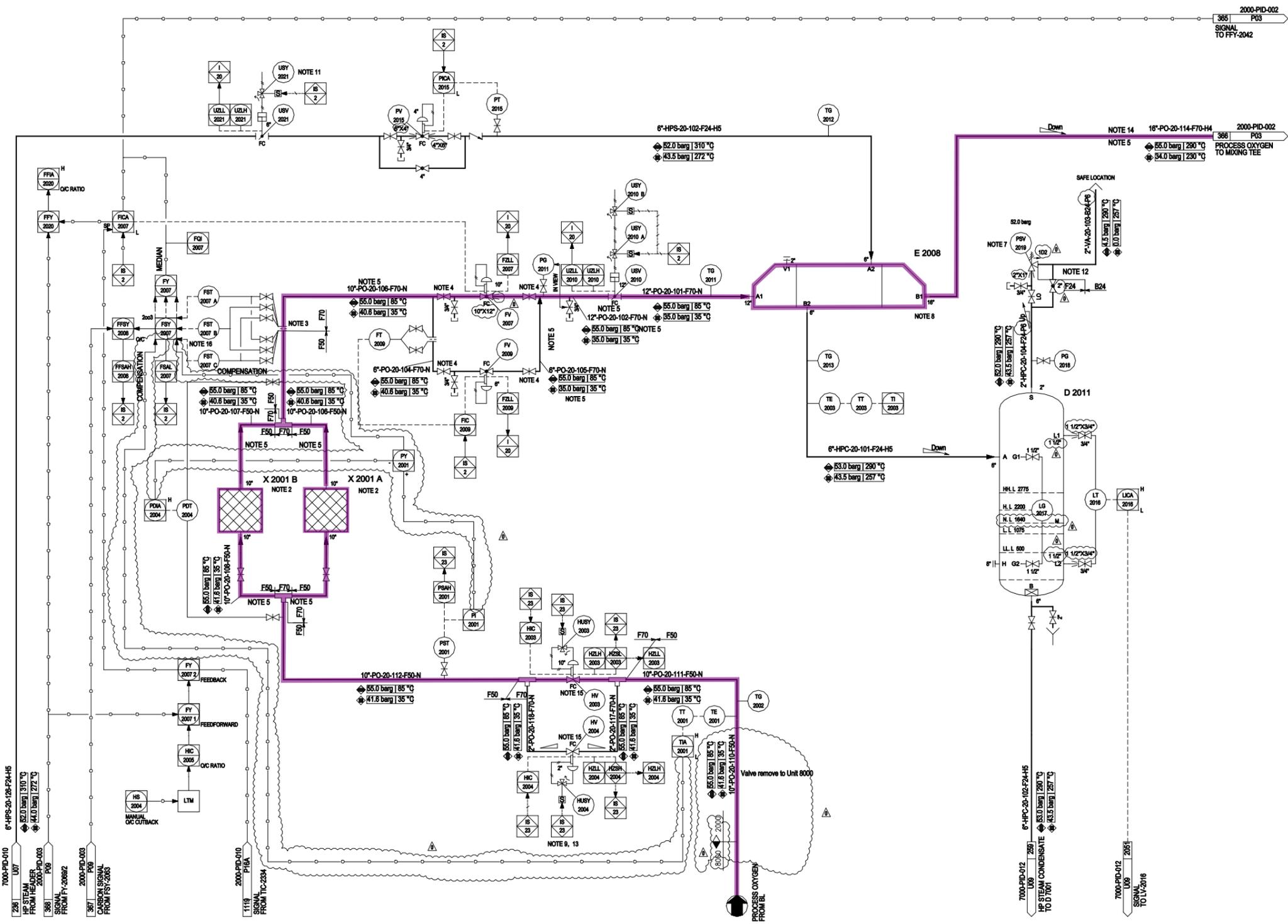

Middle East Kimiaye Pars Company

 HALDOR TOPSØE A/S <small>CONTRACTOR COMPANY</small>	DOCUMENT NAME:	PROCESS OXYGEN PIPING AND INSTRUMENT DIAGRAM	JOB NO.:	S-02115	DOC. NO.:	42	REV.:	5
	DATE:	1341712	DESIGNER:		DRAWN BY:		PO2	

 TCC 中國天辰工程有限公司 <small>CHINA TIANCHEN ENGINEERING CORPORATION</small>	CONTRACTOR DRAWING NO.	MKP-11-DE-2000-PS07-PID-001	
	SHEET	01	TOTAL
SUB-CONTRACTOR DRAWING NO.	-		
SHEET	-	TOTAL	-

PROJECT	MKP Methanol Project
UNIT	Reformer
PHASE	Detail Engineering
OWNER DWG. NO.	MKP-11-DE-2000-PR-PID-001

SCALE	SHEET: 1	TOT: 1	SIZE: A1
-------	----------	--------	----------



Counter	Sign	Date

X 2002A/B	STEAM FILTER
FILTER SURFACE	N/A m ²
CAPACITY	9200 kg/hr
DESIGN PRESS.	52 barg
DESIGN TEMP.	410 °C

SI 2001	HP STEAM SILENCER-1
CAPACITY	4000 kg/hr
DESIGN PRESS.	7 barg
DESIGN TEMP.	410 °C

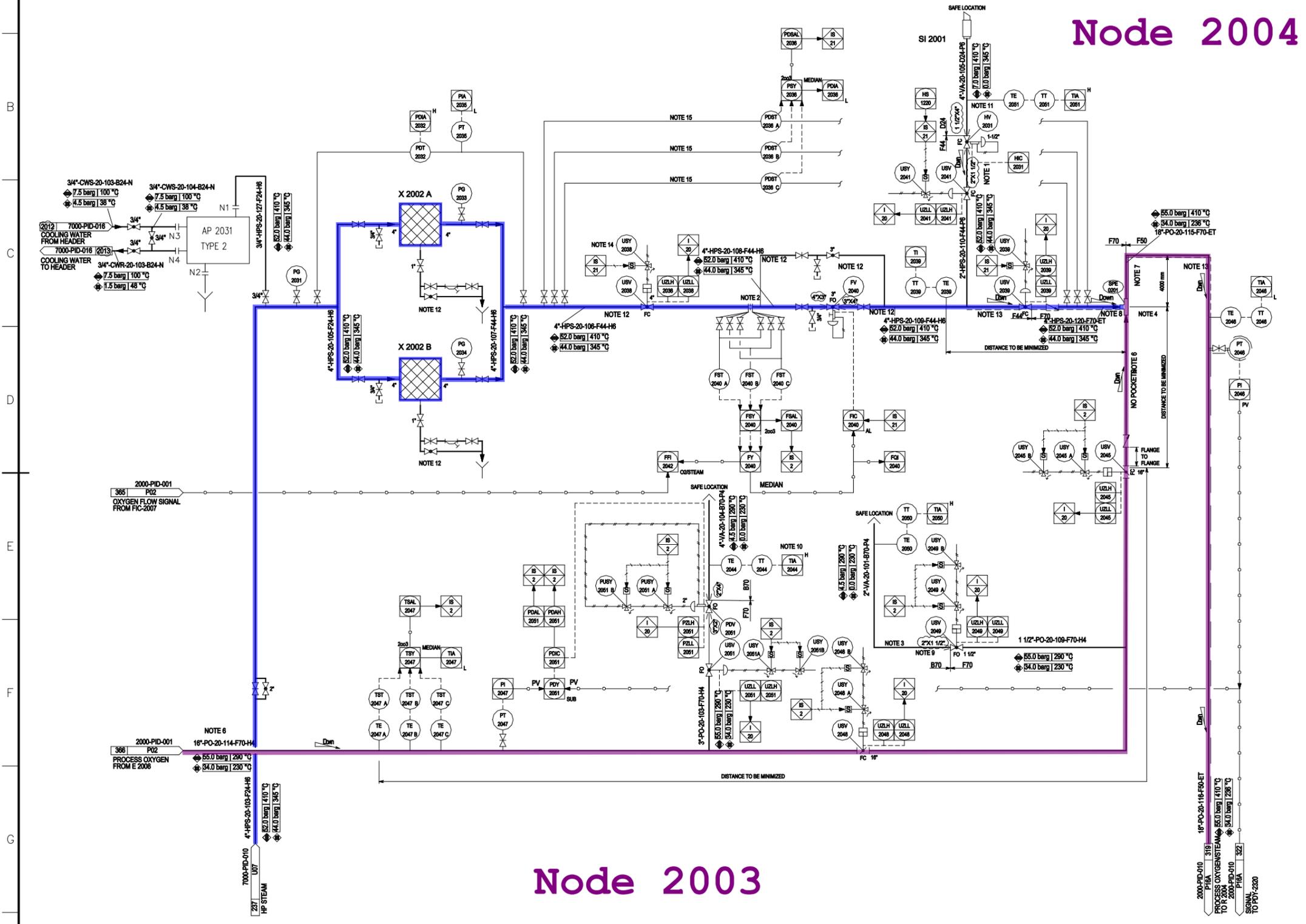
GENERAL NOTES

- NOTES:
- 1) LINE SIZING BY SILENCER VENDOR.
 - 2) ORIFICE FLANGE TO BE PROVIDED WITH INDIVIDUAL PRESSURE TAPPING FOR EACH TRANSMITTERS.
 - 3) NO POCKETS ALLOWED.
 - 4) DETAILED DESIGNER MUST CONSIDER THERMAL STRESSES IN THE MIXING POINT. THE TEE MUST BE MOUNTED TO ENSURE A STRAIGHT FLOW OF OXYGEN.
 - 5) ANY ELBOWS BETWEEN O₂ / STEAM MIXING TEE AND R 2004 MUST BE WITH LONG RADIUS (1.5 D)
 - 6) IN OXYGEN PIPES ALL SHARP BENDS MUST BE AVOIDED (LONG RADIUS BENDS 3D).
 - 7) MIN. LENGTH OF MONEL PIPE FROM MIXING POINT: 4m. DISTANCE TO R 2004 MUST BE MINIMIZED.
 - 8) PIPE MUST BE DESIGNED IN MATERIALS AS SPECIFIED IN F70 (MONEL) BUT MUST BE ABLE TO WITHSTAND DESIGN TEMPERATURE AND DESIGN PRESSURE AS SPECIFIED.
 - 9) BLEED TO BE TAKEN FROM BOTTOM OF OXYGEN LINE AND ROUTED TO SAFE LOCATION BELOW TAPPING POINT.
 - 10) START-UP PREHEATING OF OXYGEN LINE IT MUST BE POSSIBLE TO OPERATE THIS BLEED AFTER IS-2 IS RESET BUT BEFORE DOUBLE BLOCK AND BLEED IS RESET
 - 11) 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT AND ROUTED TO SAFE AND SUITABLE LOCATION BELOW TAPPING POINT.
 - 12) STEAM TRAPS AT LOW POINTS/ DEAD ENDS MUST BE PROVIDED.
 - 13) MI CABLE TRACING TO 250 °C.
 - 14) SOLENOID VALVES TO BE IN 2x2x2 CONFIGURATION FOR SAFETY AND AVAILABILITY.
 - 15) BYPASS LINE IN MANIFOLD IS NOT ALLOWED.

GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING. IN OXYGEN PIPES ALL SHARP BENDS MUST BE AVOIDED (LONG RADIUS BENDS 3D).

Node 2004

Node 2003



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Approval for Construction	16.06.2016	Wang Furu	Gao Zhihui	Liu Shenglai			
Issued for Comments	29.04.2016	Wang Furu	Gao Zhihui	Liu Shenglai			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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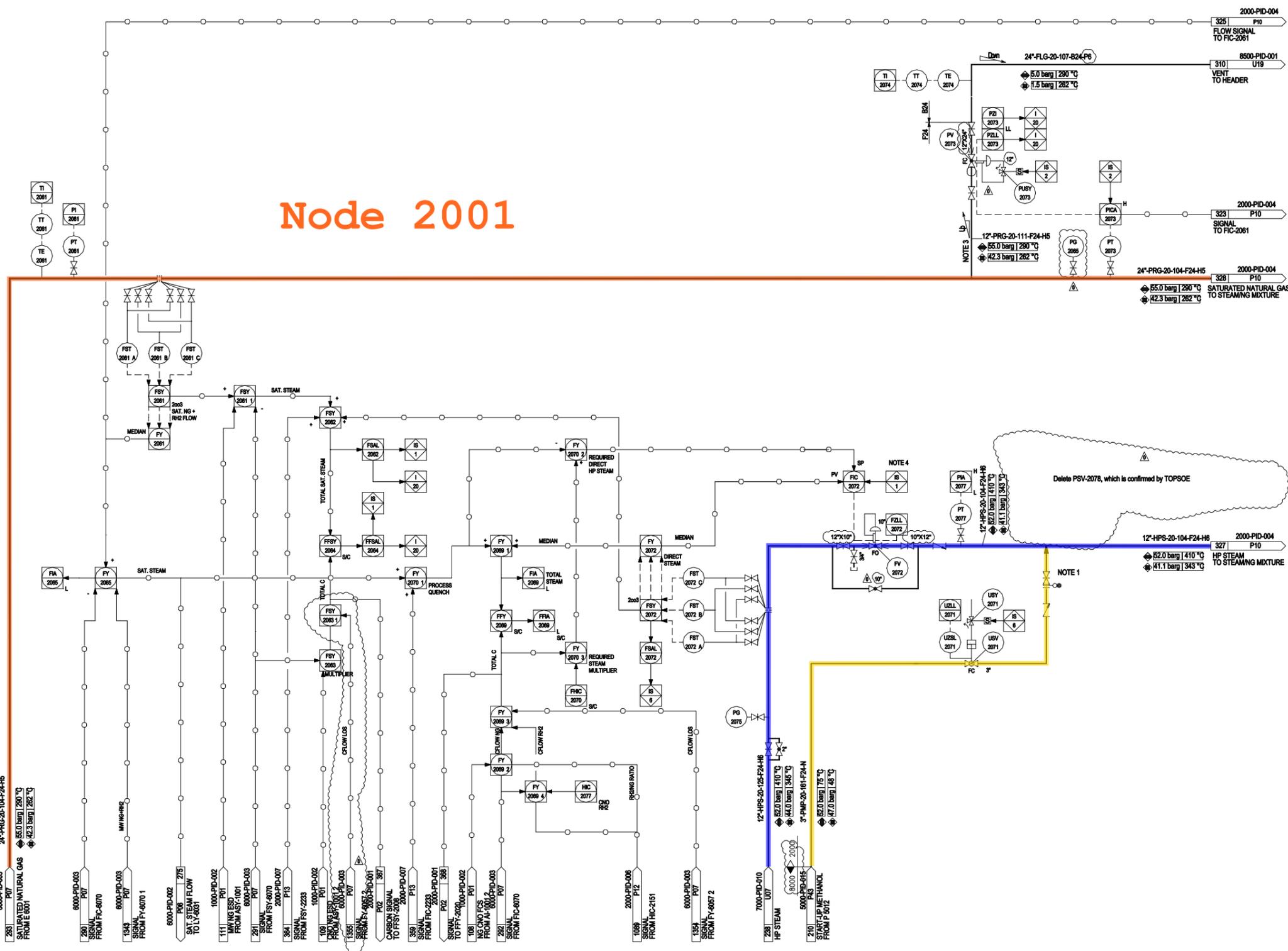
OWNER: Middle East Kimiaye Pars Company

HALDOR TOPSØE A/S	DOCUMENT NAME: OXYGEN PREHEATING PIPING AND INSTRUMENT DIAGRAM	JOB NO: S-02115	DOC. NO: 1341713	REV: 5
TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION		CONTRACTOR DRAWING NO. MKP-11-DE-2000-PS07-PID-002 SHEET 01 TOTAL 01		
SUB-CONTRACTOR DRAWING NO.		SHEET - TOTAL -		

OXYGEN PREHEATING PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	Reformer
		PHASE	Detail Engineering
SCALE	SHEET: 1	TOT: 1	SIZE: A1
		OWNER DWG. NO.	MKP-11-DE-2000-PR-PID-002

Counter	Sign	Date

Node 2001



GENERAL NOTES

- NOTES:
- METHANOL INJECTION CONNECTION.
 - 12" DRIPHOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
 - DISTANCE MINIMISED BETWEEN PROCESS VENT AND E 2002 B.
 - SUBSEQUENT TO IS-1 THIS SET POINT IS RAMPED DOWN.
- GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Approval for Construction	16.06.2016	Wang Furui	Gao Zhihui	Liu Shengkai			
Issued for Comments	29.04.2016	Wang Furui	Gao Zhihui	Liu Shengkai			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER: Middle East
Kimiaye Pars Company

	DOCUMENT NAME:	S/C RATIO CONTROL I PIPING AND INSTRUMENT DIAGRAM	JOB NO.:	S-02115	DOC. NO.:	42	REV.:	4
	CONTRACTOR:	TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	DWG. NO.:	1341719	DESIGNER:	POG		
CONTRACTOR DRAWING NO.		MKP-11-DE-2000-PS07-PID-003						
SHEET		01 TOTAL 01						
SUB-CONTRACTOR DRAWING NO.		-						
SHEET		- TOTAL -						

S/C RATIO CONTROL I PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project		
		UNIT	Reformer		
		PHASE	Detail Engineering		
SCALE	SHEET: 1	TOT: 1	SIZE: A1	OWNER DWG. NO.	MKP-11-DE-2000-PR-PID-003

Counter	Sign	Date

SI 2003	HP STEAM SILENCER-2
CAPACITY	4000 kg/hr
DESIGN PRESS.	7 barg
DESIGN TEMP.	410 °C

GENERAL NOTES

- †NOTES:
- 1) TOP ENTRY CONNECTION.
 - 2) LINE SIZING BY SILENCER VENDOR.
 - 3) DISTANCE MINIMIZED BETWEEN PROCESS VENT AND E 2002.
 - 4) 1/2" DRIPHOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
 - 5) OPERATED LOCAL.
 - 6) MIN. DISTANCE BETWEEN USV-2002 AND USV-2003.
 - 7) SOLENOID VALVES TO BE IN 2oo2d CONFIGURATION FOR SAFETY AND AVAILABILITY.

†GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

Node 2001

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

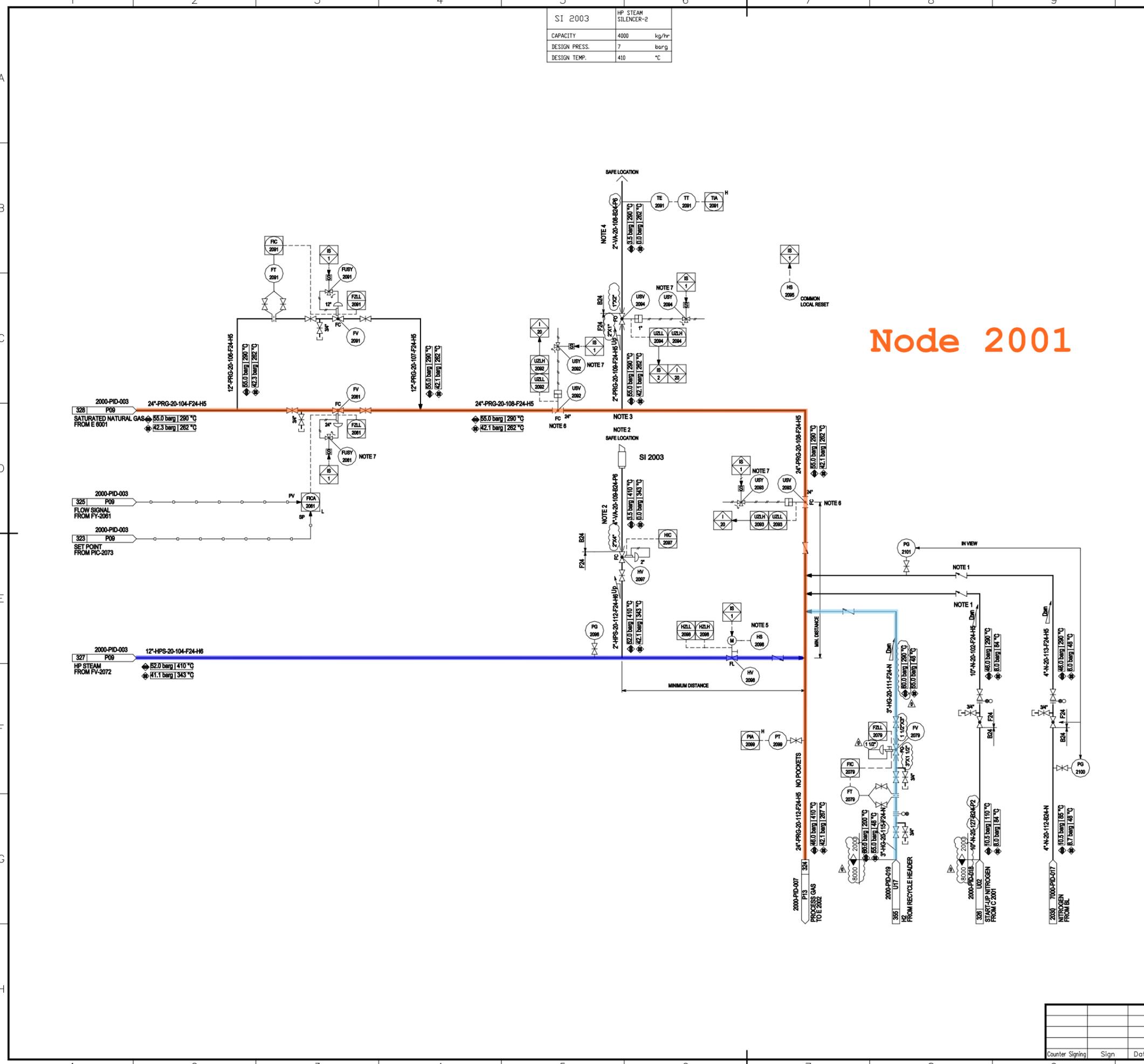
KEY PLAN

Approval for Construction	16.06.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
Issued for Comments	29.04.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

OWNER: Middle East Kimiaye Pars Company

HALDOR TOPSØE A/S	DOCUMENT NAME: S/C RATIO CONTROL II PIPING AND INSTRUMENT DIAGRAM	JOB NO: S-02115	DOC. NO: 1341720	REV. 42
CONTRACTOR: TCC 中國天辰工程有限有限公司 CHINA TIANCHEN ENGINEERING CORPORATION		CONTRACTOR DRAWING NO. MKP-11-DE-2000-PS07-PID-004		
SUB-CONTRACTOR DRAWING NO.		SHEET 01 TOTAL 01		

S/C RATIO CONTROL II PIPING AND INSTRUMENT DIAGRAM		PROJECT: MKP Methanol Project
SCALE: SHEET:1 TOT:1 SIZE:A1		UNIT: Reformer
OWNER: MKP-11-DE-2000-PR-PID-004		PHASE: Detail Engineering



Counter	Sign	Date

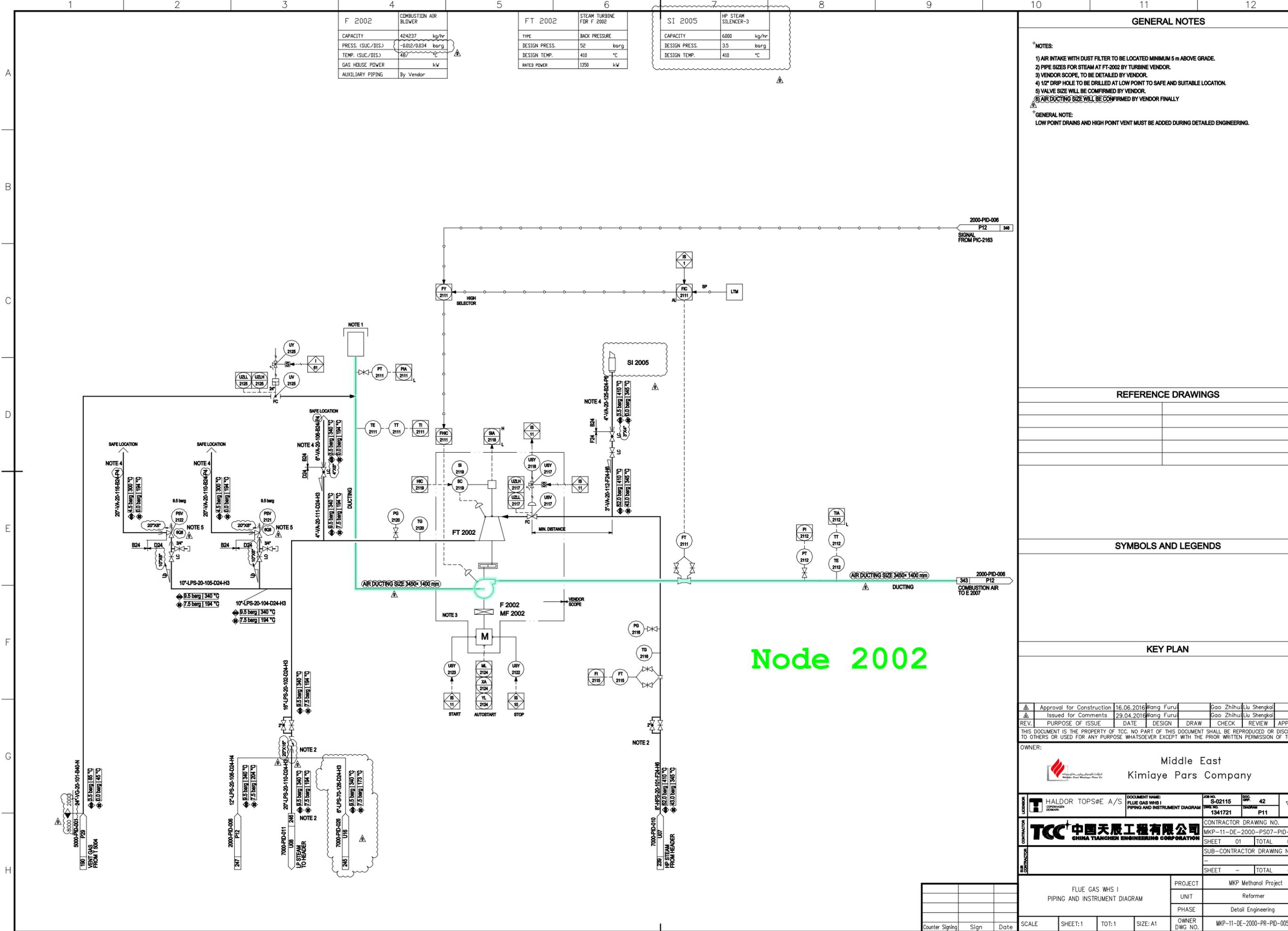
F 2002	COMBUSTION AIR BLOWER
CAPACITY	424237 kg/hr
PRESS. (SUC./DIS.)	-0.012/0.034 barg
TEMP. (SUC./DIS.)	46/ °C
GAS HOUSE POWER	kW
AUXILIARY PIPING	By Vendor

FT 2002	STEAM TURBINE FOR F 2002
TYPE	BACK PRESSURE
DESIGN PRESS.	52 barg
DESIGN TEMP.	410 °C
RATED POWER	1350 kW

SI 2005	HP STEAM SILENCER-3
CAPACITY	6000 kg/hr
DESIGN PRESS.	3.5 barg
DESIGN TEMP.	410 °C

GENERAL NOTES

- NOTES:
- AIR INTAKE WITH DUST FILTER TO BE LOCATED MINIMUM 5 m ABOVE GRADE.
 - PIPE SIZES FOR STEAM AT FT-2002 BY TURBINE VENDOR.
 - VENDOR SCOPE, TO BE DETAILED BY VENDOR.
 - 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
 - VALVE SIZE WILL BE CONFIRMED BY VENDOR.
 - AIR DUCTING SIZE WILL BE CONFIRMED BY VENDOR FINALLY
- GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Approval for Construction	16.06.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
Issued for Comments	29.04.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER:

Middle East
Kimiaye Pars Company

LICENSOR	HALDOR TOPSØE A/S	DOCUMENT NAME:	FLUE GAS WHS I PIPING AND INSTRUMENT DIAGRAM	JOB NO.:	S-02115	DOC. NO.:	42	REV.:	4
	CONTRACTOR	TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	DWG. NO.:	1341721	DISCIPLINE:	P11	CONTRACTOR DRAWING NO. MKP-11-DE-2000-PS07-PID-005		
DESIGNER		SHEET 01 TOTAL 01			SUB-CONTRACTOR DRAWING NO.				
DRAWN		SHEET - TOTAL -							

FLUE GAS WHS I PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	Reformer
		PHASE	Detail Engineering
SCALE	SHEET:1	TOT:1	SIZE:A1
OWNER DWG. NO.	MKP-11-DE-2000-PR-PID-005		

Counter	Sign	Date

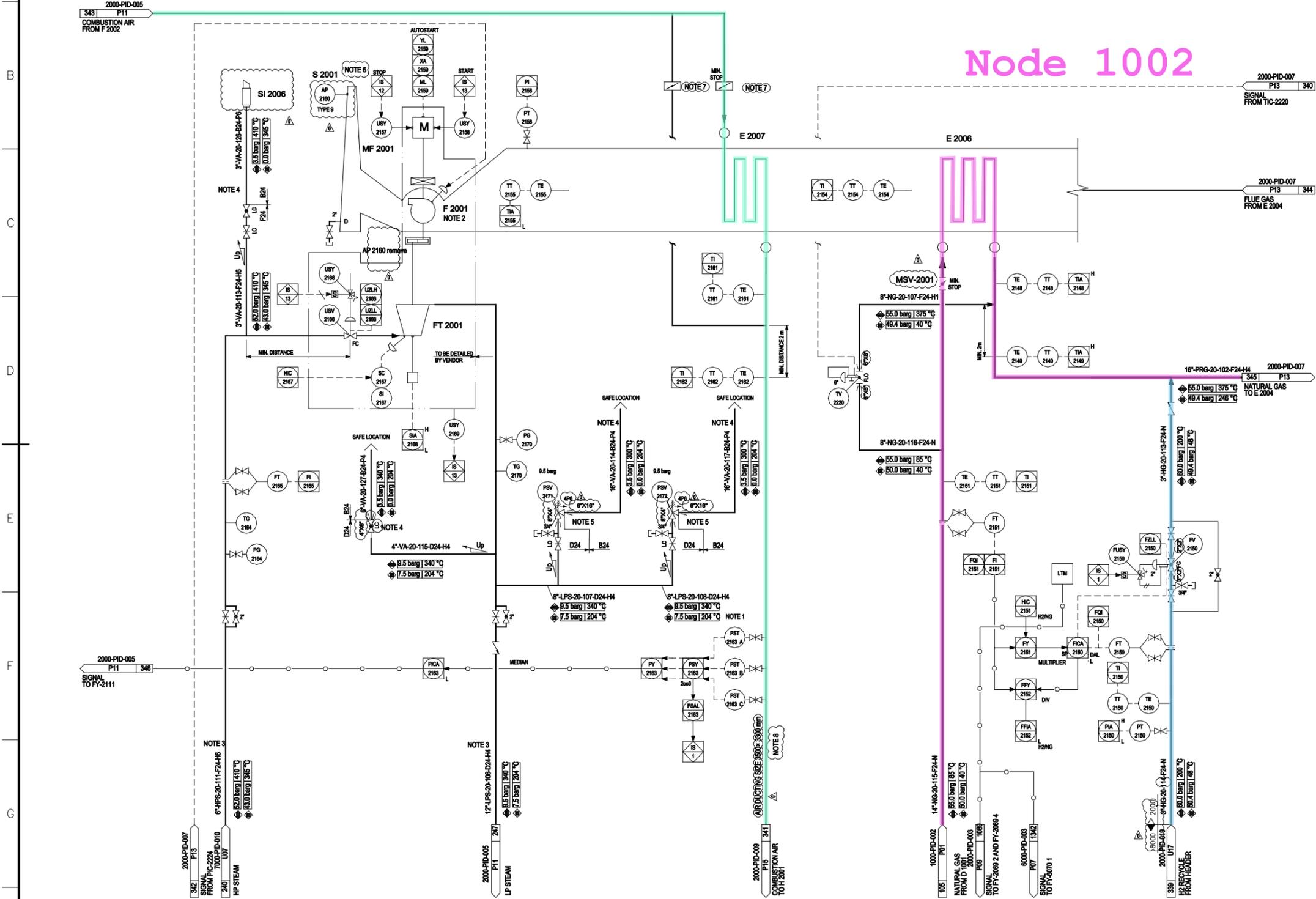
1	2	3	4	5	6	7	8	9	10	11	12
S 2001	FLUE GAS STACK	F 2001	FLUE GAS BLOWER	FT 2001	STEAM TURBINE FOR F 2001	E 2007	COMBUSTION AIR PREHEATER	E 2006	1st NATURAL GAS FEED PREHEAT COIL	SI 2006	HP STEAM SILENCER-4
CAPACITY	4392510 Nm ³ /h	CAPACITY	469314 kg/hr	TYPE	BACK PRESSURE	DUTY	14.3 MW	DUTY (CDR-rich gas)	17.7 MW	CAPACITY	8000 kg/hr
DESIGN PRESS.	Ambient barg	PRESS. (SUC./DIS.)	-0.05/0 barg	DESIGN PRESS.	52 barg	DESIGN PRESS.(COIL)	BY VENDOR barg	DESIGN PRESS.(COIL)	55 barg	DESIGN PRESS.	3.5 barg
DESIGN TEMP.	250 °C	TEMP. (SUC./DIS.)	150/ °C	DESIGN TEMP.	410 °C	DESIGN TEMP.(COIL)	210 °C	DESIGN TEMP.(COIL)	350 °C	DESIGN TEMP.	410 °C
		GAS HOUSE POWER		RATED POWER	2500 kW						
		AUXILIARY PIPING	By Vendor								

GENERAL NOTES

NOTES:

- PST-2163 A/B/C TO BE LOCATED AS CLOSE AS POSSIBLE TO H 2001.
- GUIDE VANES
- PIPE SIZES FOR STEAM AT FT 2001 BY TURBINE VENDOR.
- 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
- VALVE SIZE WILL BE CONFIRMED BY VENDOR.
- THE AP-2160 IS LOCATED 1m BELOW THE TOP OF EDGE OF STACK.
- SIZE OF AIR DAMPER IS DETERMINED BY VENDOR.
- AIR DUCTING SIZE WILL BE CONFIRMED BY VENDOR FINALLY.

GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.



Node 1002

Node 2002

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Approval for Construction	16.06.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
Issued for Comments	29.04.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER:
Middle East
Kimiaye Pars Company

HALDOR TOPSØE A/S	DOCUMENT NAME: FLUE GAS WHS II PIPING AND INSTRUMENT DIAGRAM	JOB NO. S-02115	DOC. NO. 42	REV. 4
TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO. MKP-11-DE-2000-PS07-PID-006	DWG. NO. 1341722	DISCIPLINE P12	
	SHEET 01 TOTAL 01			
	SUB-CONTRACTOR DRAWING NO.			
	SHEET - TOTAL -			

FLUE GAS WHS II PIPING AND INSTRUMENT DIAGRAM	PROJECT MKP Methanol Project
	UNIT Reformer
	PHASE Detail Engineering
SCALE SHEET:1 TOT:1 SIZE:A1	OWNER DWG. NO. MKP-11-DE-2000-PR-PID-006

Counter	Sign	Date
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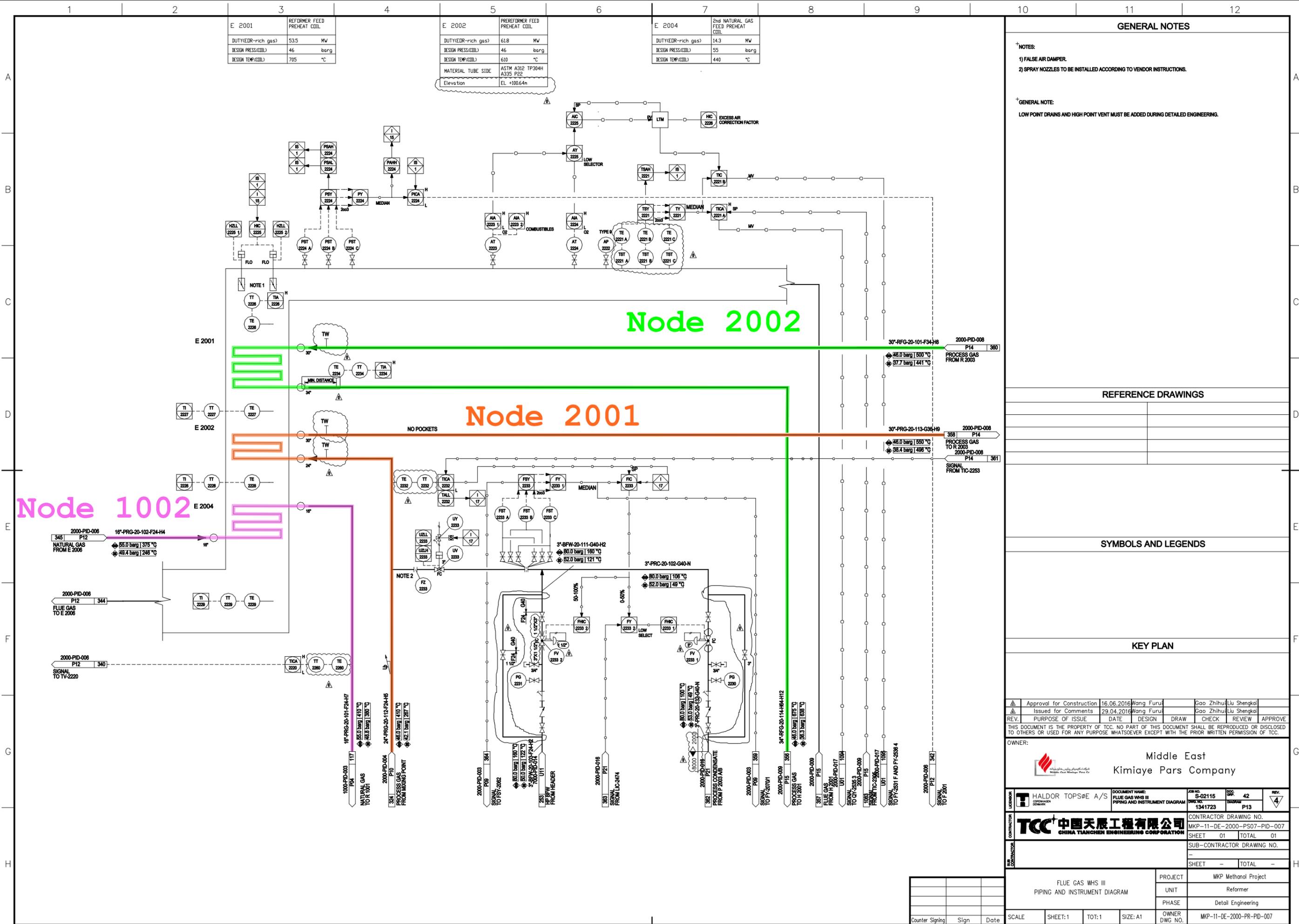
E 2001	REFORMER FEED PREHEAT COIL
DUTY(E.D.R-rich gas)	53.5 MW
DESIGN PRESS.(COIL)	46 barg
DESIGN TEMP.(COIL)	705 °C

E 2002	PREREFORMER FEED PREHEAT COIL
DUTY(E.D.R-rich gas)	61.8 MW
DESIGN PRESS.(COIL)	46 barg
DESIGN TEMP.(COIL)	610 °C
MATERIAL TUBE SIDE	ASTM A312 TP304H A335 P22
Elevation	EL +100.64m

E 2004	2nd NATURAL GAS FEED PREHEAT COIL
DUTY(E.D.R-rich gas)	14.3 MW
DESIGN PRESS.(COIL)	55 barg
DESIGN TEMP.(COIL)	440 °C

GENERAL NOTES

- NOTES:
- FALSE AIR DAMPER.
 - SPRAY NOZZLES TO BE INSTALLED ACCORDING TO VENDOR INSTRUCTIONS.
- GENERAL NOTE:
- LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Approval for Construction	16.06.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
Issued for Comments	29.04.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER:

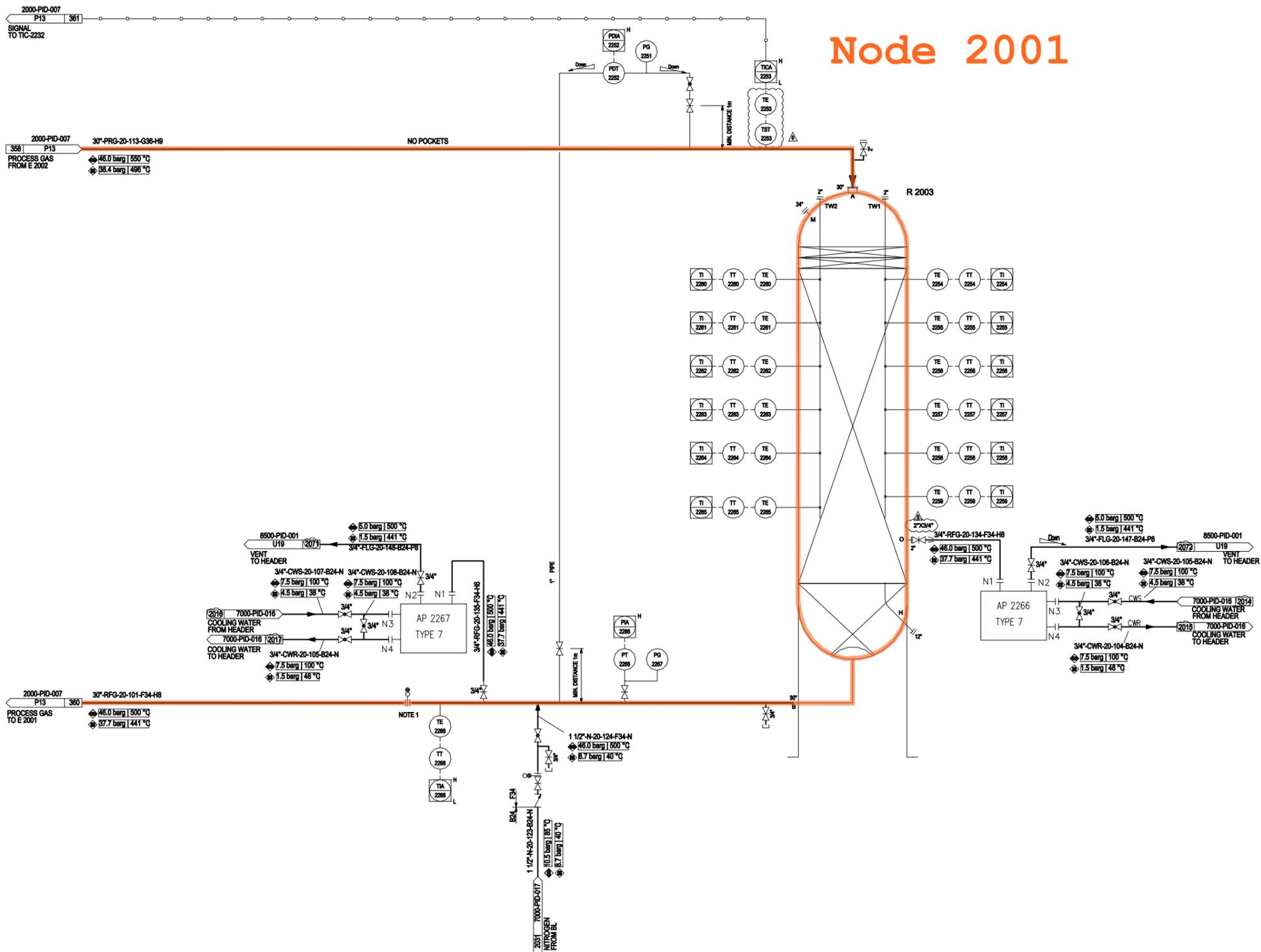
Middle East
Kimiaye Pars Company

	DOCUMENT NAME:	FLUE GAS WHS III PIPING AND INSTRUMENT DIAGRAM	JOB NO.:	S-02115	DOC. NO.:	42	REV.:	4
	CONTRACTOR:			CONTRACTOR DRAWING NO.:	1341723	DISCIPLINE:	P13	
PROJECT:			MKP Methanol Project					
UNIT:			Reformer					
PHASE:			Detail Engineering					
SCALE:			SHEET: 1 TOT: 1 SIZE: A1					
OWNER DWG. NO.:			MKP-11-DE-2000-PR-PID-007					

Counter Signing Sign Date

R 2003	PREREFORMER
ID x LENGTH	3900 x 2600 mm
DESIGN PRESS.	46 barg
DESIGN TEMP.	550 °C
Insulation	YES
CLADDING/LINING	NONE

Node 2001



GENERAL NOTES

- †NOTES:
- ISOLATE PREREFORMER DURING OPENING OF DOWNSTREAM SYSTEM TO PREVENT AIR INGRESS TO CATALYST.
- †GENERAL NOTE:
- LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Approval for Construction	16.06.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
Issued for Comments	29.04.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER:

Middle East
Kimiaye Pars Company

	DOCUMENT NAME:	PREREFORMING PIPING AND INSTRUMENT DIAGRAM	JOB NO.:	S-02115	DOC. NO.:	42	REV.:	3
	CONTRACTOR:	TCC 中國天辰工程有限 CHINA TIANCHEN ENGINEERING CORPORATION	DWG. NO.:	1341724	SUBGROUP:	P14		
CONTRACTOR DRAWING NO.			MKP-11-DE-2000-PS07-PID-008					
SHEET			01 TOTAL 01					
SUB-CONTRACTOR DRAWING NO.			-					
SHEET			- TOTAL -					

PREREFORMING PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	Reformer
		PHASE	Detail Engineering
SCALE	SHEET: 1	TOT: 1	SIZE: A1
		OWNER DWG. NO.	MKP-11-DE-2000-PR-PID-008

Counter	Sign	Date

H 2001	PRIMARY REFORMER
CAPACITY	154.1 Mw
DESIGN PRESS.(CDIL)	39 barg
DESIGN TEMP.(CDIL)	850 °C

Node 2002

- ### GENERAL NOTES
- †NOTES:
- 1) HIGH PRESSURE IN REFORMER FURNACE BOX ACTIVATES HAZARD FLASHERS, THREE FLASHERS ARE LOCATED AT EACH END OF THE REFORMER AND ON EACH FLOOR.
 - 2) FUEL PIPING AND AIR DUCTING TO BE SUPPLIED WITH FLANGES AT THE END OF SUBHEATERS. IF WELDED CAPS ARE SUPPLIED THESE MUST BE REMOVED FOR PIPE BLOWING
 - 3) END CAP FOR DISTRIBUTOR TO BE FIELD WELDED AFTER PIPE BLOWING.
 - 4) MIN 4 m INCOLOY 600 PIPE OF 1".
 - 5) LINE INFORMATION WILL BE ADDED AFTER RECEIVING VENDOR DOCUMENT
 - 6) LINE INFORMATION WILL BE ADDED AFTER RECEIVING VENDOR DOCUMENT
 - 7) NEW STANDARD IS THREE THERMOWELLS ONE FOR EACH THERMOCOUPLE.
 - 8) (THREE INDIVIDUAL THERMOWELLS IN THE SAME THERMOWELL IS ACCEPTABLE IF ALREADY IMPLEMENTED)
 - 9) AIR DUCTING SIZE WILL BE CONFIRMED BY VENDOR FINALLY

†GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

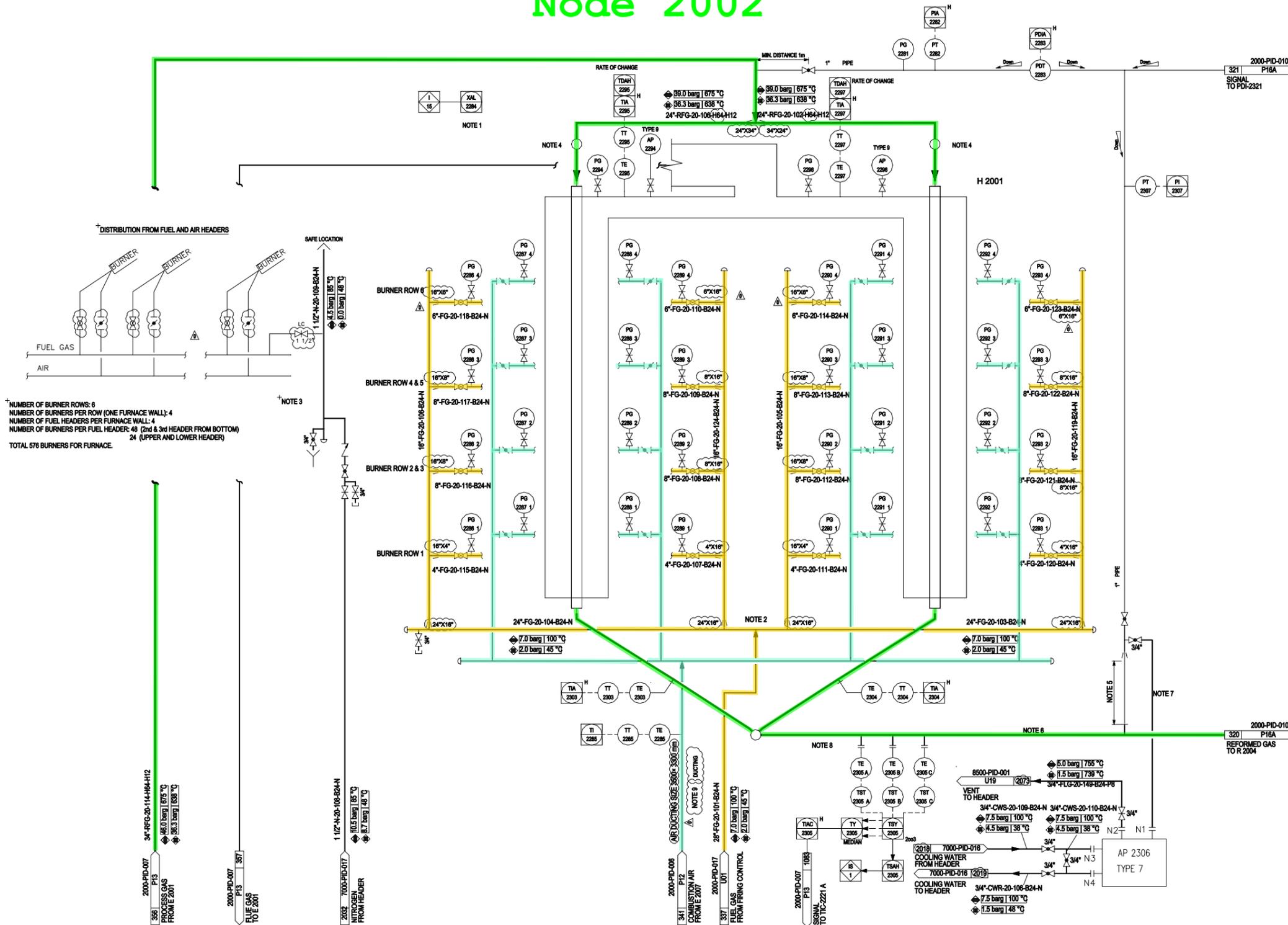
Approval for Construction	16.06.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
Issued for Comments	29.04.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER: **Middle East Kimiaye Pars Company**

	DOCUMENT NAME: TUBULAR REFORMER PIPING AND INSTRUMENT DIAGRAM	JOB NO: S-02115	SHEET NO: 42	REV. 4
	CONTRACTOR DRAWING NO. MKP-11-DE-2000-PS07-PID-009	SHEET NO. 01	TOTAL SHEETS 01	SUB-CONTRACTOR DRAWING NO. -

TUBULAR REFORMER PIPING AND INSTRUMENT DIAGRAM	PROJECT MKP Methanol Project
	UNIT Reformer
	PHASE Detail Engineering
SCALE SHEET:1	TOT:1
SIZE: A1	OWNER DWG NO. MKP-11-DE-2000-PR-PID-009



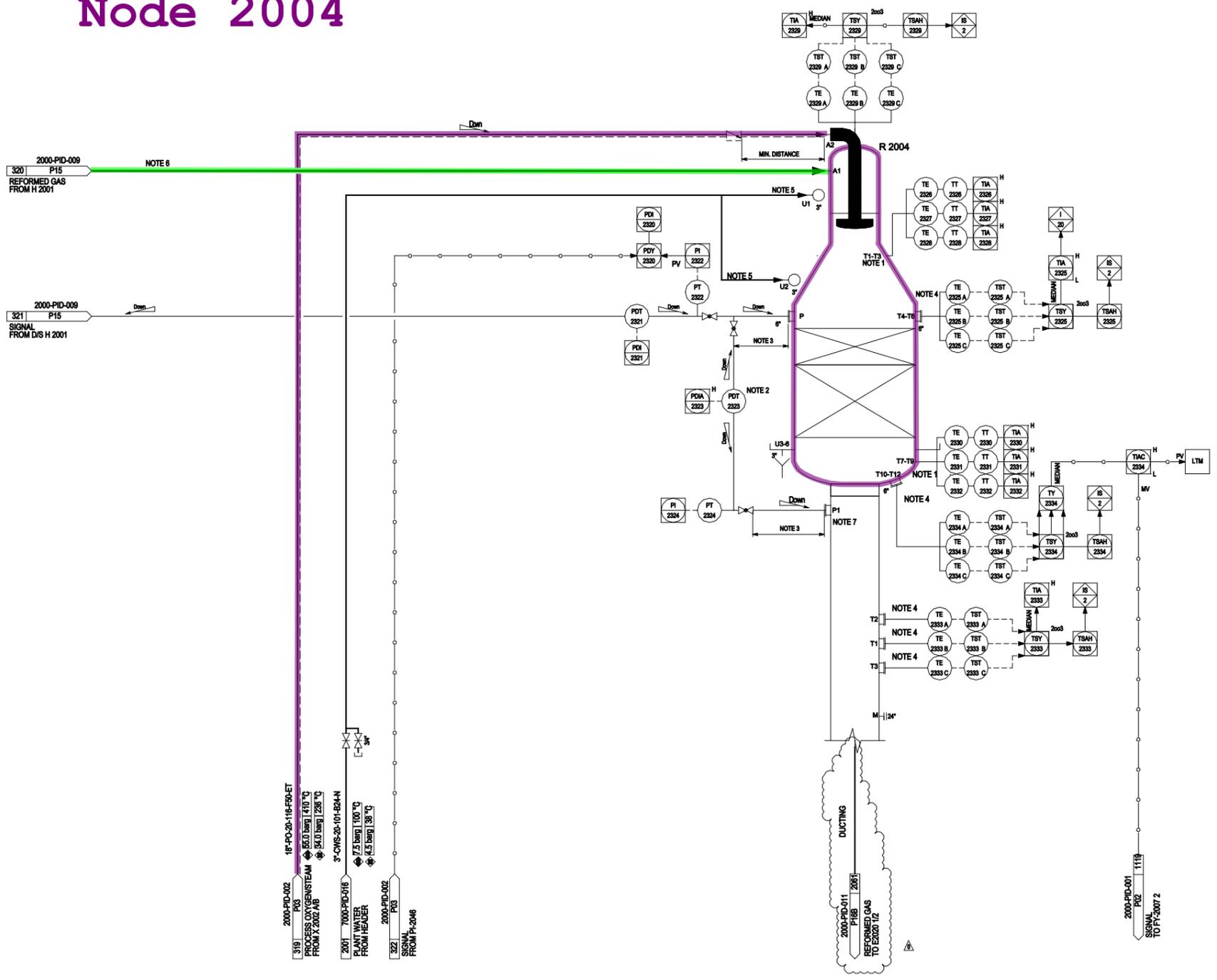
- †NUMBER OF BURNER ROWS: 6
 †NUMBER OF BURNERS PER ROW (ONE FURNACE WALL): 4
 †NUMBER OF FUEL HEADERS PER FURNACE WALL: 4
 †NUMBER OF BURNERS PER FUEL HEADER: 48 (2nd & 3rd HEADER FROM BOTTOM)
 †TOTAL 576 BURNERS FOR FURNACE.

Counter	Sign	Date

Node 2004

R 2004	SECONDARY REFORMER
ID x LENGTH	5400 x 8231 mm
DESIGN PRESS.	34.7 barg
DESIGN TEMP.	400 °C
Insulation	YES
CLADDING/LINING	LINING

- ### GENERAL NOTES
- ⁺NOTES:
- 1) SHELL TEMPERATURE MONITORING.
 - 2) TRANSMITTERS MUST BE INSTALLED ABOVE R 2004 WITH SLOPE BACK TO THE PROCESS. IMPULSE LINES MUST BE MIN. 1" PIPE.
 - 3) MIN 4 m INCOLOY 600 PIPE OF 1".
 - 4) NITROGEN REQUIRED AT THERMOWELL.
 - 5) WATER SPRAYING FOR SHELL COOLING IN CASE OF HOT SPOT TO OPEN DRAIN.
 - 6) LINE INFORMATION WILL BE ADDED AFTER RECEIVING VENDOR DOCUMENT
 - 7) P1 IS POSITIONED ON MANFOLD TO E2020 1/2 (P1 IN PROCESS SPECIFICATION)
- ⁺GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Approval for Construction	16.06.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
Issued for Comments	29.04.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER:


Middle East Kimiaye Pars Company

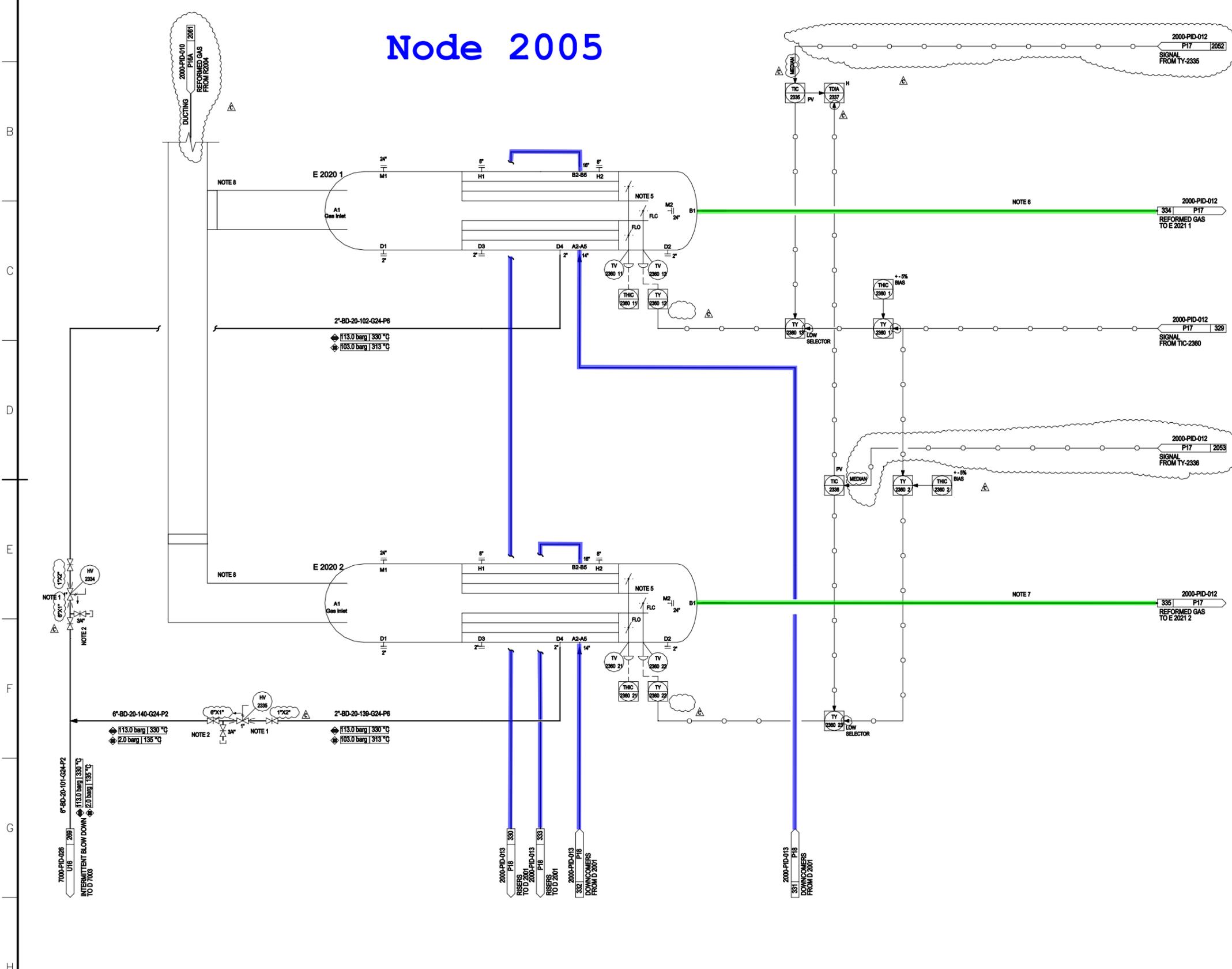
	DOCUMENT NAME:	CONTRACTOR:	JOB NO.:	DOC. NO.:	REV.:
	SECONDARY REFORMER PIPING AND INSTRUMENT DIAGRAM	CHINA TIANCHEN ENGINEERING CORPORATION	S-02115	42	4
		CONTRACTOR DRAWING NO.:		MKP-11-DE-2000-PS07-PID-010	
		SHEET 01		TOTAL 01	
		SUB-CONTRACTOR DRAWING NO.:		-	
		SHEET -		TOTAL -	

SECONDARY REFORMER PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	Reformer
		PHASE	Detail Engineering
SCALE	SHEET: 1	TOT: 1	SIZE: A1
		OWNER DWG. NO.	MKP-11-DE-2000-PR-PID-010

Counter	Sign	Date

E 2020 1/2	WASTE HEAT BOILER
DUTY	82.5 MW
ID x LENGTH(ICT-T)	2800x7000 mm
DESIGN PRESS.(TLU/SH)	31/113 barg
DESIGN TEMP.(TLU/SH)	400/330 °C
Insulation	NA

Node 2005



GENERAL NOTES

- NOTES:
- 1) BLOW DOWN VALVE TO BE PLACED AS CLOSE AS POSSIBLE TO D 7003. NO POCKETS ON BOILER BLOW DOWN LINE DOWNSTREAM BLOW DOWN VALVE.
 - 2) TWO PHASE FLOW.
- Delete Note 3
- 5) TO BE PROVIDED WITH ADJUSTABLE MINIMUM STOP.
 - 6) E 2020 1 AND E 2021 1 ARE LOCATED FIANGE BY FIANGE.
 - 7) E 2020 2 AND E 2021 2 ARE LOCATED FIANGE BY FIANGE.
 - 8) SYMMETRICAL DUCTING.
- GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

△	Issued for Approval	16.06.2016	Wang Furu	Gao Zhihui	Liu Shengkai		
▲	Issued for Comments	29.04.2016	Wang Furu	Gao Zhihui	Liu Shengkai		
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER:

Middle East
Kimiaye Pars Company

	DOCUMENT NAME: SECONDARY REFORMER II PIPING AND INSTRUMENT DIAGRAM	JOB NO: S-02115	DOC. NO.: 42	REV. NO.: 4
	CONTRACTOR DRAWING NO. MKP-11-DE-2000-PS07-PID-011 SHEET 01 TOTAL 01	SUB-CONTRACTOR DRAWING NO. -	SHEET - TOTAL -	

SECONDARY REFORMER II PIPING AND INSTRUMENT DIAGRAM	PROJECT MKP Methanol Project
	UNIT Reformer
	PHASE Detail Engineering
SCALE SHEET:1 TOT:1 SIZE:A1	OWNER DWG. NO. MKP-11-DE-2000-PR-PID-011

Counter	Sign	Date

E 20201 1/2	STEAM SUPERHEATER
DUTY	22.01 MW
ID x LENGTH(T-D)	2500x9000 mm
DESIGN PRESS.(TU/SH)	112/31 barg
DESIGN TEMP.(TU/SH)	490/450 °C
Insulation	YES

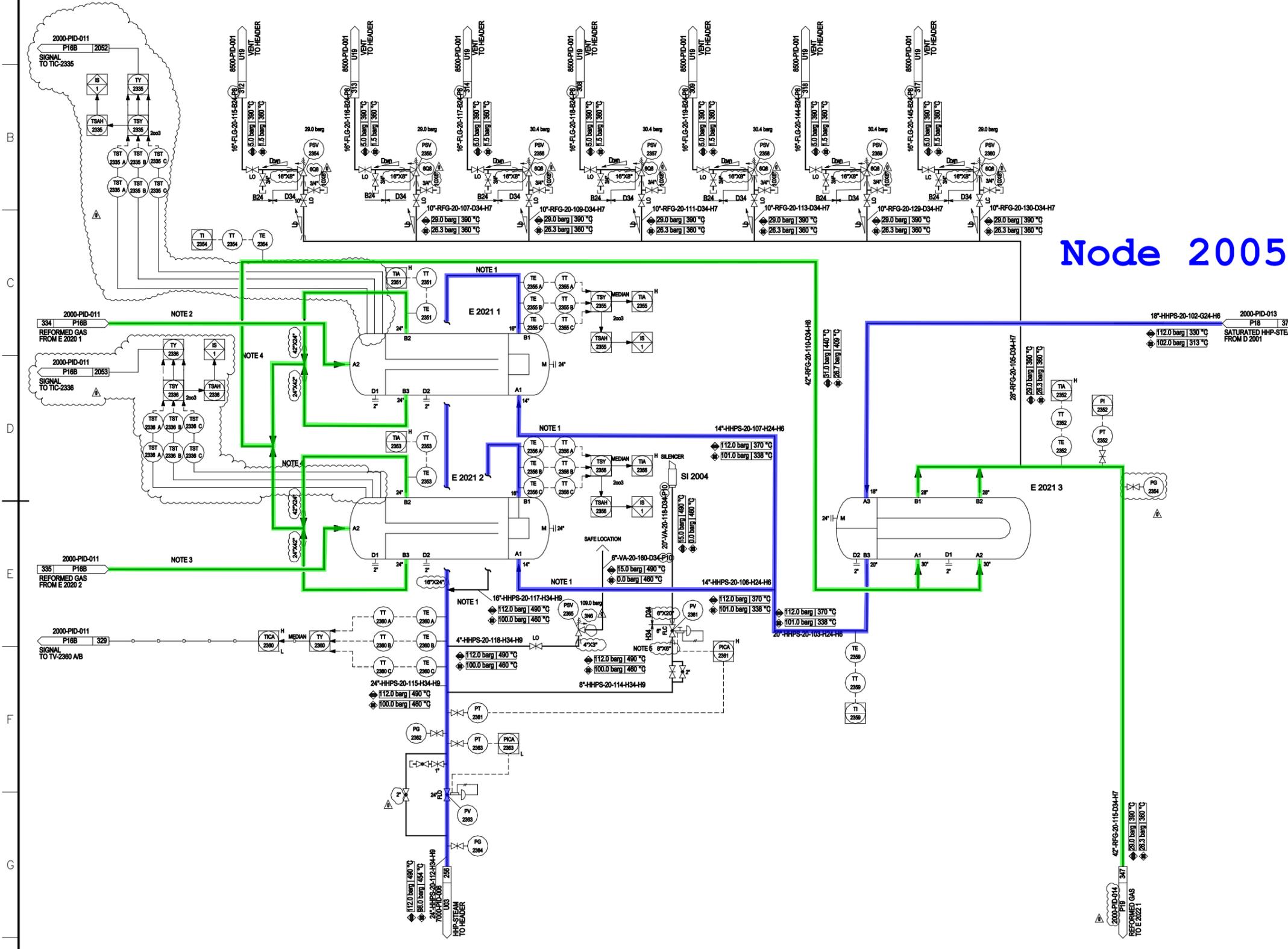
SI 2004	HIP Steam SILENCER-1
CAPACITY	117000 kg/hr
DESIGN PRESS.	15 barg
DESIGN TEMP.	490 °C

E 2021 3	STEAM SUPERHEATER
DUTY	15.8 MW
ID x LENGTH(T-D)	1675x7200 mm
DESIGN PRESS.(TU/SH)	112/31 barg
DESIGN TEMP.(TU/SH)	370/440 °C
Insulation	YES

GENERAL NOTES

- NOTES:
- 1) SYMMETRICAL STEAM PIPING AROUND E 2021 1/2.
 - 2) E 2020 1 AND E 2021 1 ARE LOCATED FLANGE TO FLANGE.
 - 3) E 2020 2 AND E 2021 2 ARE LOCATED FLANGE TO FLANGE.
 - 4) SYMMETRICAL PIPING.
 - 5) VALVE SIZE WILL BE CONFIRMED BY VENDOR.
- GENERAL NOTE:
- LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

Node 2005



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Approval for Construction	16.06.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
Issued for Comments	29.04.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

OWNER: Middle East
Kimiaye Pars Company

HALDOR TOPSØE A/S	DOCUMENT NAME: STEAM SUPERHEATER PIPING AND INSTRUMENT DIAGRAM	JOB NO. S-02115	DOC. NO. 1341727	REV. 4
TCC 中國天辰工程有限公司	CONTRACTOR DRAWING NO. MKP-11-DE-2000-PS07-PID-012	SHEET 01	TOTAL 01	

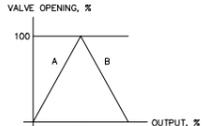
STEAM SUPERHEATER PIPING AND INSTRUMENT DIAGRAM	PROJECT MKP Methanol Project
	UNIT Reformer
	PHASE Detail Engineering
SCALE SHEET:1 TOT:1 SIZE:A1	OWNER DWG. NO. MKP-11-DE-2000-PR-PID-012

Counter Signing	Sign	Date
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Node 2005

D 2001	HHP STEAM DRUM	SI 2002	HHP Steam SILENCER-2
ID x LENGTH-T	3325 x 17000 mm	CAPACITY	35000 kg/hr
DESIGN PRESS.	112 barg	DESIGN PRESS.	10 barg
DESIGN TEMP.	330 °C	DESIGN TEMP.	330 °C
Insulation	YES		
CLADDING/LINING	NONE		

GENERAL NOTES

- NOTES:
- 1) ACCESSIBLE FROM PLATFORM.
 - 2) LINE SIZING BY SILENCER VENDOR.
 - 3) SPE-1901: PHOSPHATE INJECTION CONNECTION.
- 
- VALVE OPENING, %
- OUTPUT, %
- 4) HYDRATEST WITH LOCAL INDICATOR AT GROUND LEVEL AND SIGNAL TO DCS.
 - 5) 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
 - 6) PRESSURE COMPENSATION.
 - 7) FLOW NOZZLE TO BE LOCATED ABOVE D 2001.
 - 8) ALARM TO BE PROGRAMMED DEPENDANT ON PI-2372 READING: AH = 100 x ((PI-2372+1) - 10)
- GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Approval for Construction	16.06.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
Issued for Comments	29.04.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
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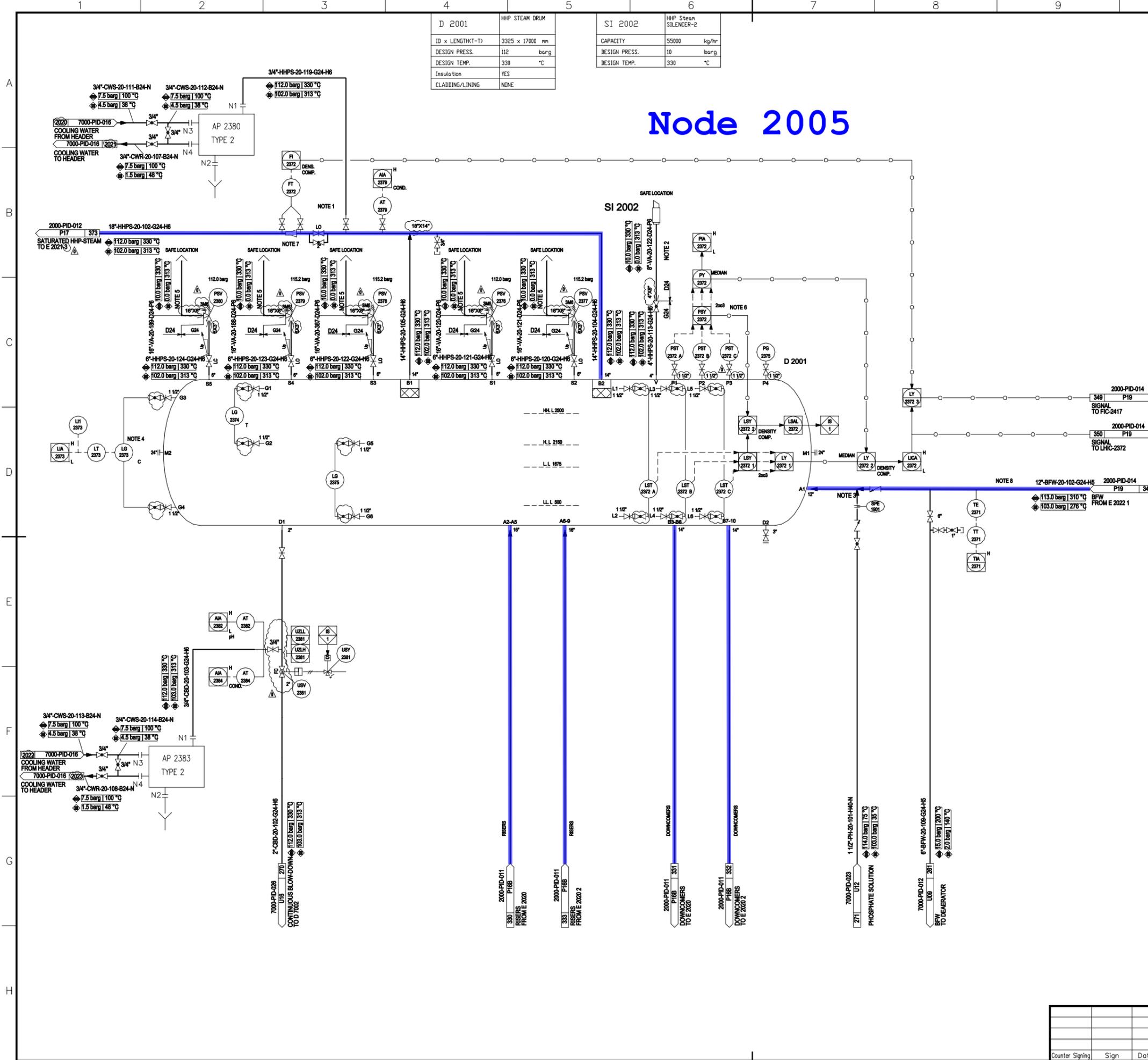


**Middle East
Kimiaye Pars Company**

LICENSOR HALDOR TOPSØE A/S	DOCUMENT NAME: STEAM GENERATION PIPING AND INSTRUMENT DIAGRAM	JOB NO. S-02115	DOC. NO. 1341728	REV. 4
	CONTRACTOR TCC 中國天辰工程有限 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO. MKP-11-DE-2000-PS07-PID-013 SHEET 01 TOTAL 01 SUB-CONTRACTOR DRAWING NO. - SHEET - TOTAL -		

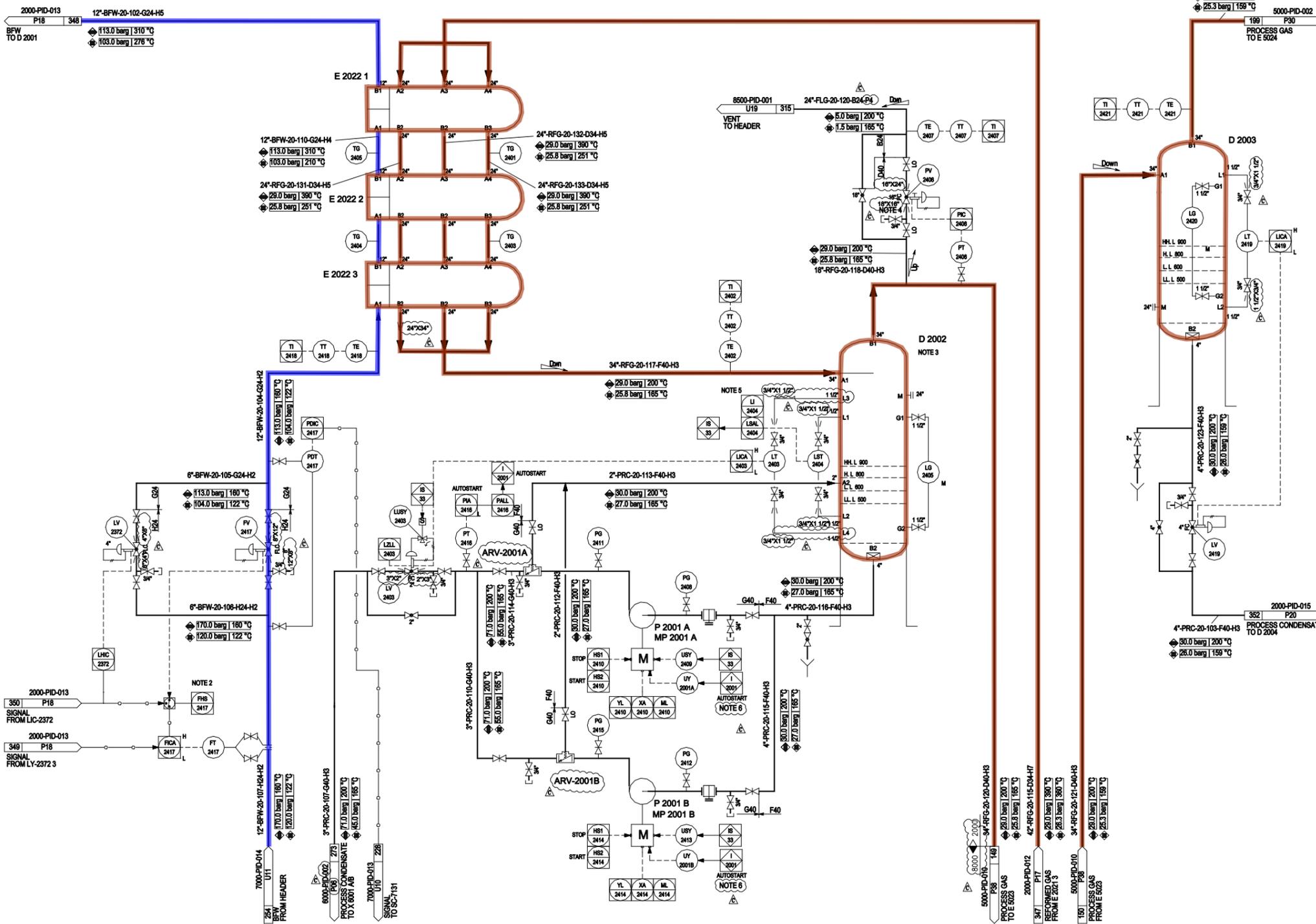
STEAM GENERATION PIPING AND INSTRUMENT DIAGRAM		PROJECT MKP Methanol Project
SCALE SHEET: 1		UNIT Reformer
TOT: 1		PHASE Detail Engineering
SIZE: A1		OWNER DWG. NO. MKP-11-DE-2000-PR-PID-013

Counter	Sign	Date



Node 2005

Node 2006



GENERAL NOTES

NOTES:

- TWO PHASE FLOW.
- SWITCHING BY FHS-2417 (SYMBOLIC INDICATED) FROM 3-ELEMENT LEVEL CONTROL VIA FIC-2417 TO SINGLE ELEMENT LEVEL CONTROL IS DONE WITH AUTOMATIC CHANGE OF TUNING CONSTANTS IN LIC-2372.
- NOZZLE B2 ON D2002 MUST BE LOCATED MIN. 2 m ABOVE P 2001 AB TO BE CONFORMED BY PUMP VENDOR.
- VALVE SIZE WILL BE CONFIRMED BY VENDOR.
- MOUNT ON STANDPIPE OR BRIDLE. ALTERNATIVELY ADD A SET OF NOZZLES (ONE SET FOR EACH LT).
- BLA2416 LOW PRESSURE THEN I-2001 WORK MAKE STAND-BY PUMP AUTOSTART.

GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Issued for Approval	16.06.2016	Wang Furui	Gao Zhihui	Liu Shengkai			
Issued for Comments	29.04.2016	Wang Furui	Gao Zhihui	Liu Shengkai			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER: Middle East Kimiaye Pars Company

HALDOR TOPSØE A/S	DOCUMENT NAME: GAS COOLING AND SEPARATION I PIPING AND INSTRUMENT DIAGRAM	JOB NO: S-02115	DOC. NO: 42	REV.:
TCC 中國天辰工程有限公司	CONTRACTOR DRAWING NO. MKP-11-DE-2000-PS07-PID-014	DATE: 13/11/2015	DESIGNER: P19	
	SHEET 01 TOTAL 01			
	SUB-CONTRACTOR DRAWING NO.			
	SHEET - TOTAL -			

GAS COOLING AND SEPARATION I PIPING AND INSTRUMENT DIAGRAM	PROJECT: MKP Methanol Project
	UNIT: Reformer
	PHASE: Detail Engineering
SCALE: SHEET:1 TOT:1 SIZE:A1	OWNER DWG NO: MKP-11-DE-2000-PR-PID-014

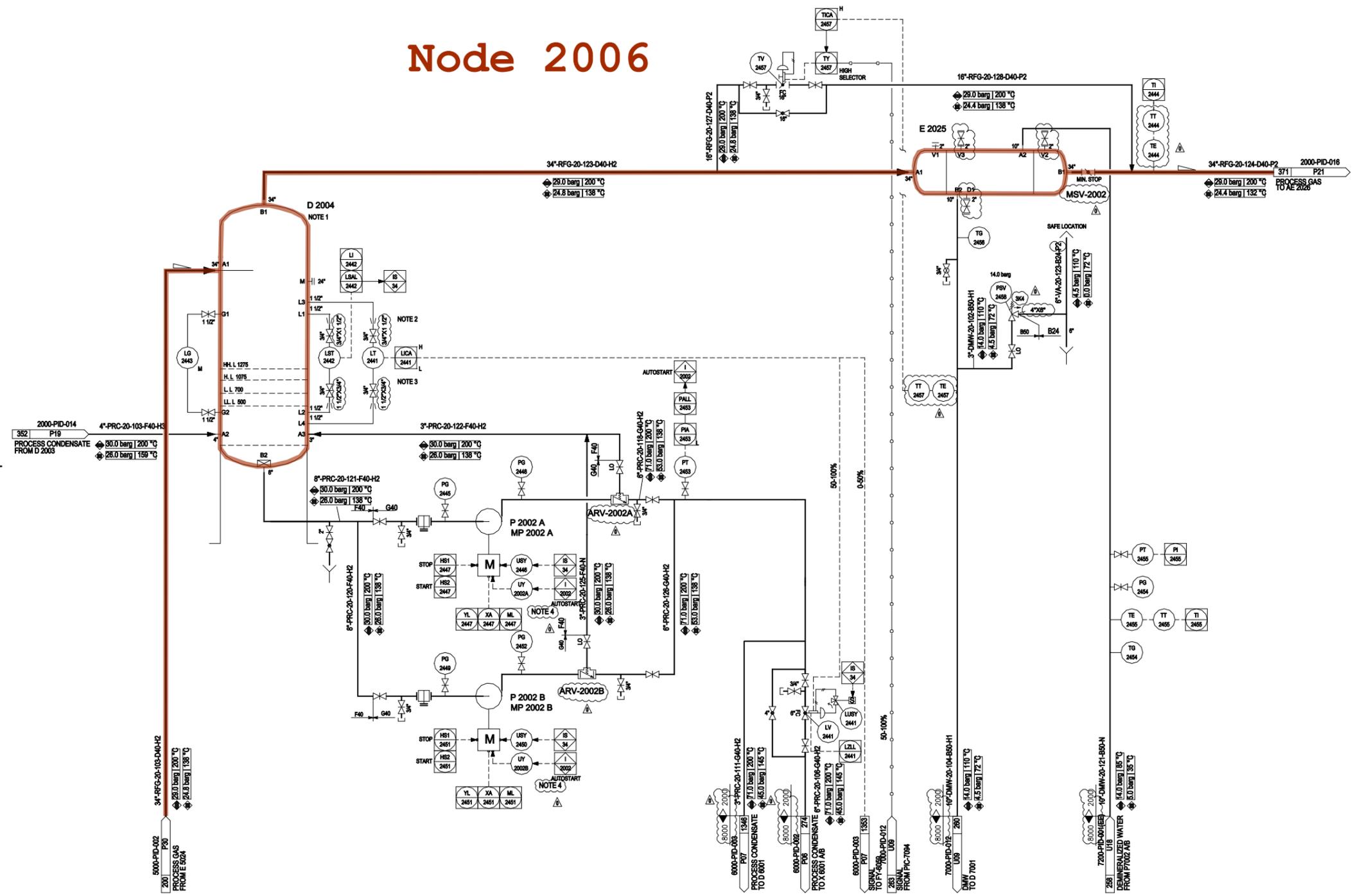
Counter Signing Sign Date

D 2004	1st SEPARATOR
ID x LENGTH(T)	3350 x 4825 mm
DESIGN PRESS.	29 barg
DESIGN TEMP.	200 °C
INSULATION	YES
CLADDING/LINING	NONE
Elevation	EL +100.6m

P 2002 A/B	PROCESS CONDENSATE PUMP NO.2
CAPACITY	116.5 m3/h
Head	279.9 m
DENSITY	928 kg/m3
INSULATION/TRACING	YES
AUXILIARY PIPING	By Vendor

E 2025	3MW PREHEATER
DUTY	9.4 MW
ID x LENGTH(T)	1000x1800 mm
DESIGN PRESS.(TL/SH)	29/14 barg
DESIGN TEMP.(TL/SH)	200/100 °C
Insulation	YES

Node 2006



GENERAL NOTES

† NOTES:

- NOZZLE B2 ON D 2004 MUST BE LOCATED MIN 2m ABOVE P2002 A/B. TO BE CONFIRMED BY PUMP VENDOR.
- MOUNT ON STANDPIPE OR BRIDLE. ALTERNATIVELY ADD A SET OF NOZZLES (ONE SET FOR EACH LT-).
- FUNCTION OF LIC-2441
- ELI-2443 LOW PRESSURE THEN I-2002 WORK MAKE STAND-BY PUMP AUTOSTART.

† GENERAL NOTE:

LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Approval for Construction	16.06.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
Issued for Comments	29.04.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
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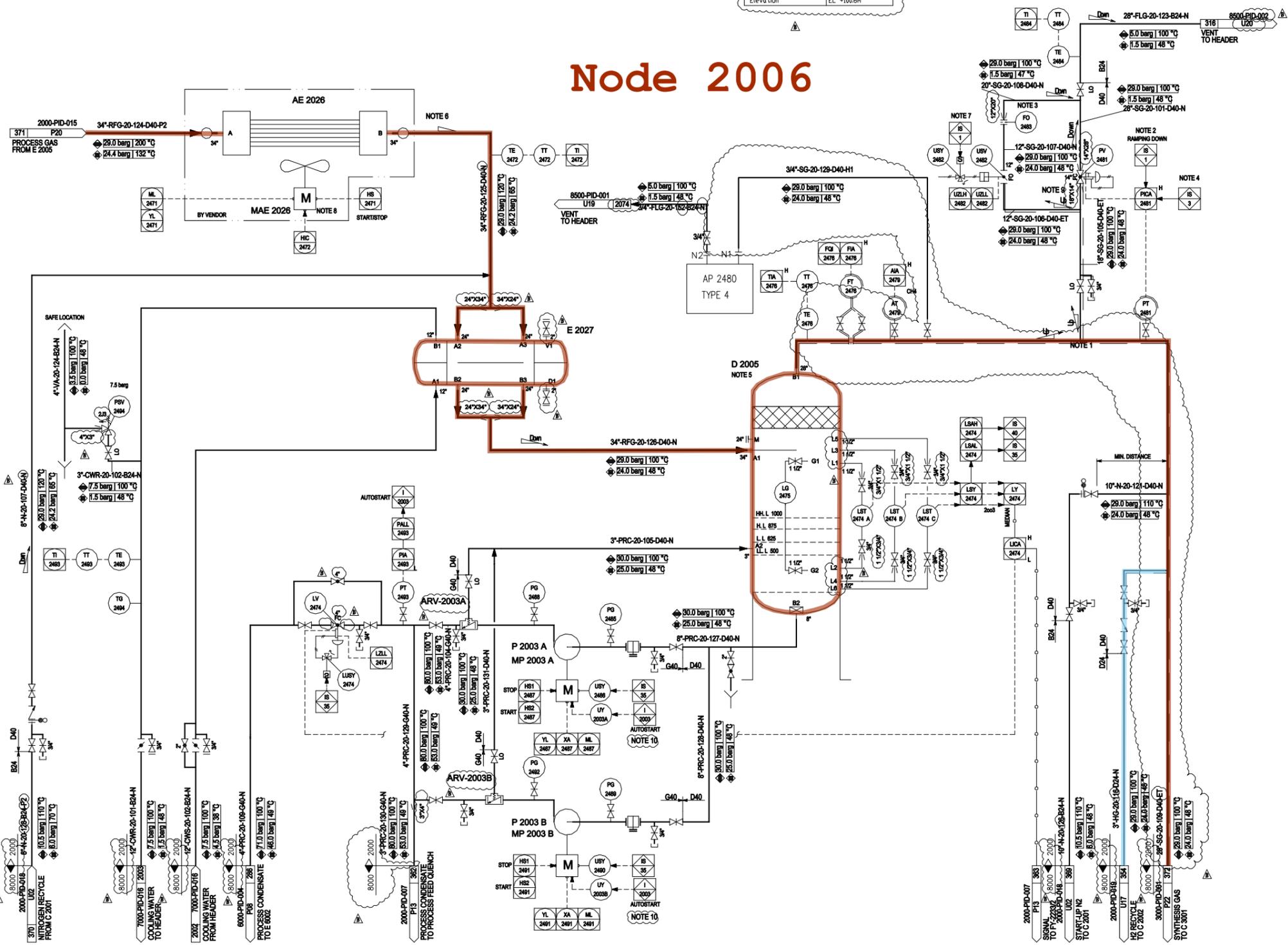
HALDOR TOPSØE A/S	DOCUMENT NAME: GAS COOLING AND SEPARATION II PIPING AND INSTRUMENT DIAGRAM	JOB NO: S-02115	DOC. NO: 1341730	DOC. SIZE: 42	REV: P20
TCC 中國天辰工程有限公司	CONTRACTOR DRAWING NO. MKP-11-DE-2000-PS07-PID-015				
SHEET 01 TOTAL 01					
SUB-CONTRACTOR DRAWING NO. -					
SHEET - TOTAL -					

GAS COOLING AND SEPARATION II PIPING AND INSTRUMENT DIAGRAM	PROJECT: MKP Methanol Project
	UNIT: Reformer
	PHASE: Detail Engineering
SCALE: SHEET:1 TOT:1 SIZE:A1	OWNER DWG. NO: MKP-11-DE-2000-PR-PID-015

Counter Signing	Sign	Date

AE 2026	AR COOLER	P 2003 A/B	PROCESS CONDENSATE PUMP NO.3	E 2027	WATER COOLER	D 2005	FINAL SEPARATOR
DUTY	51.3 MW	CAPACITY	83 m ³ /h	DUTY	6.5 MW	ID x LENGTH(T)	3500 x 4825 mm
ID x LENGTH(T)	BY VENDOR mm	Head	348.2 m	ID x LENGTH(T)	1400x10000 mm	DESIGN PRESS.	29 barg
DESIGN PRESS.(TL/SH)	29 barg	DENSITY	989 kg/m ³	DESIGN PRESS.(TL/SH)	7.5/29 barg	DESIGN TEMP.	100 °C
DESIGN TEMP.(TL/SH)	200 °C	INSULATION/TRACING	NONE	DESIGN TEMP.(TL/SH)	100/120 °C	Insulation	NONE
		AUXILIARY PIPING	By Vendor	Insulation	NA	CLADDING/LINING	NONE
				Elevation	EL -100.6m		

Node 2006



GENERAL NOTES

NOTES:

- TOP EXIT CONNECTION.
- CONTROLLER TO AUTO WHEN SIGNAL FROM IS-1. SETPOINT EQUAL TO PROCESS VALUE BEFORE TRIP. SETPOINT MUST BE RAMPED DOWN TO 3 barg OVER 10 min.
- PRESSURE TO BE HALVED EVERY 4 MINUTES OF DEPRESSURISATION.
- IS-3 TO PUT CONTROLLER IN MANUAL OPEN VALVE TO AN OPENING CORRESPONDING TO THE FLOW AT TIME OF TRIP THEN PIC-2481 IS PUT IN AUTO WITH SET POINT EQUAL TO ACTUAL PRESSURE AT TIME OF TRIP.
- D 2005 TO BE LOCATED CLOSE TO C 3001. NOZZLE B2 ON D 2005 MUST BE LOCATED MIN 2m ABOVE P 2003 AB. TO BE CONFIRMED BY PUMP VENDOR.
- TW IS TO BE INSTALLED ON EACH OUTLET HEADER FROM AE 2026.

Delete Note 7 and 8

9) VALVE SIZE WILL BE CONFIRMED BY VENDOR.

10) PIC-2481 LOW PRESSURE THEN I-2003 WORK MAKE STAND-BY PUMP AUTOSTART.

GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Issued for Review	16.06.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
Issued for Comments	29.04.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER: Middle East Kimiaye Pars Company

HALDOR TOPSØE A/S	DOCUMENT NAME: GAS COOLING AND SEPARATION III PIPING AND INSTRUMENT DIAGRAM	DWG NO: S-02115	REV: 42
TCC 中國天辰工程有限公司	CONTRACTOR DRAWING NO. MKP-11-DE-2000-PS07-PID-016	SHEET 01	TOTAL 01

GAS COOLING AND SEPARATION III PIPING AND INSTRUMENT DIAGRAM	PROJECT: MKP Methanol Project
	UNIT: Reforming
	PHASE: Detail Engineering
SCALE: SHEET:1 TOT:1 SIZE:A1	OWNER DWG NO: MKP-11-DE-2000-PR-PID-016

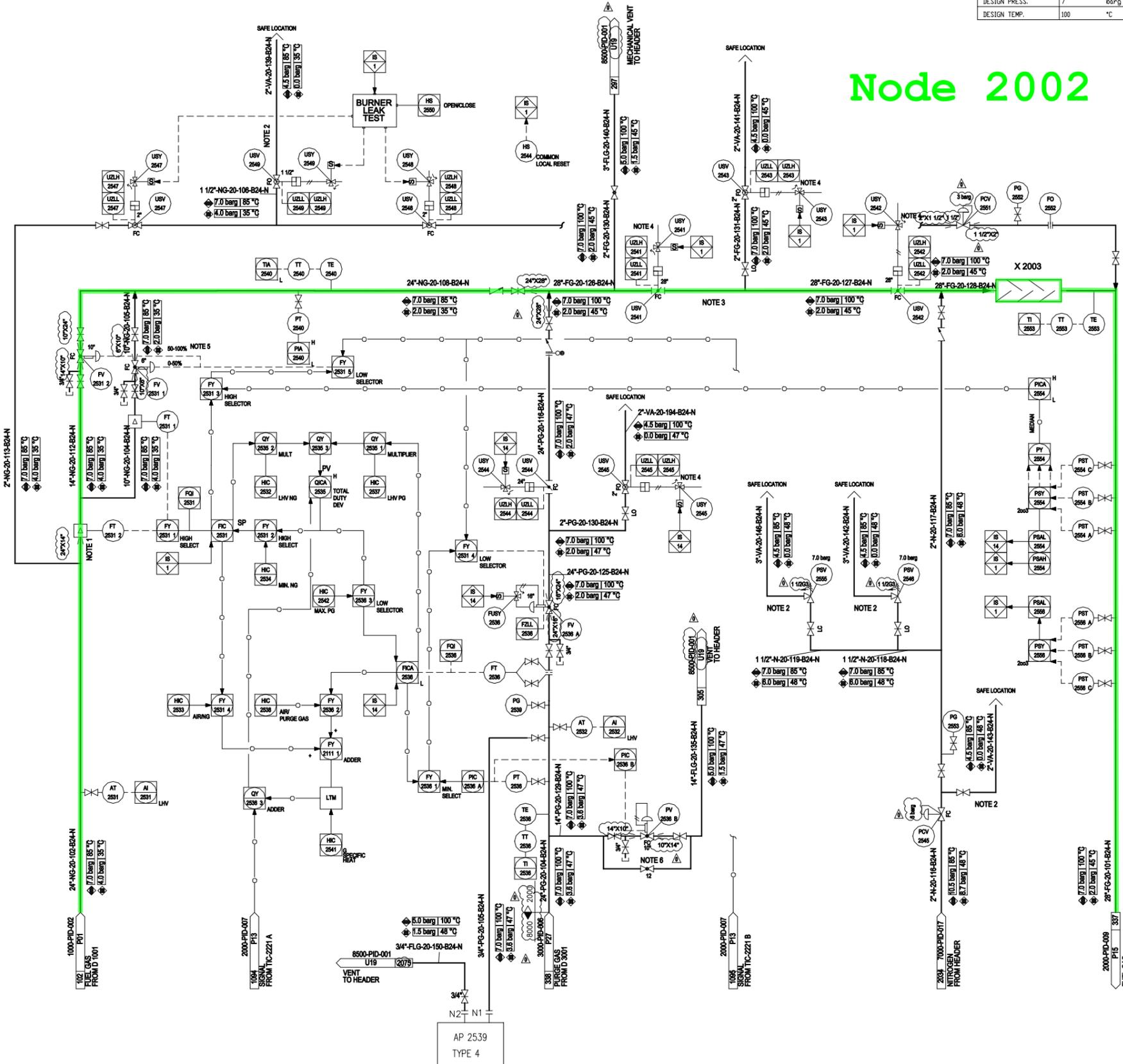
Counter Signing Sign Date

X 2003	STATIC FUEL GAS MIXER
MIXER SIZE	BY VENDOR MM
CAPACITY	55280 kg/hr
DESIGN PRESS.	7 barg
DESIGN TEMP.	100 °C

GENERAL NOTES

- NOTES:
- MIN. DISTANCE BETWEEN FT-2531 AND PV-1011: 10 meter ALTERNATIVE INCREASE PIPE DIAMETER TO ACHIEVE IDENTICAL GAS VOLUME. REQUIREMENTS OF FLOW MEASURING EQUIPMENT MUST ALSO BE CONSIDERED.
 - 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
 - DISTANCE TO FURNACE TO BE MINIMIZED.
 - SOLENOID VALVES TO BE IN 2x2d CONFIGURATION FOR SAFETY AND AVAILABILITY.
 - VALVE OPENING, %
-
- VALVE SIZE WILL BE CONFIRMED BY VENDOR.
- GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

Node 2002



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Approval for Construction	16.06.2016	Wang Furui	Gao Zhihui	Liu Shengkai			
Issued for Comments	29.04.2016	Wang Furui	Gao Zhihui	Liu Shengkai			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER: Middle East
Kimiaye Pars Company

LICENSOR	HALDOR TOPSØE A/S	DOCUMENT NAME	FUEL SYSTEM PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	DOC. NO.	42	REV.	4
	CONTRACTOR	TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	DWG. NO.	1341757	DISCIPLINE	U01	CONTRACTOR DRAWING NO. MKP-11-DE-2000-PS09-PID-001 SHEET 01 TOTAL 01 SUB-CONTRACTOR DRAWING NO. SHEET - TOTAL -		

FUEL SYSTEM PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	Reformer
		PHASE	Detail Engineering
SCALE	SHEET: 1	TOT: 1	SIZE: A1
OWNER DWG. NO.	MKP-11-DE-2000-PR-PID-017		

Counter	Sign	Date

C 2001	START-UP NITROGEN COMPRESSOR
CAPACITY	5303 Nm ³ /h
PRESS. (SUC./DIS.)	6/8 barg
TEMP. (SUC./DIS.)	48/ °C
GAS HOUSE POWER	kW
AUXILIARY PIPING	By Vendor

Node 2008

GENERAL NOTES

- NOTES:**
- 1) 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
 - 2) DETAILS BY VENDOR.
 - 3) TYPE OF STRAINER WILL BE CONFIRMED BY VENDOR.
- GENERAL NOTE:**
- LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Approval for Construction	16.06.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
Issued for Comments	29.04.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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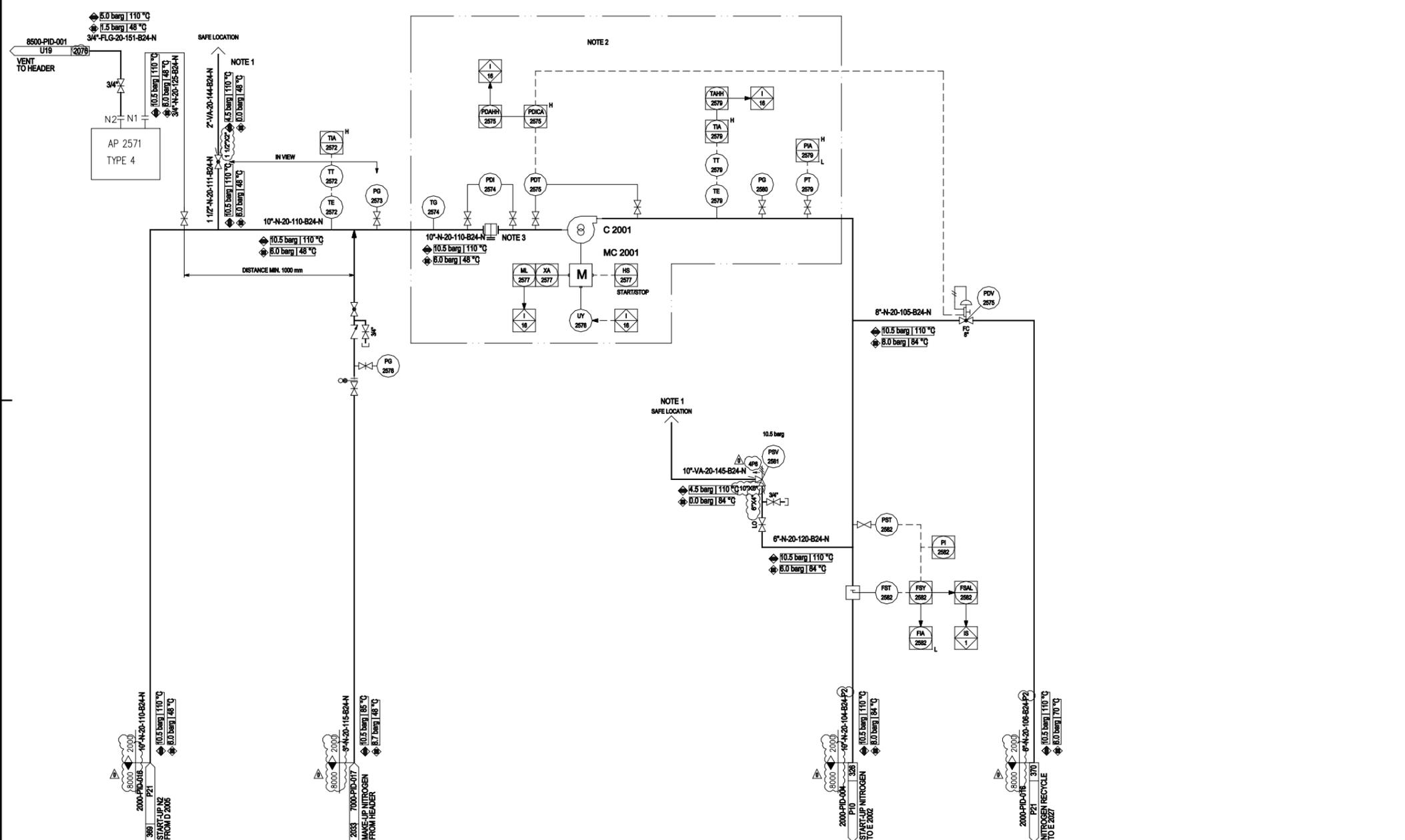
OWNER:

Middle East
Kimiaye Pars Company

	DOCUMENT NAME: START-UP BLOWER PIPING AND INSTRUMENT DIAGRAM	JOB NO. S-02115	DOC. NO. 42	REV. 3
	CONTRACTOR CODE: 1341758	CONTRACTOR DRAWING NO. MKP-11-DE-2000-PS09-PID-002	SHEET 01	TOTAL 01
SUB-CONTRACTOR DRAWING NO.		SHEET - TOTAL -		

START-UP BLOWER PIPING AND INSTRUMENT DIAGRAM		PROJECT MKP Methanol Project
		UNIT Reformer
		PHASE Detail Engineering
SCALE SHEET:1	TOT:1	SIZE:A1
OWNER DWG. NO. MKP-11-DE-2000-PR-PID-018		

Counter	Sign	Date



1 2 3 4 5 6 7 8 9 10 11 12

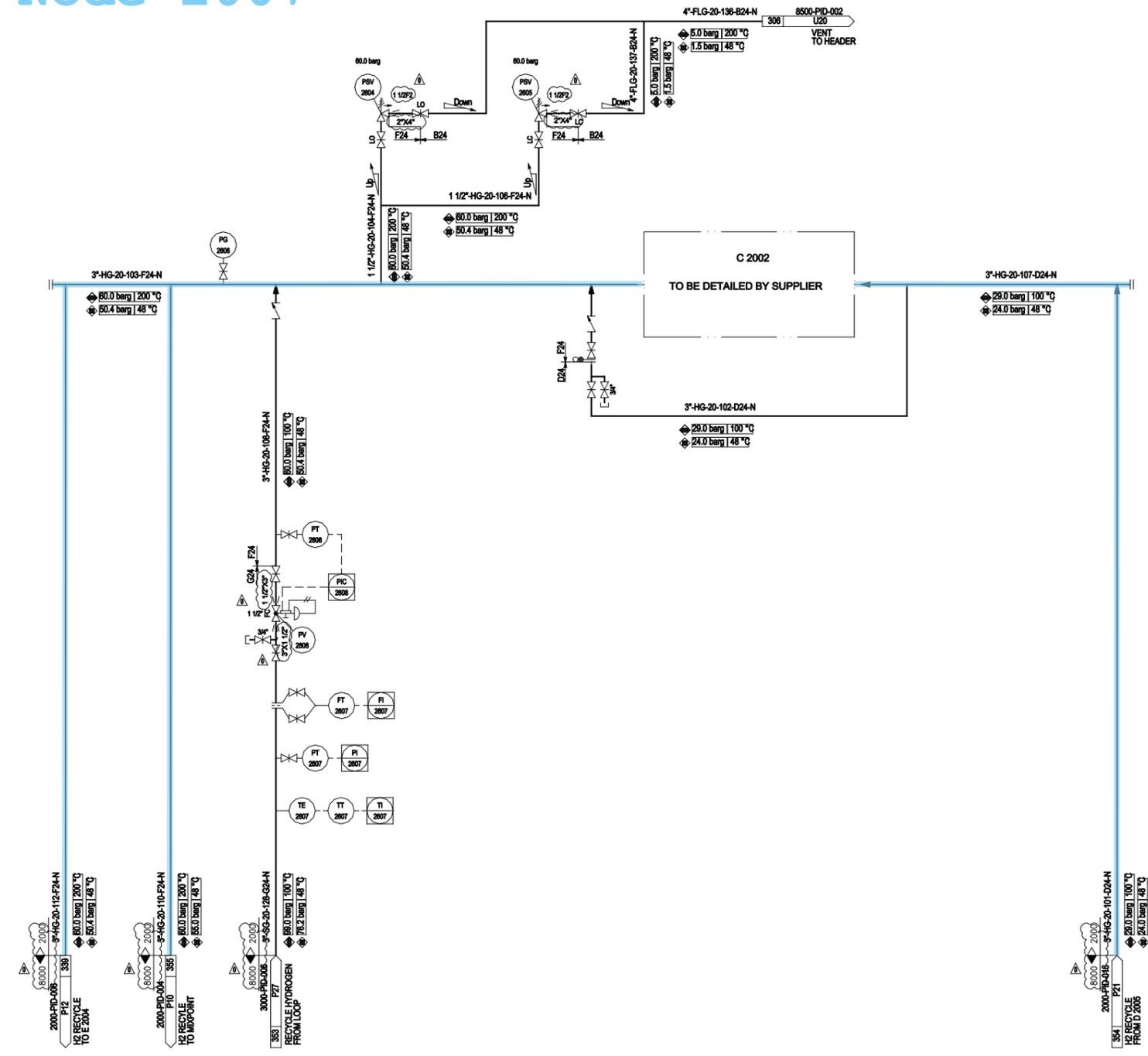
A
B
C
D
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A
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1 2 3 4 5 6 7 8 9 10 11 12

Node 2007

C 2002	HYDROGEN RECYCLE COMPRESSOR
CAPACITY	5078 Nm ³ /h
PRESS. (SUC./DIS.)	24/50.4 barg
TEMP. (SUC./DIS.)	48/ °C
GAS HOUSE POWER	kW
AUXILIARY PIPING	By Vendor



GENERAL NOTES

† GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Approval for Construction	16.06.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
Issued for Comments	29.04.2016	Wang Furu	Gao Zhihui	Liu Shengkai			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

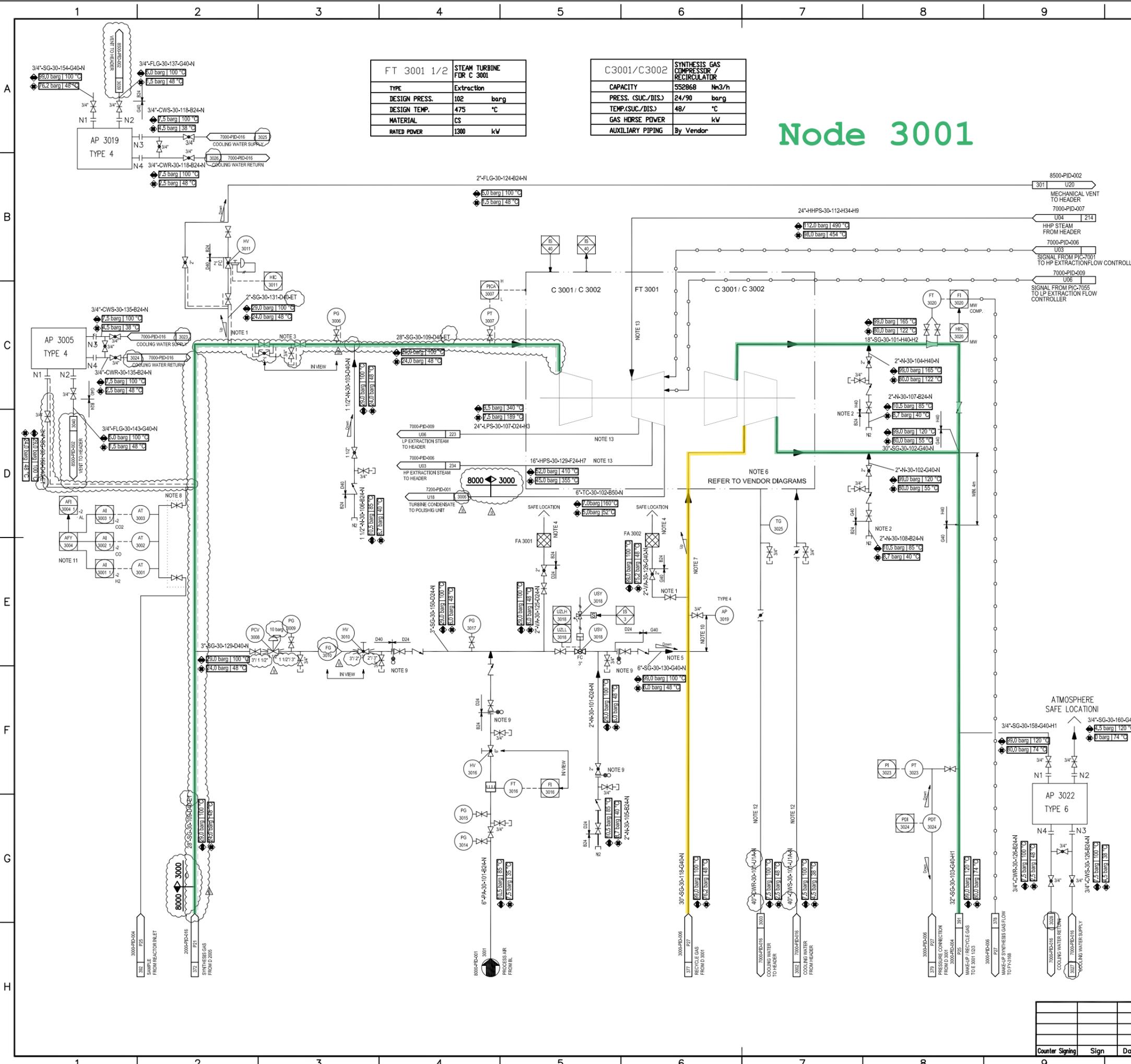
OWNER:

Middle East Kimiaye Pars Company

 HALDOR TOPSØE A/S <small>CONTRACTOR COMPANY</small>	DOCUMENT NAME: H2 RECYCLE SYSTEM PIPING AND INSTRUMENT DIAGRAM	JOB NO: S-02115	DOC. NO.: 42	REV. 2
	 TCC 中國天辰工程有限公司 <small>CHINA TIANCHEN ENGINEERING CORPORATION</small>	CONTRACTOR DRAWING NO. MKP-11-DE-2000-PS09-PID-003	DWG. NO. 1341773	ISSUE NO. U17
SUB-CONTRACTOR DRAWING NO.		SHEET 01 TOTAL 01		
SHEET - TOTAL -				

H2 RECYCLE SYSTEM PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	Reformer
		PHASE	Detail Engineering
SCALE	SHEET: 1	TOT: 1	SIZE: A1
OWNER DWG. NO.	MKP-11-DE-2000-PR-PID-019		

Counter	Sign	Date



FT 3001 1/2	STEAM TURBINE FOR C 3001
TYPE	Extraction
DESIGN PRESS.	102 barg
DESIGN TEMP.	475 °C
MATERIAL	CS
RATED POWER	1300 kW

C3001/C3002	SYNTHESIS GAS COMPRESSOR / RECIRCULATOR
CAPACITY	552868 Nm ³ /h
PRESS. (SUC./DIS.)	24/90 barg
TEMP.(SUC./DIS.)	48/ °C
GAS HORSE POWER	kW
AUXILIARY PIPING	By Vendor

Node 3001

GENERAL NOTES

- NOTES:
- PURGE POINT, TO BE LOCATED AS CLOSE AS POSSIBLE TO COMPRESSOR BLOCK VALVE.
 - FOR PRESSURIZING LOOP AT START-UP AND FOR PURGING TO BE LOCATED AS CLOSE AS POSSIBLE TO COMPRESSOR BLOCK VALVE.
 - BLOCK VALVES TO BE LOCATED AS CLOSE AS POSSIBLE TO COMPRESSOR SHUT-OFF VALVE. PIPING CLASS DOWNSTREAM BLOCK VALVES TO BE CONFIRMED BY COMPRESSOR VENDOR.
 - 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
 - TOP ENTRY CONNECTION.
 - SAFETY VALVE ON COOLING WATER TO BE INCLUDED IN VENDOR SCOPE.
 - SLOPE REQUIREMENT MUST BE FULFILLED, IF THIS IS NOT POSSIBLE, EL TRACED.
 - AUTOMATIC MANIFOLD.
 - FIGURE-8 TYPE BLIND TO BE TURNED TO NORMALLY CLOSED POSITION BEFORE STARTING LOOP PRESSURISATION.
 - AP-3019 MUST BE LOCATED AT A DISTANCE OF MINIMUM 20 X PIPEDIAMETER FROM SG 30-117.
 - AFY-3004: MODULE = $\frac{+H_2-CO_2}{CO+CO_2}$
 - TO BE CONFIRMED BY COMPRESSOR VENDOR.
 - PIPE SIZE MUST BE CONFIRMED BY TURBINE VENDOR.
- GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.
- ALL WELDING CONNECTION WITH SIZE GREATER THAN 2 INCHES SHALL BE BUTT WELDED TYPE UNLESS OTHERWISE SPECIFIED.
- ALL VALVES GREATER THAN 2 INCHES SHALL BE FLANGED TYPE UNLESS OTHERWISE SPECIFIED.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Issued for Review	25.06.2016	LI Zhijuan	Mu Yujun	Hu Qiyi			
Issued for Comments	29.04.2016	LI Zhijuan	Mu Yujun	Hu Qiyi			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

OWNER: **Middle East Kimiaye Pars Company**

LEADER: HALDOR TOPSØE A/S

CONTRACTOR: **TCC 中國天辰工程有限有限公司**

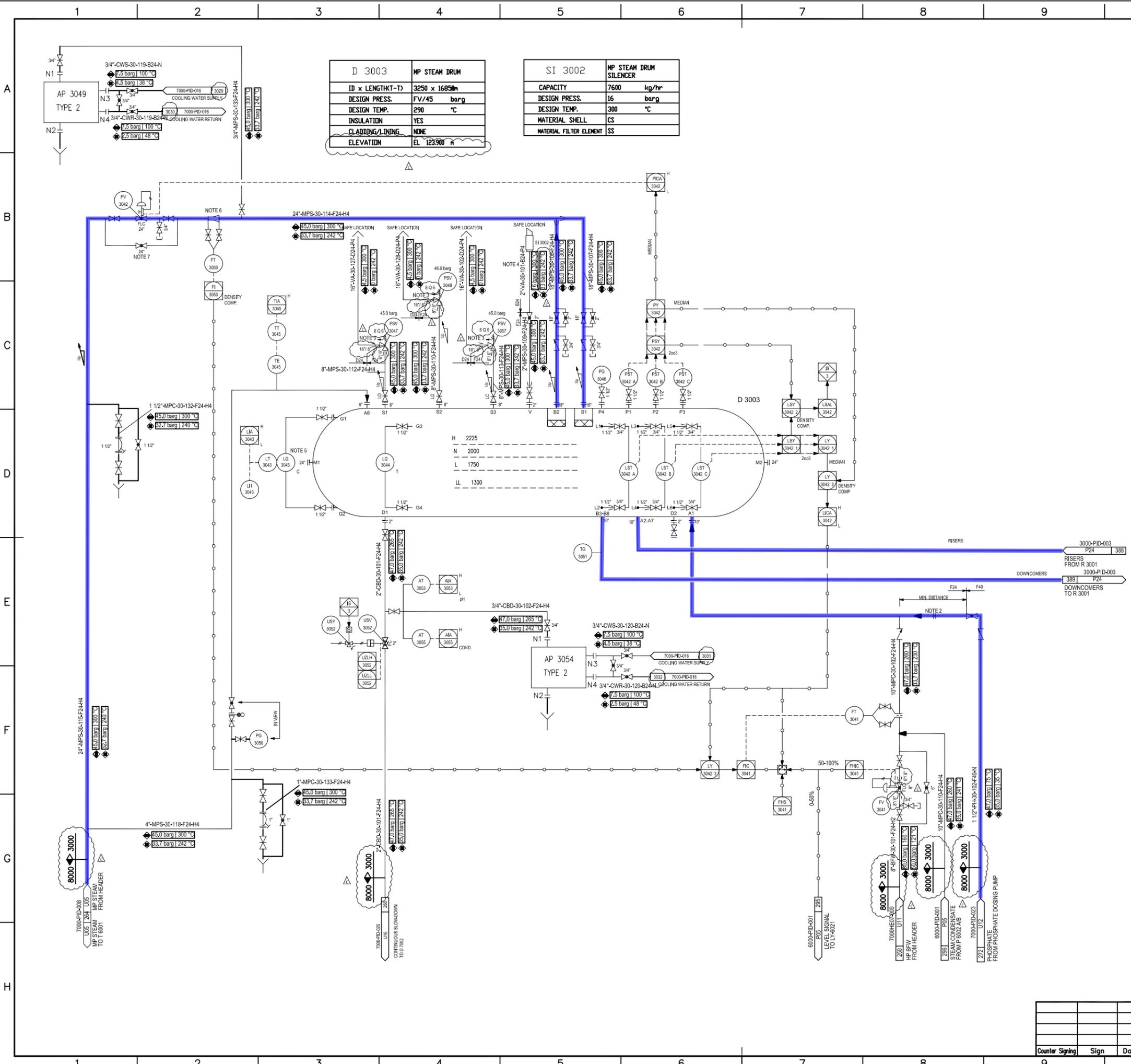
CONTRACTOR DRAWING NO. MKP-11-DE-3000-PS07-PID-001

SHEET 01 TOTAL 01

SUB-CONTRACTOR DRAWING NO. SHEET - TOTAL -

PROJECT	MKP Methanol Project
UNIT	METHANOL SYNTHESIS
PHASE	Detail Engineering
OWNER DWG NO.	MKP-11-DE-3000-PR-PID-001

SCALE: -	SHEET: 1	TOT.: 1	SIZE: A1
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D 3003		MP STEAM DRUM
ID x LENGTH-T	3250 x 16850	
DESIGN PRESS.	FV/45 barg	
DESIGN TEMP.	290 °C	
INSULATION	YES	
CLADDING/LINING	NONE	
ELEVATION	EL. 123900 m	

SI 3002		MP STEAM DRUM SILENCER
CAPACITY	7600	kg/hr
DESIGN PRESS.	16	barg
DESIGN TEMP.	300	°C
MATERIAL SHELL	CS	
MATERIAL FILTER ELEMENT	SS	

GENERAL NOTES

- NOTES:
- 1) SWITCHING FHS-3041 (SYMBOLIC INDICATED) FROM 3-ELEMENT LEVEL CONTROL VIA FIC-3041 TO SINGLE ELEMENT LEVEL CONTROL IS DONE WITH AUTOMATIC CHANGE OF TUNING CONSTANTS IN LIC-3042.
 - 2) PHOSPHATE INJECTION CONNECTION.
-
- 3) 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
 - 4) LINE SIZING BY SILENCER VENDOR.
 - 5) HYDRASTEPP WITH LOCAL INDICATOR AT GROUND LEVEL AND SIGNAL TO DCS.
 - 6) FLOW NOZZLE TO BE LOCATED ABOVE D 3003.
 - 7) EQUIPPED WITH GEAR BOX.
- GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE
▲	Issued for Approval	25.06.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi		
▲	Issued for Comments	29.04.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi		

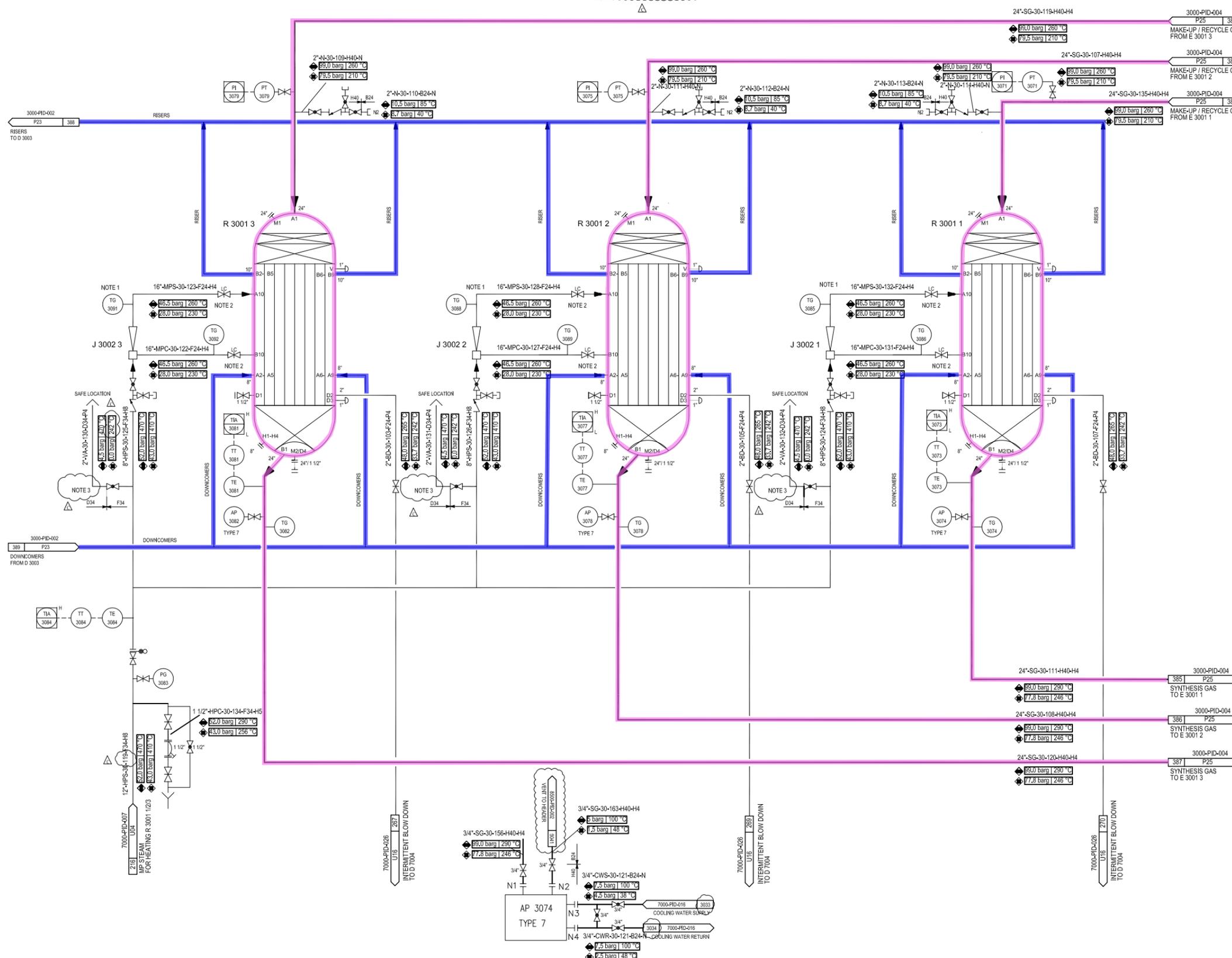
OWNER:
Middle East Kimiaye Pars Company

LEADER	SYNTHESIS PART I PIPING AND INSTRUMENT DIAGRAM	JOB NO. S-02115	CONTRACTOR DRAWING NO. MKP-11-DE-3000-PS07-PID-002
HALDOR TOPSØE A/S			
TCC 中國天辰工程有限公司			

SYNTHESIS, PART I PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	METHANOL SYNTHESIS
		PHASE	Detail Engineering
OWNER DWG NO.			MKP-11-DE-3000-PR-PID-002

Counter	Sign	Date

J 3002 1/2/3	START-UP EJECTOR	R 3001 1/2/3	METHANOL REACTOR
CAPACITY Suction/Motive	525/30 t/h	ID x LENGTH	4700 x 9000mm
DESIGN PRESS.	46.5/52 barg	VOLUME	m ³
DESIGN TEMP.	260/470 °C	DESIGN PRESS.	99/46.5 barg
MATERIAL	CS, Motive nozzle SS	DESIGN TEMP.(TU/SH)	300/260 °C
		MATERIAL SHELL	CS HEAD 1250+0.5%
		Elev. of Foundation	EL. 106.000 m



Other type 7 sample points included AP-3078 and AP-3082 are same as AP-3074 showed above. The cooling water piping numbers are CWS/CWR-30-122, CWS/CWR-30-123, for these sample points respectively. The inlet piping numbers are SG-30-157, SG-30-164, for these sample points respectively.

GENERAL NOTES

- NOTES:
- 1) MIN. DISTANCE BETWEEN J 3003 1/2/3 AND R 3001 1/2/3.
 - 2) TO BE LOCATED AS CLOSE AS POSSIBLE TO R 3001 1/2/3.
 - 3) DRIPHOLE IS NEEDED.
- GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Issued for Approval	25.06.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi			
Issued for Comments	29.04.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi			
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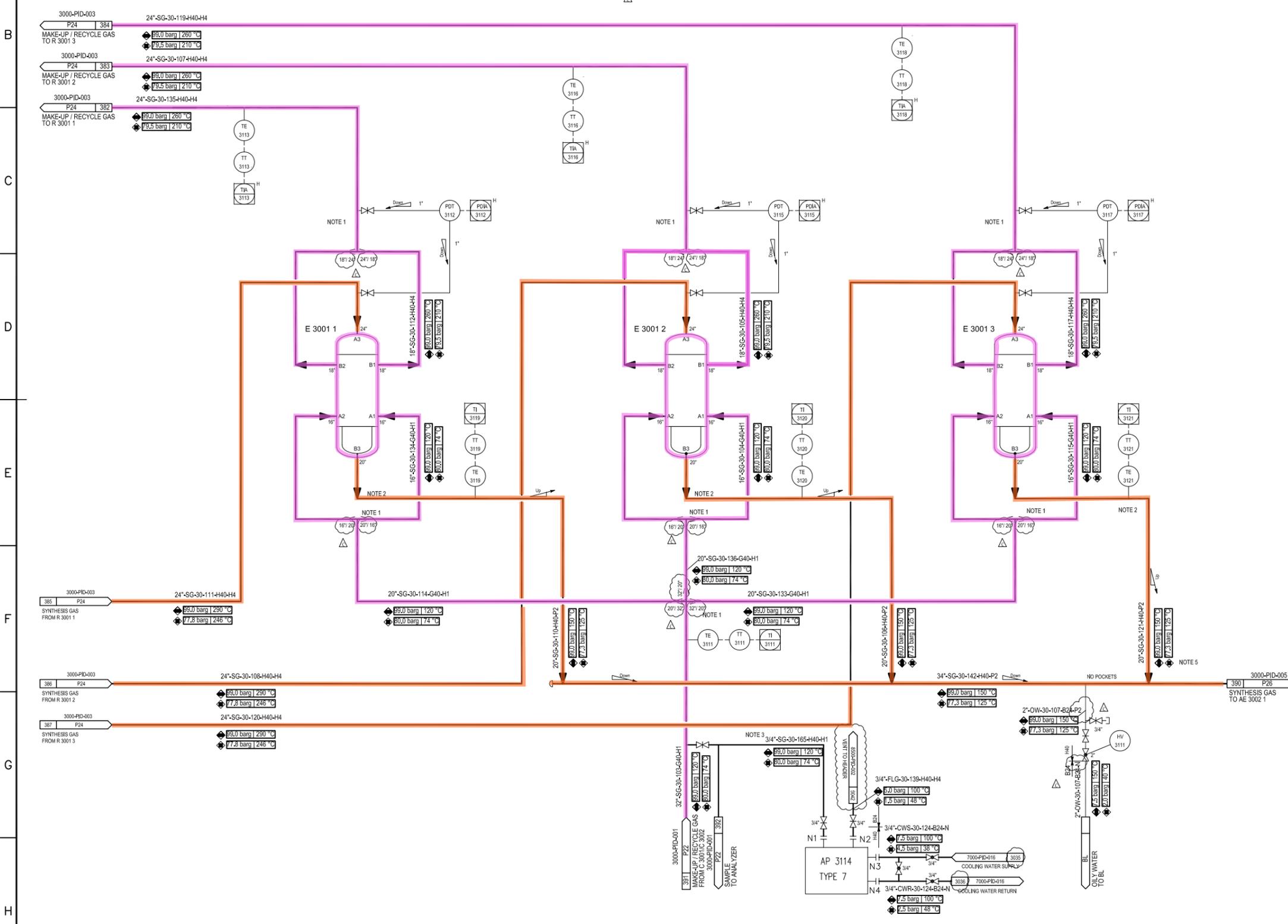
OWNER:
Middle East Kimiaye Pars Company

LEADER	HALDOR TOPSØE A/S	DOCUMENT NAME	METHANOL SYNTHESIS PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	DOC. GRP.	42	REV.	4
CONTRACTOR	TCC 中國天辰工程有限公司	CONTRACTOR DRAWING NO.	MKP-11-DE-3000-PS07-PID-003	DWG. NO.	1341734	DATE	P24		
SUB-CONTRACTOR		SHEET	01	TOTAL	01				
		SHEET	-	TOTAL	-				

METHANOL SYNTHESIS PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	METHANOL SYNTHESIS
		PHASE	Detail Engineering
SCALE: -	SHEET: 1	TOT.: 1	SIZE: A1
OWNER	MKP-11-DE-3000-PR-PID-003		

Counter	Sign	Date

E 3001 1/2/3		F/E EXCHANGER	
DUTY	133.1	MW	
ID x LENGTH	1710x18600	mm	
DESIGN PRESS.(TU./SH.)	99/99	bar(g)	
DESIGN TEMP.(TU./SH.)	290/260	°C	
MATERIAL SHELL SIDE	SS304L		
MATERIAL TUBE SIDE	SS304L		
No. of Tubes	2360		
Insulation	YES		
Elev. of Foundation	EL. 100.800	m	



GENERAL NOTES

- †NOTES:
- 1) SYMMETRICAL PIPING.
 - 2) TWO PHASE FLOW- NO POCKETS ALLOWED.
 - 3) EL-TRACED.
 - 4) I- TO PUT TIC- IN AUTO WITH SETPOINT EQUAL TO ACTUAL PV AT TIME OF TRIP, MINUS 10°C.
 - 5) SG-30-142 MUST BE AT HORIZONTAL AND THE SAME ELEVATION AS AE 3002 1/2/3.
- †GENERAL NOTE:
- LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

▲ Issued for Approval	25.06.2016	Li ZhiJuan	Mu YuJun	Hu Qiuyi	
▲ Issued for Comments	29.04.2016	Li ZhiJuan	Mu YuJun	Hu Qiuyi	
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK
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					APPROVE

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LENDOR	HALDOR TOPSØE A/S	DOCUMENT NAME	METHANOL F/E EXCHANGER PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	DOC. GRP.	42	REV.	4
CONTRACTOR	TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO.	MKP-11-DE-3000-PS07-PID-004	DWG. NO.	1341735	DATE	P25		
SUB-CONTRACTOR		SHEET	01	TOTAL	01				
		SUB-CONTRACTOR DRAWING NO.							
		SHEET	-	TOTAL	-				

METHANOL F/E EXCHANGER PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	METHANOL SYNTHESIS
		PHASE	Detail Engineering
		OWNER DWG NO.	MKP-11-DE-3000-PR-PID-004

SCALE: - SHEET:1 TOT.:1 SIZE:A1

Counter	Sign	Date

AE 3002 1/2/3 LOOP AIR COOLER	
DUTY	95 MW
ID x LENGTH(T)	BY VENDOR mm
DESIGN PRESS.(TUBE)	99/ barg
DESIGN TEMP.(TUBE)	150/ °C

E 3003 1/2/3 LOOP WATER COOLER	
DUTY	20 MW
DESIGN PRESS.(TU/SH)	7.5/99 barg
DESIGN TEMP.(TU/SH)	100/120 °C
INSULATION	YES
Elev. of Foundation EL. 113.350	

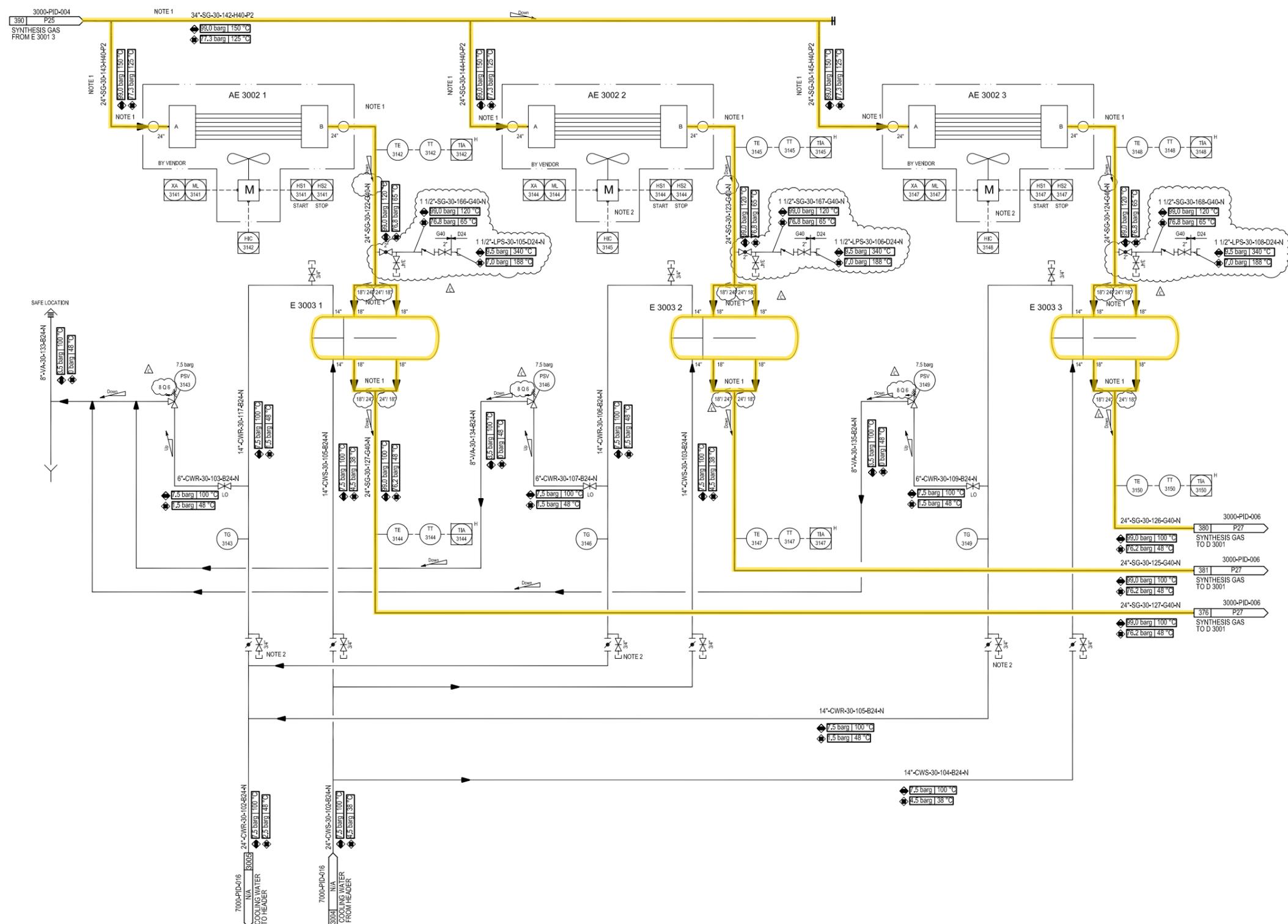
GENERAL NOTES

⁺NOTES:

1) TWO PHASE FLOW NO POCKETS ALLOWED.

2) THE DRAIN NOZZLE IS ALSO USED AS THE SAMPLING POINT. THE SAMPLING POINT IS USED FOR DETECTING THE POSSIBLE EQUIPMENT LEAKAGE REGULARLY.

⁺GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

▲ Issued for Approval	25.06.2016	LI Zhijuan	Mu Yujun	Hu Qiyi			
▲ Issued for Comments	29.04.2016	LI Zhijuan	Mu Yujun	Hu Qiyi			
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OWNER:

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Kimiaye Pars Company**

CONTRACTOR	HALDOR TOPSØE A/S	DOCUMENT NAME	SYNTHESIS GAS COOLING PIPING AND INSTRUMENT DIAGRAM	DWG. NO.	S-02115	REV.	4
	TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO.	MKP-11-DE-3000-PS07-PID-005	DWG. NO.	1341736	REV.	P26
SUB-CREATOR		SHEET	01	TOTAL	01		
		SHEET	-	TOTAL	-		

PROJECT		MKP Methanol Project
UNIT		METHANOL SYNTHESIS
PHASE		Detail Engineering
OWNER DWG. NO.	MKP-11-DE-3000-PR-PID-005	

SCALE: -	SHEET: 1	TOT.: 1	SIZE: A1
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Counter	Sign	Date

D 3001	HP SEPARATOR
ID x LENGTH-T	4900 x 4800 mm
DESIGN PRESS.	99.0 barg
DESIGN TEMP.	100 °C
INSULATION	NO
CLADDING/LINING	CS Cladded With SS304L
Elev. of Foundation	EL 100.600 m

J 3001	EJECTOR
CAPACITY Suction/Motive	577/62275 Nm ³ /h
DESIGN PRESS.	FV/3.5 /99.0 barg
DESIGN TEMP.	75/100 °C
MATERIAL	CS, Motive nozzle SS

GENERAL NOTES

- NOTES:
- 1) VALVE TO DE PLACED OUTSIDE SYNTHESIS AREA - ACCESSIBLE IN CASE OF FIRE.
 - 2) EMERGENCY DEPRESSURISATION TO DE ACTUATED MANUALLY IN CASE OF FIRE. PIC-3166 B IS RAMPING DOWN TO 50% OF DESIGN PRESSURE IN 15 MINUTES.
 - 3) D 3001 MUST DE LOCATED AS CLOSE AS POSSIBLE TO C 3002.
 - 4) CONNECTION FOR STEAM OUTDEWAXING.
 - 5) SWITCH FIC-3169 TO AUTO WITH A SETPOINT EQUAL TO ACTUAL OPERATING POINT AND RAMPING THIS SETPOINT DOWN TO ZERO IN TWO MINUTES. HEREAFTER FIC-3169 IS SET IN MANUAL WITH ZERO OUTPUT.
 - 6) SLOPE REQUIREMENT MUST DE FULFILLED, IF THIS IS NOT POSSIBLE, EL TRACED.
 - 7) STEAM OUT OF DEMISTER.
 - 8) SOLENOID VALVES TO DE IN 20x2D CONFIGURATION FOR SAFETY AND AVAILABILITY.
 - 9) BOTH VALVES DESIGNED FOR FULL FLOW.
 - 10) GATE VALVE AND GLOBE VALVE WITH 1.5M DISTANCE BETWEEN THEM.
 - 11) REQUIRED PIPING RUN UPSTREAM (10D) AND DOWN STREAM (5D) OF ALL FLOW METERS SHOULD BE CONSIDERED.
 - 12) DIRECTLY CONNECT THE BYPASS WITH THE MAIN PIPE.
- GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST DE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

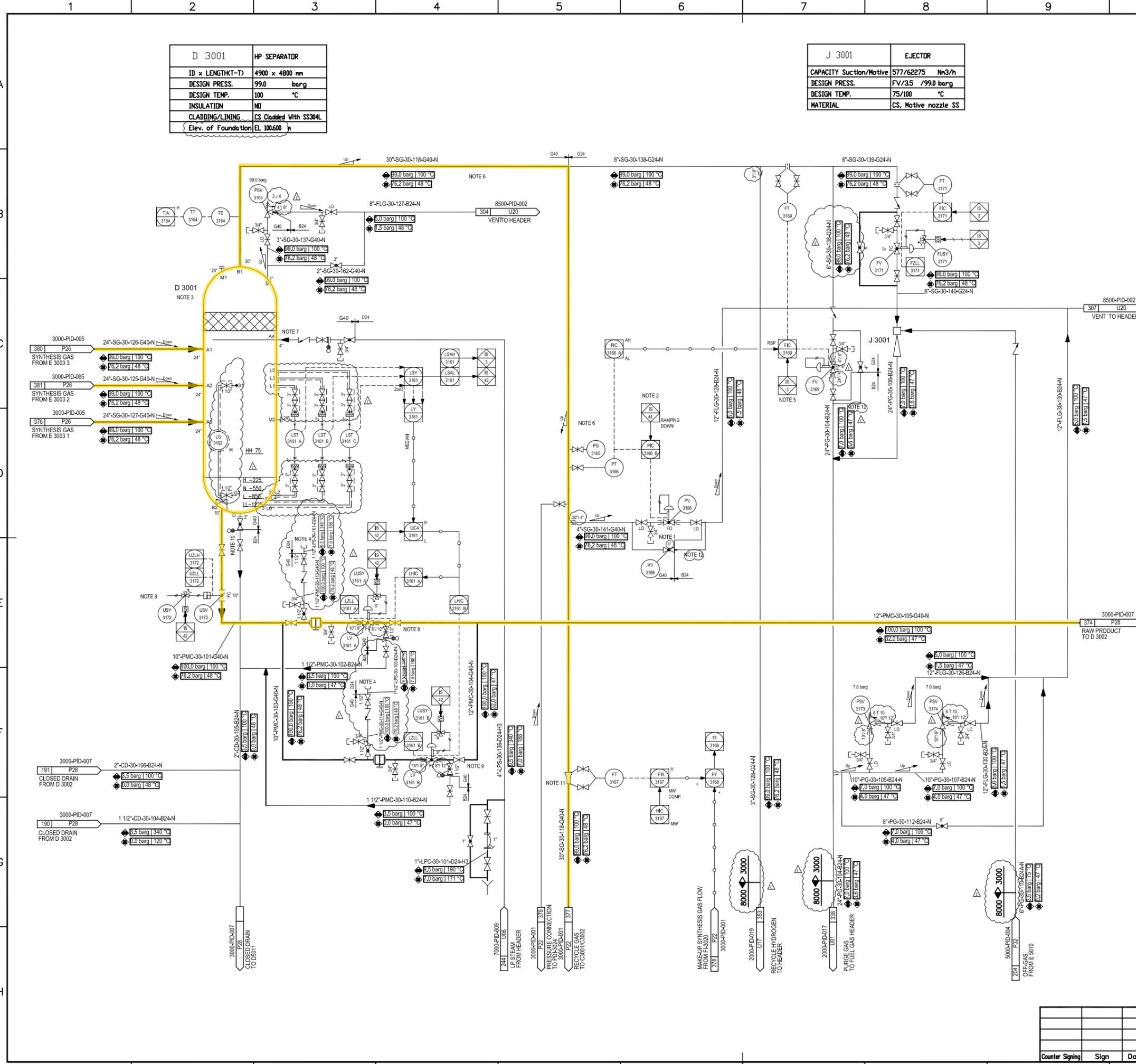
Issued for Approval	25.06.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi			
Issued for Comments	29.04.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE
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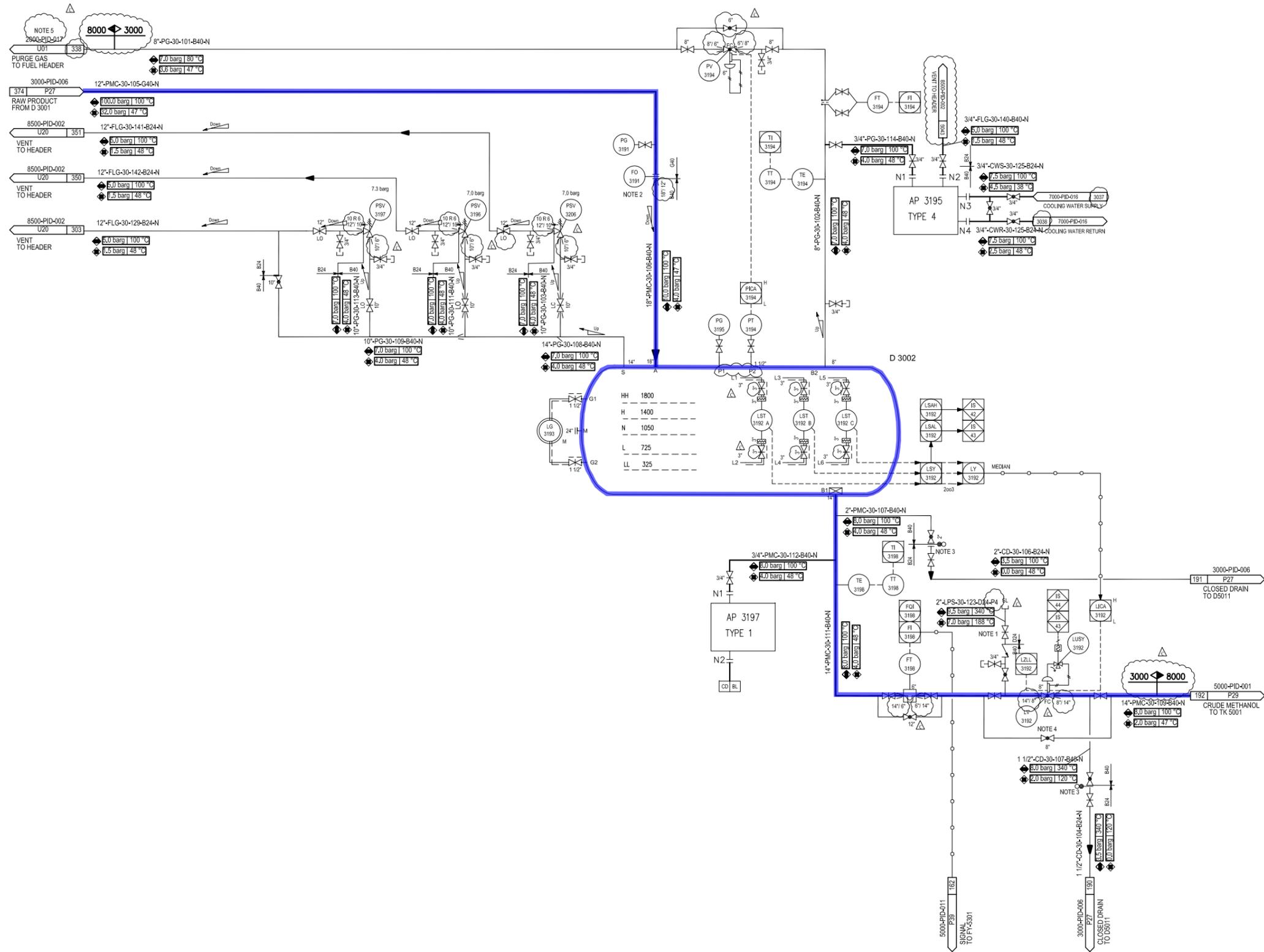
LEADER	HALDOR TOPSØE A/S	DOCUMENT NAME	SYNTHESIS PART II PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	DOC. GRP.	42	REV.	3
CONTRACTOR	TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO.	MKP-11-DE-3000-PS07-PID-006	DWG. NO.	1341737	DATE	P27		
SUB-CONTRACTOR		SHEET	01	TOTAL	01				
		SUB-CONTRACTOR DRAWING NO.							
		SHEET	-	TOTAL	-				

PROJECT		MKP Methanol Project
UNIT		METHANOL SYNTHESIS
PHASE		Detail Engineering
OWNER	MKP-11-DE-3000-PR-PID-006	
DWG NO.		



Counter	Sign	Date

D 3002	LP SEPARATOR
ID x LENGTH-T	2200 x 6450 mm
DESIGN PRESS.	7.0 barg
DESIGN TEMP.	100 °C
INSULATION	NO
CLADDING/LINING	NONE
Elev. of Foundation	EL. 101.700 h



GENERAL NOTES

NOTES:

- 1) CONNECTION FOR STEAM OUT/DEWAXING.
- 2) DISTANCE TO D 3002 TO BE MINIMIZED.
- 3) GATE VALVE AND GLOBE VALVE WITH 1.5M DISTANCE BETWEEN THEM.
- 4) TO BE READABLE FROM LG-3193
- 5) THIS PIPE HAS BEEN MIXED WITH 3"-SG-30-128-G24-N ON PIPE RACK.

GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Issued for Approval	25.06.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi			
Issued for Comments	29.04.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

OWNER:
**Middle East
Kimiaye Pars Company**

HALDOR TOPSØE A/S	DOCUMENT NAME: RAW PRODUCT FLASH PIPING AND INSTRUMENT DIAGRAM	JOB NO. S-02115	DOC. GRP. 42	REV. 4
TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO. MKP-11-DE-3000-PS07-PID-007	DWG. NO. 1341738	DWG. GRP. P28	
	SHEET 01 TOTAL 01			
	SUB-CONTRACTOR DRAWING NO.			
	SHEET - TOTAL -			

RAW PRODUCT FLASH PIPING AND INSTRUMENT DIAGRAM	PROJECT	MKP Methanol Project
	UNIT	METHANOL SYNTHESIS
	PHASE	Detail Engineering
OWNER DWG NO.	MKP-11-DE-3000-PR-PID-007	

Counter	Sign	Date

SCALE: - SHEET:1 TOT.:1 SIZE:A1

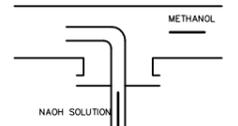
TK 5001	RAW METHANOL BUFFER TANK
ID x LENGTH(T-T)	30000 x 24000 mm
NET WORKING CAPACITY	15000 m ³
DESIGN PRESS.	-0.006-0.020 barg
DESIGN TEMP.	85 °C
INSULATION	NONE
ELEV. OF FOUNDATION	101.050 m

T 5004	VENT WASH COLUMN
ID x LENGTH(T-T)	1500 x 7000 mm
DESIGN PRESS.	FV/3.5 barg
DESIGN TEMP.	85 °C
INSULATION	NONE
ELEV. OF FOUNDATION	130.300 m

P 5001 A/B	RAW METHANOL PUMP
CAPACITY	373.1 m ³ /h
HEAD	62 m
DENSITY@OT	792 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	BY VENDOR

GENERAL NOTES

- NOTES:
- LI 1-5001 AT GRADE.
 - MIN. DISTANCE TO TK 5001.
 - NAOH SOLUTION INJECTION CONNECTION.



- 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
- T 5004 MUST BE LOCATED ON TOP OF TK 5001.
- THE SPARE PUMP WOULD AUTOSTART WHEN THE OUTLET PRESSURE DECREASED.

GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

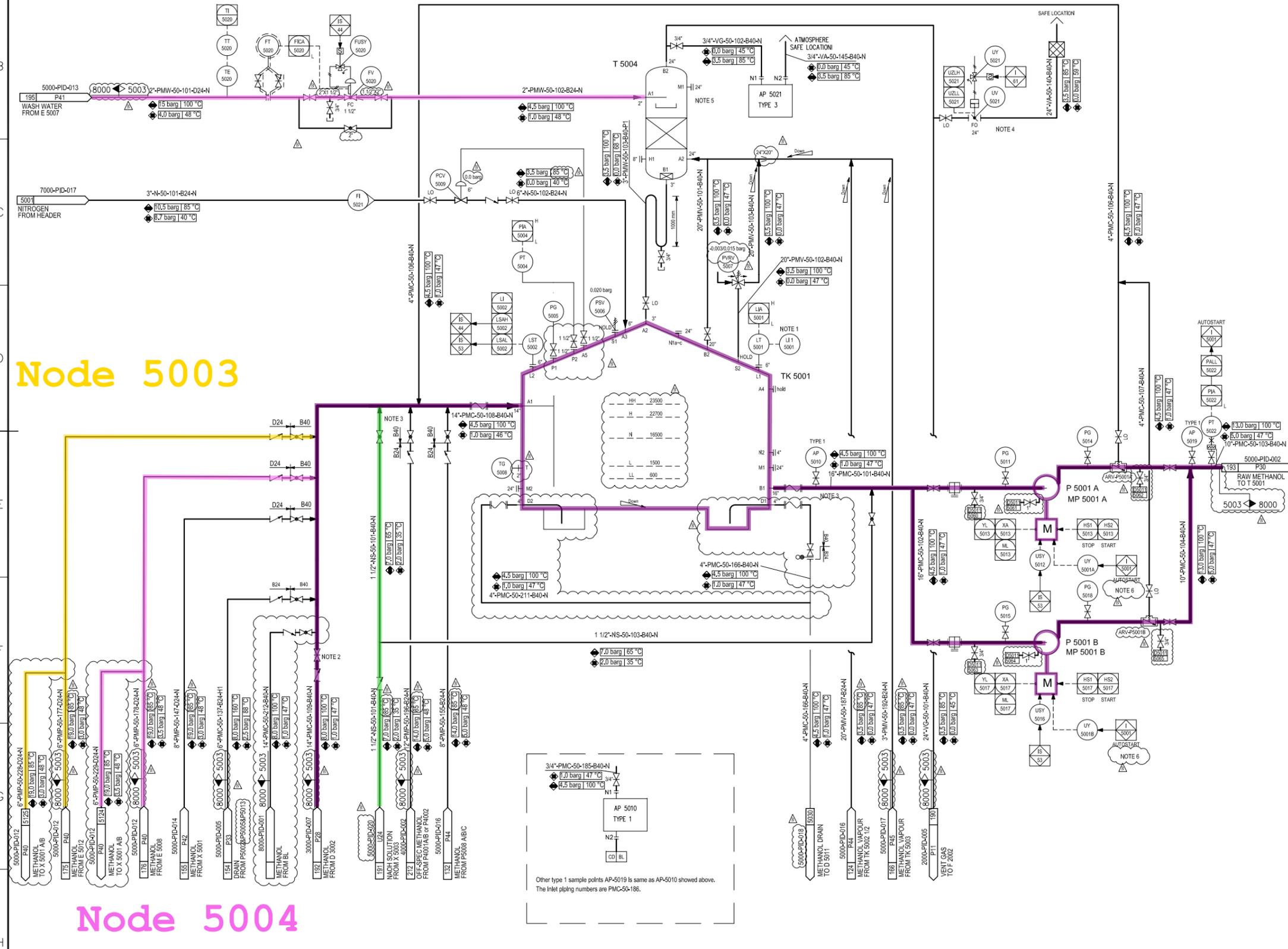
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▲	Issued for Approval	05.07.2016	Li Zhijuan		Mu Yujun	Hu Qiuyi	
▲	Issued for Comments	29.04.2016	Li Zhijuan		Mu Yujun	Hu Qiuyi	

OWNER:

Middle East
Kimiaye Pars Company

LENDOR	HALDOR TOPSØE A/S	DOCUMENT NAME	CRUDE METHANOL TANK PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	CONTRACTOR	TCC 中國天辰工程有限公司
CONTRACTOR		DATE	05/07/2016	CONTRACTOR DRAWING NO.	MKP-11-DE-5000-PS07-PID-001	SHEET	01
SUB CONTRACTOR		SCALE	AS SHOWN	TOTAL	01	SHEET	-

PROJECT	MKP Methanol Project
UNIT	Distillation Unit
PHASE	Detail Engineering
OWNER DWG NO.	MKP-11-DE-5000-PR-PID-001



Node 5003

Node 5004

Counter	Sign	Date

T 5001	STABILIZER COLUMN
ID x LENGTH(T-T)	4300 x 28700 mm
DESIGN PRESS.	FV/3.5 barg
DESIGN TEMP.	150 °C
INSULATION	YES
ELEV. OF FOUNDATION	109.800 m

E 5024 1/2	STABILIZER COLUMN REBOILER
DUTY	42.7 MW
DESIGN PRESS.(TU/SH)	29/(FV/5.0) barg
DESIGN TEMP.(TU/SH)	200/160 °C
INSULATION	YES

GENERAL NOTES

- NOTES:
- 1) SYMMETRICAL PIPING.
 - 2) NO POCKETS
 - 3) UPPER EDGE OF OVERFLOW WEIRS IN E 5024 2 TO BE 1800 mm ABOVE MAX. LEVEL IN T 5001.
 - 4) GRAVITATIONAL LIQUID FLOW FROM T 5001 TO E 5024 1/2 AND E 5001 AND BACK TO T 5001. PIPING MUST BE SELF-DRAINING WHEN BYPASS IS OPEN.
 - 5) TOP OF TUBE BUNDLE IN E 5024 1/2 AND E 5001 MUST BE IN SAME ELEVATION.
 - 6) SWITCHING OF FHS-5041 (SYMBOLIC INDICATED) FROM 3-ELEMENT LEVEL CONTROL VIA FIC-5041 TO SINGLE ELEMENT LEVEL CONTROL IS DONE WITH AUTOMATIC CHANGE OF TUNING CONSTANTS IN LIO-5041.
 - 7) NOZZLE B3 ON T 5001 MUST BE LOCATED MIN. 4.3 m ABOVE P 5002 AB. TO BE CONFIRMED BY PUMP VENDOR.

GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

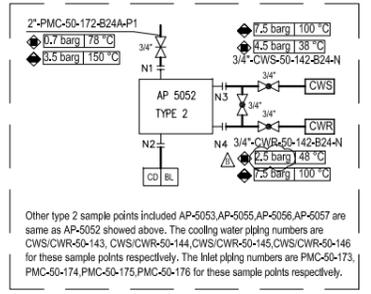
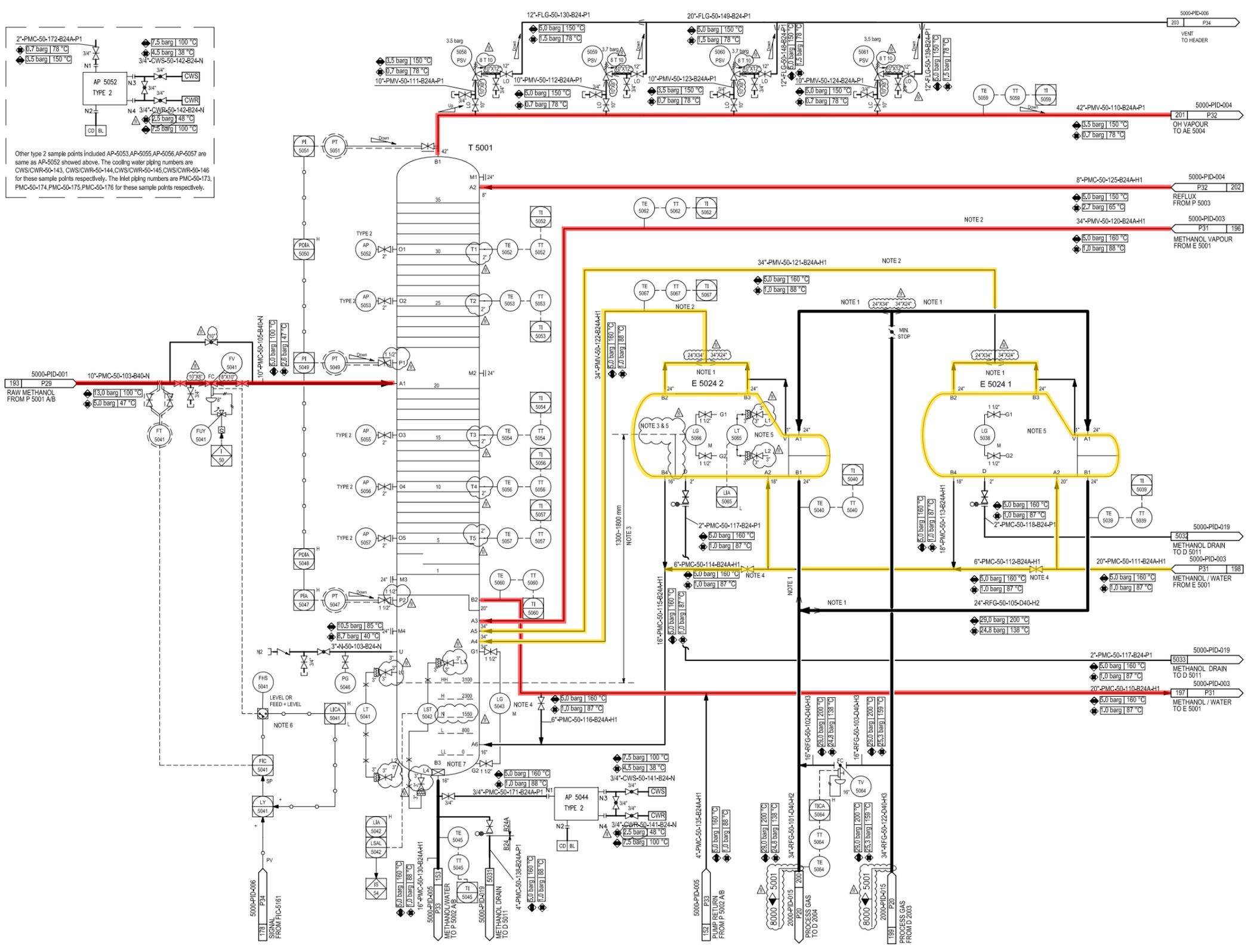
KEY PLAN

△	Issued for Approval	05.07.2016	Li Zhijuan	Mu Yujun	Hu Qiyi	
▲	Issued for Comments	29.04.2016	Li Zhijuan	Mu Yujun	Hu Qiyi	
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OWNER:
**Middle East
Kimiaye Pars Company**

	DOCUMENT NAME:	STABILIZER COLUMN PIPING AND INSTRUMENT DIAGRAM	JOB NO.:	S-02115	CONTRACTOR:	TCC
	DATE:	05/07/2016	CONTRACT NO.:	1341740	DESIGNER:	LI ZHIJUAN
	CONTRACTOR DRAWING NO.		MKP-11-DE-5000-PS07-PID-002		SHEET 01 TOTAL 01 SUB-CONTRACTOR DRAWING NO. - SHEET - TOTAL -	
	PROJECT		MKP Methanol Project			
UNIT		Distillation Unit				
PHASE		Detail Engineering				
OWNER DWG NO.		MKP-11-DE-5000-PR-PID-002				



Other type 2 sample points included AP-5053, AP-5054, AP-5056, AP-5057 are same as AP-5052 showed above. The cooling water piping numbers are CWS/CWR-50-143, CWS/CWR-50-144, CWS/CWR-50-145, CWS/CWR-50-146 for these sample points respectively. The inlet piping numbers are PMC-50-173, PMC-50-174, PMC-50-175, PMC-50-176 for these sample points respectively.

Counter Signing	Sign	Date	SCALE: -	SHEET: 1	TOT.: 1	SIZE: A1	
			PROJECT	MKP Methanol Project			
			UNIT	Distillation Unit			
			PHASE	Detail Engineering			

E 5001	STABILIZER COLUMN STEAM REBOILER
DUTY	21.4 MW
DESIGN PRESS.(TL/SH)	(FV/95)/(FV/5.0)barg
DESIGN TEMP.(TL/SH)	340/160 °C
INSULATION	YES

D 5009	STEAM CONDENSATE POT FOR E 5001
ID x LENGTH(T-T)	1150 x 3400 mm
DESIGN PRESS.	FV/10.5 barg
DESIGN TEMP.	190 °C
INSULATION	YES
CLADDING/LINING	NONE
ELEV. OF FOUNDATION	105.400 m

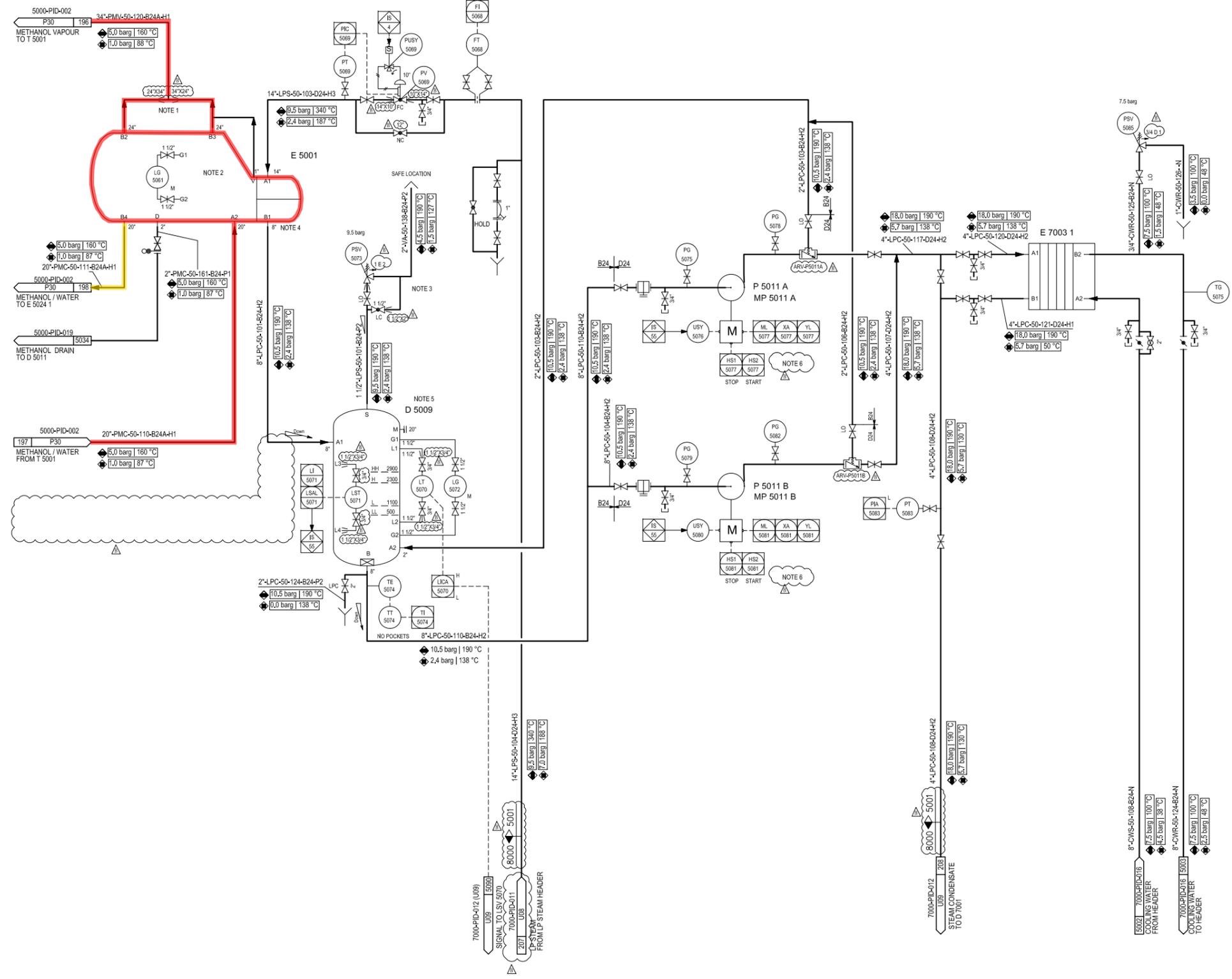
P 5011 A/B	STEAM CONDENSATE PUMP
CAPACITY	53.8 m ³ /h
HEAD	63 m
DENSITY@OT	951 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	BY VENDOR

E 7003 1	EXCESS STEAM CONDENSATE COOLER
DUTY	3.51 MW
DESIGN PRESS.(TL/SH)	(7.5/19) barg
DESIGN TEMP.(TL/SH)	100/190 °C
INSULATION	YES

GENERAL NOTES

- NOTES:
- 1) SYMMETRICAL PIPING.
 - 2) TOP OF TUBE BUNDLE IN E 2024 1/2 AND E 5001 MUST BE IN SAME ELEVATION.
 - 3) 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
 - 4) STEAM CONDENSATE OUTLET NOZZLE ON E 5001 TO BE ELEVATED ABOVE INLET NOZZLE A1 ON D 5009.
 - 5) NOZZLE B ON D 5009 MUST BE LOCATED MIN. 4 m ABOVE P 5011 A/B. (TO BE CONFIRMED BY PUMP VENDOR).
 - 6) THE SPARE PUMP WOULD AUTOSTART WHEN THE OUTLET PRESSURE DECREASED.

GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

△	Issued for Approval	05.07.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi	
▲	Issued for Comments	29.04.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi	
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OWNER:
**Middle East
Kimiaye Pars Company**

LICENSOR	HALDOR TOPSØE A/S	DOCUMENT NAME	STABILIZER COLUMN REBOILER PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	CONTRACT NO.	42	REV.	4
CONTRACTOR	TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	DWG. NO.	1341741	PROJECT	MKP-11-DE-5000-PS07-PID-003	SHEET	01	TOTAL	01
SUB-CONTRACTOR				PHASE	Detail Engineering	SHEET	-	TOTAL	-

PROJECT	MKP Methanol Project
UNIT	Distillation Unit
PHASE	Detail Engineering
OWNER DWG. NO.	MKP-11-DE-5000-PR-003

Counter Signing	Sign	Date
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AE 5004	STABILIZER COLUMN OH CONDENSER
DUTY	33.5 MW
ID x LENGTH(T)	BY VENDOR mm
DESIGN PRESS.(TL/SH)	(FV/3.5)/NA barg
DESIGN TEMP.(TL/SH)	150/NA °C

D 5001	STEAM COLUMN OH ACCUMULATOR
ID x LENGTH(T)	2100 x 6500 mm
DESIGN PRESS.	FV/3.5 barg
DESIGN TEMP.	150 °C
INSULATION	YES
CLADDING/LINING	NONE
ELEV. OF FOUNDATION	113.200 m

P 5003 A/B	STABILIZER COLUMN REFLUX PUMP
CAPACITY	192.6 m ³ /h
HEAD	50 m
DENSITY@DT	752 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	BY VENDOR

E 5010	OH GAS CONDENSER
DUTY	0.30 MW
DESIGN PRESS.(TL/SH)	75/(FV/3.5) barg
DESIGN TEMP.(TL/SH)	100/150 °C
INSULATION	NONE

GENERAL NOTES

- NOTES:
- E 5010 TO BE MOUNTED FOR SELF-DRAINING TO D 5001.
 - FUNCTION OF PIC-5091:
VALVE OPENING, %
100
A B
0 50 100 OUTPUT, %
 - NOZZLE B1 ON D 5001 MUST BE PLACED MIN. 4 m ABOVE P 5003 A/B (TO BE CONFIRMED BY PUMP VENDOR).
 - NO POCKETS.
 - TWS TO BE INSTALLED ON EACH OUTLET HEADER FROM AE 5004.
 - MIN 50 % OF MOTORS WITH VARIABLE SPEED CONTROL.
 - VENT TO SAFE LOCATION.
 - THE SPARE PUMP WOULD AUTOSTART WHEN THE OUTLET PRESSURE DECREASED.
- GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

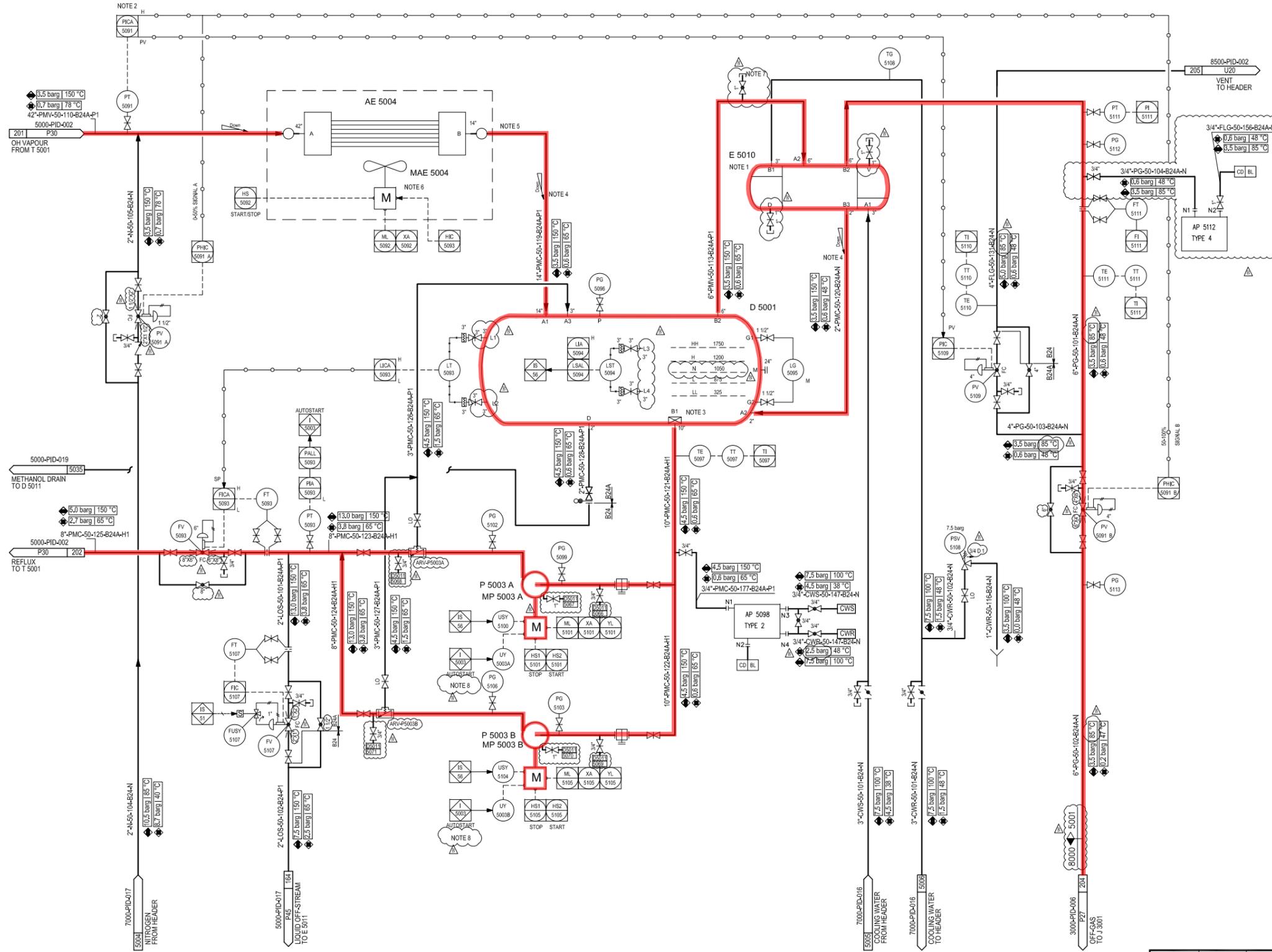
△	Issued for Approval	05.07.2016	Li Zhijuan	Mu Yujun	Hu Qiyi		
▲	Issued for Comments	29.04.2016	Li Zhijuan	Mu Yujun	Hu Qiyi		
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Kimiaye Pars Company**

LENDOR	HALDOR TOPSØE A/S	DOCUMENT NAME	STABILIZER COLUMN OH SYSTEM PIPING AND INSTRUMENT DIAGRAM	DOC NO.	S-02115	REV.	3
CONTRACTOR	TCC 中國天辰工程有限有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO.	MKP-11-DE-5000-PS07-PID-004	SHEET	01	TOTAL	01
SUB CONTRACTOR		SUB-CONTRACTOR DRAWING NO.		SHEET		TOTAL	

PROJECT	MKP Methanol Project
UNIT	Distillation Unit
PHASE	Detail Engineering
OWNER DWG NO.	MKP-11-DE-5000-PR-004



Counter	Sign	Date	SCALE: -	SHEET: 1	TOT.: 1	SIZE: A1
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P 5002 A/B	STABILIZER METHANOL PUMP
CAPACITY	390.6 m ³ /h
HEAD	35 m
DENSITY@OT	753 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	BY VENDOR

GENERAL NOTES

- 1) THE SPARE PUMP WOULD AUTOSTART WHEN THE OUTLET PRESSURE DECREASED.
- GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

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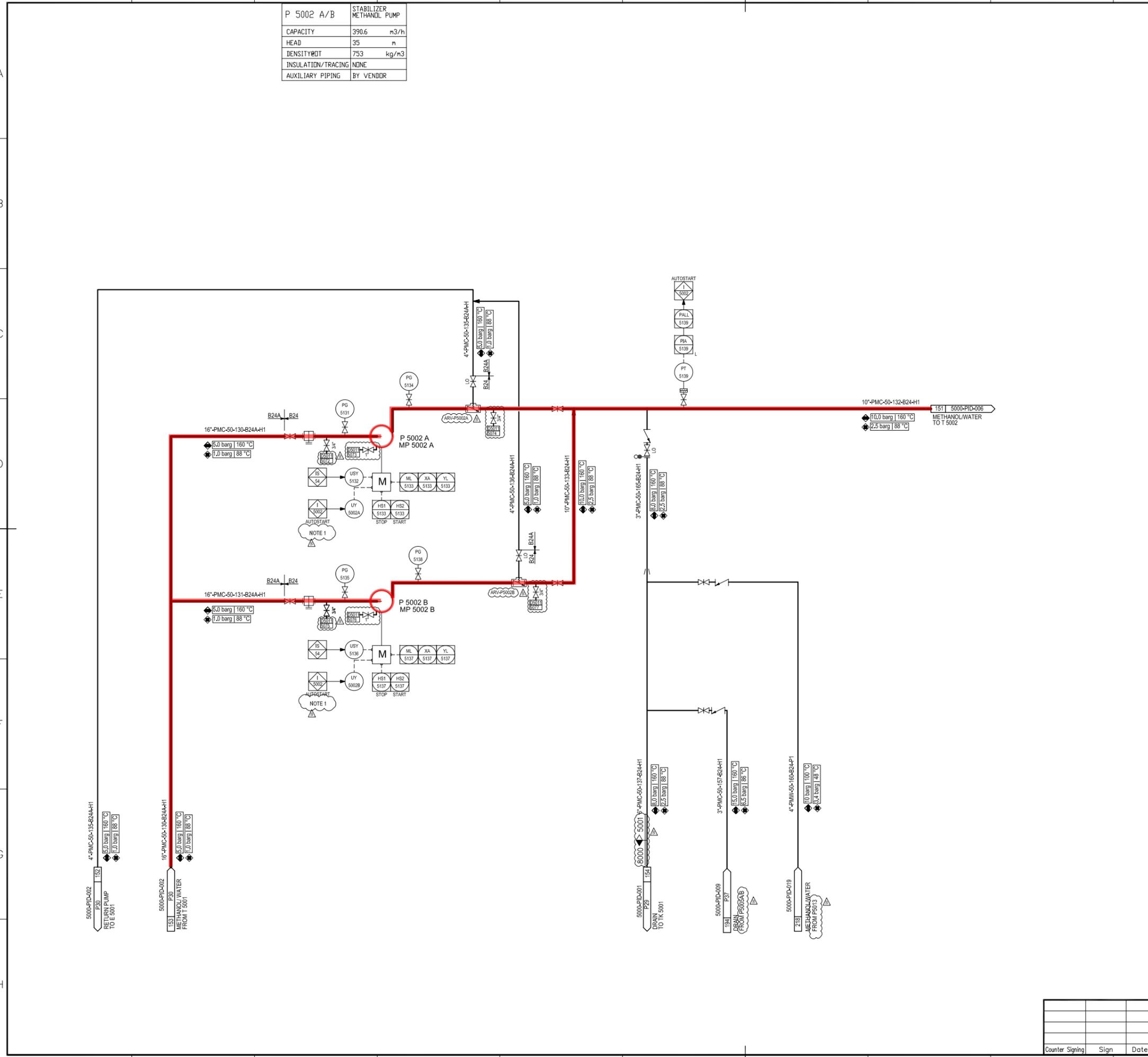
Middle East
Kimiaye Pars Company

 HALDOR TOPSØE A/S <small>CONTRACTOR</small>	DOCUMENT NAME: STABILIZER COLUMN PUMPS PIPING AND INSTRUMENT DIAGRAM	JOB NO.: S-02115 DWG. NO.: 1341743	CDR: 42 CDR: P33	REV. 3
CONTRACTOR DRAWING NO. TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION MKP-11-DE-5000-PS07-PID-005				
SHEET 01 TOTAL 01		SUB-CONTRACTOR DRAWING NO. -		
SHEET - TOTAL -		PROJECT: MKP Methanol Project UNIT: Distillation Unit PHASE: Detail Engineering		

STABILIZER COLUMN PUMPS PIPING AND INSTRUMENT DIAGRAM	PROJECT: MKP Methanol Project UNIT: Distillation Unit PHASE: Detail Engineering OWNER DWG NO.: MKP-11-DE-5000-PR-PID-005
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Counter Signing	Sign	Date

SCALE: - SHEET:1 TOT.:1 SIZE:A1



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1 2 3 4 5 6 7 8 9 10 11 12

T 5002	LP METHANOL COLUMN
ID x LENGTH(T-T)	7700 x 43400 mm
DESIGN PRESS.	FV/3/5 barg
DESIGN TEMP.	150 °C
INSULATION	YES
ELEV. OF FOUNDATION	111.800 m

E 5002 4	LP COLUMN REBOILER
DUTY	31.3 MW
DESIGN PRESS.(TU/SH)	(FV/6.0)/(FV/5.0) barg
DESIGN TEMP.(TU/SH)	165/160 °C
INSULATION	YES

GENERAL NOTES

- NOTES:
- NO POCKETS.
 - GRAVITATIONAL LIQUID FLOW FROM T 5002 TO E 5002 1/2/3/4 AND BACK TO T 5002.
PIPING MUST BE SELF-DRAINING WHEN BYPASS IS OPEN.
 - UPPER EDGE OF OVERFLOW WEIR IN E 5002 4 TO BE LOCATED 3100 mm ABOVE MAX. LEVEL IN T 5002.
 - SWITCHING OF FHS-5161 (SYMBOLIC INDICATED) FROM 3-ELEMENT LEVEL CONTROL VIA FIC-5161 TO SINGLE ELEMENT LEVEL CONTROL IS DONE WITH AUTOMATIC CHANGE OF TUNING CONSTANTS IN LIC-5161.
 - TOP OF TUBE BUNDLE IN E 5002 1/2/3/4 MUST BE IN SAME ELEVATION.
 - MINIMUM 500mm UPWARDS LINE.
 - NOZZLE B3 ON T 5002 MUST BE LOCATED MIN. 3.5m ABOVE P 5005 A/B. (TO BE CONFIRMED BY PUMP VENDOR.)
 - VENT TO SAFE LOCATION.
- GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

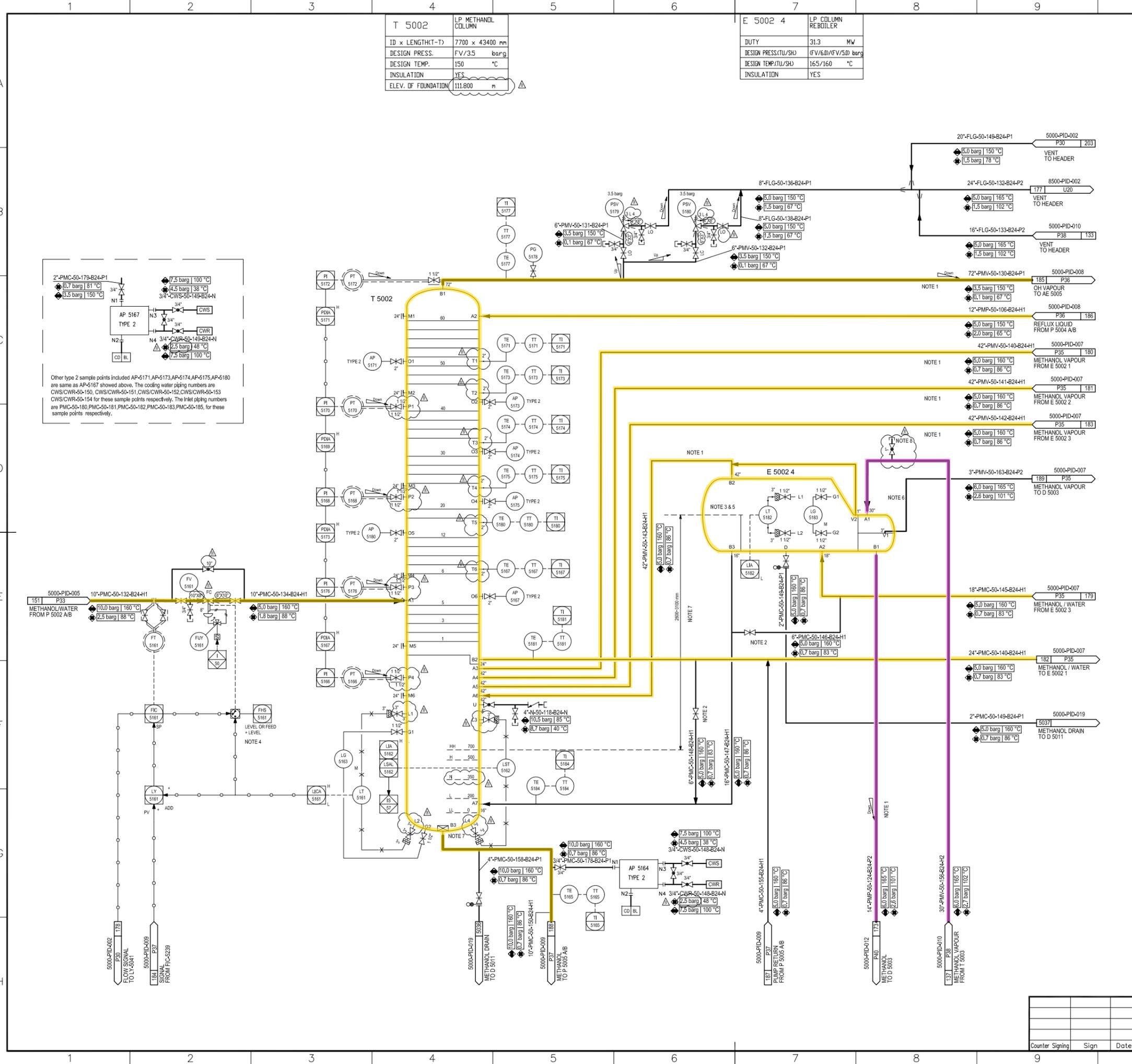
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LEASOR	HALDOR TOPSØE A/S	DOCUMENT NAME	LP METHANOL COLUMN PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	CONTRACTOR	TCC 中國天辰工程有限有限公司 CHINA TIANCHEN ENGINEERING CORPORATION
CONTRACTOR		SCALE	1:341744	CONTRACTOR DRAWING NO.	MKP-11-DE-5000-PS07-PID-006	SHEET	01 TOTAL 01
SUB CONTRACTOR		OWNER	MKP Methanol Project	SHEET	- TOTAL -	UNIT	Distillation Unit
		PHASE	Detail Engineering	OWNER DWG NO.	MKP-11-DE-5000-PR-006	PHASE	



2"-PMC-50-178-B24-P1
● 0.7 barg | 81 °C
● 3.5 barg | 150 °C

3/4"-CWS-50-148-B24-N
● 4.5 barg | 38 °C

AP 5167 TYPE 2

N3 3/4" CWS
N4 3/4" CWR-50-148-B24-N
● 2.5 barg | 48 °C
● 7.5 barg | 100 °C

Other type 2 sample points included AP-5171, AP-5173, AP-5174, AP-5175, AP-5180 are same as AP-5167 shown above. The cooling water piping numbers are CWS/CWR-50-150, CWS/CWR-50-151, CWS/CWR-50-152, CWS/CWR-50-153, CWS/CWR-50-154 for these sample points respectively. The inlet piping numbers are PMC-50-180, PMC-50-181, PMC-50-182, PMC-50-183, PMC-50-185, for these sample points respectively.

Counter Signing	Sign	Date
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E 5002 3	LP COLUMN REBOILER
DUTY	31.3 MW
DESIGN PRESS.(TLU/SH)	(FV/6.0)/(FV/5.0) barg
DESIGN TEMP.(TLU/SH)	165/160 °C
INSULATION	YES

E 5002 2	LP COLUMN REBOILER
DUTY	31.3 MW
DESIGN PRESS.(TLU/SH)	(FV/6.0)/(FV/5.0) barg
DESIGN TEMP.(TLU/SH)	165/160 °C
INSULATION	YES

E 5002 1	LP COLUMN REBOILER
DUTY	31.3 MW
DESIGN PRESS.(TLU/SH)	(FV/6.0)/(FV/5.0) barg
DESIGN TEMP.(TLU/SH)	165/160 °C
INSULATION	YES

GENERAL NOTES

- NOTES:
- NO POCKETS.
 - TOP OF TUBE BUNDLE IN E 5002 1/2/3/4 MUST BE IN SAME ELEVATION.
 - UPPER EDGE OF OVERFLOW WEIR, GRAVITATIONAL LIQUID FLOW FROM T 5002 TO E 5002 1/2/3/4 AND BACK TO T 5002. PIPING MUST BE SELF-DRAINING WHEN BYPASS IS OPEN.
 - VENT TO SAFE LOCATION.
- GENERAL NOTE:
- LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

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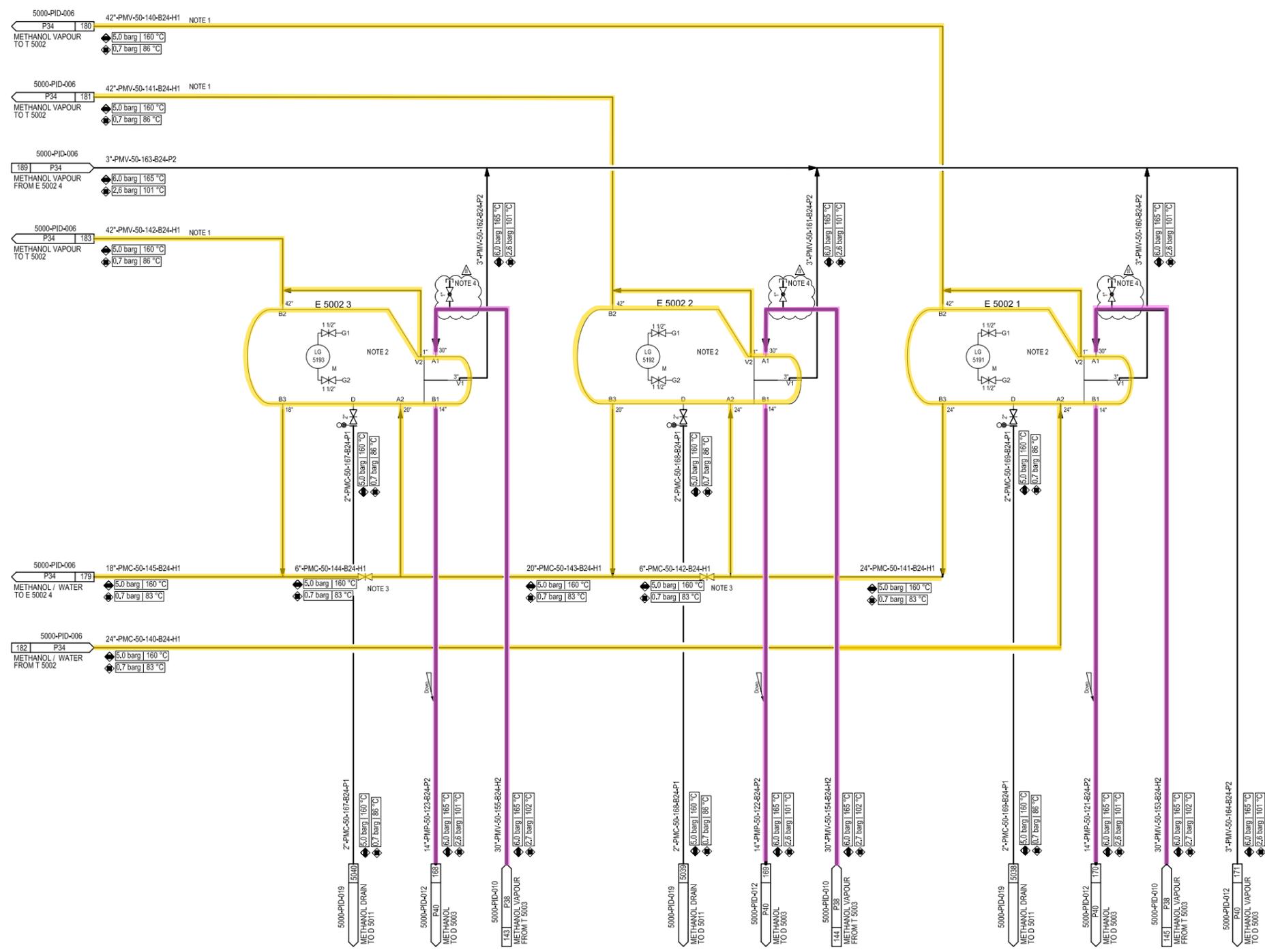
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LENDOR	HALDOR TOPSØE A/S	DOCUMENT NAME	LP METHANOL COLUMN REBOILER PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	CONTRACT NO.	42	REV.	3
CONTRACTOR	TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	DWG. NO.	1341745	DATE	02/08/2016				
SUB-CONTRACTOR		CONTRACTOR DRAWING NO.	MKP-11-DE-5000-PS07-PID-007	SHEET	01	TOTAL	01		
		SUB-CONTRACTOR DRAWING NO.	-	SHEET	-	TOTAL	-		

PROJECT	MKP Methanol Project
UNIT	Distillation Unit
PHASE	Detail Engineering
OWNER DWG NO.	MKP-11-DE-5000-PR-PID-007

SCALE: - SHEET:1 TOT.:1 SIZE:A1



E 5008	METHANOL PRODUCT COOLER NO.1
DUTY	1.6 MW
DESIGN PRESS.(TLU/SH)	7.5/13 barg
DESIGN TEMP.(TLU/SH)	100/150 °C
INSULATION	YES

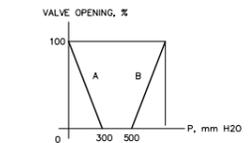
AE 5005	LP COLUMN OH CONDENSER
DUTY	127.7 MW
ID x LENGTH(T-T)	BY VENDOR mm
DESIGN PRESS.(TLU/SH)	(FV/3.5)/NA barg
DESIGN TEMP.(TLU/SH)	150/NA °C

P 5004 A/B	LP COLUMN REFLUX PUMP
CAPACITY	725.3 m ³ /h
HEAD	75 m
DENSITY@DT	750 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	BY VENDOR

D 5002	LP COLUMN OH ACCUMULATOR
ID x LENGTH(T-T)	3300 x 9850 mm
DESIGN PRESS.	FV/3.5 barg
DESIGN TEMP.	150 °C
INSULATION	YES
CLADDING/LINING	NONE
ELEV. OF FOUNDATION	105.400 m

GENERAL NOTES

- † NOTES:
- 1) NOZZLE B ON D 5002 MUST BE LOCATED MIN. 4 m ABOVE P 5004 A/B (TO BE CONFIRMED BY PUMP VENDOR).
 - 2) VENT TO BE AT HIGHER ELEVATION THAN AE 5005 AND AT SAFE LOCATION.
 - 3) FUNCTION OF PIC-5207:



- 4) 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
- 5) TWS TO BE INSTALLED ON EACH OUTLET HEADER FROM AE 5005.
- 6) MIN 50% OF MOTORS WITH VARIABLE SPEED CONTROL.
- 7) ONE SET IN WARE HOUSE (E 5008).
- 8) THE SPARE PUMP WOULD AUTOSTART WHEN THE OUTLET PRESSURE DECREASED.

† GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

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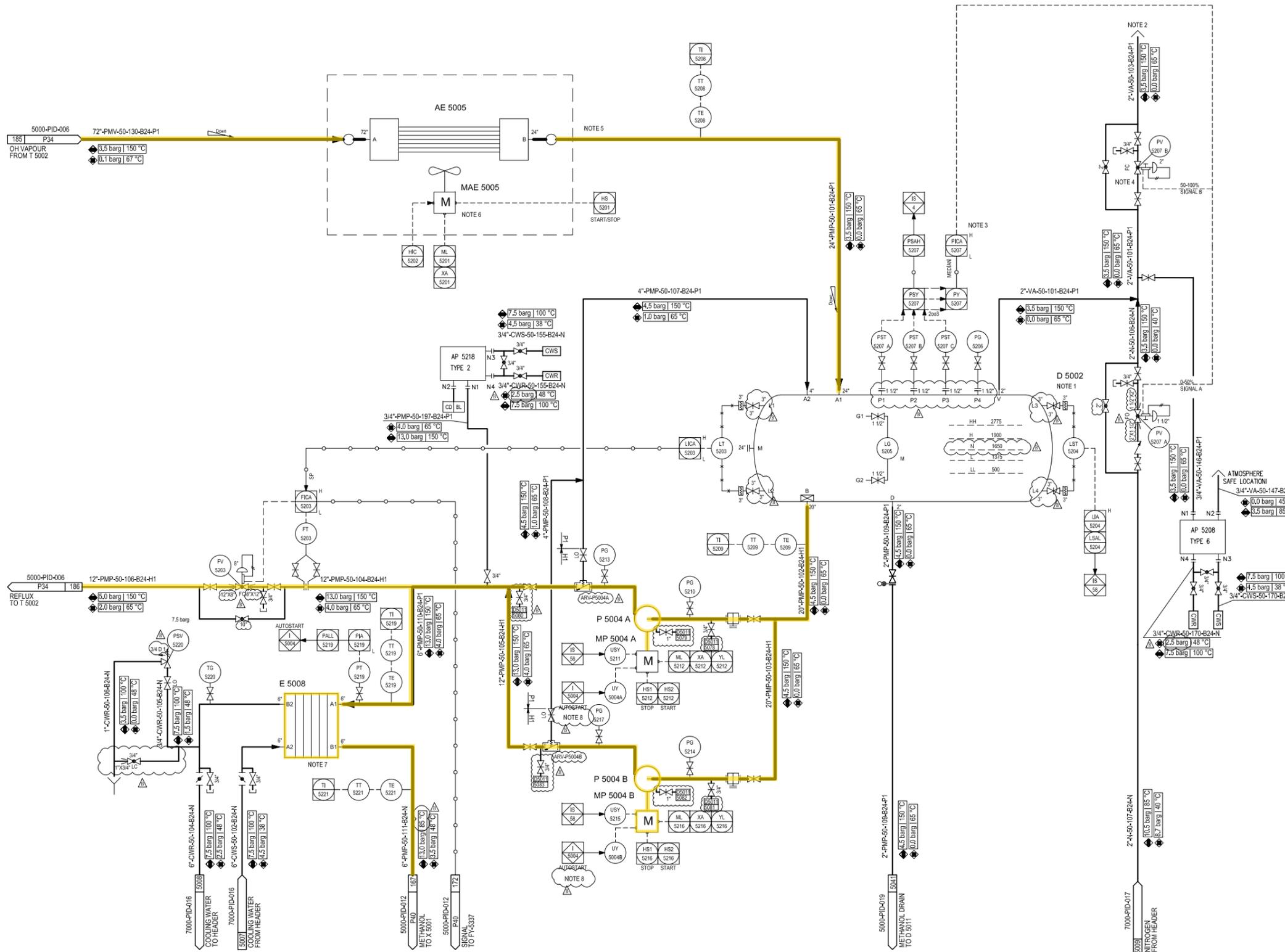
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LENDOR	HALDOR TOPSØE A/S	DOCUMENT NAME	LP METHANOL COLUMN OH SYSTEM PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	CON. GRP.	42	REV.	3
CONTRACTOR	TCC 中國天辰工程有限公司	CHINA TIANCHEN ENGINEERING CORPORATION		CONTRACTOR DRAWING NO.	MKP-11-DE-5000-PS07-PID-008	SHEET	01	TOTAL	01
SUB-CONTRACTOR				SUB-CONTRACTOR DRAWING NO.		SHEET		TOTAL	

LP METHANOL COLUMN OH SYSTEM PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	Distillation Unit
		PHASE	Detail Engineering
		OWNER DWG NO.	MKP-11-DE-5000-PR-008

Counter Signing	Sign	Date
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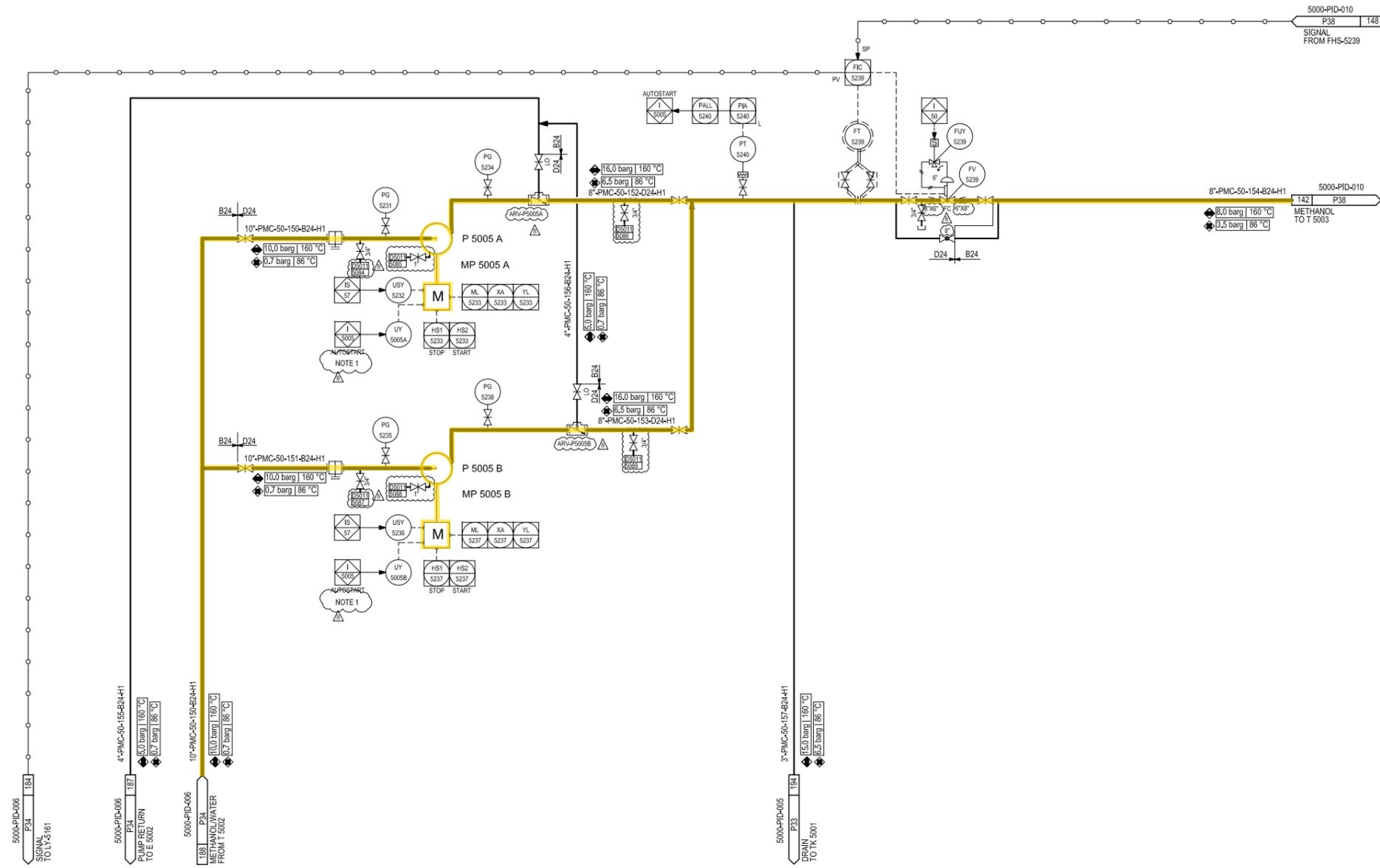
1 2 3 4 5 6 7 8 9 10 11 12

P 5005 A/B	MP COLUMN FEED PUMP
CAPACITY	182.1 m ³ /h
HEAD	94 m
DENSITY@DT	786 kg/m ³
INSULATION/TRACING	ND/NE
AUXILIARY PIPING	BY VENDOR

Node 5003

GENERAL NOTES

- 1) THE SPARE PUMP WOULD AUTOSTART WHEN THE OUTLET PRESSURE DECREASED.
- *GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

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2	Issued for Comments	29.04.2016	Li Zhijuan		Mu Yujun	Hu Qiuyi	

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LICENSOR HALDOR TOPSØE A/S	DOCUMENT NAME: MP METHANOL COLUMN FEED PUMP PIPING AND INSTRUMENT DIAGRAM	JOB NO. S-02115	CONTRACT NO. 42	REV. 4
	CONTRACTOR TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO. MKP-11-DE-5000-PS07-PID-009	DWG. NO. 1341747	PROJ. P37
SUB-CONTRACTOR	SHEET 01	TOTAL 01		
	SHEET -	TOTAL -		

MP METHANOL COLUMN FEED PUMP PIPING AND INSTRUMENT DIAGRAM	PROJECT	MKP Methanol Project
	UNIT	Distillation Unit
	PHASE	Detail Engineering
OWNER DWG NO.	MKP-11-DE-5000-PR-PID-009	

Counter	Sign	Date

SCALE: -	SHEET: 1	TOT.: 1	SIZE: A1
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T 5003	MP METHANOL COLUMN
ID x LENGTH(T)	6350 x 56400 mm
DESIGN PRESS.	FV/6 barg
DESIGN TEMP.	165 °C
INSULATION	YES
ELEV. OF FOUNDATION	110.800 m

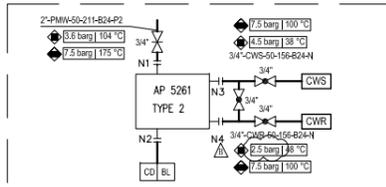
E 5023	MP COLUMN REBOILER NO. 2
DUTY	17.2 MW
DESIGN PRESS.(TU/SH)	29/(FV/7.5) barg
DESIGN TEMP.(TU/SH)	200/175 °C
INSULATION	YES

GENERAL NOTES

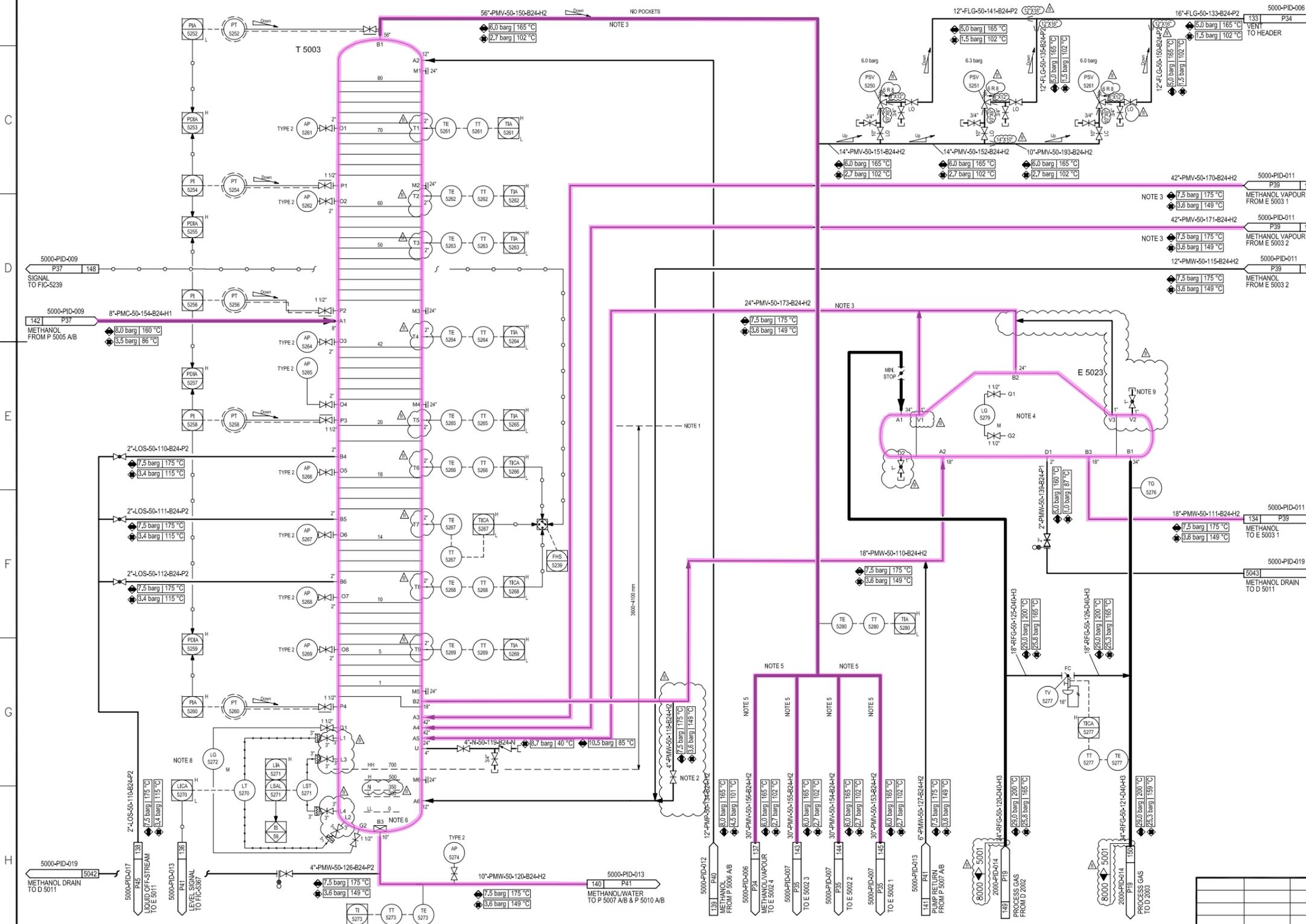
- NOTES:
- UPPER EDGE OF OVERFLOW WEIR IN E 5003 2 TO BE 4100 mm ABOVE MAX. LEVEL IN T 5003.
 - GRAVITATIONAL LIQUID FLOW FROM T 5003 TO E 5023/5003 1/2 AND BACK TO T 5003. PIPING TO BE SELF-DRAINING WHEN BYPASS IS OPEN.
 - NO POCKETS.
 - TOP OF THE TUBE BUNDLE IN E 5023 AND E 5003 1/2 MUST BE AT THE SAME ELEVATION.
 - SYMMETRICAL PIPING.
 - NOZZLE B3 ON T 5003 MUST BE LOCATED MIN. 3.5 m ABOVE P 5010 AB. TO BE CONFIRMED BY PUMP VENDOR.
 - DELETED.
 - TO BE READABLE AT GRADE.
 - VENT TO SAFETY POINT.

GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

Node 5004



Other type 2 sample points included AP-5262, AP-5264, AP-5265, AP-5266, AP-5267, AP-5268, AP-5269, AP-5274 are same as AP-5261 showed above. The cooling water pipelines number are CWS/CWR-50-157, CWS/CWR-50-158, CWS/CWR-50-159, CWS/CWR-50-160, CWS/CWR-50-161, CWS/CWR-50-162, CWS/CWR-50-163, CWS/CWR-50-164 for these sample points respectively. The vent pipelines number are PMW-50-212, PMW-50-213, PMW-50-214, PMW-50-215, PMW-50-216, PMW-50-217, PMW-50-218, PMW-50-219 for these sample points respectively.



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

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HALDOR TOPSØE A/S	DOCUMENT NAME: MP METHANOL COLUMN PIPING AND INSTRUMENT DIAGRAM	JOB NO. S-02115	CONTRACTOR	REV.
TCC 中國天辰工程有限公司	CHINA TIANCHEN ENGINEERING CORPORATION	1341748	P38	
CONTRACTOR DRAWING NO.		MKP-11-DE-5000-PS07-PID-010		
SUB-CONTRACTOR DRAWING NO.		SHEET 01 TOTAL 01		
SHEET		TOTAL		

MP METHANOL COLUMN PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	Distillation Unit
		PHASE	Detail Engineering
SCALE: -		OWNER DWG NO.	MKP-11-DE-5000-PR-PID-010

Counter Signing	Sign	Date
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E 7003 2	EXCESS STEAM CONDENSATE COOLER
DUTY	15.7 MW
WIDE x LENGTH BY VENDOR	mm
DESIGN PRESS.(TLU/SH)	7.5/10.5 barg
DESIGN TEMP.(TLU/SH)	100/190 °C

E 5003 1/2	NP COLUMN REBOILER NO. 1
DUTY	113.3 MW
DESIGN PRESS.(TLU/SH)	(FV/95)/(FV/75)barg
DESIGN TEMP.(TLU/SH)	340/175 °C
INSULATION	YES

GENERAL NOTES

- NOTES:
- 1) SYMMETRICAL PIPING.
 - 2) TOP OF TUBE BUNDLE IN E 5003 2 AND E 5003 1/2 MUST BE AT SAME ELEVATION.
 - 3) MIN 1000 mm PIPE.
 - 4) NO POCKETS.
 - 5) GRAVITATIONAL LIQUID FLOW FROM T 5003 TO E 5003 1/2 AND BACK TO T 5003 FOR DRAINING.
 - 6) UPPER EDGE OF OVERFLOW WEIR IN E 5003 2 TO BE 4100 mm ABOVE MAX. LEVEL IN T 5003 FOR DRAINING.

GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

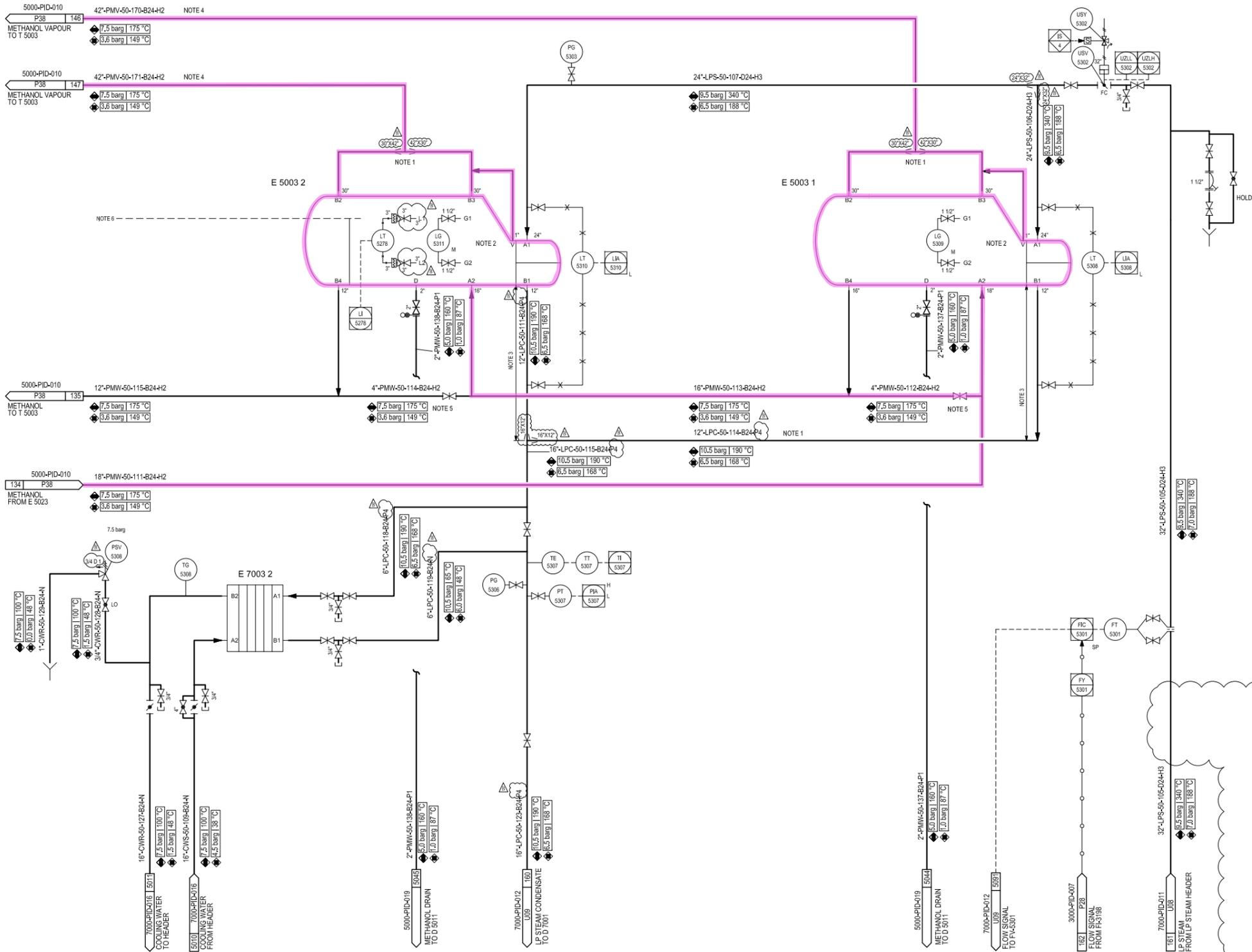
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OWNER:

Middle East
Kimiaye Pars Company

LENDOR	HALDOR TOPSØE A/S	DOCUMENT NAME	NP COLUMN REBOILERS PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	CONTRACTOR	TCC
CONTRACTOR	TCC 中國天辰工程有限公司	CHINA TIANCHEN ENGINEERING CORPORATION		CONTRACTOR DRAWING NO.	MKP-11-DE-5000-PS07-PID-011	SHEET	01
SUB-CONTRACTOR				SUB-CONTRACTOR DRAWING NO.		TOTAL	01
						SHEET	-
						TOTAL	-
MP COLUMN REBOILERS PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project				
		UNIT	Distillation Unit				
		PHASE	Detail Engineering				
SCALE: - SHEET:1 TOT.:1 SIZE:A1		OWNER	MKP-11-DE-5000-PR-PID-011				
Counter Signing		Sign	Date				



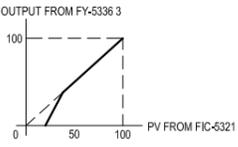
Counter Signing	Sign	Date
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E 5012	METHANOL PRODUCT COOLER NO. 2
DUTY	3.6 MW
DESIGN PRESS.(TU/SH)	7.5/19 barg
DESIGN TEMP.(TU/SH)	100/165 °C
INSULATION	YES

P 5006 A/B	MP COLUMN REFLEX PUMP
CAPACITY	743.9 m ³ /h
HEAD	95 m
DENSITY@DT	711 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	BY VENDOR

D 5003	MP COLUMN OH ACCUMULATOR
ID x LENGTH(T)	3400 x 10250 mm
DESIGN PRESS.	FV/6.0 barg
DESIGN TEMP.	165 °C
INSULATION	YES
CLADDING/LINING	NONE
ELEV. OF FOUNDATION	105.360 m

GENERAL NOTES

- NOTES:
- 1) NOZZLE B ON D 5003 MUST BE LOCATED MIN. 4 m ABOVE P 5006 A/B. (TO BE CONFIRMED BY PUMP VENDOR).
 - 2) NO POCKETS.
 - 3) FUNCTION OF FIC-5336:

 - 4) ONE SET IN WARE HOUSE (E 5012).
 - 5) THE SPARE PUMP WOULD AUTOSTART WHEN THE OUTLET PRESSURE DECREASED.

GENERAL NOTE:
 LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

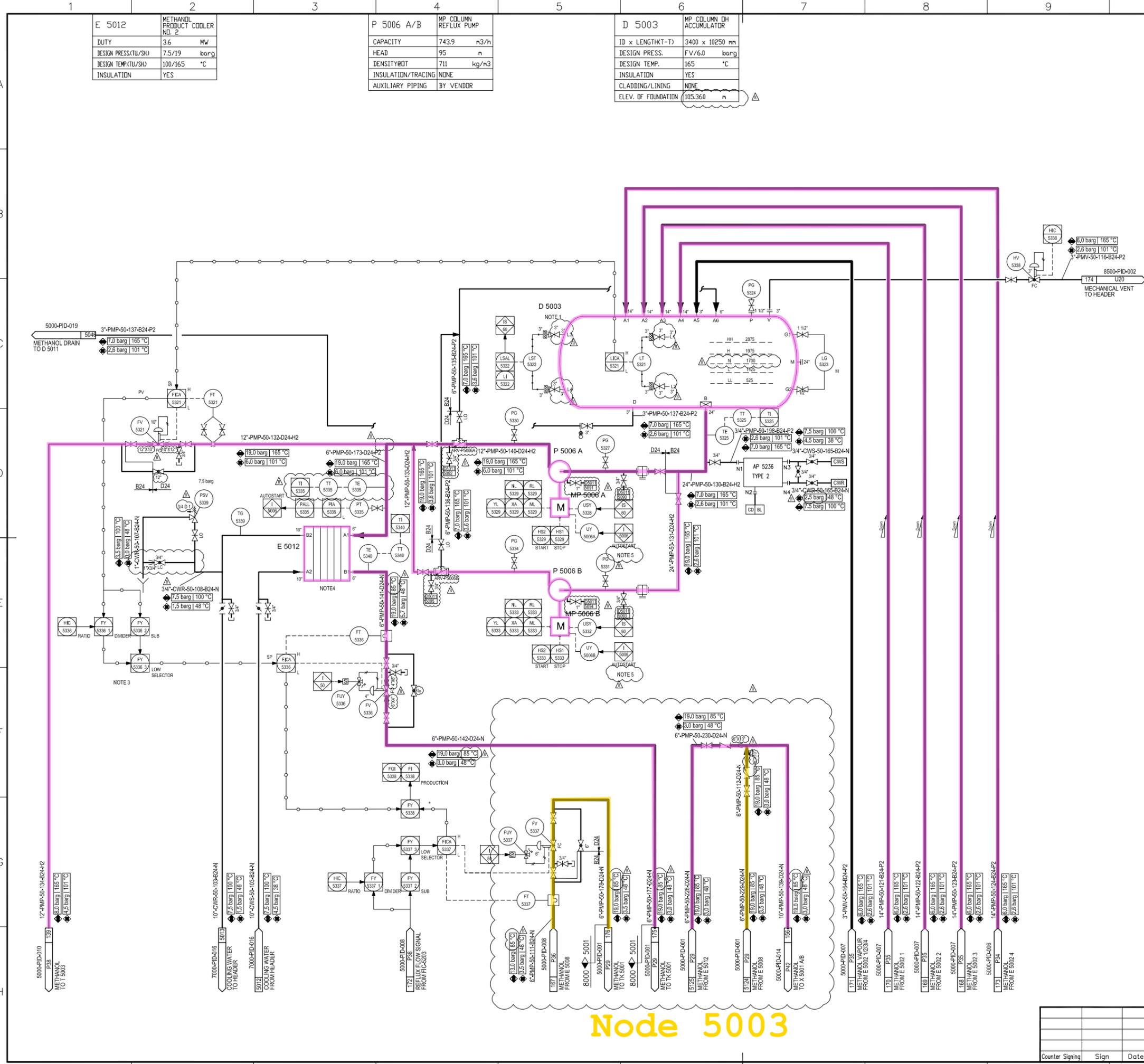
△	Issued for Approval	05.07.2016	Li Zhijuan	Mu Yujun	Hu Qiyi		
▲	Issued for Comments	29.04.2016	Li Zhijuan	Mu Yujun	Hu Qiyi		
REV.	DESCRIPTION	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER:
**Middle East
 Kimiaye Pars Company**

OWNER	HALDOR TOPSØE A/S	DOCUMENT NAME	MP METHANOL COLUMN OH SYSTEM PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	CONTRACTOR	TCC
CONTRACTOR	TCC	CHINA TIANCHEN ENGINEERING CORPORATION		DATE	05/08/2016	SCALE	P40
SUB CONTRACTOR							
PROJECT	MP Methanol Project			SHEET	01	TOTAL	01
UNIT	Distillation Unit			SUB-CONTRACTOR DRAWING NO.			
PHASE	Detail Engineering			SHEET	-	TOTAL	-
OWNER DWG NO.	MKP-11-DE-5000-PR-012						

Node 5003



Counter	Sign	Date

P 5007 A/B	MP COLUMN RECYCLE PUMP
CAPACITY	127 m ³ /h
HEAD	40 m
DENSITY@OT	918 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	BY VENDOR

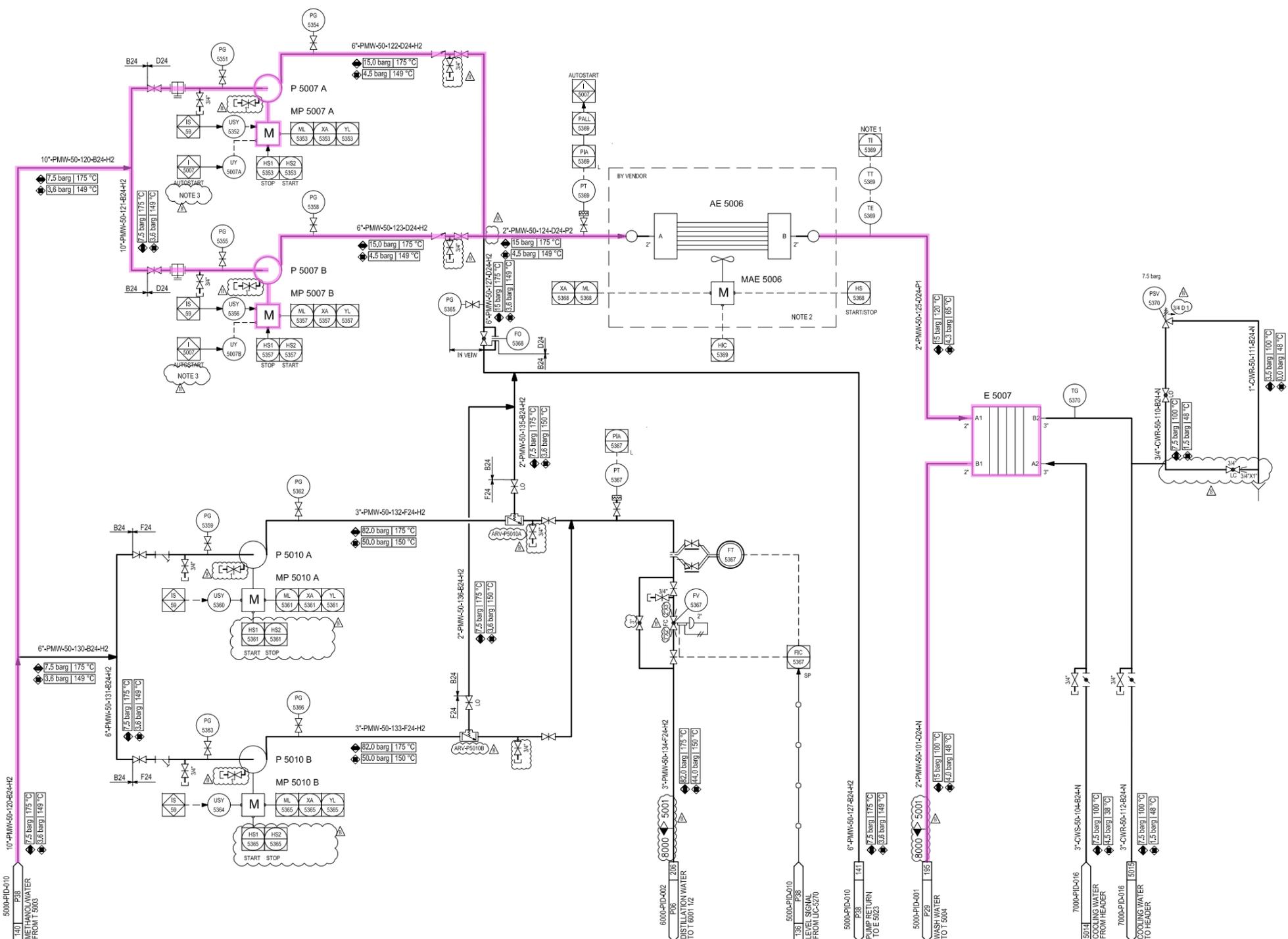
P 5010 A/B	EXCESS WATER PUMP
CAPACITY	36.3 m ³ /h
HEAD	62 m
DENSITY@OT	918 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	BY VENDOR

AE 5006	WASH WATER AIR COOLER
DUTY	0.8 MW
ID x LENGTH(T-T)	BY VENDOR mm
DESIGN PRESS.(TU/SH)	7.5/NA barg
DESIGN TEMP.(TU/SH)	175/NA °C

E 5007	WASH WATER COOLER
DUTY	0.16 MW
DESIGN PRESS.(TU/SH)	7.5/7.5 barg
DESIGN TEMP.(TU/SH)	100/120 °C
INSULATION	YES

GENERAL NOTES

- †NOTES:
- 1) TWS TO BE INSTALLED ON EACH OUTLET HEADER FROM AE 5006.
 - 2) MIN. 50% OF MOTORS WITH VARIABLE SPEED CONTROL.
 - 3) THE SPARE PUMP WOULD AUTOSTART WHEN THE OUTLET PRESSURE DECREASED.
- △ GENERAL NOTE:
- LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

△ Issued for Approval	05.07.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi	
△ Issued for Comments	29.04.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi	
REV.	DESCRIPTION	DATE	DESIGN	DRAW	CHECK
					REVIEW
					APPROVE

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OWNER:

Middle East
Kimiaye Pars Company

LENDOR	HALDOR TOPSØE A/S	DOCUMENT NAME	MP METHANOL COLUMN BY PRODUCT PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	CONTRACTOR	TCC 中國天辰工程有限公司
CONTRACTOR		DATE	29.04.2016	DESIGN	Li Zhijuan	DRAW	Mu Yujun
SUB-CONTRACTOR		CHECK		REVIEW	Hu Qiuyi	APPROVE	

PROJECT	MKP Methanol Project
UNIT	Distillation Unit
PHASE	Detail Engineering
OWNER DWG NO.	MKP-11-DE-5000-PR-013

SCALE: -	SHEET: 1	TOT.: 1	SIZE: A1
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Counter	Sign	Date

X 5001 A/B		PRODUCT	POLISHER UNIT
ID x LENGTH-T	3900 x 4400 mm	DESIGN PRESS.	19 barg
DESIGN TEMP.	85 °C	INSULATION	NONE
CATALYST TYPE	AMBERLYST 15 WET		

GENERAL NOTES

*GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

REV.	DESCRIPTION	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE
▲	Issued for Review	05.07.2016	Li Zhijuan		Mu Yujun	Hu Qiuyi	
▲	Issued for Comments	29.04.2016	Li Zhijuan		Mu Yujun	Hu Qiuyi	

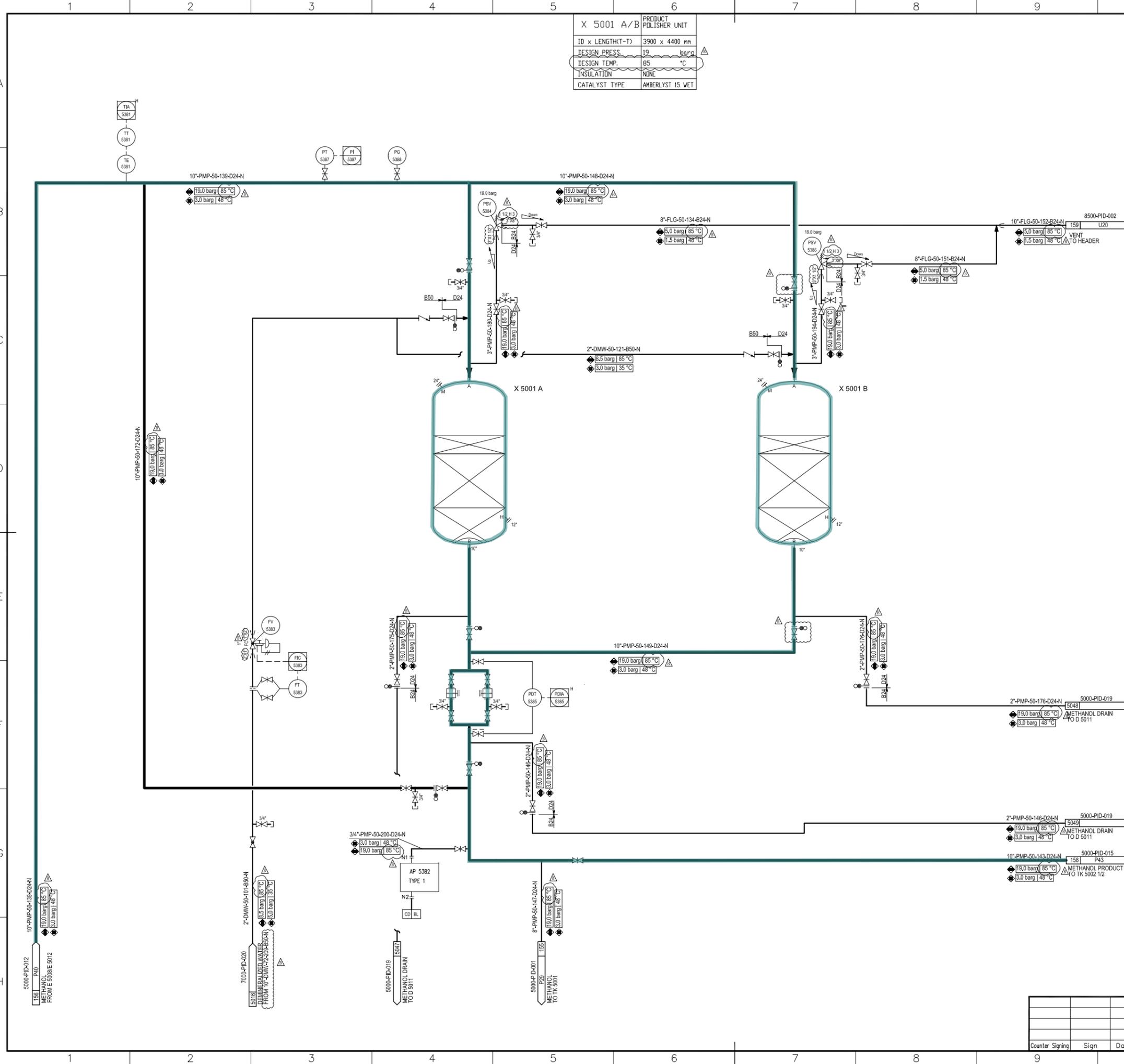
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OWNER:
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Kimiaye Pars Company**

LEADER	HALDOR TOPSØE A/S	DOCUMENT NAME	METHANOL PRODUCT PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	CONTRACTOR	TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION
CONTRACTOR		DWG. NO.	1341752	REV.	42	CONTRACTOR DRAWING NO.	MKP-11-DE-5000-PS07-PID-014
SUB-CONTRACTOR						SHEET	01 TOTAL 01
						SUB-CONTRACTOR DRAWING NO.	
						SHEET	- TOTAL -

METHANOL PRODUCT PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	Distillation Unit
		PHASE	Detail Engineering
OWNER	MKP-11-DE-5000-PR-PID-014	DWG. NO.	

SCALE: -	SHEET: 1	TOT.: 1	SIZE: A1
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Counter	Sign	Date

Node 5006

P 5012 A/B	METHANOL START-UP PUMP
CAPACITY	11.3 m ³ /h
HEAD	680 m
DENSITY@QT	766 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	BY VENDOR

TK 5002 1	METHANOL PRODUCT BUFFER TANK
ID x LENGTH (I-D)	20000 x 24400 mm
NET WORKING CAPACITY	6600 m ³
DESIGN PRESS.	-0.006-0.020 barg
DESIGN TEMP.	85 °C
INSULATION	NONE
ELEV. OF FOUNDATION	101.050 m

GENERAL NOTES

- † NOTES:
- 1) AT GRADE.
 - 2) FOR FILLING IN METHANOL PRIOR TO INITIAL START-UP.
 - 3) OUTPUT OF FIC-5407 IS 100% WHEN IN MANUAL.
 - 4) SUBSEQUENT TO IS-1 THIS SET POINT IS RAMPED DOWN.
 - 5) IF OUTPUT FROM FIC-5407 IS BELOW 100%, FV-5407 B IS FULLY OPEN.

† GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

△	Issued for Approval	05.07.2016	Li Zhijuan	Mu Yujun	Hu Qiyi	
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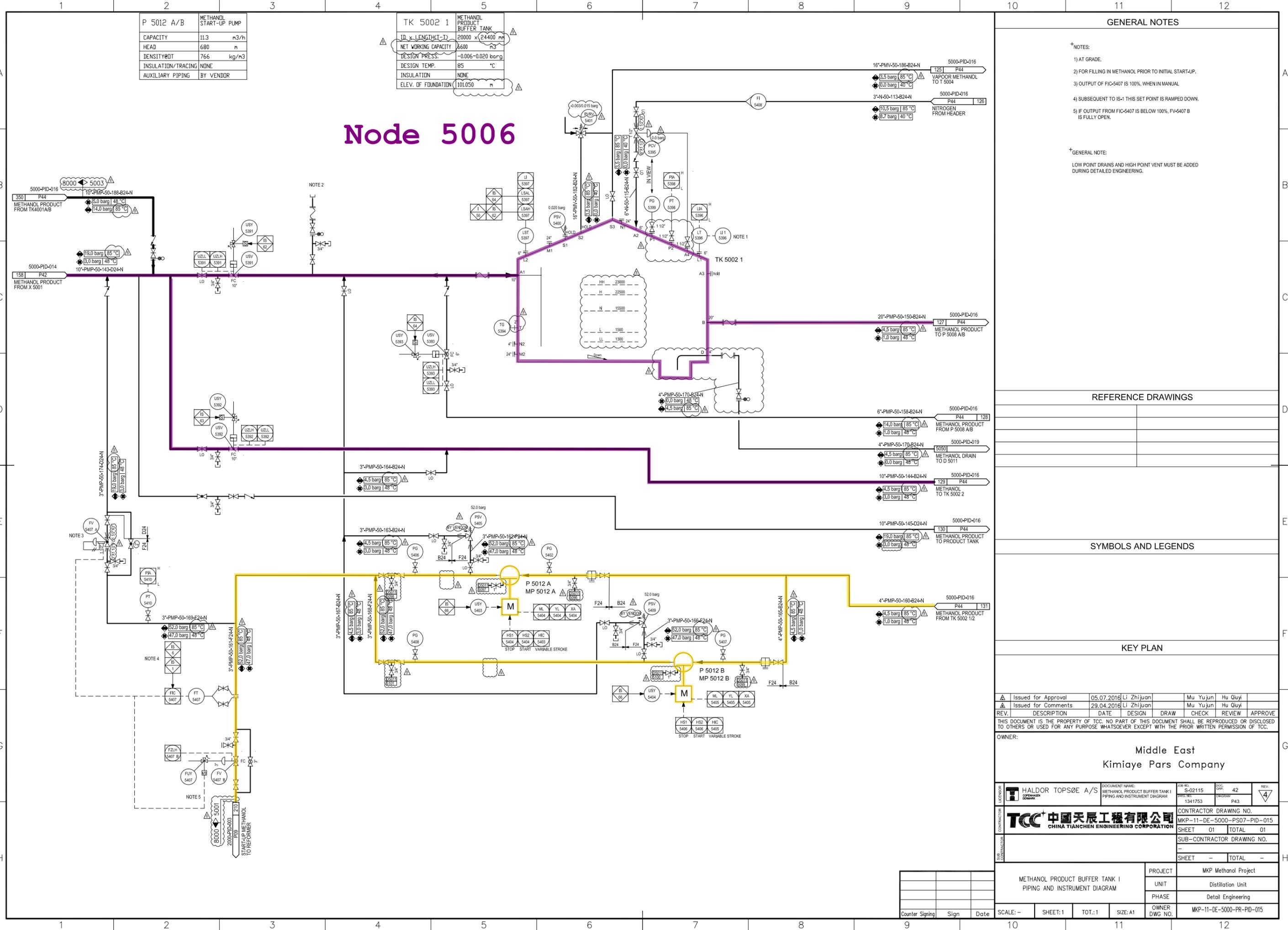
Middle East
Kimiaye Pars Company

LICENSOR	HALDOR TOPSØE A/S	DOCUMENT NAME	METHANOL PRODUCT BUFFER TANK I PIPING AND INSTRUMENT DIAGRAM	DWG. NO.	S-02115	REV.	4
CONTRACTOR	TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	DWG. NO.	1341753	CONTRACTOR DRAWING NO.	MKP-11-DE-5000-PS07-PID-015	SHEET	01 TOTAL 01
SUB CONTRACTOR				SUB-CONTRACTOR DRAWING NO.		SHEET	- TOTAL -

METHANOL PRODUCT BUFFER TANK I PIPING AND INSTRUMENT DIAGRAM	PROJECT	MKP Methanol Project
	UNIT	Distillation Unit
	PHASE	Detail Engineering
OWNER DWG. NO.	MKP-11-DE-5000-PR-PID-015	

Counter	Sign	Date

SCALE: -	SHEET: 1	TOT.: 1	SIZE: A1
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TK 5002 2	METHANOL PRODUCT BUFFER TANK
ID x LENGTH (mm)	20000 x (24400 mm)
NET WORKING CAPACITY	7600 m ³
DESIGN PRESS.	-0.006-0.020 barg
DESIGN TEMP.	85 °C
INSULATION	NONE
ELEV. OF FOUNDATION	101.050 m

P 5008 A/B/C	METHANOL PRODUCT PUMP
CAPACITY	487.2 m ³ /h
HEAD	105 m
DENSITY @ 20 °C	766 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	BY VENDOR

GENERAL NOTES

- *NOTES:
- 1) THERMAL PSY ON ROUNDOFF LINE MAY BE REQUIRED DEPENDING ON FINAL PIPING LAYOUT.
 - 2) AT GRADE.

*GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

START-UP METHANOL FILLING FLEXIBLE HOSE CONNECTION

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

△	Issued for Approval	05.07.2016	Li Zhijuan	Mu Yu jun	Hu Qiyi		
▲	Issued for Comments	29.04.2016	Li Zhijuan	Mu Yu jun	Hu Qiyi		
REV.	DESCRIPTION	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

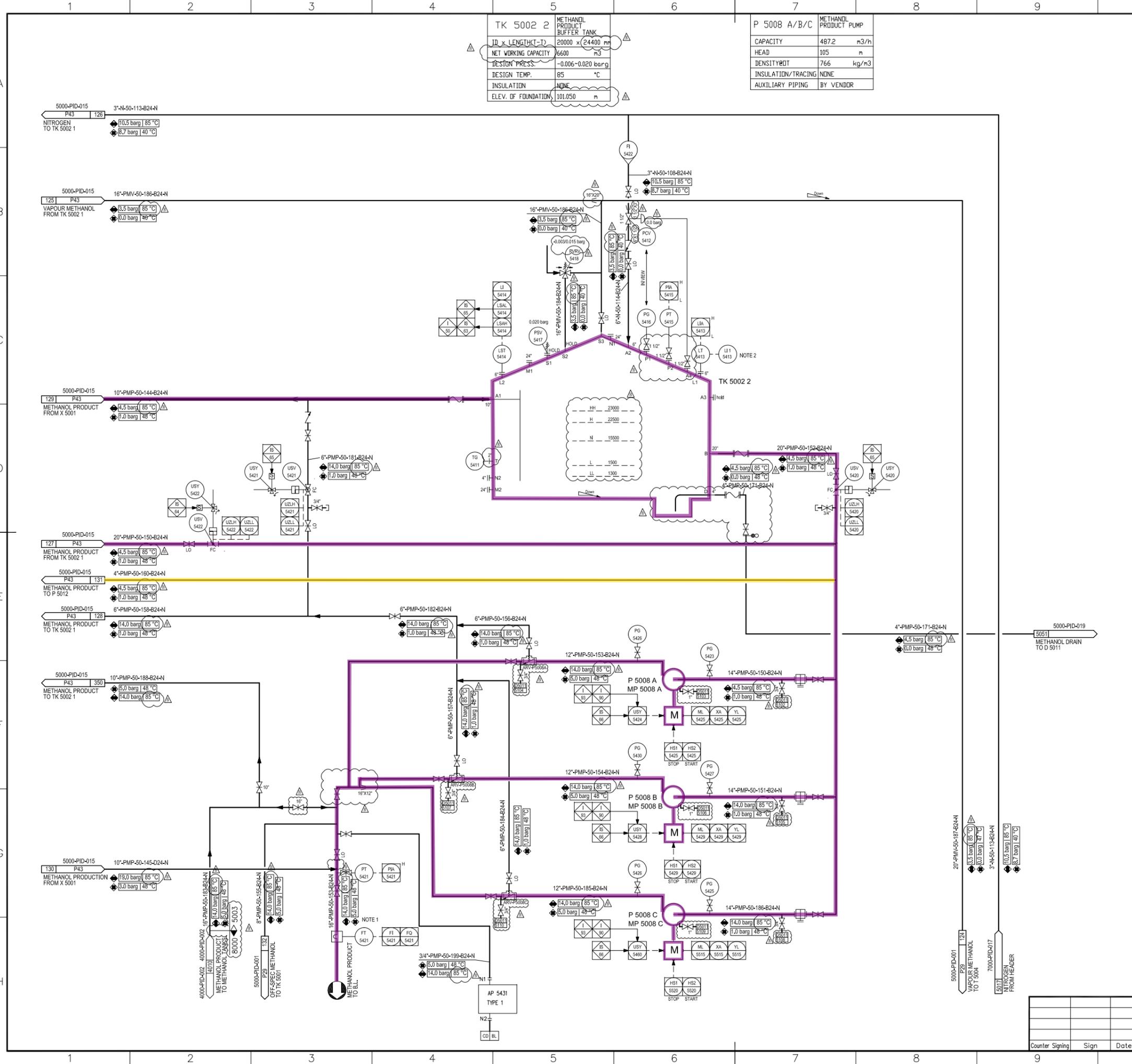
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LEASOR	HALDOR TOPSØE A/S	DOCUMENT NAME	METHANOL PRODUCT BUFFER TANK II PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	DOC. NO.	42	REV.	4
CONTRACTOR	TCC 中國天辰工程有限有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	DWG. NO.	1341754	DATE	02/08/2016	SCALE	P44	CONTRACTOR DRAWING NO.	
								MKP-11-DE-5000-PS07-PID-016	
								SHEET 01 TOTAL 01	
								SUB-CONTRACTOR DRAWING NO.	
								-	
								SHEET - TOTAL -	

METHANOL PRODUCT BUFFER TANK II PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	Distillation Unit
		PHASE	Detail Engineering
SCALE: - SHEET:1 TOT.:1 SIZE:A1		OWNER DWG. NO.	MKP-11-DE-5000-PR-PID-016



Counter	Sign	Date

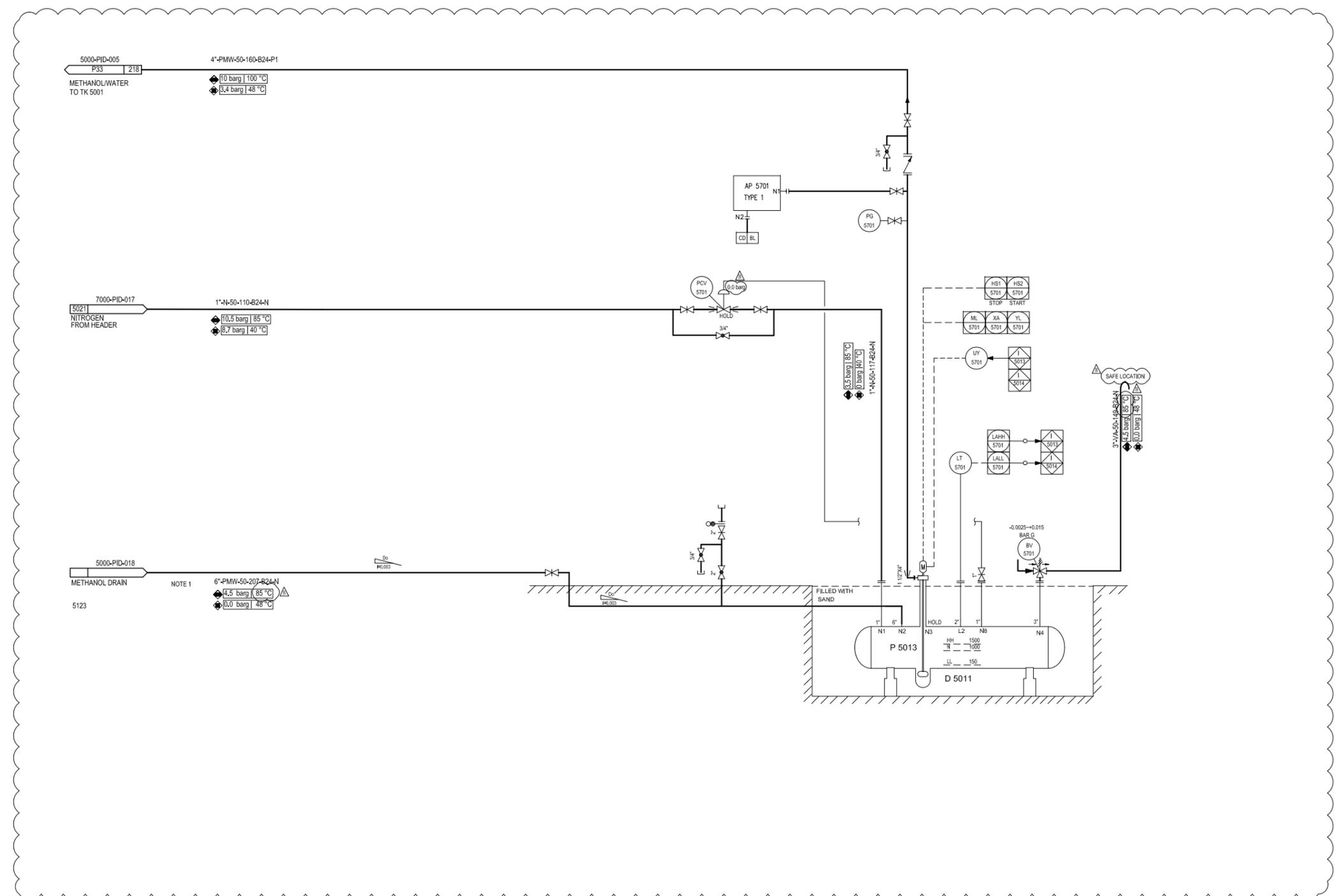
D 5011	CLOSED DRAIN DRUM
ID x LENGTH(T)	1800 x 4400 mm
DESIGN PRESS.	-0.003~0.020 barg
DESIGN TEMP.	100 °C
INSULATION	NONE
CLADDING/LINING	NONE
ELEV. OF FOUNDATION	96.400 m

P 5013	CLOSED DRAIN DRUM PUMP
CAPACITY	12 m ³ /h
HEAD	35 m
DENSITY@DT	750~1000 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	BY VENDOR

Node 5007

GENERAL NOTES

NOTES:
1) ALL LOW POINT DRAINS WHICH CONTAIN METHANOL MUST BE CONNECTED TO THE MAIN DRAIN PIPE 6"PMC-150-201-B24-N AND COLLECTED IN THE CLOSED DRAIN DRUM D 5011.



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

△	Issued for Review	05.07.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi		
▲	Issued for Comments	29.04.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi		
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Kimiaye Pars Company**

HALDOR TOPSØE A/S <small>CONTRACTOR</small>	DOCUMENT NAME: JOB NO.: DWG. NO.: DRAWING:	JOB GRP.: DRAWING:	REV.:
TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION		CONTRACTOR DRAWING NO. MKP-11-DE-5000-PS07-PID-019	
		SHEET 01 TOTAL 01	
		SUB-CONTRACTOR DRAWING NO. -	
		SHEET - TOTAL -	

PROJECT MKP Methanol Project	UNIT Distillation Unit
	PHASE Detail Engineering
	OWNER MKP-11-DE-5000-PR-PID-019

Counter	Sign	Date

SCALE: -	SHEET: 1	TOT.: 1	SIZE: A1
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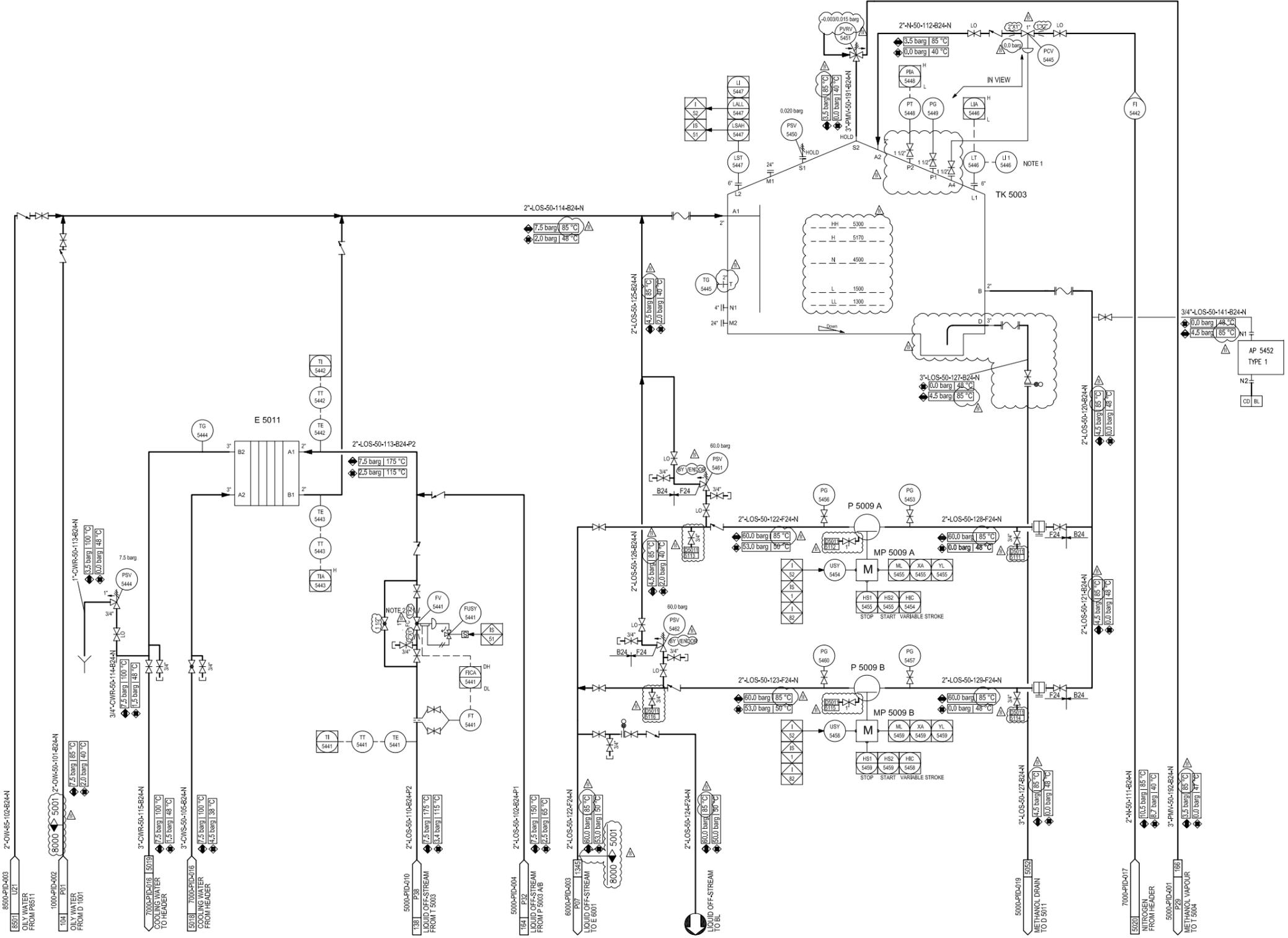
E 5011	LIQUID OFF-STREAM COOLER
DUTY	0.16 MW
DESIGN PRESS.(TLU/SH)	7.5/7.5 barg
DESIGN TEMP.(TLU/SH)	100/175 °C
INSULATION	YES

TK 5003	METHANOL PRODUCT BUFFER TANK
ID x LENGTH (mm)	5000 x 6500
NET WORKING CAPACITY	75 m3
DESIGN PRESS.	-0.006-0.020 barg
DESIGN TEMP.	85 °C
INSULATION	NONE
ELEV. OF FOUNDATION	100.800 m

P 5009 A/B	LIQUID OFF-STREAM PUMP
CAPACITY	4.6 m3/h
HEAD	713 m
DENSITY@DT	814 kg/m3
INSULATION/TRACING	NONE
AUXILIARY PIPING	BY VENDOR

GENERAL NOTES

- NOTES:
- 1) AT GRADE
 - 2) FV-5441 MUST BE LOCATED AS CLOSE AS POSSIBLE TO E 5011.
- GENERAL NOTE:
- LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Issued for Approval	05.07.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi			
Issued for Comments	29.04.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi			
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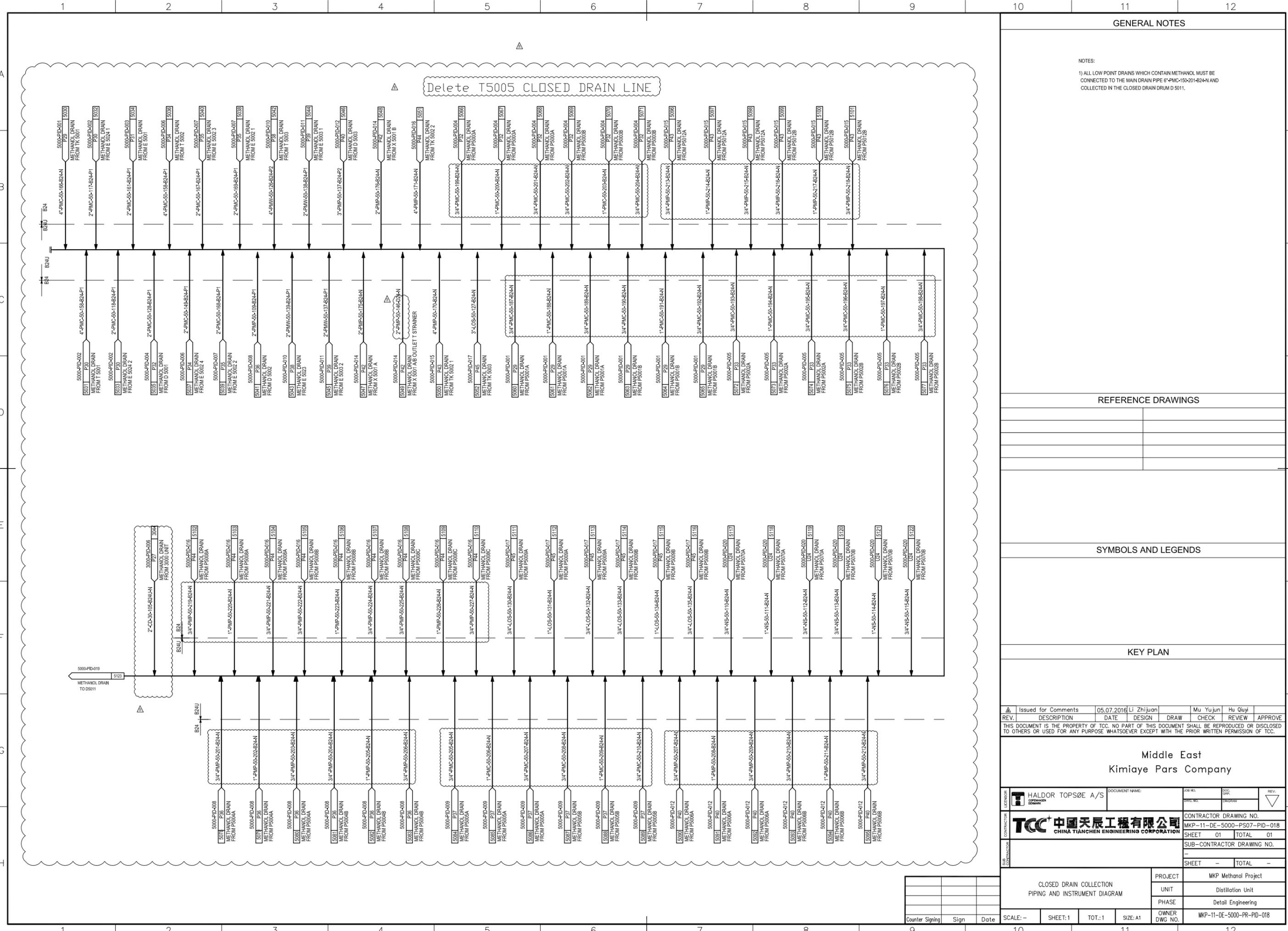
OWNER: Middle East Kimiaye Pars Company

LEADER	HALDOR TOPSØE A/S	DOCUMENT NAME	LIQUID OFF-STREAM TANK PIPING AND INSTRUMENT DIAGRAM	JOB NO.	S-02115	CONTRACTOR	TCC
CONTRACTOR	CHINA TIANCHEN ENGINEERING CORPORATION	DWG. NO.	1341755	CONTRACTOR	MKP-11-DE-5000-PS07-PID-017	SHEET	01
SUB-CONTRACTOR		CONTRACTOR		SHEET		TOTAL	01

PROJECT	MKP Methanol Project
UNIT	Distillation Unit
PHASE	Detail Engineering
OWNER DWG. NO.	MKP-11-DE-5000-PR-PID-017

SCALE:	-	SHEET:	1	TOT.:	1	SIZE:	A1
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Counter Signing	Sign	Date
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Delete T5005 CLOSED DRAIN LINE

GENERAL NOTES

NOTES:
1) ALL LOW POINT DRAINS WHICH CONTAIN METHANOL MUST BE CONNECTED TO THE MAIN DRAIN PIPE 6"PMC-50-117-824-N AND COLLECTED IN THE CLOSED DRAIN DRUM D 5011.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

REV.	ISSUED FOR COMMENTS	05.07.2016	DESIGN	Li Zhijuan	DRAW	Mu Yujun	CHECK	Hu Qiuyi	REVIEW	APPROVE
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Kimiaye Pars Company

LEADER	HALDOR TOPSØE A/S	DOCUMENT NAME:		DWG. NO.	010804	REV.	▽
CONTRACTOR	TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO.	MKP-11-DE-5000-PS07-PID-018	SHEET	01	TOTAL	01
SUB CONTRACTOR		SUB-CONTRACTOR DRAWING NO.	-	SHEET	-	TOTAL	-

PROJECT	MKP Methanol Project
UNIT	Distillation Unit
PHASE	Detail Engineering
OWNER DWG. NO.	MKP-11-DE-5000-PR-PID-018

SCALE:	-	SHEET:	1	TOT.:	1	SIZE:	A1
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Counter Signing	Sign	Date
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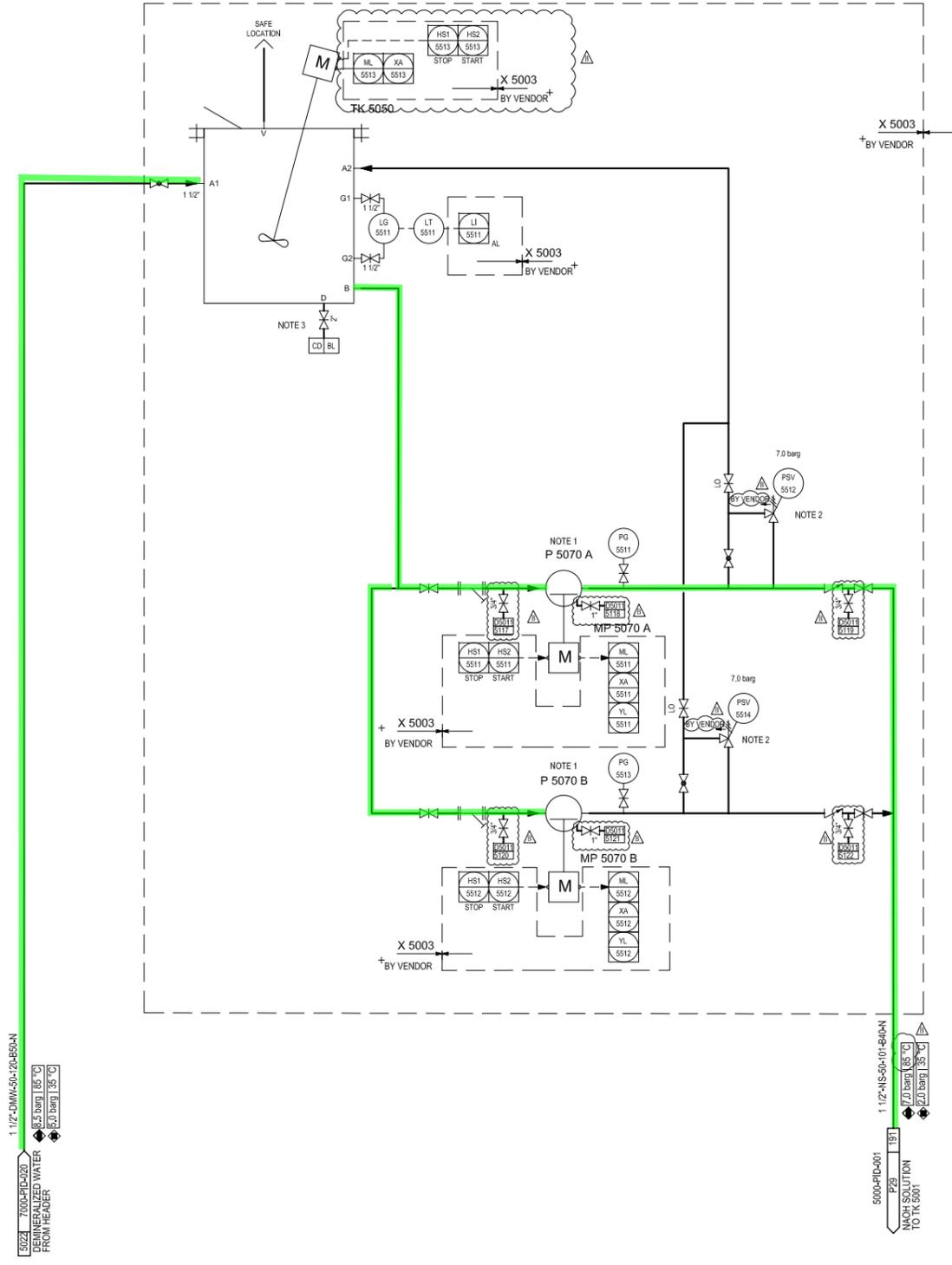
X 5003	NaOH SOLUTION DOSING UNIT
INCLUDED	TK 5050
INCLUDED	P 5070 A/B

TK 5050	NaOH TANK
ID x LENGTHxHT-D	BY VENDOR mm
NOMINAL CAPACITY	4.4 m3
DESIGN PRESS	ATM barg
DESIGN TEMP.	85 °C
INSULATION	NONE

P 5070 A/B	NaOH SOLUTION DOSING PUMP
CAPACITY	60 L/h
HEAD	50 m
DENSITY@OT	1220 kg/m3
INSULATION/TRACING	NONE
AUXILIARY PIPING	BY VENDOR

GENERAL NOTES

- †NOTES:
- 1) CALIBRATION POTS FOR METERING SHALL BE PROVIDED BY PUMP VENDOR.
 - 2) PUMP VENDOR TO SPECIFY PSV
 - 3) DRAIN FROM DOSING SYSTEMS INTO CLOSED DRUMS.
- †GENERAL NOTE:
- LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

△	Issued for Approval	05.07.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi		
▲	Issued for Comments	29.04.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi		
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OWNER:
**Middle East
Kimiaye Pars Company**

LENDOR	HALDOR TOPSØE A/S	DOCUMENT NAME	NaOH DOSING UNIT X 5003 UTILITY DIAGRAM	JOB NO.	S-02115	DOC. GRP.	42	REV.	
CONTRACTOR	TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	DWG. NO.	1353322	DATE	02/08/2016	REV.	U24		
SUB-CONTRACTOR		CONTRACTOR DRAWING NO.	MKP-11-DE-5000-PS09-PID-001	SHEET	01	TOTAL	01		
		SUB-CONTRACTOR DRAWING NO.		SHEET	-	TOTAL	-		

PROJECT	MKP Methanol Project
UNIT	Distillation Unit
PHASE	Detail Engineering
OWNER DWG NO.	MKP-11-DE-5000-PR-PID-020

Counter	Sign	Date

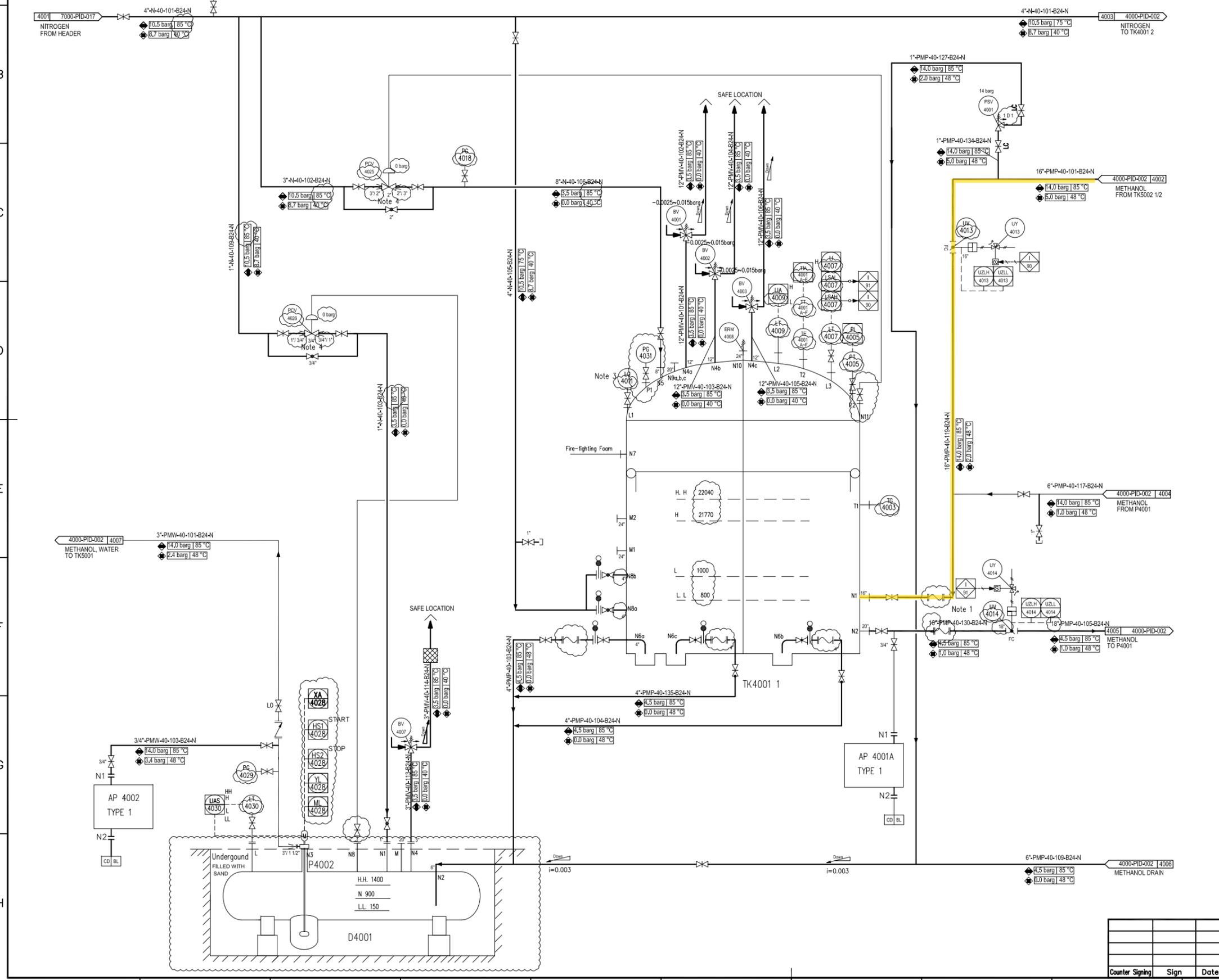
SCALE: - SHEET: 1 TOT.: 1 SIZE: A1

P4002		METHANOL TANKS UNIT CLOSED DRAIN DRUM PUMP	
CAPACITY	12	m ³ /h	
Head	35	m	
POWER	3	kW	
MATERIAL	SS		
DRIVER TYPE	MOTOR		

D4001		METHANOL TANKS UNIT CLOSED DRAIN DRUM	
ID x LENGTH	1600 x 3600	mm	
VOLUME	7	m ³	
DESIGN PRESS.	3.5	barg	
DESIGN TEMP.	85	°C	
MATERIAL SHELL	CS		
Elev. of Foundation		EL. 96.700	m

TK4001 1		METHANOL TANK	
ID x LENGTH	34000 x 27000	mm	
VOLUME	20000	m ³	
DESIGN PRESS.	-0.003/0.02	barg	
DESIGN TEMP.	85	°C	
MATERIAL SHELL	CS		
Elev. of Foundation		EL. 101.050	m

- GENERAL NOTES
- NOTES:
- 1) NO POCKET ALLOWED.
 - 2) ALL METHANOL PIPES TO BE CONNECTED TO GROUND FOR ELECTROSTATIC PROTECTION.
 - 3) LG4001A SHALL BE READABLE AT THE GROUND FLOOR.
 - 4) SELF REGULATING PRESSURE CONTROL VALVE INSTALLED ON THE TOP OF THE TANK.



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

▲ Issued for Review	05.07.2016	Li Zhijuan	Mu Yujun	Hu Qiuyi			
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REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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Middle East
Kimiye Pars Company

CONTRACTOR	TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO.	MKP-11-DE-4000-PS07-PID-001
		SHEET	01 TOTAL 01
SUB-CONTRACTOR		SUB-CONTRACTOR DRAWING NO.	
		SHEET	TOTAL

METHANOL TANKS (1) PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	METHANOL TANKS
		PHASE	Detail Engineering
SCALE: -	SHEET: 1	TOT.: 1	SIZE: A1
OWNER	MKP-11-DE-4000-PR-PID-001	DWG NO.	

Counter			
Sign			
Date			

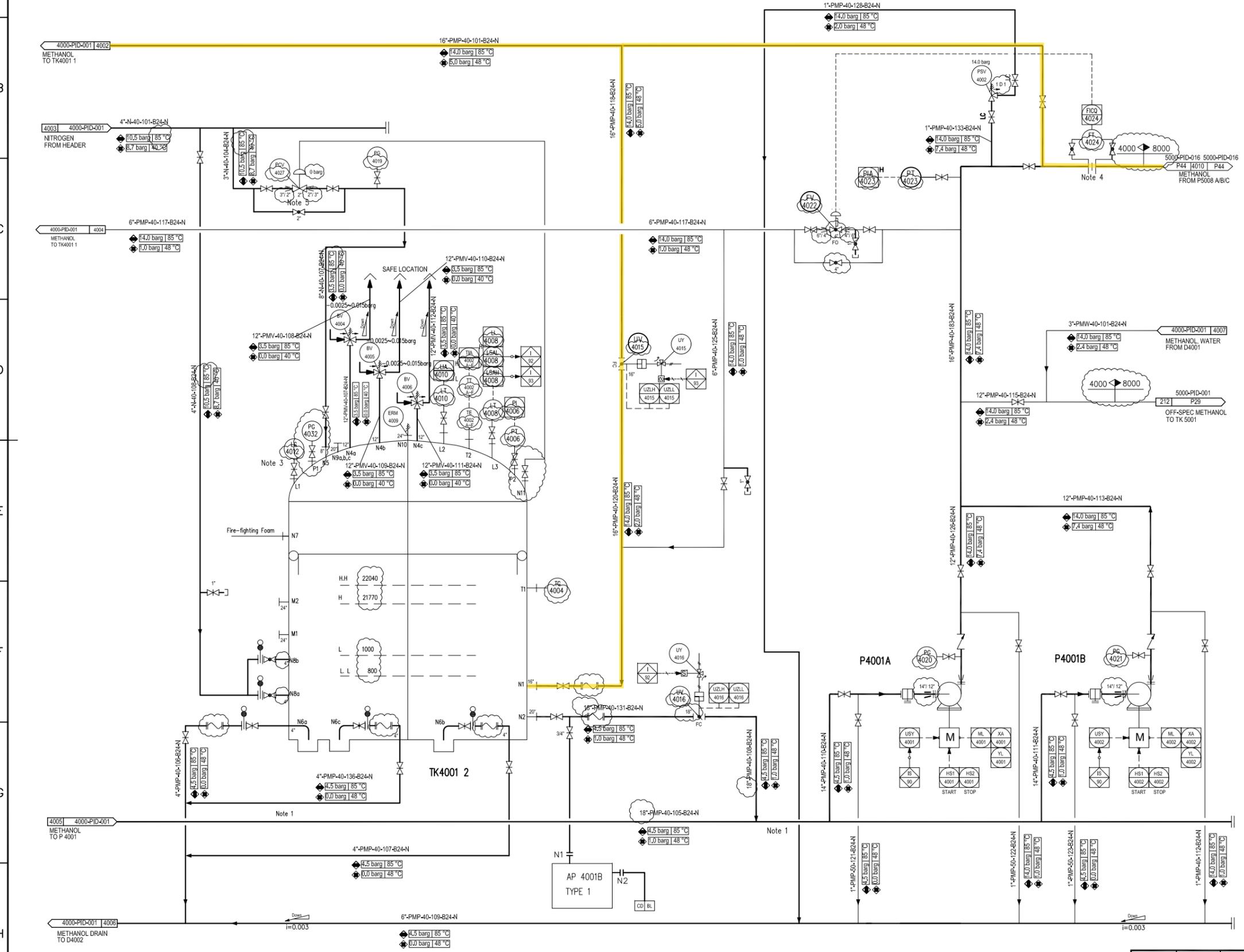
TK4001 2	METHANOL TANK
ID x LENGTH	34000 x 27000 mm
VOLUME	20000 m ³
DESIGN PRESS.	-0.003/0.02 barg
DESIGN TEMP.	85 °C
MATERIAL SHELL	CS
Elev. of Foundation	EL. 101.050

P4001 A/B	METHANOL TRANSFER PUMP
CAPACITY	487 m ³ /h
Head	100 m
POWER	160 kW
MATERIAL	CS
DRIVER TYPE	MOTOR

GENERAL NOTES

†NOTES:

- NO POCKET ALLOWED.
- ALL METHANOL PIPES TO BE CONNECTED TO GROUND FOR ELECTROSTATIC PROTECTION.
- LG4001B SHALL BE READABLE AT THE GROUND FLOOR.
- THE TYPE OF FT-4024 IS DUAL DIRECTION FLOW METER.
- SELF REGULATING PRESSURE CONTROL VALVE, INSTALLED ON THE TOP OF THE TANK.



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

▲ Issued for Approval	05.07.2016	Li Zhijuan	Mu Yujun	Hu Qiyi			
▲ Issued for Comments	29.04.2016	Li Zhijuan	Mu Yujun	Hu Qiyi			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER:

**Middle East
Kimiye Pars Company**

CONTRACTOR	DOCUMENT NAME:	JOB NO.:	DOC. GRP.:	REV.:
TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION		CONTRACTOR DRAWING NO. MKP-11-DE-4000-PS07-PID-002		
SHEET 01		TOTAL 01		
SUB-CONTRACTOR DRAWING NO.		-		
SHEET -		TOTAL -		

METHANOL TANKS (2) PIPING AND INSTRUMENT DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	METHANOL TANKS
		PHASE	Detail Engineering
SCALE: - SHEET:1 TOT.:1 SIZE:A1		OWNER DWG NO.	MKP-11-DE-4000-PR-PID-002

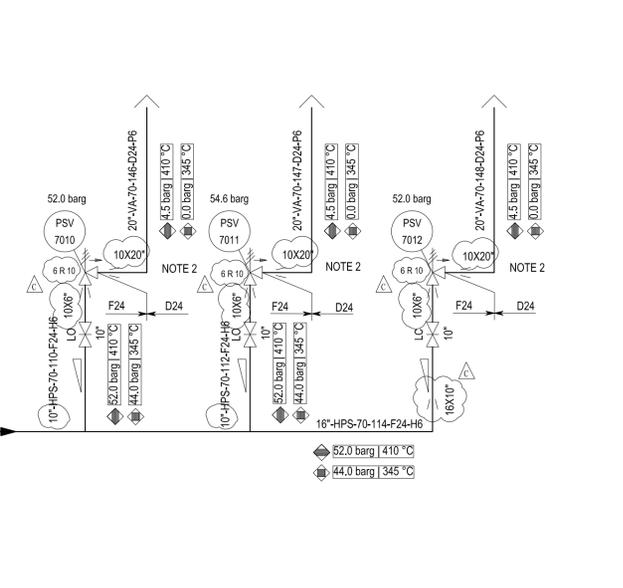
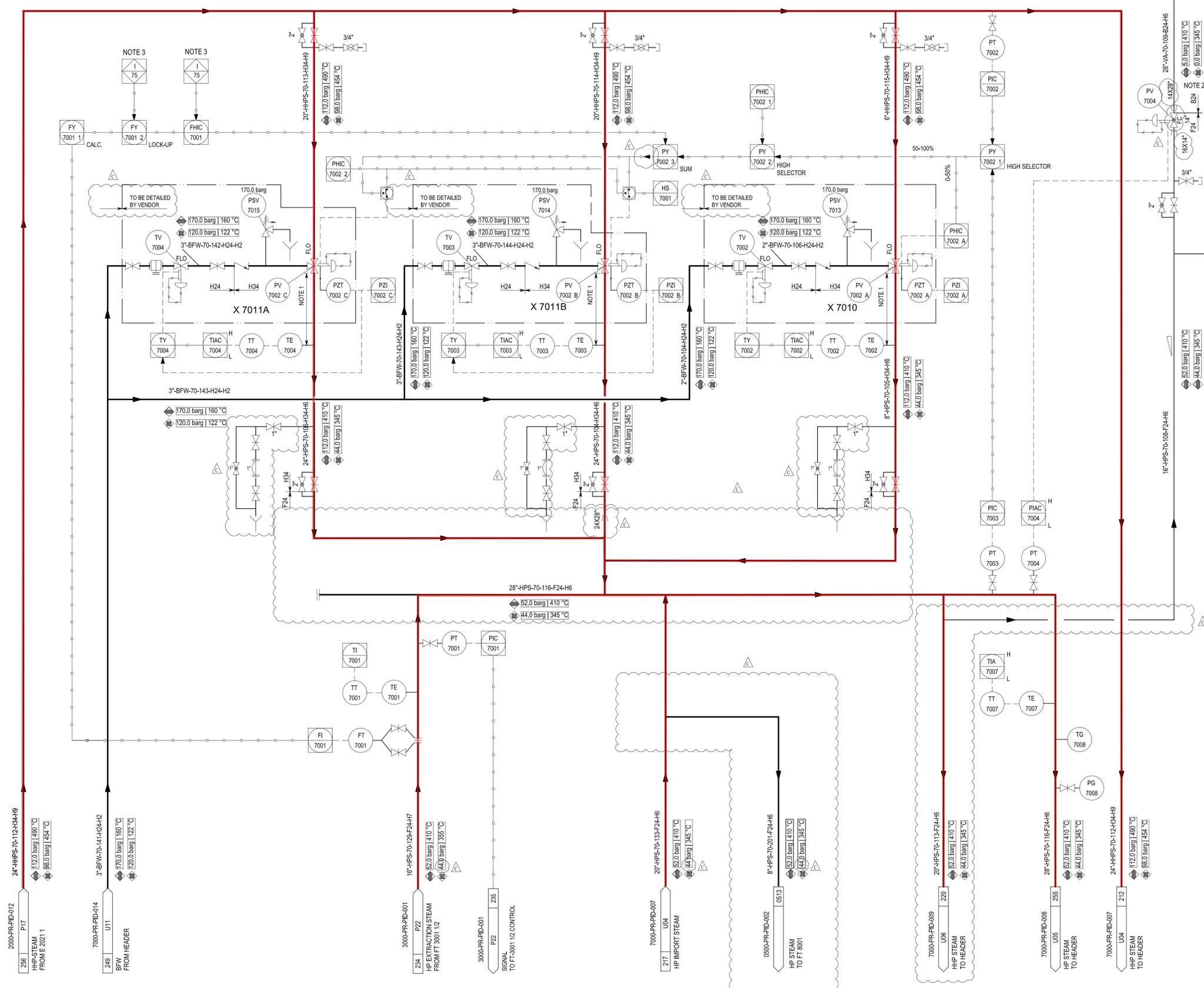
Counter	Sign	Date

Node 7001

X 7011AB	HHP-HP STEAM LET DOWN STATION
CAPACITY	400,000 kg/hr
STEAM INLET PRESS.	98 barg
STEAM INLET TEMP.	454 °C
STEAM OUTLET PRESS.	44 barg
STEAM OUTLET TEMP.	345 °C

X 7010	HHP-HP STEAM LET DOWN STATION
CAPACITY	40,000 kg/hr
STEAM INLET PRESS.	98 barg
STEAM INLET TEMP.	454 °C
STEAM OUTLET PRESS.	44 barg
STEAM OUTLET TEMP.	345 °C

SI 7010	HP STEAM VENT SILENCER
CAPACITY	400,000 kg/hr
DESIGN PRESS.	7 barg
DESIGN TEMP.	410 °C
MATERIAL SHELL	CS



GENERAL NOTES

GENERAL NOTE:
 LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

NOTES:
 1) THE MINIMUM DISTANCE BETWEEN BFW INJECTION POINT AND THE TI ELEMENT WHICH CONTROLS THE CONTROL VALVE SHALL BE SPECIFIED BY VENDOR, THIS DISTANCE TO BE DIRECT WITHOUT EXTRA FITTING PREFERABLY.
 2) 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
 3) LOCK UP SIGNAL FROM COMPLETE TRIP OF SYNTHESIS GAS COMPRESSOR C 3001/3002.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

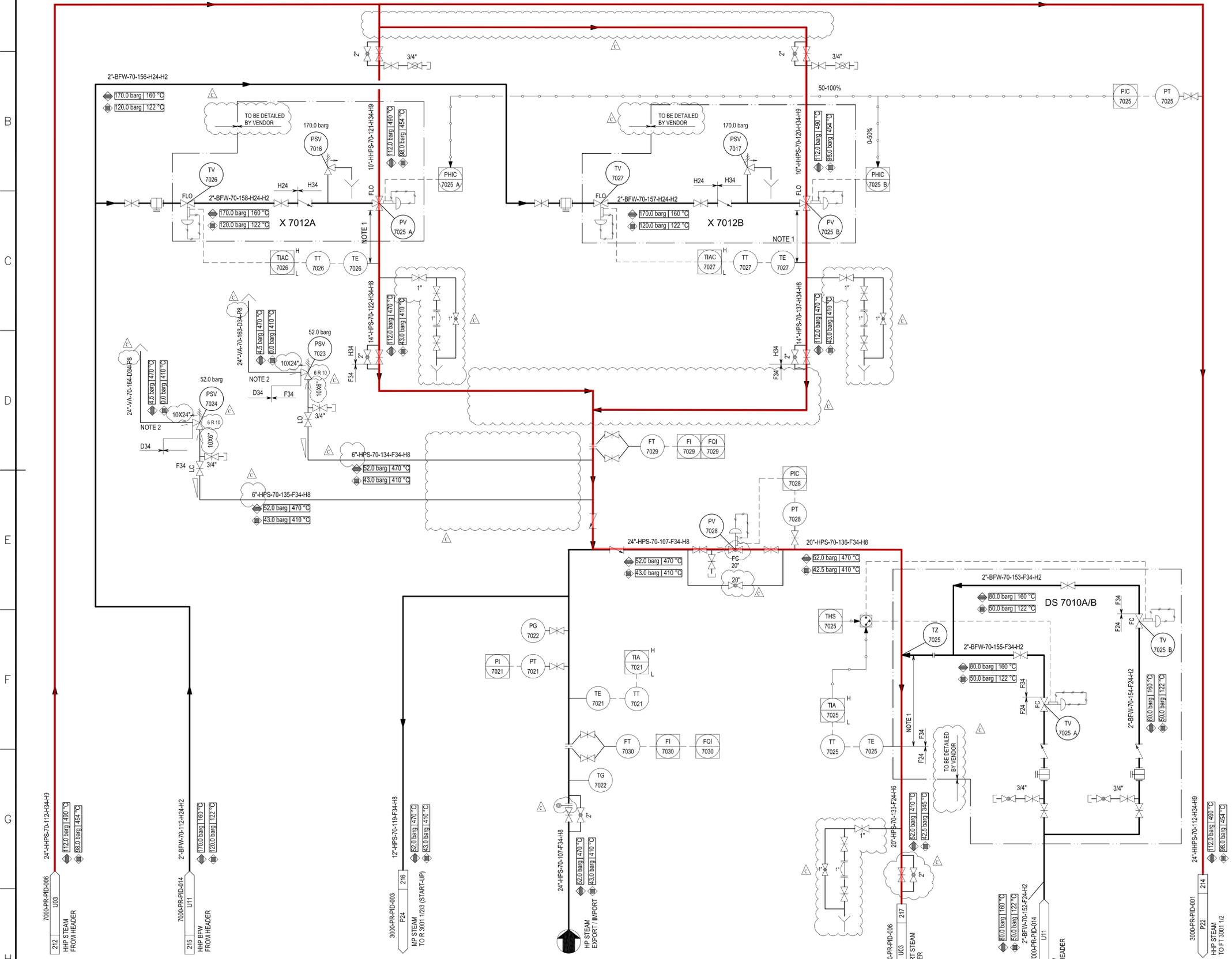
KEY PLAN

OWNER: **Middle East Kimiaye Pars Company**

HHP-HP STEAM CONTROL SYSTEM	PROJECT	MKP Methanol Project
PIPING AND INSTRUMENT DIAGRAM	UNIT	STEAM SYSTEM & UTILITIES
	PHASE	DETAIL ENGINEERING
	OWNER	MKP-11-DE-7000-PR-PID-006

X 7012A/B	HHP-HP STEAM LET DOWN STATION
CAPACITY	115,000 kg/hr
STEAM INLET PRESS.	98 barg
STEAM INLET TEMP.	454 °C
STEAM OUTLET PRESS.	44 barg
STEAM OUTLET TEMP.	410 °C

DS 7010A/B	HP-HP STEAM DESUPERHEATER
CAPACITY	200,000 kg/hr
STEAM INLET PRESS.	44 barg
STEAM INLET TEMP.	430 °C
STEAM OUTLET PRESS.	44 barg
STEAM OUTLET TEMP.	345 °C



GENERAL NOTES

- GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.
- NOTES:
1) THE MINIMUM DISTANCE BETWEEN BFW INJECTION POINT AND THE TI ELEMENT WHICH CONTROLS THE CONTROL VALVE SHALL BE SPECIFIED BY VENDOR, THIS DISTANCE TO BE DIRECT WITHOUT EXTRA FITTING PREFERABLY.
2) 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Issued For Approval	30.06.2016	Xu Binghao	Zhang Ning	Zhang Yushu			
Issued For Comments	29.04.2016	Xu Binghao	Zhang Ning	Zhang Yushu			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER: Middle East Kimiaye Pars Company

LIBRARY	HALDOR TOPSØE A/S	DOCUMENT NAME	HP STEAM EXPORT/IMPORT UTILITY DIAGRAM	DWG. NO.	S-02115	DWG. GRP.	42	REV.	3
CONTRACTOR	TCC 中国天辰工程有限公司	CONTRACTOR DRAWING NO.	MKP-11-DE-7000-HE07-PID-002	SHEET	01	TOTAL	01		

SCALE	1	SHEET	1	TOT.	1	SIZE	A1	OWNER	MKP-11-DE-7000-PR-PID-007
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HP STEAM EXPORT/IMPORT PIPING AND INSTRUMENT DIAGRAM	PROJECT	MKP Methanol Project
	UNIT	STEAM SYSTEM & UTILITIES
	PHASE	DETIAL ENGINEERING

Counter	Sign	Date
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Node 7001

X 7013A/B	HHP-MP STEAM LET-DOWN STATION
CAPACITY	260,000 kg/hr
STEAM INLET PRESS.	44 barg
STEAM INLET TEMP.	345 °C
STEAM OUTLET PRESS.	34 barg
STEAM OUTLET TEMP.	260 °C

X 7014A/B	MP-LP STEAM LET-DOWN STATION
CAPACITY	50,000 kg/hr
STEAM INLET PRESS.	40 barg
STEAM INLET TEMP.	252 °C
STEAM OUTLET PRESS.	7.5 barg
STEAM OUTLET TEMP.	188 °C

SI 7011	MP STEAM VENT SILENCER
CAPACITY	280,000 kg/hr
DESIGN PRESS.	7 barg
DESIGN TEMP.	300 °C
MATERIAL SHELL	CS

Node 7002

SI 7011

NOTE 2

Node 7003

GENERAL NOTES

- GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.
- NOTES:
1) FUNCTION OF PIC-7031 VALVE OPENING, %
-
- 2) 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
- 3) THE MINIMUM DISTANCE BETWEEN BFW INJECTION POINT AND THE TI ELEMENT WHICH CONTROLS THE CONTROL VALVE SHALL BE SPECIFIED BY VENDOR, THIS DISTANCE TO BE DIRECT WITHOUT EXTRA FITTING PREFERABLY.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Issued For Review	30.06.2016	Xu Binghao	Zhang Ning	Zhang Yushu			
Issued For Comments	29.04.2016	Xu Binghao	Zhang Ning	Zhang Yushu			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER: **Middle East Kimiaye Pars Company**

LICENSOR: HALDOR TOPSØE A/S	DOCUMENT NAME: MP AND LP STEAM CONTROL UTILITY DIAGRAM	DWG. NO.: S-02115	DOC. GRP.: 42	REV.: 3
CONTRACTOR: TCC 中国天辰工程有限公司	CONTRACTOR DRAWING NO.: MKP-11-DE-7000-HE07-PID-003	1341761	U05	

SHEET 01	TOTAL 01

MP AND LP STEAM CONTROL SYSTEM	PROJECT	MKP Methanol Project
PIPING AND INSTRUMENT DIAGRAM	UNIT	STEAM SYSTEM & UTILITIES
	PHASE	DETAIL ENGINEERING
	OWNER	MKP-11-DE-7000-PR-PID-008

Counter			
Signing			
Sign			
Date			

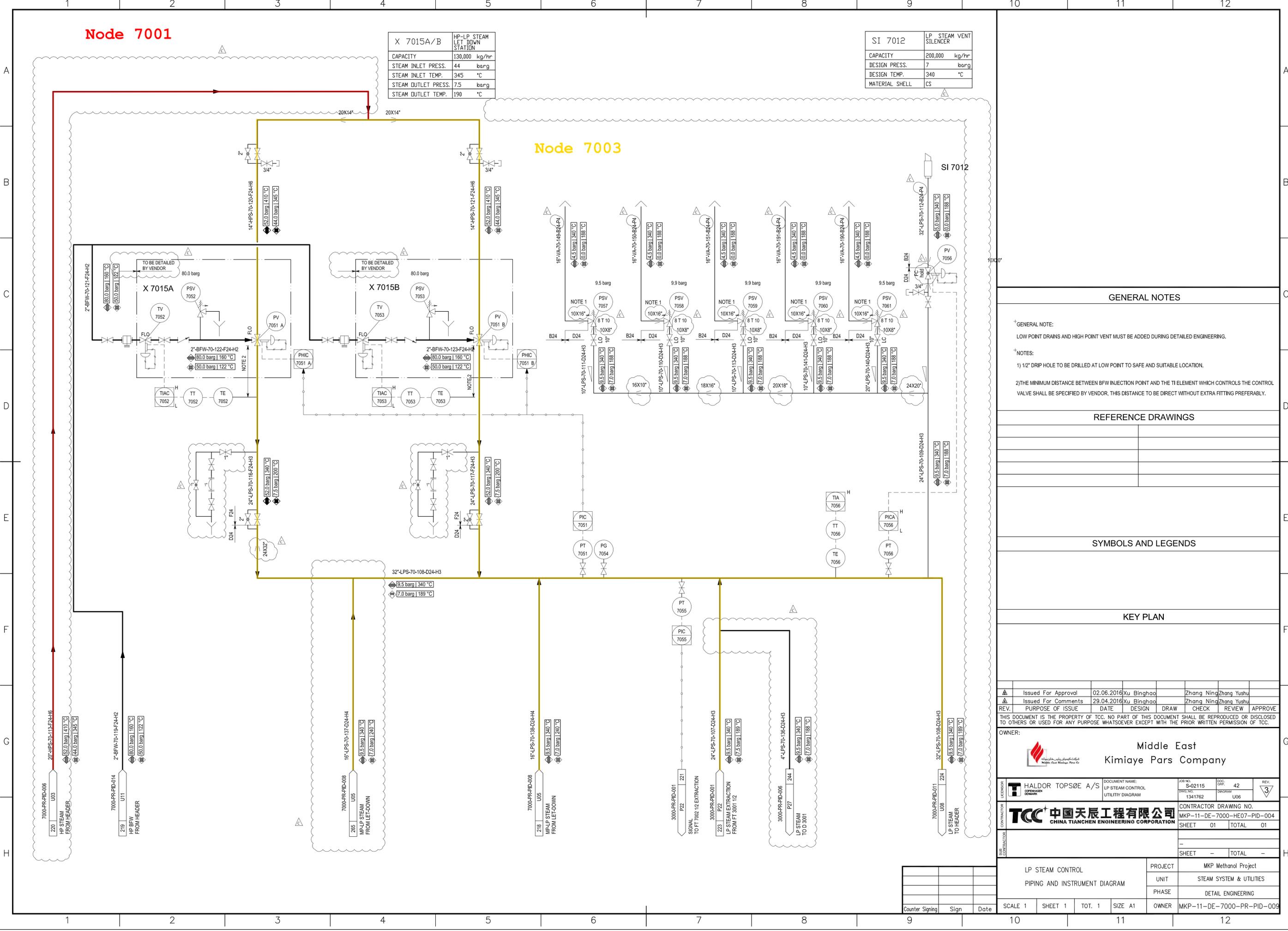
SCALE 1	SHEET 1	TOT. 1	SIZE A1
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Node 7001

X 7015A/B	HP-LP STEAM LET DOWN STATION
CAPACITY	130,000 kg/hr
STEAM INLET PRESS.	44 barg
STEAM INLET TEMP.	345 °C
STEAM OUTLET PRESS.	7.5 barg
STEAM OUTLET TEMP.	190 °C

SI 7012	LP STEAM VENT SILENCER
CAPACITY	200,000 kg/hr
DESIGN PRESS.	7 barg
DESIGN TEMP.	340 °C
MATERIAL SHELL	CS

Node 7003



GENERAL NOTES

- GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.
- NOTES:
1) 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
2) THE MINIMUM DISTANCE BETWEEN BFW INJECTION POINT AND THE TI ELEMENT WHICH CONTROLS THE CONTROL VALVE SHALL BE SPECIFIED BY VENDOR, THIS DISTANCE TO BE DIRECT WITHOUT EXTRA FITTING PREFERABLY.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Issued For Approval	02.06.2016	Xu Binghao	Zhang Ning	Zhang Yushu			
Issued For Comments	29.04.2016	Xu Binghao	Zhang Ning	Zhang Yushu			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER: **Middle East Kimiaye Pars Company**

LICENSOR HALDOR TOPSØE A/S	DOCUMENT NAME	JOB NO.	DOC. GRP.	REV.
	LP STEAM CONTROL UTILITY DIAGRAM	S-02115	42	3
CONTRACTOR TCC 中国天辰工程有限公司	CONTRACTOR DRAWING NO.	CONTRACTOR	DATE	
	MKP-11-DE-7000-HE07-PID-004	1341762	U06	

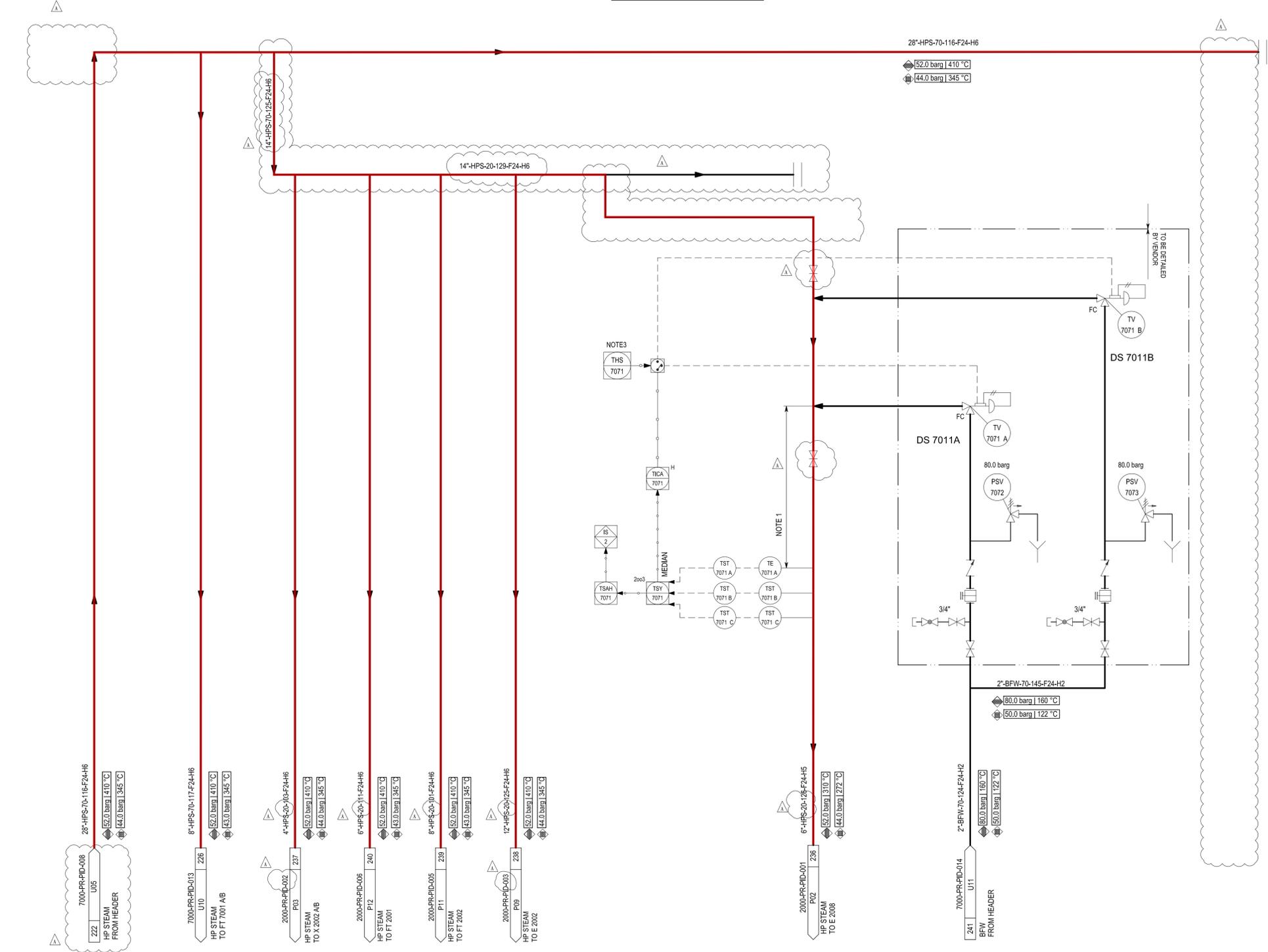
SHEET	01	TOTAL	01
SHEET	-	TOTAL	-

LP STEAM CONTROL	PROJECT	MKP Methanol Project
PIPING AND INSTRUMENT DIAGRAM	UNIT	STEAM SYSTEM & UTILITIES
	PHASE	DETAIL ENGINEERING
	OWNER	MKP-11-DE-7000-PR-PID-009

Counter	Sign	Date

Node 7001

DS 7011A/B	HP-HP STEAM DESUPERHEATER
CAPACITY	15,000 kg/hr
STEAM INLET PRESS.	44 barg
STEAM INLET TEMP.	345 °C
STEAM OUTLET PRESS.	44 barg
STEAM OUTLET TEMP.	272 °C



GENERAL NOTES

- † GENERAL NOTE:
 LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.
- NOTES:
 1) THE MINIMUM DISTANCE BETWEEN BFW INJECTION POINT AND THE TIE ELEMENT WHICH CONTROLS THE CONTROL VALVE SHALL BE SPECIFIED BY VENDOR, THIS DISTANCE TO BE DIRECT WITHOUT EXTRA FITTING PREFERABLY.
 2) PIPE SIZE MUST BE CONFIRMED BY TURBINE VENDOR.
 3) THE SELECTOR SWITCH TSH-7071 ALLOWS OPERATOR TO SELECT CONTROL TV-7071A or TV-7071B

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Issued For Review	30.06.2015	Xu Binghao	Zhang Ning	Zhang Yushu			
Issued For Comments	29.04.2015	Xu Binghao	Zhang Ning	Zhang Yushu			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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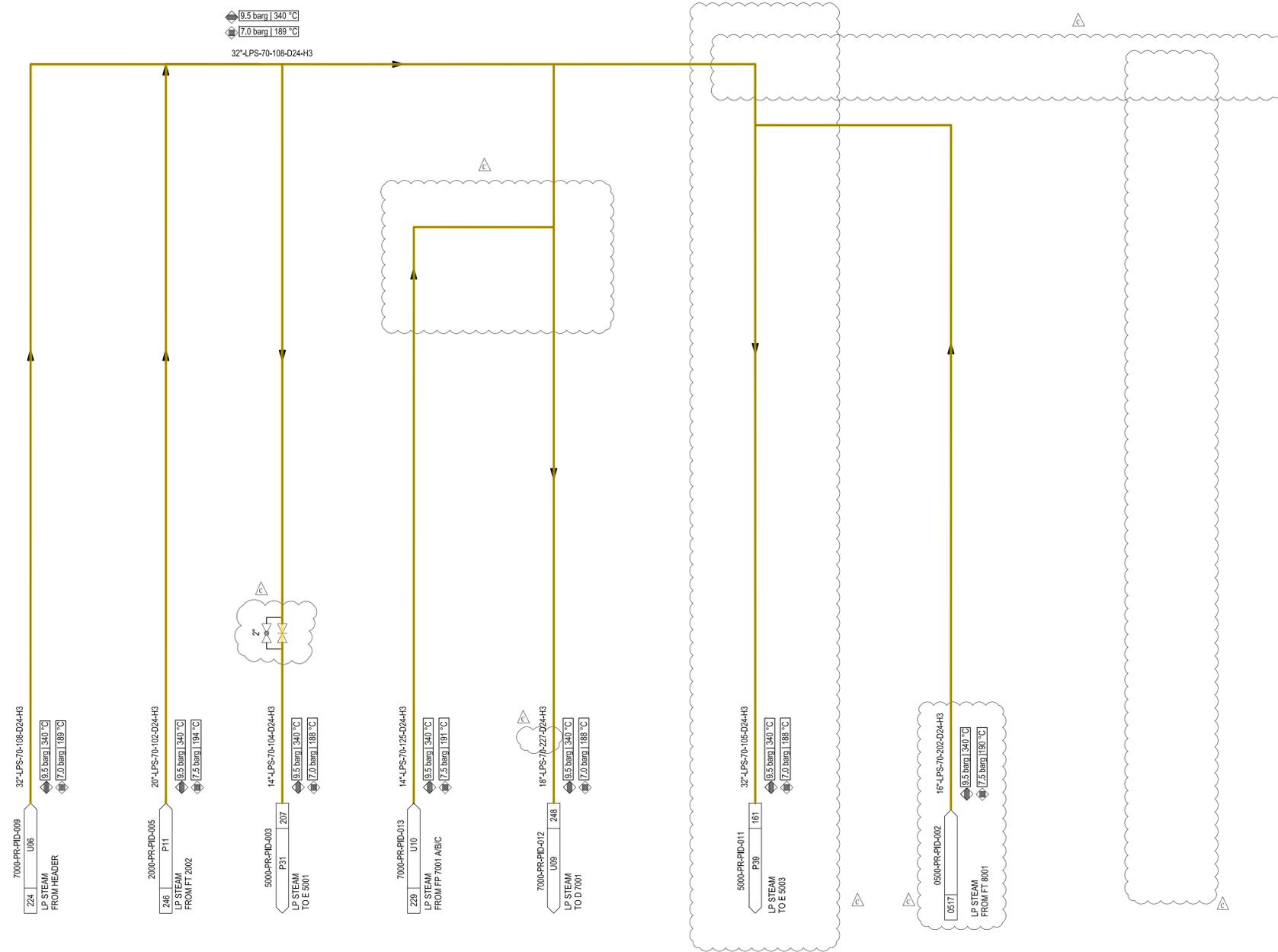
LICENSOR	HALDOR TOPSØE A/S	DOCUMENT NAME	HHP-HP STEAM CONTROL SYSTEM UTILITY DIAGRAM	DWG. NO.	S-02115	DOC. GRP.	42	REV.	1
CONTRACTOR	TCC 中国天辰工程有限公司	CONTRACTOR DRAWING NO.	MKP-11-DE-7000-HE07-PID-005	DWG. NO.	1341763	CONTRACTOR	U07		

SHEET	01	TOTAL	01
SHEET	-	TOTAL	-

HHP AND HP STEAM HEADER	PROJECT	MKP Methanol Project
PIPING AND INSTRUMENT DIAGRAM	UNIT	STEAM SYSTEM & UTILITIES
	PHASE	DETAIL ENGINEERING
SCALE 1	SHEET 1	TOT. 1
COUNTER SIGNING	OWNER	MKP-11-DE-7000-PR-PID-010

Counter Signing	Sign	Date
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Node 7003



GENERAL NOTES

⁺GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

△	Issued For Approval	30.06.2016	Xu Binghao	Zhang Ning	Zhang Yushu		
△	Issued For Comments	26.04.2016	Xu Binghao	Zhang Ning	Zhang Yushu		
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER:  Middle East
Kimiaye Pars Company

LICENSOR T HALDOR TOPSØE A/S CORPORATION DANMARK	DOCUMENT NAME: LP STEAM HEADER UTILITY DIAGRAM	JOB NO: S-02115	DWG. NO: 1341764	DOC. GRP: 42	CDR/GRUPP: U08	REV: 2
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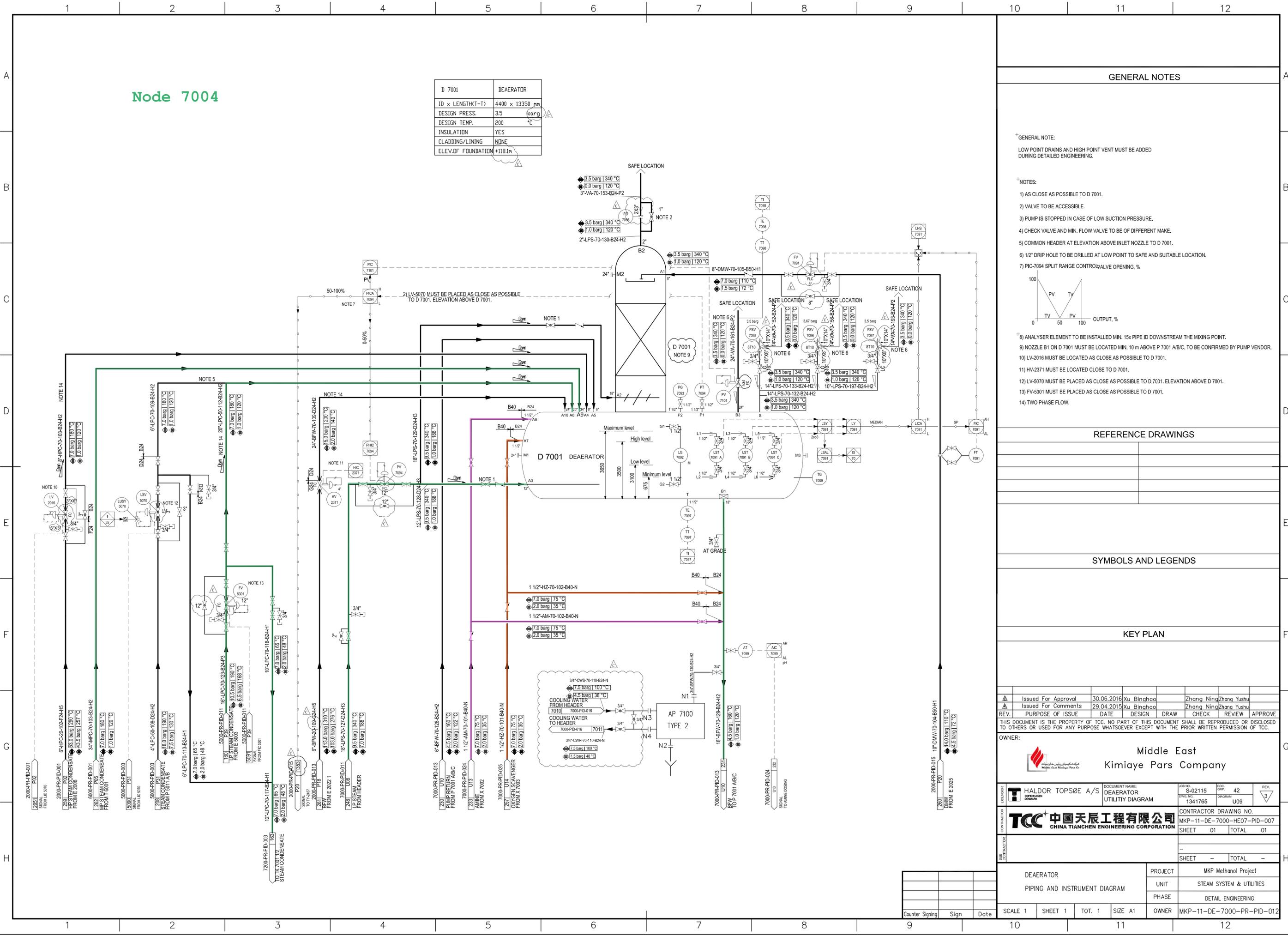
CONTRACTOR TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO. MKP-11-DE-7000-HE07-PID-006
	SHEET 01 TOTAL 01

PROJECT	MKP Methanol Project
UNIT	STEAM SYSTEM & UTILITIES
PHASE	DETAIL ENGINEERING
OWNER	MKP-11-DE-7000-PR-PID-011

Counter	Signing	Sign	Date
SCALE 1	SHEET 1	TOT. 1	SIZE A1

Node 7004

D 7001	DEAERATOR
ID x LENGTH-T	4400 x 13350 mm
DESIGN PRESS.	3.5 barg
DESIGN TEMP.	200 °C
INSULATION	YES
CLADDING/LINING	NONE
ELEV.OF FOUNDATION	+118.1m



GENERAL NOTES

- GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.
- NOTES:
 1) AS CLOSE AS POSSIBLE TO D 7001.
 2) VALVE TO BE ACCESSIBLE.
 3) PUMP IS STOPPED IN CASE OF LOW SUCTION PRESSURE.
 4) CHECK VALVE AND MIN. FLOW VALVE TO BE OF DIFFERENT MAKE.
 5) COMMON HEADER AT ELEVATION ABOVE INLET NOZZLE TO D 7001.
 6) 1/2" DRIP HOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
 7) PIC-7094 SPLIT RANGE CONTROL VALVE OPENING, %
-
- 8) ANALYSER ELEMENT TO BE INSTALLED MIN. 15x PIPE ID DOWNSTREAM THE MIXING POINT.
 9) NOZZLE B1 ON D 7001 MUST BE LOCATED MIN. 10 m ABOVE P 7001 A/B/C. TO BE CONFIRMED BY PUMP VENDOR.
 10) LV-2016 MUST BE LOCATED AS CLOSE AS POSSIBLE TO D 7001.
 11) HV-2371 MUST BE LOCATED CLOSE TO D 7001.
 12) LV-5070 MUST BE PLACED AS CLOSE AS POSSIBLE TO D 7001. ELEVATION ABOVE D 7001.
 13) FV-5301 MUST BE PLACED AS CLOSE AS POSSIBLE TO D 7001.
 14) TWO PHASE FLOW.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Issued For Approval	30.06.2016	Xu Binghao	Zhang Ning	Zhang Yushu			
Issued For Comments	29.04.2015	Xu Binghao	Zhang Ning	Zhang Yushu			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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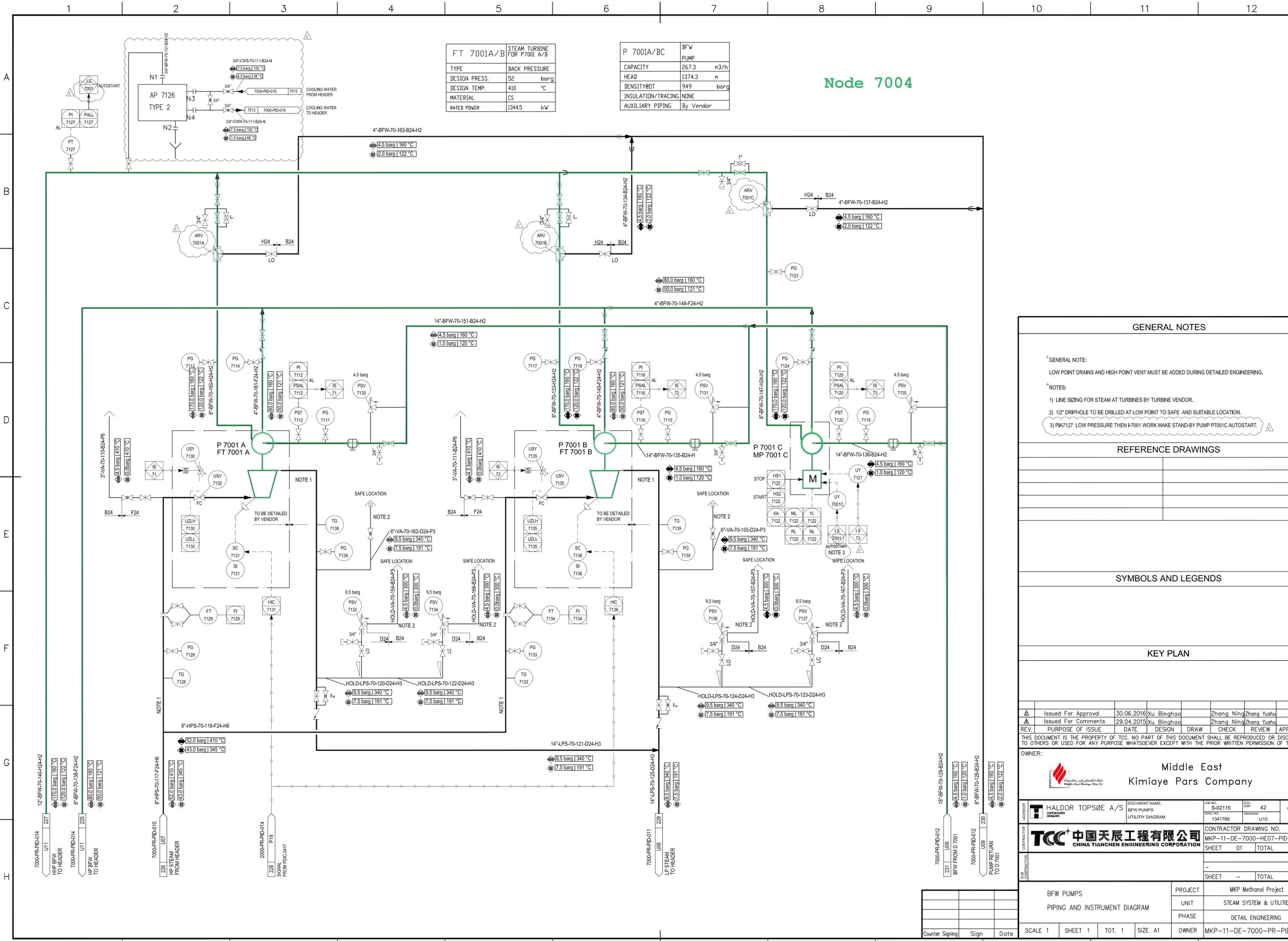
LICENSOR	HALDOR TOPSØE A/S	DOCUMENT NAME	DEAERATOR UTILITY DIAGRAM	JOB NO.	S-02115	SOC. GRP.	42	REV.	3
CONTRACTOR	TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	DRWG. NO.	1341765	DATE	U09	CONTRACTOR DRAWING NO.	MKP-11-DE-7000-HE07-PID-007	SHEET	01
DESIGNER		TOTAL	01						

DEAERATOR	PROJECT	MKP Methanol Project
PIPING AND INSTRUMENT DIAGRAM	UNIT	STEAM SYSTEM & UTILITIES
	PHASE	DETAIL ENGINEERING
SCALE 1	SHEET 1	TOT. 1
OWNER	MKP-11-DE-7000-PR-PID-012	

Counter	Signing	Sign	Date
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FT 7001A/B	STEAM TURBINE FOR P7001 A/B	P 7001A/BC	BFW PUMP
TYPE	BACK PRESSURE	CAPACITY	267.3 m ³ /h
DESIGN PRESS.	52 barg	HEAD	1374.3 m
DESIGN TEMP.	410 °C	DENSITY@DT	949 kg/m ³
MATERIAL	CS	INSULATION/TRACING	NONE
RATED POWER	1344.5 kW	AUXILIARY PIPING	By Vendor

Node 7004



GENERAL NOTES

GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

NOTES:
1) LINE SIZING FOR STEAM AT TURBINES BY TURBINE VENDOR.
2) 1/2" DRIPHOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
3) PIA7127 LOW PRESSURE THEN I-7001 WORK MAKE STAND-BY PUMP P7001C AUTOSTART.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

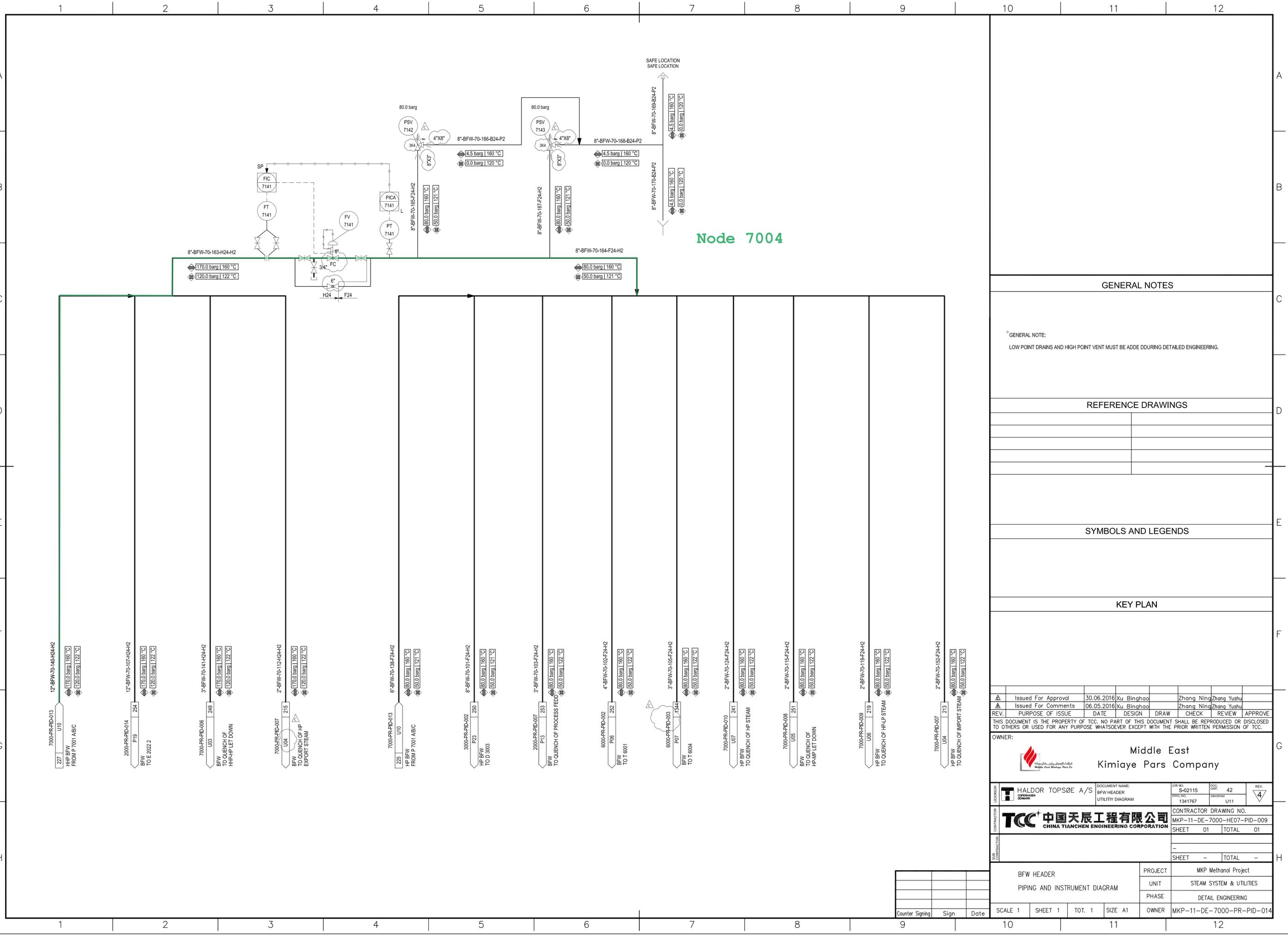
OWNER: **Middle East Kimiaye Pars Company**

	DOCUMENT NAME: BFW PUMPS UTILITY DIAGRAM	JOB NO: S-02115	DOC. GRP: 42	REV. 3
	CONTRACTOR: TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO. MKP-11-DE-7000-HE07-PID-008	SHEET 01 TOTAL 01	

BFW PUMPS		PROJECT	MKP Methanol Project
PIPING AND INSTRUMENT DIAGRAM		UNIT	STEAM SYSTEM & UTILITIES
		PHASE	DETAIL ENGINEERING
		OWNER	MKP-11-DE-7000-PR-PID-013

Counter			

SCALE 1	SHEET 1	TOT. 1	SIZE A1
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Node 7004

GENERAL NOTES

GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Issued For Approval	30.06.2016	Xu Binghao	Zhang Ning	Zhang Yushu			
Issued For Comments	06.05.2016	Xu Binghao	Zhang Ning	Zhang Yushu			
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LICENSOR	HALDOR TOPSØE A/S	DOCUMENT NAME	UTILITY DIAGRAM	JOB NO.	S-02115	DOC. GRP.	42	REV.	4
CONTRACTOR	TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	PROJECT	MKP Methanol Project	CONTRACTOR DRAWING NO.	MKP-11-DE-7000-HE07-PID-009	SHEET	01	TOTAL	01

SCALE	1	SHEET	1	TOT.	1	SIZE	A1
COUNTER SIGNING	Sign	Date					

OWNER	MKP-11-DE-7000-PR-PID-014
PHASE	DETAIL ENGINEERING

Node 0501

GENERAL NOTES

- †GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.
- †NOTS:
1) COOLING WATER SUPPLY AND RETURN PIPES FOR SAMPLE COOLER OF EACH AP WILL BE COMPLETED IN DE PHASE.
2) THE VALVE MUST BE SET IN A VALVE SILO UNDERGROUND.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

△	Issued for Comments	29.06.2016	Luo Jiaqi	Xu Hang	Shi Jing	
△	Issued for Comments	29.04.2016	Luo Jiaqi	Xu Hang	Shi Jing	
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW APPROVE

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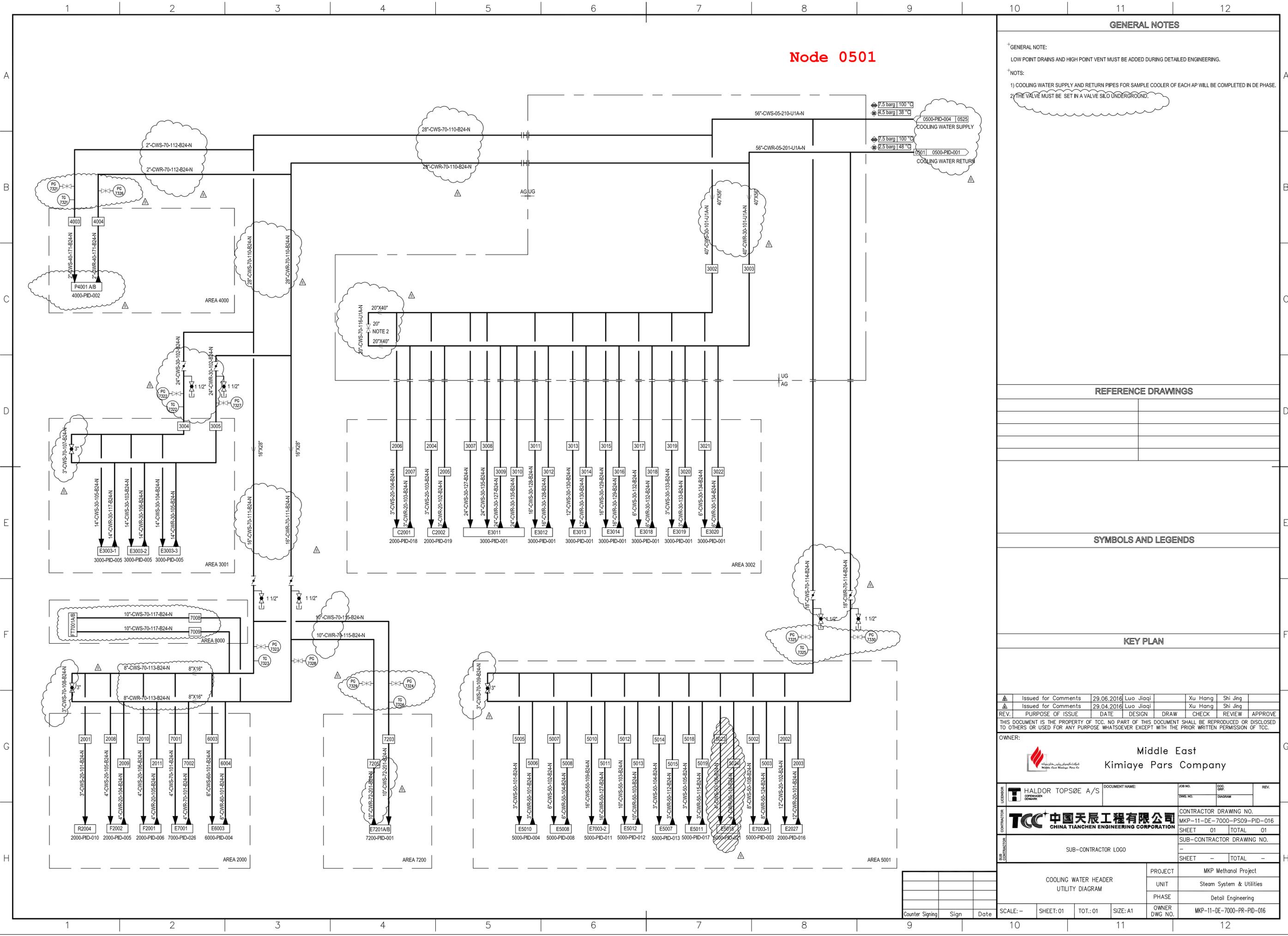
Middle East Kimiaye Pars Company

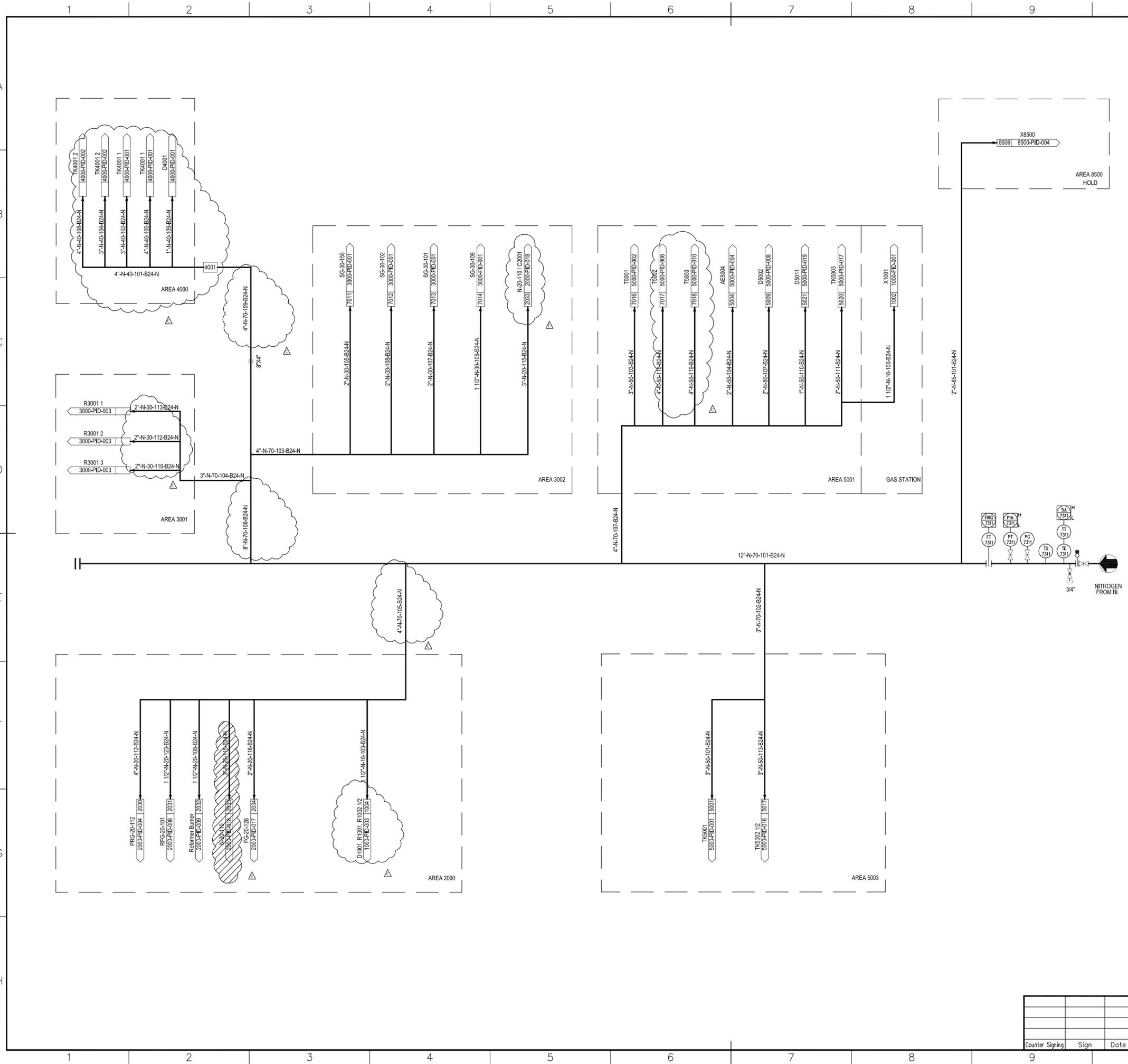
LICENSOR	T HALDOR TOPSØE A/S	DOCUMENT NAME:	JOB NO.	DOC. GRP.	REV.
CONTRACTOR	TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO.	MKP-11-DE-7000-PS09-PID-016		
DESIGNER		SHEET	01	TOTAL	01
APPROVER		SUB-CONTRACTOR DRAWING NO.	-		
		SHEET	-	TOTAL	-

COOLING WATER HEADER UTILITY DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	Steam System & Utilities
		PHASE	Detail Engineering
		OWNER DWG NO.	MKP-11-DE-7000-PR-PID-016

Counter	Sign	Date

SCALE: -	SHEET: 01	TOT.: 01	SIZE: A1
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GENERAL NOTES

† GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

△	Issued for Approval	29.06.2016	Luo Jiaqi		Xu Hang	Shi Jing	
▲	Issued for Comments	29.04.2016	Luo Jiaqi		Xu Hang	Shi Jing	
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER:

Middle East Kimiaye Pars Company

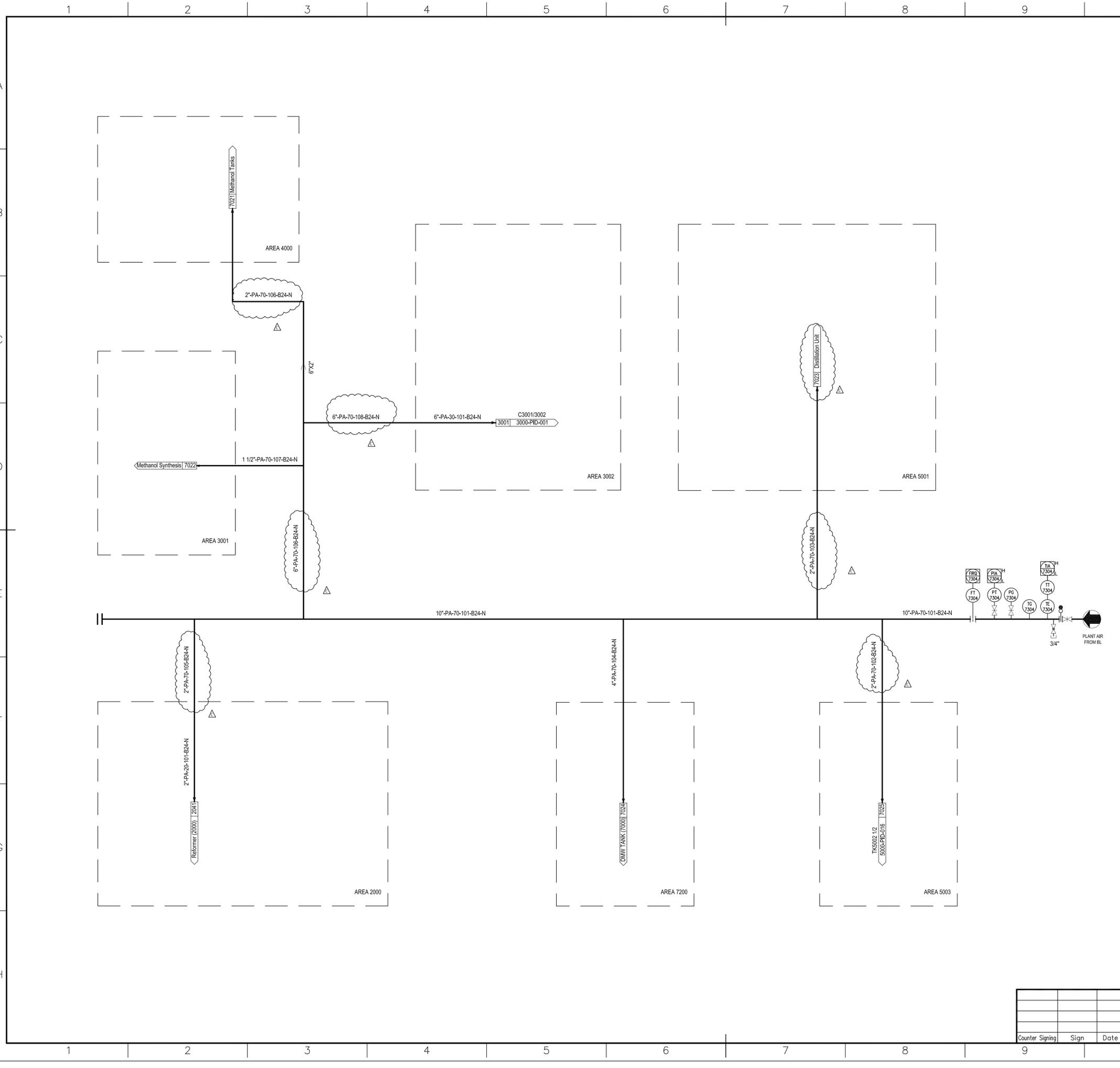
HALDOR TOPSØE A/S <small>COMPRESSOR DIVISION</small>	DOCUMENT NAME:	JOB NO.:	DWG. NO.:	DOC. GRP.:	REV.:

TCC 中国天辰工程有限公司 <small>CHINA TIANCHEN ENGINEERING CORPORATION</small>	CONTRACTOR DRAWING NO.
	MKP-11-DE-7000-PS09-PID-017
SHEET 01	TOTAL 01
SUB-CONTRACTOR LOGO	
SUB-CONTRACTOR DRAWING NO.	
-	
SHEET - TOTAL -	

NITROGEN HEADER UTILITY DIAGRAM	PROJECT	MKP Methanol Project
	UNIT	Steam System & Utilities
	PHASE	Detail Engineering
OWNER DWG. NO.	MKP-11-DE-7000-PR-PID-017	

Counter	Sign	Date

SCALE: - SHEET: 01 TOT.: 01 SIZE: A1



GENERAL NOTES

† GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

△	Issued for Approval	29.06.2016	Luo Jiaqi		Xu Hang	Shi Jing	
▲	Issued for Comments	29.04.2016	Luo Jiaqi		Xu Hang	Shi Jing	
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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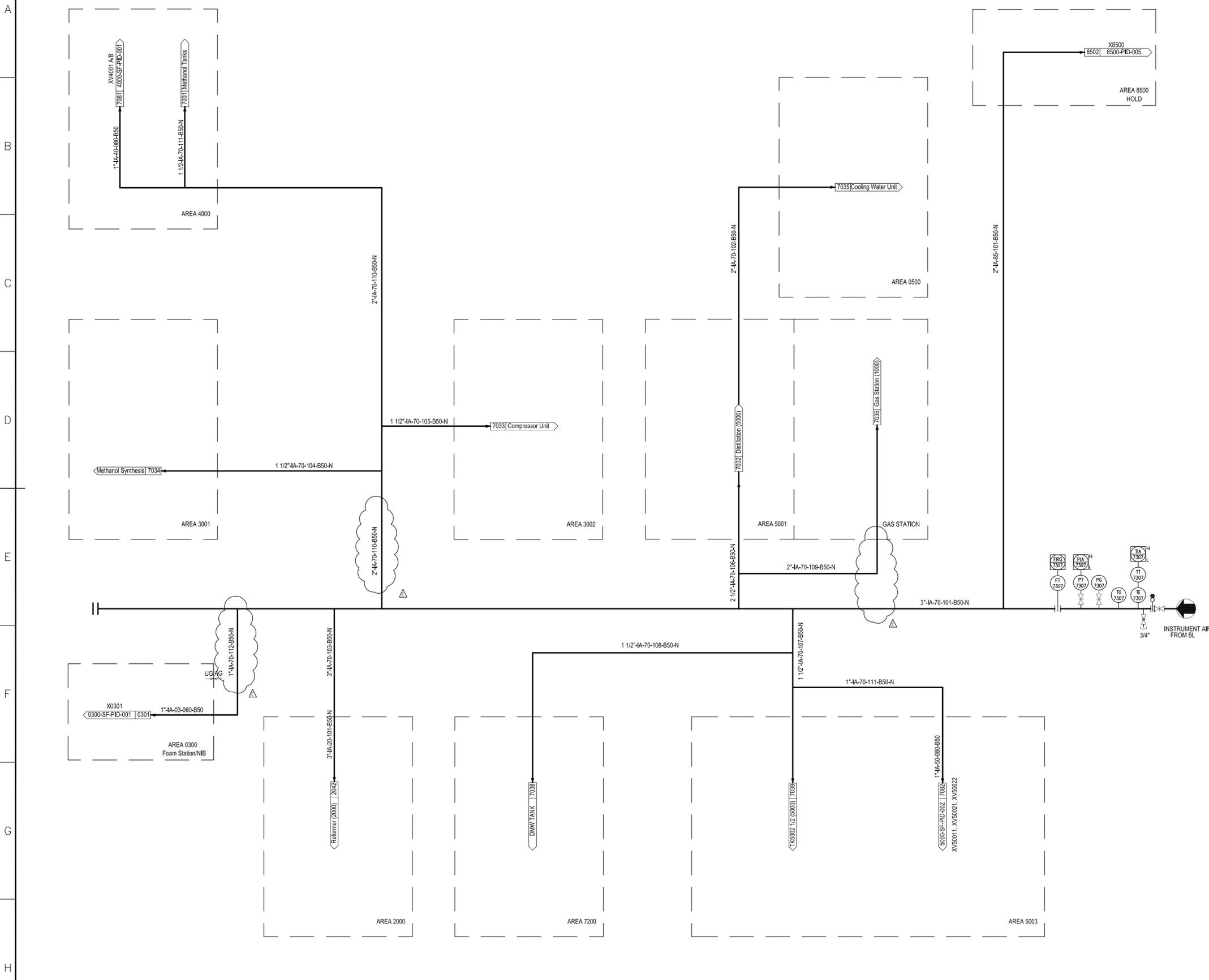
Middle East
Kimiaye Pars Company

LICENSOR T HALDOR TOPSØE A/S CORPORATION OSLO, NORWAY	DOCUMENT NAME:	JOB NO.:	DWG. NO.:	DWG. GRP.:	REV.:
	CONTRACTOR DRAWING NO. MKP-11-DE-7000-PS09-PID-018		SHEET 01 TOTAL 01		
CONTRACTOR TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	SUB-CONTRACTOR DRAWING NO.		-		
	SUB-CONTRACTOR LOGO		-		

PLANT AIR HEADER UTILITY DIAGRAM	PROJECT	MKP Methanol Project			
	UNIT	Steam System & Utilities			
	PHASE	Detail Engineering			
SCALE: --	SHEET: 01	TOT.: 01	SIZE: A1	OWNER DWG NO.	MKP-11-DE-7000-PR-PID-018

Counter	Sign	Date

Node 7005



GENERAL NOTES

† GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

△	Issued for Approval	29.06.2016	Luo Jiaqi		Xu Hang	Shi Jing	
▲	Issued for Comments	29.04.2016	Luo Jiaqi		Xu Hang	Shi Jing	
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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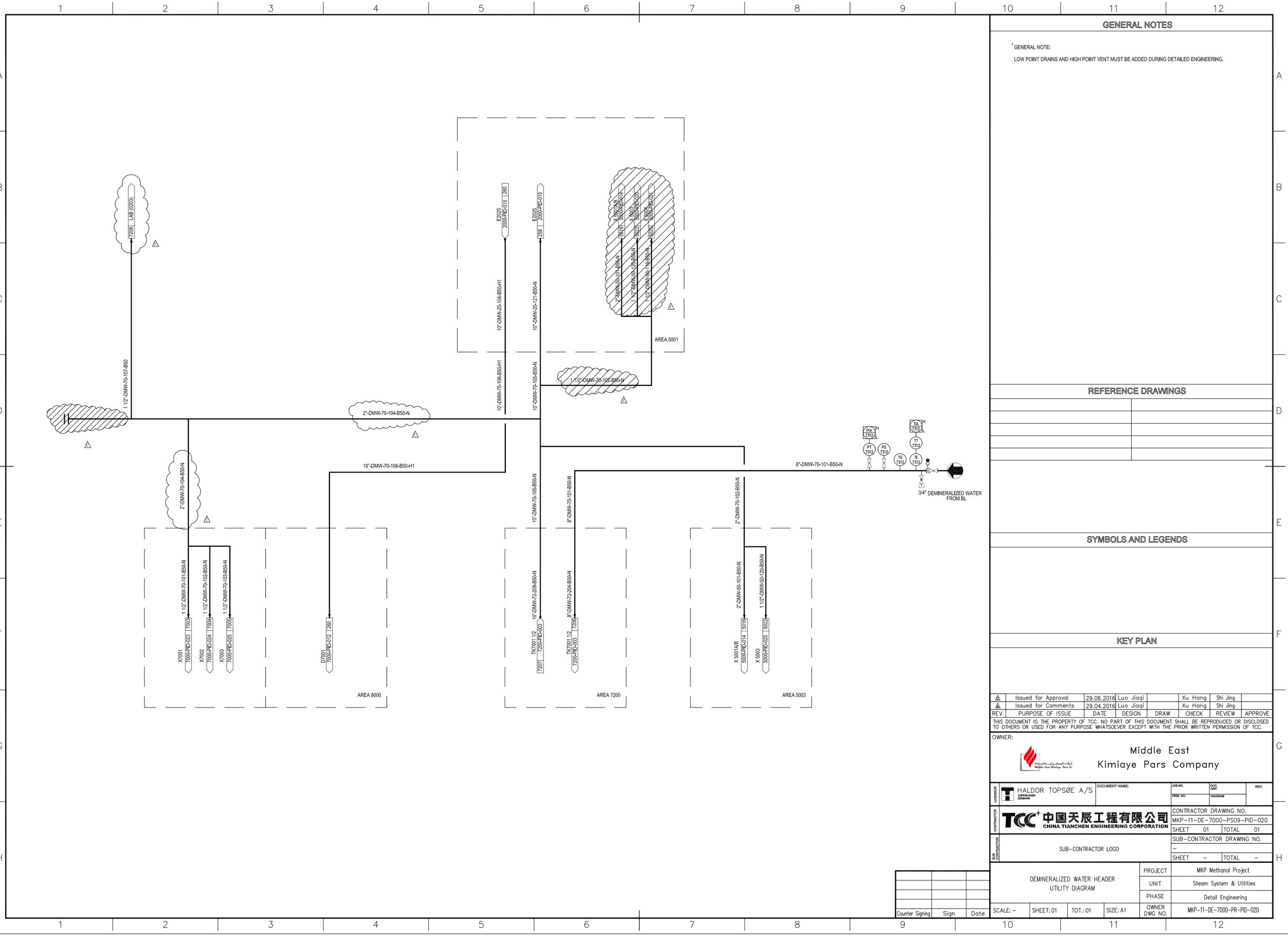
Middle East
Kimiaye Pars Company

LICENSOR T HALDOR TOPSØE A/S CORPORATION OSLO, NORWAY	DOCUMENT NAME:	JOB NO.:	DWG. NO.:	DWG. GRP.:	REV.:
	CONTRACTOR DRAWING NO. MKP-11-DE-7000-PS09-PID-019		SHEET 01 TOTAL 01		
CONTRACTOR TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	SUB-CONTRACTOR DRAWING NO.		-		
	SUB-CONTRACTOR LOGO		-		

PROJECT MKP Methanol Project	UNIT	Steam System & Utilities
	PHASE	Detail Engineering
	OWNER DWC NO.	MKP-11-DE-7000-PR-PID-019

Counter	Sign	Date

SCALE: -	SHEET: 01	TOT.: 01	SIZE: A1
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GENERAL NOTES

† GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

△	Issued for Approval	29.06.2016	Luo Jiaqi		Xu Hang	Shi Jing	
▲	Issued for Comments	29.04.2016	Luo Jiaqi		Xu Hang	Shi Jing	
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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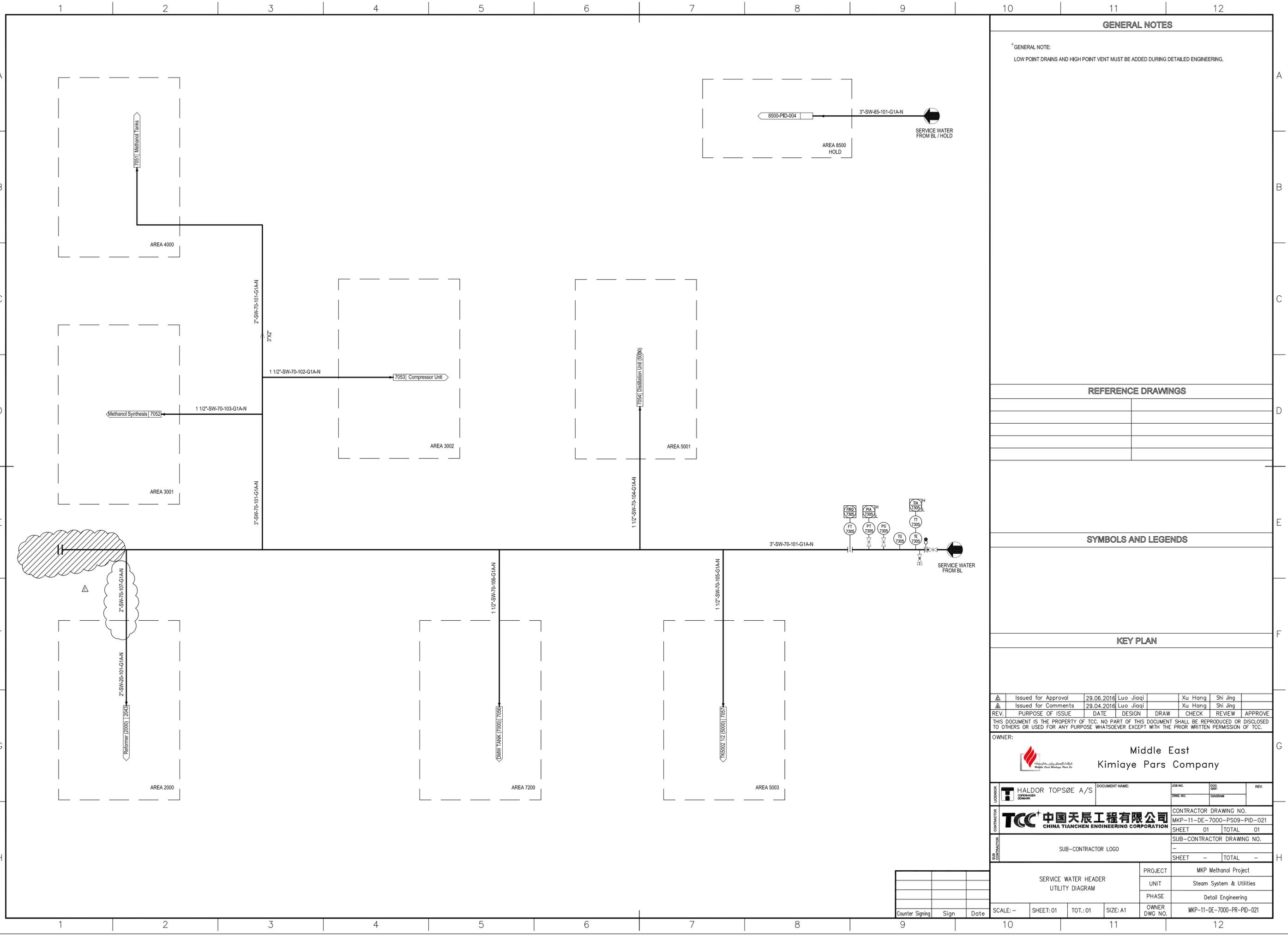


Middle East
Kimiaye Pars Company

LICENSOR T HALDOR TOPSØE A/S CORPORATION OSLO, NORWAY	DOCUMENT NAME:	JOB NO.:	DWG. NO.:	DOC. GRP.:	REV.:
CONTRACTOR TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO. MKP-11-DE-7000-PS09-PID-020				
	SHEET 01		TOTAL 01		
SUB-CONTRACTOR	SUB-CONTRACTOR DRAWING NO.				
	-				
REV. CONTRACTOR	SUB-CONTRACTOR LOGO				
	SHEET - TOTAL -				

DEMINERALIZED WATER HEADER UTILITY DIAGRAM	PROJECT	MKP Methanol Project			
	UNIT	Steam System & Utilities			
	PHASE	Detail Engineering			
SCALE: --	SHEET: 01	TOT.: 01	SIZE: A1	OWNER DWG. NO.	MKP-11-DE-7000-PR-PID-020

Counter	Sign	Date



GENERAL NOTES

+ GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Δ	Issued for Approval	29.06.2016	Luo Jiaqi		Xu Hang	Shi Jing	
▲	Issued for Comments	29.04.2016	Luo Jiaqi		Xu Hang	Shi Jing	
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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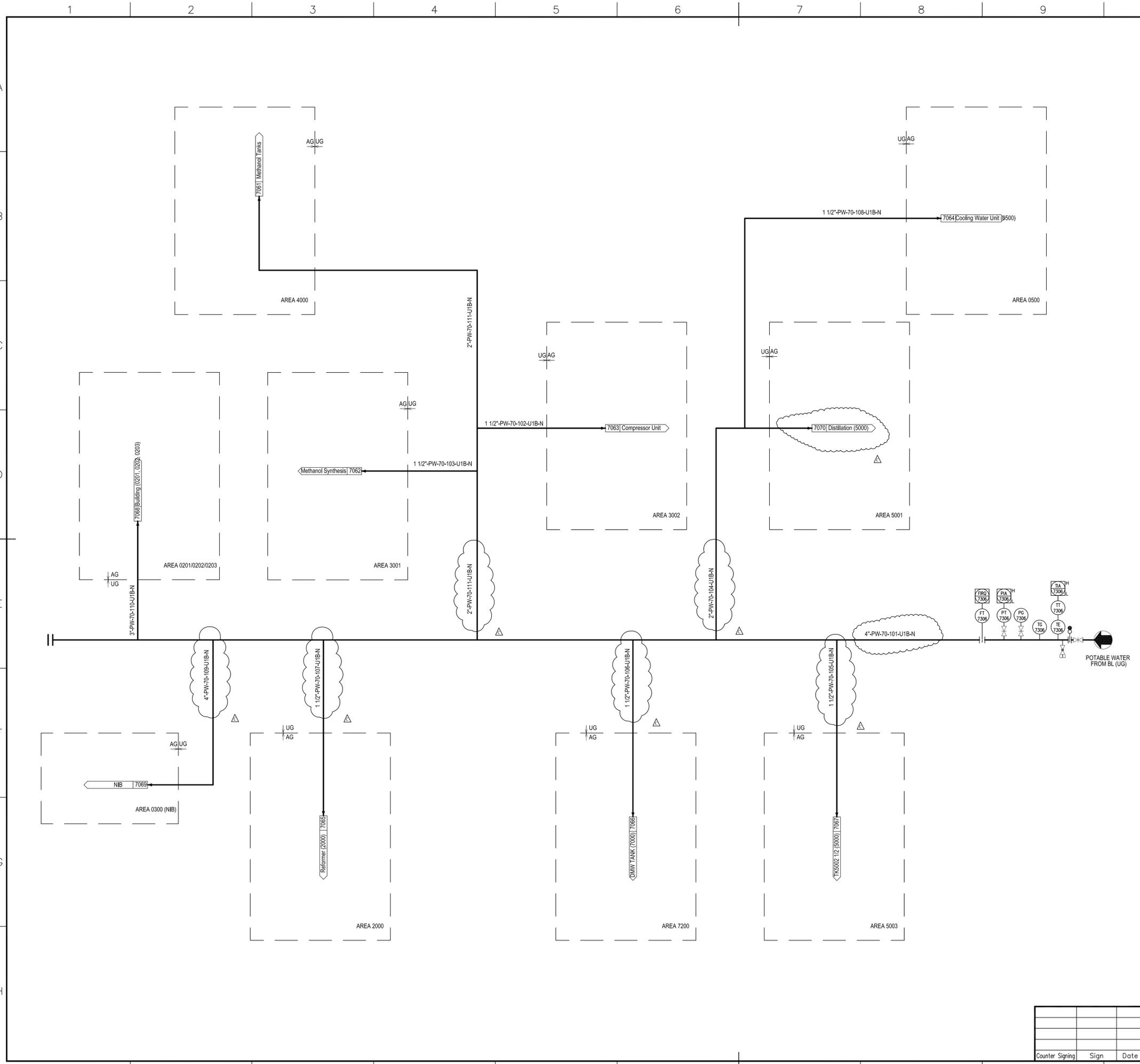


Middle East
Kimiaye Pars Company

LICENSOR T HALDOR TOPSØE A/S CORPORATION OSLO, NORWAY	DOCUMENT NAME:	JOB NO.:	DWG. NO.:	DWG. GRP.:	REV.:
	CONTRACTOR DRAWING NO. MKP-11-DE-7000-PS09-PID-021		SHEET 01 TOTAL 01		
CONTRACTOR TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	SUB-CONTRACTOR DRAWING NO.		-		
	SHEET - TOTAL -				
SUB-CONTRACTOR	SUB-CONTRACTOR LOGO		-		
	SHEET - TOTAL -				

SERVICE WATER HEADER UTILITY DIAGRAM		PROJECT	MKP Methanol Project
		UNIT	Steam System & Utilities
		PHASE	Detail Engineering
SCALE: --	SHEET: 01	TOT.: 01	SIZE: A1
OWNER DWG NO.	MKP-11-DE-7000-PR-PID-021		

Counter	Sign	Date



GENERAL NOTES

† GENERAL NOTE:
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REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

△	Issued for Approval	29.06.2016	Luo Jiaqi		Xu Hang	Shi Jing	
▲	Issued for Comments	29.04.2016	Luo Jiaqi		Xu Hang	Shi Jing	
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Middle East
Kimiaye Pars Company

LICENSOR T HALDOR TOPSØE A/S CORPORATION OSLO, NORWAY	DOCUMENT NAME:	JOB NO.:	DWG. NO.:	DOC. GRP.:	REV.:
	CONTRACTOR DRAWING NO. MKP-11-DE-7000-PS09-PID-022		SHEET 01 TOTAL 01		
CONTRACTOR TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	SUB-CONTRACTOR DRAWING NO.		-		
	SHEET - TOTAL -				
SUB-CONTRACTOR SUB-CONTRACTOR LOGO	PROJECT		MKP Methanol Project		
	UNIT		Steam System & Utilities		
PHASE		Detail Engineering			
OWNER DWG NO.		MKP-11-DE-7000-PR-PID-022			

Counter	Sign	Date

SCALE: -	SHEET: 01	TOT.: 01	SIZE: A1	OWNER DWG NO.	MKP-11-DE-7000-PR-PID-022
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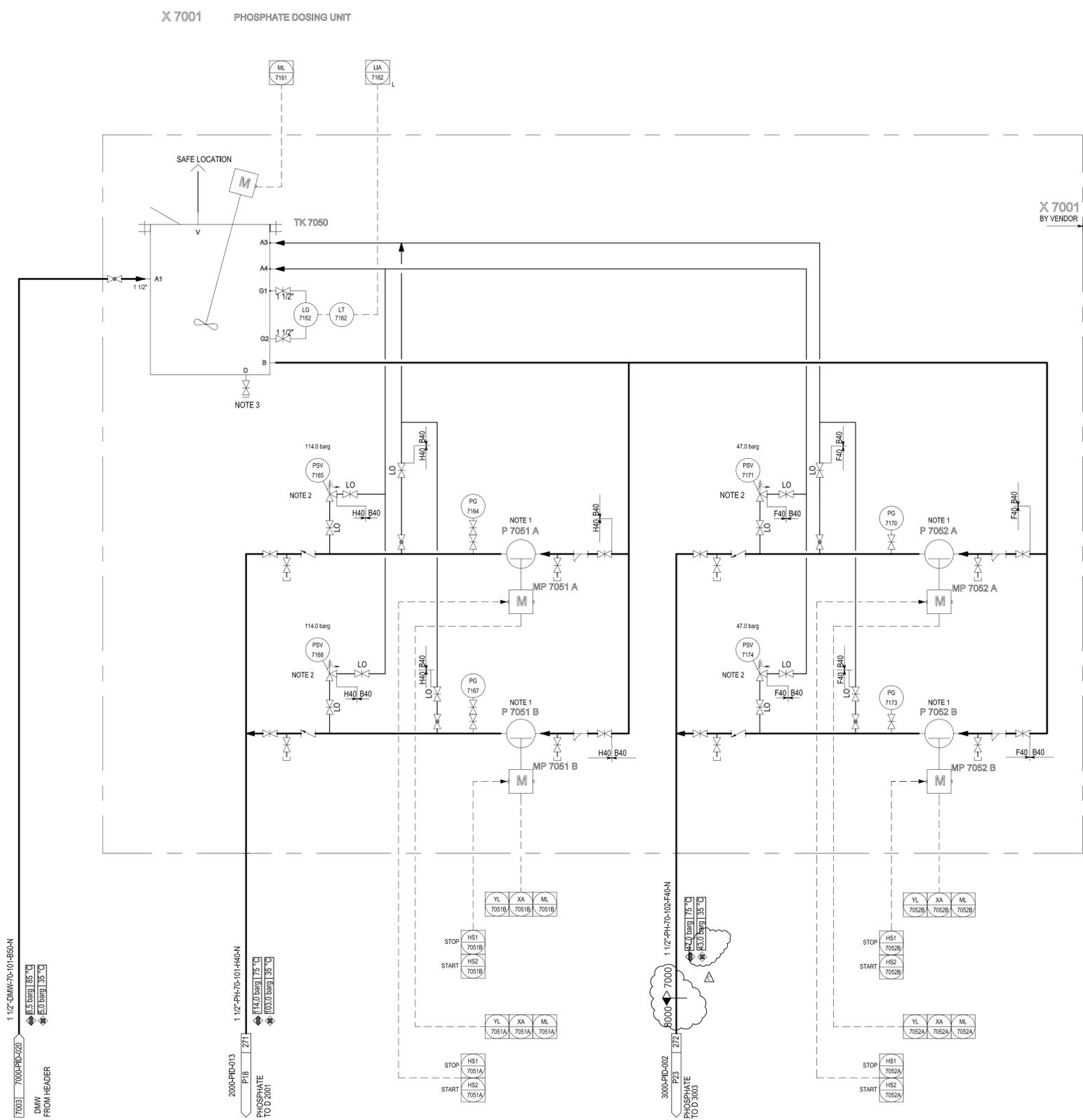
TK7050	PHOSPHATE SOLUTION TANK
ID x LENGTH	HOLD mm
NET WORKING CAPACITY	1 m ³
DESIGN PRESS.	ATM barg
DESIGN TEMP.	85 °C
INSULATION	NONE / Δ
ELEV. of FOUNDATION	EL:100.450m

P7051A/B	PHOSPHATE DOSING PUMP
RATED CAPACITY	4 L/h
HEAD	m
DENSITY@OT	1002 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	By Vendor
ELEV. of FOUNDATION	EL:100.450m

P7052A/B	PHOSPHATE DOSING PUMP
RATED CAPACITY	3 L/h
HEAD	m
DENSITY@OT	1002 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	By Vendor
ELEV. of FOUNDATION	EL:100.450m

GENERAL NOTES

- †GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.
- †NOTES:
1) CALIBRATION POTS FOR METERING SHALL BE PROVIDED BY PUMP VENDOR.
2) PUMP VENDOR TO SPECIFY PSV
3) DRAIN FROM DOSING SYSTEMS INTO CLOSED DRUMS, THEN SHALL BE TRANSFERRED AND TREATED BY PROFESSIONAL AND QUALIFIED COMPANY.



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Δ	Issued for Approval	29.06.2016	Luo Jiaqi	Xu Hang	Shi Jing		
▲	Issued for Comments	29.04.2016	Luo Jiaqi	Xu Hang	Shi Jing		
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER: **Middle East Kimiaye Pars Company**

LICENSOR	HALDOR TOPSØE A/S	DOCUMENT NAME	PHOSPHATE DOSING UNIT-X 7001 UTILITY DIAGRAM	JOB NO.	S-02115	DWG. NO.	1341788	DOC. GRP.	42	REV.	U12
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CONTRACTOR: **TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION**

CONTRACTOR DRAWING NO.	MKP-11-DE-7000-PS09-PID-010		
SHEET	01	TOTAL	01
SUB-CONTRACTOR DRAWING NO.	-		
SHEET	-	TOTAL	-

PROJECT	MKP Methanol Project
UNIT	Steam System & Utilities
PHASE	Detail Engineering
OWNER DWG. NO.	MKP-11-DE-7000-PR-PID-023

Counter	Sign	Date
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SCALE: --	SHEET: 01	TOT.: 01	SIZE: A1	OWNER DWG. NO.	MKP-11-DE-7000-PR-PID-023
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TK7060	AMMONIA TANK
ID x LENGTH	HOLD mm
NET WORKING CAPACITY	2.2 m ³
DESIGN PRESS.	ATM barg
DESIGN TEMP.	85 °C
INSULATION	NONE
ELEV. of FOUNDATION	EL+100.450m

P7060A/B	AMMONIA DOSING PUMP
RATED CAPACITY	17 L/h
HEAD	m
DENSITY@OT	948 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	By Vendor
ELEV. of FOUNDATION	EL+100.450m

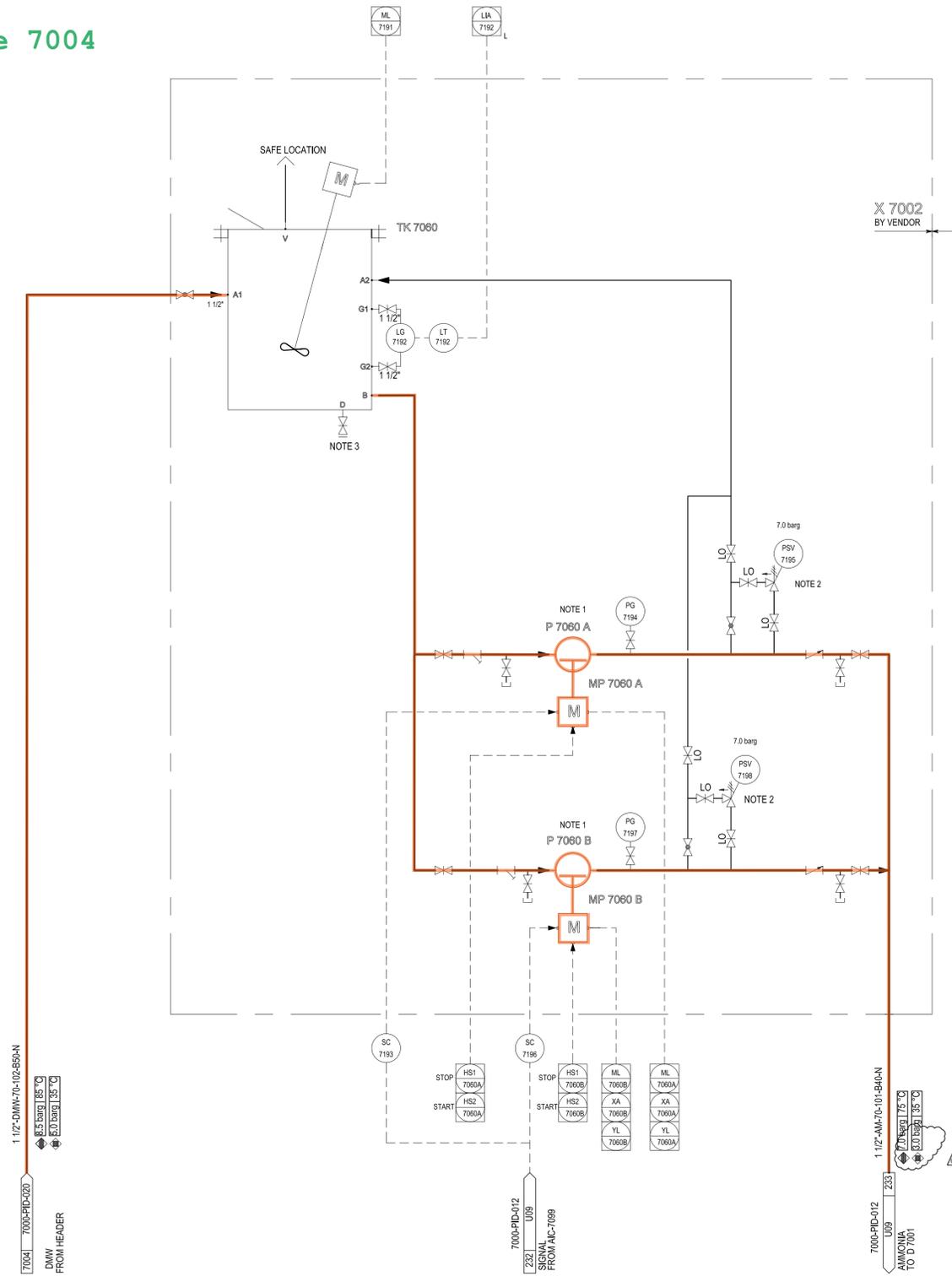
GENERAL NOTES

+GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.

- +NOTES:
1) CALIBRATION POTS FOR METERING SHALL BE PROVIDED BY VENDOR.
2) PUMP VENDOR TO SPECIFY PSV.
3) DRAIN FROM DOSING SYSTEMS INTO CLOSED DRUMS, THEN SHALL BE TRANSFERRED AND TREATED BY PROFESSIONAL AND QUALIFIED COMPANY.

Node 7004

X 7002 AMMONIA DOSING UNIT



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Issued for Approval	29.06.2016	Luo Jiaqi	Xu Hang	Shi Jing			
Issued for Comments	29.04.2016	Luo Jiaqi	Xu Hang	Shi Jing			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER: Middle East Kimiaye Pars Company

HALDOR TOPSØE A/S	DOCUMENT NAME: AMMONIA DOSING UNIT-X 7002 UTILITY DIAGRAM	JOB NO: S-02115	DWG NO: 1341789	DOC GRP: 42	U13	REV: 1
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TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO. MKP-11-DE-7000-PS09-PID-011
SHEET 01	TOTAL 01
SUB-CONTRACTOR DRAWING NO.	
SHEET -	TOTAL -

AMMONIA DOSING UNIT-X 7002 UTILITY DIAGRAM	PROJECT: MKP Methanol Project
	UNIT: Steam System & Utilities
	PHASE: Detail Engineering
SCALE: --	OWNER DWG NO. MKP-11-DE-7000-PR-PID-024

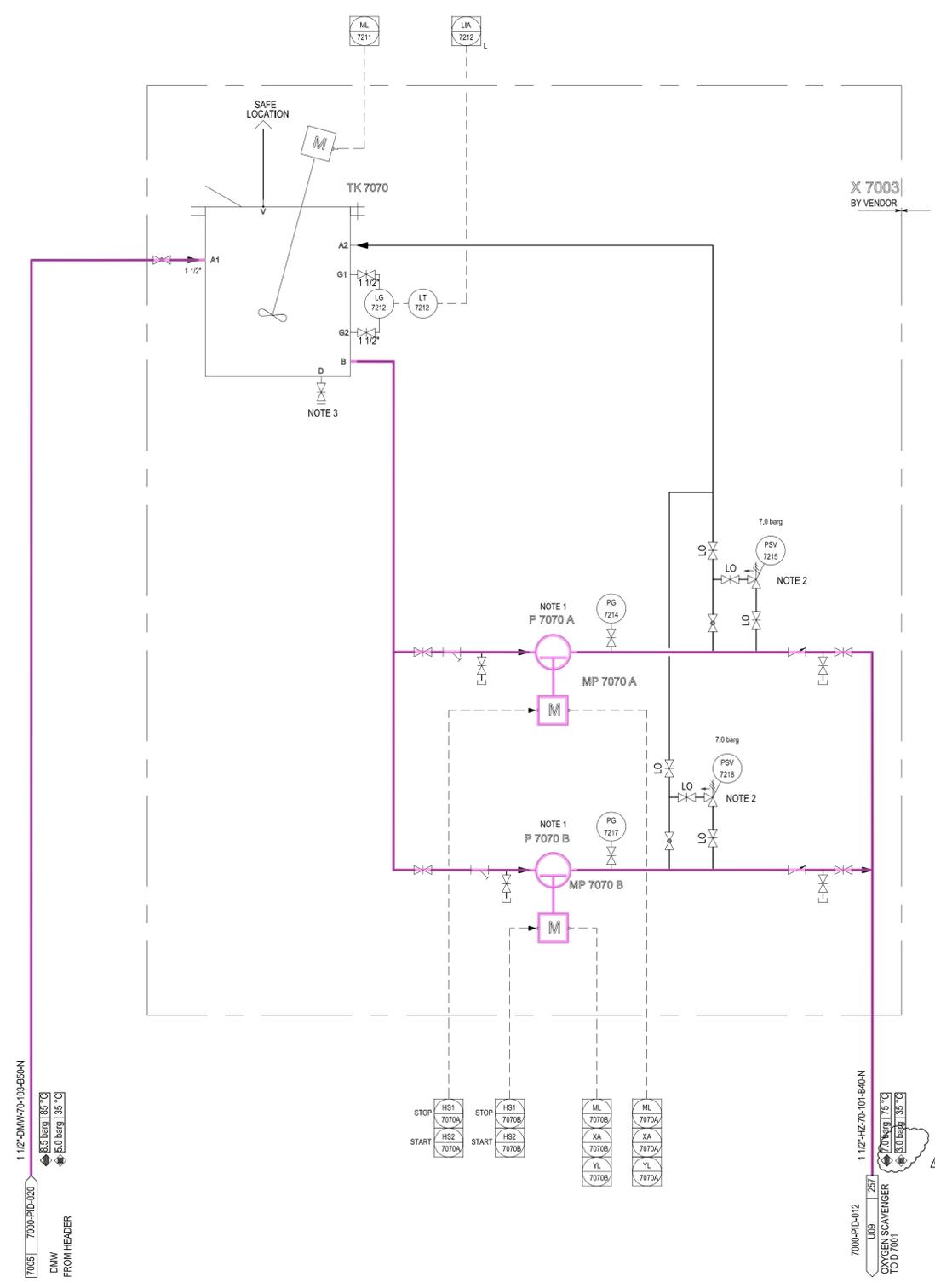
Counter Signing	Sign	Date
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TK7070	OXYGEN SCAVENGER TANK
ID x LENGTH	HOLD mm
NET WORKING CAPACITY	3.2 m ³
DESIGN PRESS.	ATM barg
DESIGN TEMP.	100 °C
INSULATION	NONE
ELEV. of FOUNDATION	EL+100.450m

P7070A/B	OXYGEN SCAVENGER PUMP
RATED CAPACITY	38 L/h
HEAD	m
DENSITY@OT	990 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	By Vendor
ELEV. of FOUNDATION	EL+100.450m

Node 7004

X 7003 OXYGEN SCAVENGER DOSING UNIT



GENERAL NOTES

- +GENERAL NOTE:
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.
- +NOTES:
1) CALIBRATION POTS FOR METERING SHALL BE PROVIDED BY PUMP VENDOR.
2) PUMP VENDOR TO SPECIFY PSV.
3) DRAIN FROM DOSING SYSTEMS INTO CLOSED DRUMS, THEN SHALL BE TRANSFERRED AND TREATED BY PROFESSIONAL AND QUALIFIED COMPANY.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Issued for Approval	29.06.2016	Luo Jiaqi	Xu Hang	Shi Jing			
Issued for Comments	29.04.2016	Luo Jiaqi	Xu Hang	Shi Jing			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER: Middle East Kimiaye Pars Company

HALDOR TOPSØE A/S	DOCUMENT NAME: OXYGEN SCAV.DOSING UNIT-X 7003 UTILITY DIAGRAM	JOB NO: S-02115	DWG. NO: 1341770	DOC. GRP: 42	U14	REV. 1
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CONTRACTOR: TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO. MKP-11-DE-7000-PS09-PID-012
SUB-CONTRACTOR: SUB-CONTRACTOR LOGO	SHEET 01 TOTAL 01

PROJECT: MKP Methanol Project
UNIT: Steam System & Utilities
PHASE: Detail Engineering
OWNER DWG NO. MKP-11-DE-7000-PR-PID-025

Counter	Sign	Date	SCALE: --	SHEET: 01	TOT.: 01	SIZE: A1
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D7002	CONTINUOUS BLOW-DOWN DRUM
ID x LENGTH(T)	750x3325 mm
DESIGN PRESS.	F.V./9.5 barg
DESIGN TEMP.	340 °C
INSULATION	YES
CLADDING/LINING	NONE
ELEV. of FOUNDATION	EL+105.440m

D7003	INTERMITTENT BLOW-DOWN DRUM NO. 1
ID x LENGTH(T)	1250x1825 mm
DESIGN PRESS.	3.5 barg
DESIGN TEMP.	150 °C
INSULATION	YES
CLADDING/LINING	NONE
ELEV. of FOUNDATION	EL+102.740m

D7004	INTERMITTENT BLOW-DOWN DRUM NO. 2
ID x LENGTH(T)	950x1575 mm
DESIGN PRESS.	3.5 barg
DESIGN TEMP.	150 °C
INSULATION	YES
CLADDING/LINING	NONE
ELEV. of FOUNDATION	EL+101.500m

P7005A/B	BOILER BLOW-DOWN PUMP
RATED CAPACITY	10 m ³ /h
HEAD	69.89 m
DENSITY@OT	958 kg/m ³
INSULATION/TRACING	NONE
AUXILIARY PIPING	By Vendor
ELEV. of FOUNDATION	EL+100.540m

E7001	BLOW-DOWN COOLER FOR D 7003
DUTY	0.5 MW
DESIGN PRESS.(TU./SH./SA.)	7.5/3.5 barg
DESIGN TEMP.(TU./SA.)	100/150 °C
INSULATION	YES
ELEV. of FOUNDATION	EL+100.840m

GENERAL NOTES

- GENERAL NOTE:**
LOW POINT DRAINS AND HIGH POINT VENT MUST BE ADDED DURING DETAILED ENGINEERING.
- NOTES:**
- 1) 1/2" DRIPHOLE TO BE DRILLED AT LOW POINT TO SAFE AND SUITABLE LOCATION.
 - 2) ELEVATION AT MAX LEVEL IN D 7004.
 - 3) CONTINUOUS BLOW-DOWN VALVE TO BE PLACED AS CLOSE AS POSSIBLE TO D 7002.
 - 4) INTERMITTENT BLOW-DOWN VALVE TO BE PLACED AS CLOSE AS POSSIBLE TO D 7004.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

△	Issued for Approval	29.06.2016	Luo Jiaqi		Xu Hang	Shi Jing	
▲	Issued for Comments	29.04.2016	Luo Jiaqi		Xu Hang	Shi Jing	
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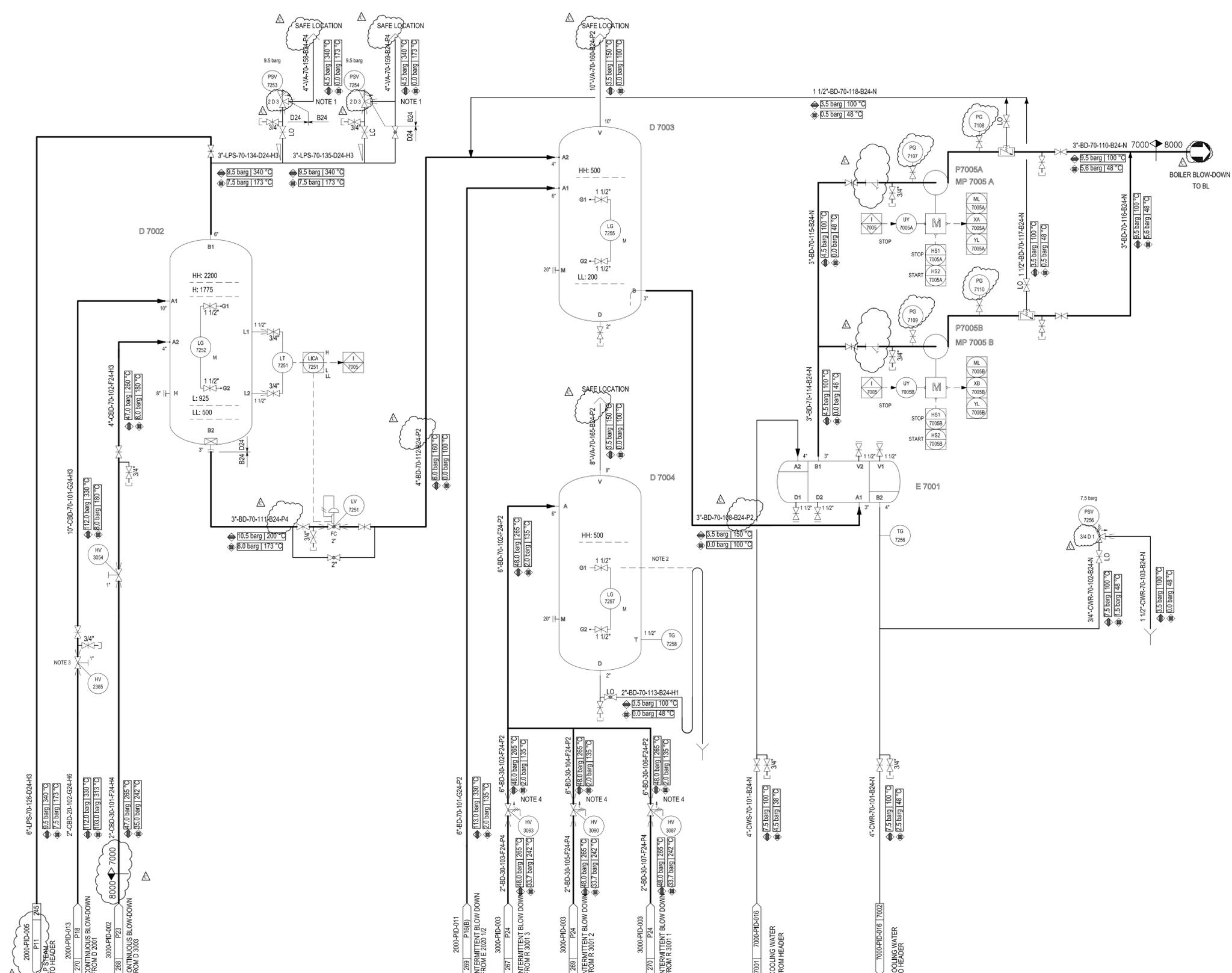
OWNER: **Middle East Kimiaye Pars Company**

LICENSOR	HALDOR TOPSØE A/S	DOCUMENT NAME	BOILER BLOW-DOWN UTILITY DIAGRAM	JOB NO.	S-02115	DWG. NO.	1341772	REV.	4/1
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CONTRACTOR	TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO.	MKP-11-DE-7000-PS09-PID-013
SUB-CONTRACTOR		SUB-CONTRACTOR DRAWING NO.	

PROJECT	MKP Methanol Project
UNIT	Steam System & Utilities
PHASE	Detail Engineering
OWNER DWG. NO.	MKP-11-DE-7000-PR-PID-026

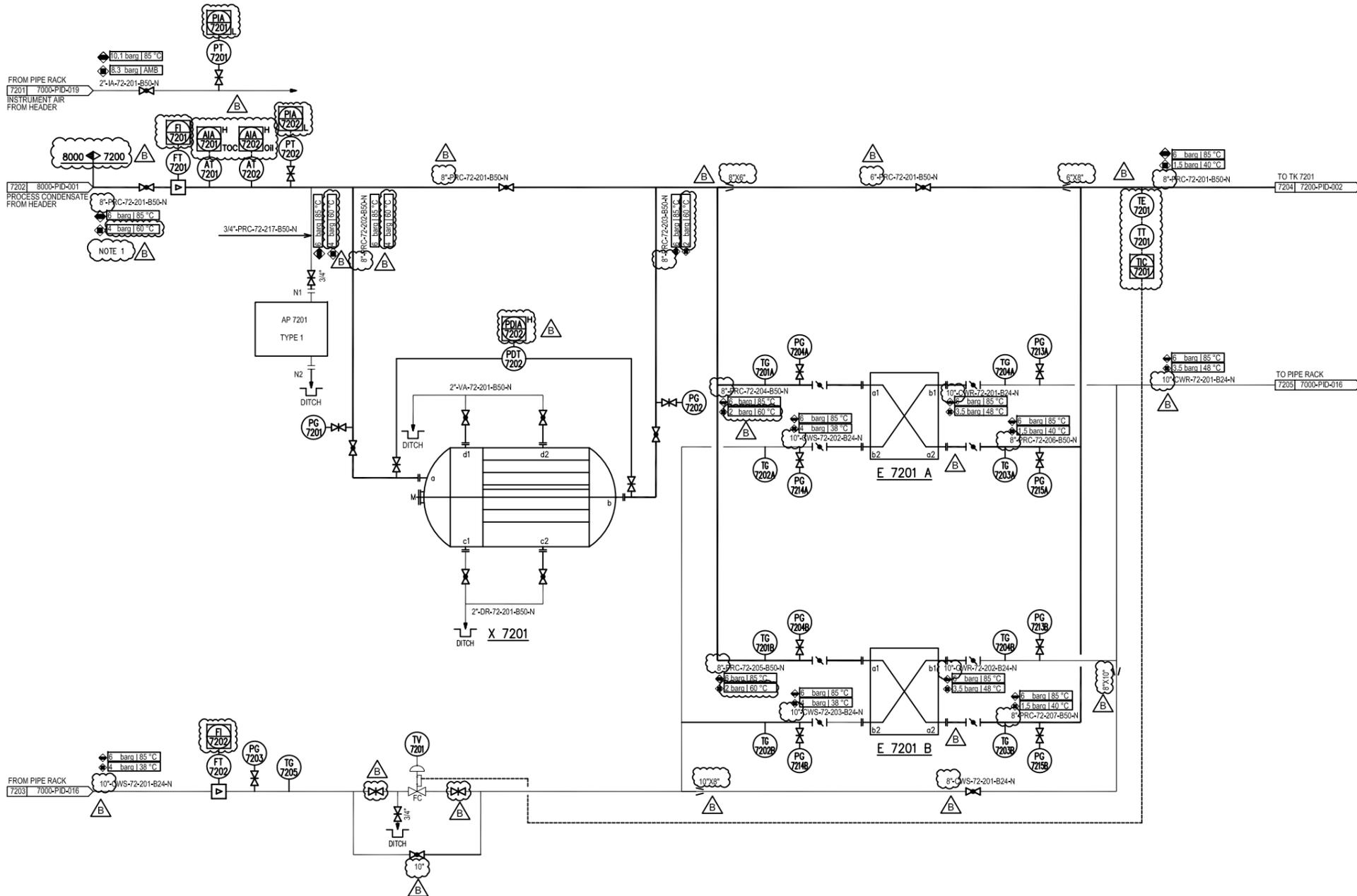
SCALE: --	SHEET: 01	TOT.: 01	SIZE: A1
Counter Signing	Sign	Date	



1 2 3 4 5 6 7 8 9 10 11 12

A B C D E F G H

Node 7201



GENERAL NOTES

NOTE 1: THE CAPACITY OF POLISHING UNIT WAS REVISED FROM 103 m³/h TO 126 m³/h, FOLLOWING THE TECHNICAL REQUIREMENT BY COMPRESSOR VENDOR.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

▲	Issued For Review	05.07.2016	Liang Zhibeng	Tian Tao	Xie Xuan	
▲	Issued For Comments	06.06.2016	Liang Zhibeng	Tian Tao	Xie Xuan	
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW APPROVE

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Kimiaye Pars Company

HALDOR TOPSØE A/S	DOCUMENT NAME:	JOB NO.:	DOC. NO.:	REV.:

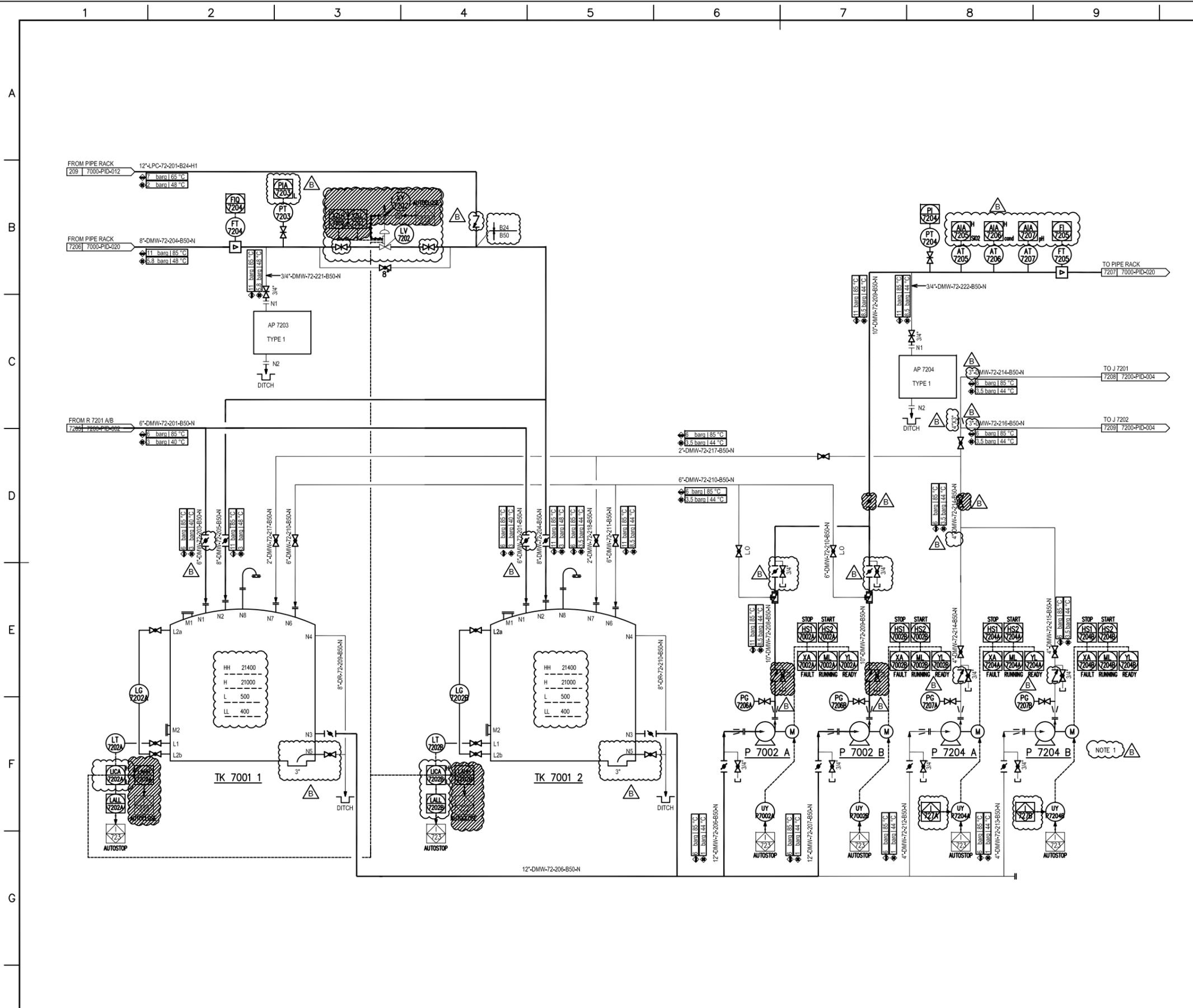
CONTRACTOR	TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO.	MKP-11-DE-7200-EE06-PID-001
		SHEET	01 TOTAL 01

SUB-CONTRACTOR		SHEET	TOTAL

X 7201	CARTRIDGE FILTER	E 7201 A/B	PLATE HEAT EXCHANGER
ID x HEIGHT	800 x 2750 mm	EXCHANGE AREA	200 / 2 m ²
DESIGN PRESS.	10 barg	DESIGN PRESS.	9 barg
DESIGN TEMP.	85 °C	DESIGN TEMP.	85 °C
INSULATION	NONE	INSULATION	NONE

Counter Signing	Sign	Date

PROJECT	MKP Methanol Project
UNIT	POLISHING UNIT
PHASE	DETAIL ENGINEERING
SCALE - SHEET 1	TOT. 1 SIZE A1
OWNER DWG NO.	MKP-11-DE-7200-PR-PID-001



GENERAL NOTES

NOTE 1: THE CAPACITY OF POLISHING UNIT WAS REVISED FROM 103 m³/h TO 126 m³/h, FOLLOWING THE TECHNICAL REQUIREMENT BY COMPRESSOR VENDOR.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN



▲ Issued For Review	05.07.2016	Liang Zhipeng	Tian Tao	Xie Xuan			
▲ Issued For Comments	06.06.2016	Liang Zhipeng	Tian Tao	Xie Xuan			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

OWNER: Middle East Kimiaye Pars Company

HALDOR TOPSØE A/S

TCC 中國天辰工程有限公司 CHINA TIANGHEN ENGINEERING CORPORATION

CONTRACTOR DRAWING NO. MKP-11-DE-7200-EE06-PID-003
SHEET 01 TOTAL 01
SUB-CONTRACTOR DRAWING NO.

PROJECT: MKP Methanol Project
UNIT: POLISHING UNIT
PHASE: DETAIL ENGINEERING

SCALE - SHEET 1 TOT. 1 SIZE A1 OWNER DWG NO. MKP-11-DE-7200-PR-PID-003

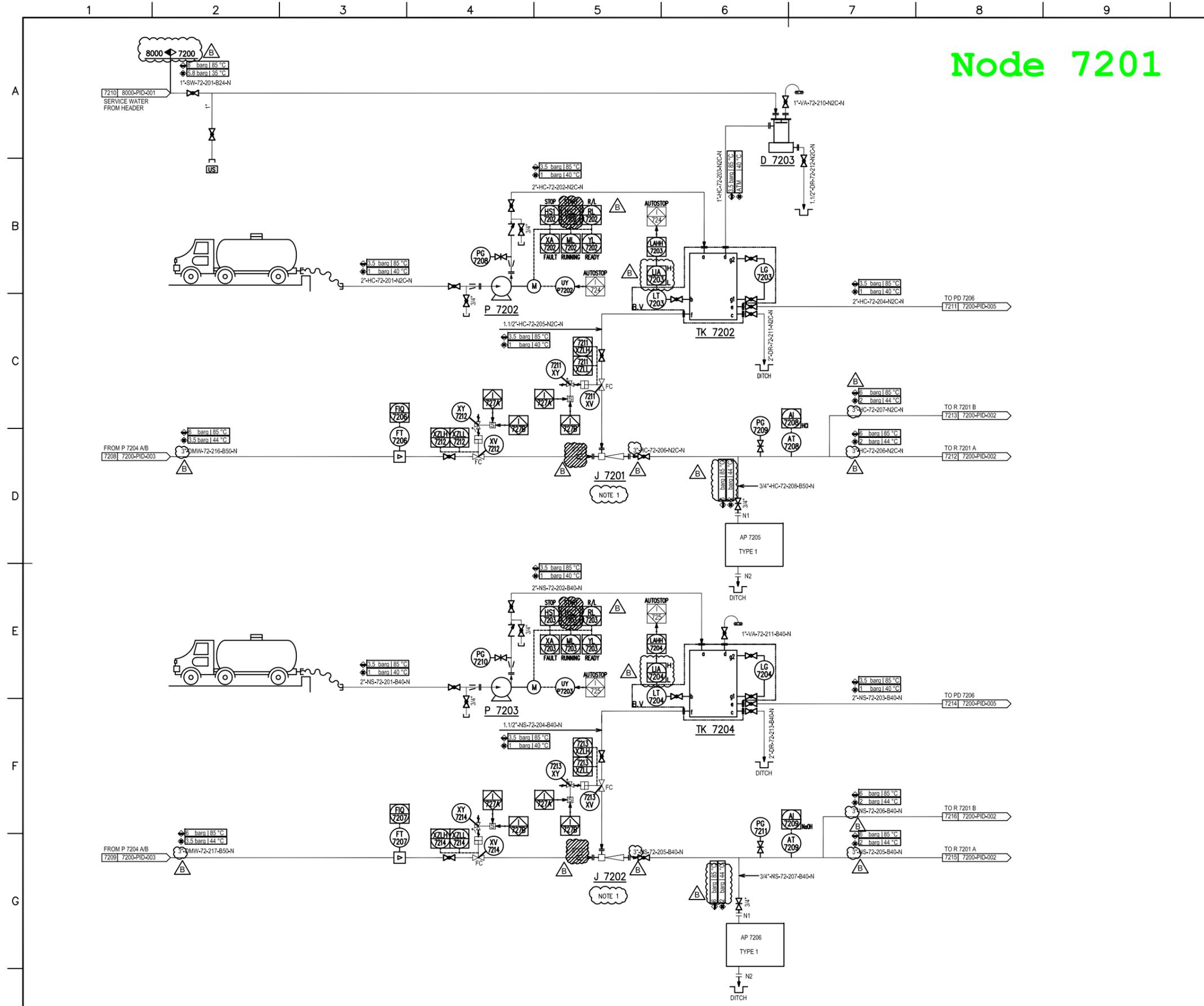
TK 7001 1/2	DEMIN WATER TANK	P 7002 A/B	DEMIN WATER PUMP	P 7204 A/B	REGENERATION PUMP
ID x HEIGHT	15000 x 22000 mm	CAPACITY	265 m ³ /h	CAPACITY	42 m ³ /h
NOMINAL CAPACITY	3500 m ³	HEAD	85 m	HEAD	35 m
DESIGN PRESS.	ATM barg	DENSITY@OT	990.7 kg/m ³	DENSITY@OT	990.7 kg/m ³
DESIGN TEMP.	85 °C	INSULATION/TRACING	NONE	INSULATION/TRACING	NONE
INSULATION	NONE	AUXILIARY PIPING	By Vendor	AUXILIARY PIPING	By Vendor
MATERIAL	SS 304	ELEV. OF FOUNDATION	EL 100.70 m	ELEV. OF FOUNDATION	EL 100.70 m

Counter Signing	Sign	Date

Node 7201

GENERAL NOTES

NOTE 1: THE CAPACITY OF POLISHING UNIT WAS REVISED FROM 103 m³/h TO 126 m³/h, FOLLOWING THE TECHNICAL REQUIREMENT BY COMPRESSOR VENDOR.



REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Issued For Review	05.07.2016	Liang Zhipeng	Tian Tao	Xie Xuan			
Issued For Comments	06.06.2016	Liang Zhipeng	Tian Tao	Xie Xuan			
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OWNER:

Middle East
Kimiaye Pars Company

HALDOR TOPSØE A/S

TCC 中國天辰工程有限公司
CHINA TIANCHEN ENGINEERING CORPORATION

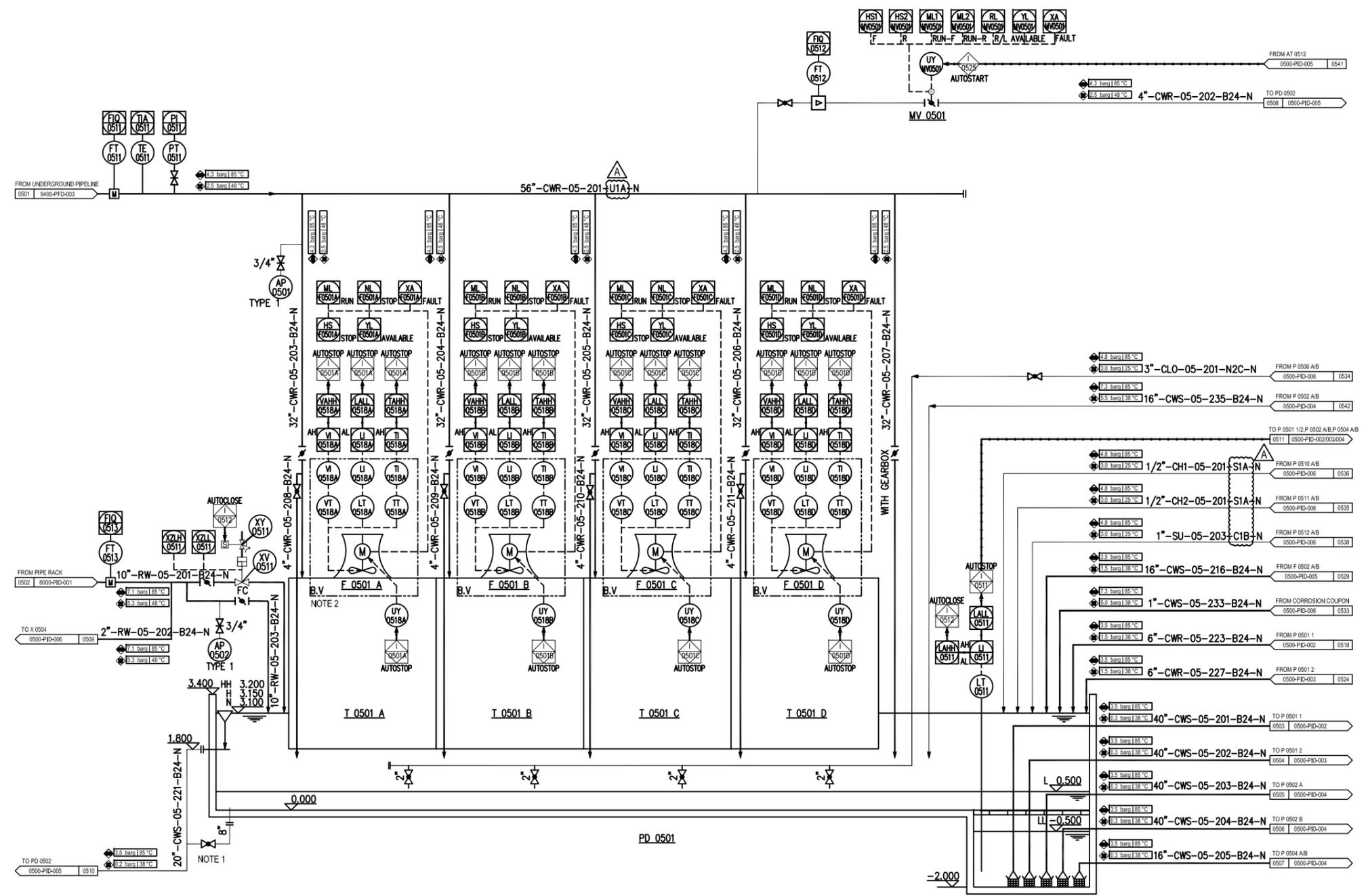
CONTRACTOR DRAWING NO.	MKP-11-DE-7200-EE06-PID-004
SHEET	01 TOTAL
SUB-CONTRACTOR DRAWING NO.	
SHEET	TOTAL

PROJECT	MKP Methanol Project
UNIT	POLISHING UNIT
PHASE	DETAIL ENGINEERING
SCALE - SHEET 1	TOT. 1
SIZE A1	OWNER DWG NO. MKP-11-DE-7200-PR-PID-004

P 7202	ACID TRANSFER PUMP	P 7203	ALKALI TRANSFER PUMP	TK 7202	ACID METERING TANK	D 7203	ACID MIST ELIMINATOR	TK 7204	ALKALI METERING TANK	J 7201	ACID EJECTOR	J 7202	ALKALI EJECTOR
CAPACITY	10 m ³ /h	CAPACITY	10 m ³ /h	ID x HEIGHT	1500 x 2000 mm	ID x HEIGHT	500 x 1500 mm	ID x HEIGHT	1500 x 2000 mm	CAPACITY	18.0 m ³ /h	CAPACITY	18.0 m ³ /h
HEAD	10 m	HEAD	10 m	NOMINAL CAPACITY	3.0 m ³	NOMINAL CAPACITY	0.3 m ³	NOMINAL CAPACITY	3.0 m ³	DESIGN PRESS.	6 barg	DESIGN PRESS.	6 barg
DENSITY@OT	1138 kg/m ³	DENSITY@OT	1315 kg/m ³	ATM	ATM barg	DESIGN PRESS.	ATM barg	DESIGN PRESS.	ATM barg	DESIGN TEMP.	85 °C	DESIGN TEMP.	85 °C
INSULATION/TRACING	NONE	INSULATION/TRACING	NONE	DESIGN TEMP.	85 °C	DESIGN TEMP.	85 °C	DESIGN TEMP.	85 °C	INSULATION	NONE	INSULATION	NONE
AUXILIARY PIPING	By Vendor	AUXILIARY PIPING	By Vendor	INSULATION	NONE	INSULATION	NONE	INSULATION	NONE				
ELEV. OF FOUNDATION	EL 100.70 m	ELEV. OF FOUNDATION	EL 100.70 m	MATERIAL	FRP								

Counter Signing Sign Date

Node 0501



GENERAL NOTES

1. THIS VALVE SHALL BE ACCESSIBLE AND LOCATED IN A VALVE PIT.
2. VT, LT AND TT ARE LOCATED ON SPEED REDUCER OF FANS.
V-VIBRATION; L-OIL LEVEL; T-OIL TEMPERATURE.

REFERENCE DRAWINGS

NO.	DESCRIPTION

SYMBOLS AND LEGENDS

SYMBOL	DESCRIPTION

KEY PLAN



REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

OWNER: **Middle East Kimiaye Pars Company**

CONTRACTOR: **HALDOR TOPSØE A/S**

CONTRACTOR: **TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION**

SHEET	TOTAL
01	01

PROJECT	UNIT
MKP Methanol Project	COOLING WATER UNIT

PHASE	OWNER DWG NO.
DETAIL ENGINEERING	MKP-11-DE-0500-PR-PID-001

T 0501 A/B/C/D	COOLING WATER TOWER	F 0501 A/B/C/D	COOLING TOWER FAN	PD 0501	COOLING WATER POND	MV 0501	ELECTRIC BUTTERFLY VALVE
LXWH(m)	17X17X19.5	CAPACITY(m³/h)	2590000	LXWH(mm)	68600X21100X3400	SIZE	4"
DESIGN PRESS. ATM	85	ID(mm)	9750	NOMINAL CAPACITY	4810	POWER	1.5 kW
DESIGN TEMP. °C	85	DESIGN PRESS. barg	0.0015	DESIGN PRESS. ATM	85	DESIGN PRESS. barg	4.3
INSULATION	NONE	DESIGN TEMP. °C	85	DESIGN TEMP. °C	85	DESIGN TEMP. °C	85
CLADDING/LINING	NONE	INSULATION	NONE	INSULATION	NONE	AUXILIARY PIPING	BY VENDOR

Counter Signing	Sign	Date

SCALE	SHEET	TOT.	SIZE	OWNER DWG NO.
	1	1	A1	MKP-11-DE-0500-PR-PID-001

Node 0501

GENERAL NOTES

1. THE DRAWING OF TURBINE SHALL BE APPROVED BY STEAM TURBINE VENDOR .
2. ALL OF THESE SHALL BE SUPPLIED BY STEAM TURBINE VENDOR .
3. A MOVABLE PIPING SUPPORT SHALL BE USED AND CONICAL STRAINER SHALL BE INSTALLED INSIDE A SPOOL IN ORDER TO MAKING CLEANING POSSIBLE.

REFERENCE DRAWINGS

START	
STOP	
RUNNING	
AVAILABLE	
FAULT	
R/L	

SYMBOLS AND LEGENDS

KEY PLAN



REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

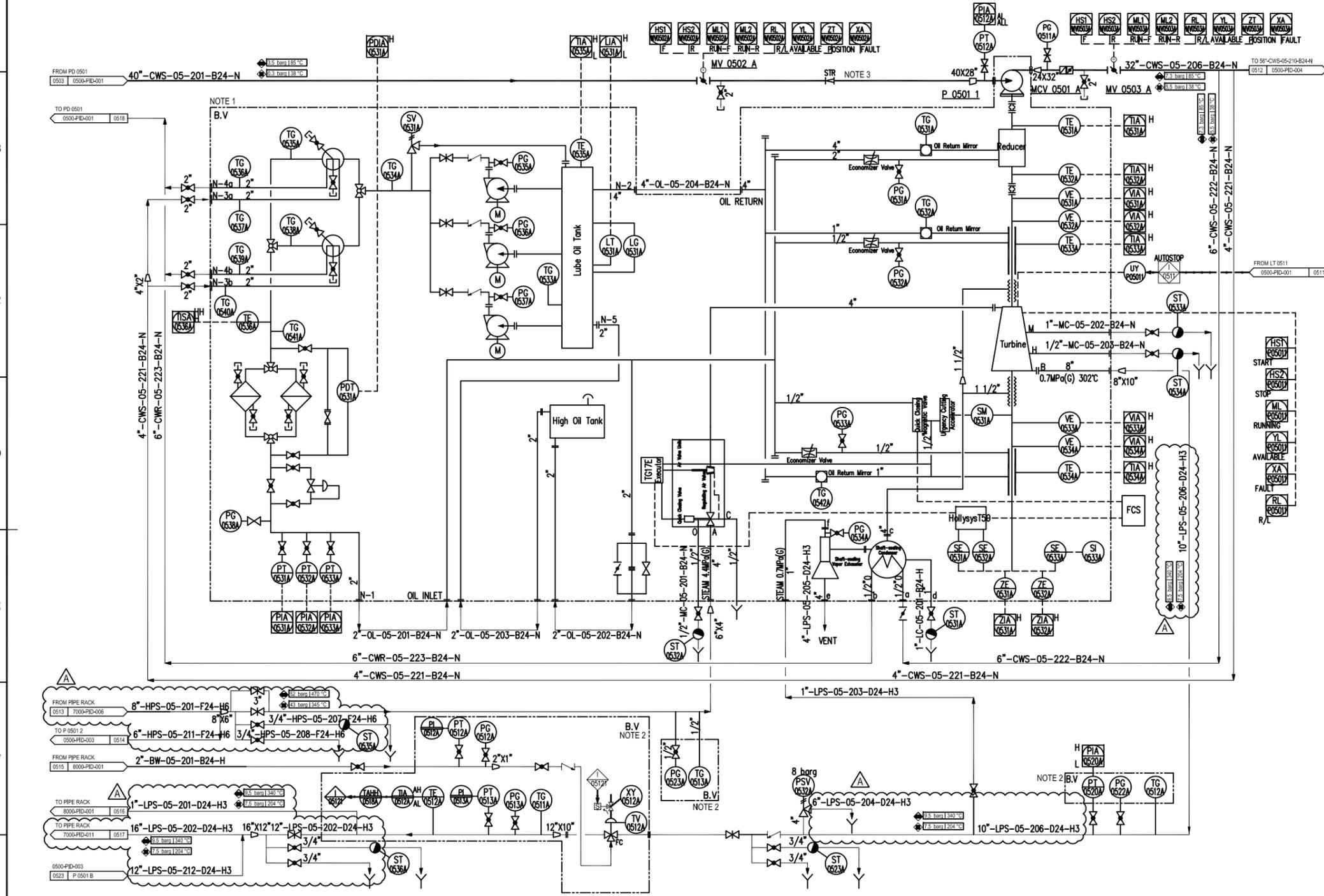
OWNER:

**Middle East
Kimiaye Pars Company**

CONTRACTOR	DOCUMENT NAME	JOB NO.	DOC. NO.	REV.

CONTRACTOR	CONTRACTOR DRAWING NO.
TCC 中國天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	MKP-11-DE-0500-EE06-PID-002
SHEET	TOTAL
01	01
SUB-CONTRACTOR DRAWING NO.	

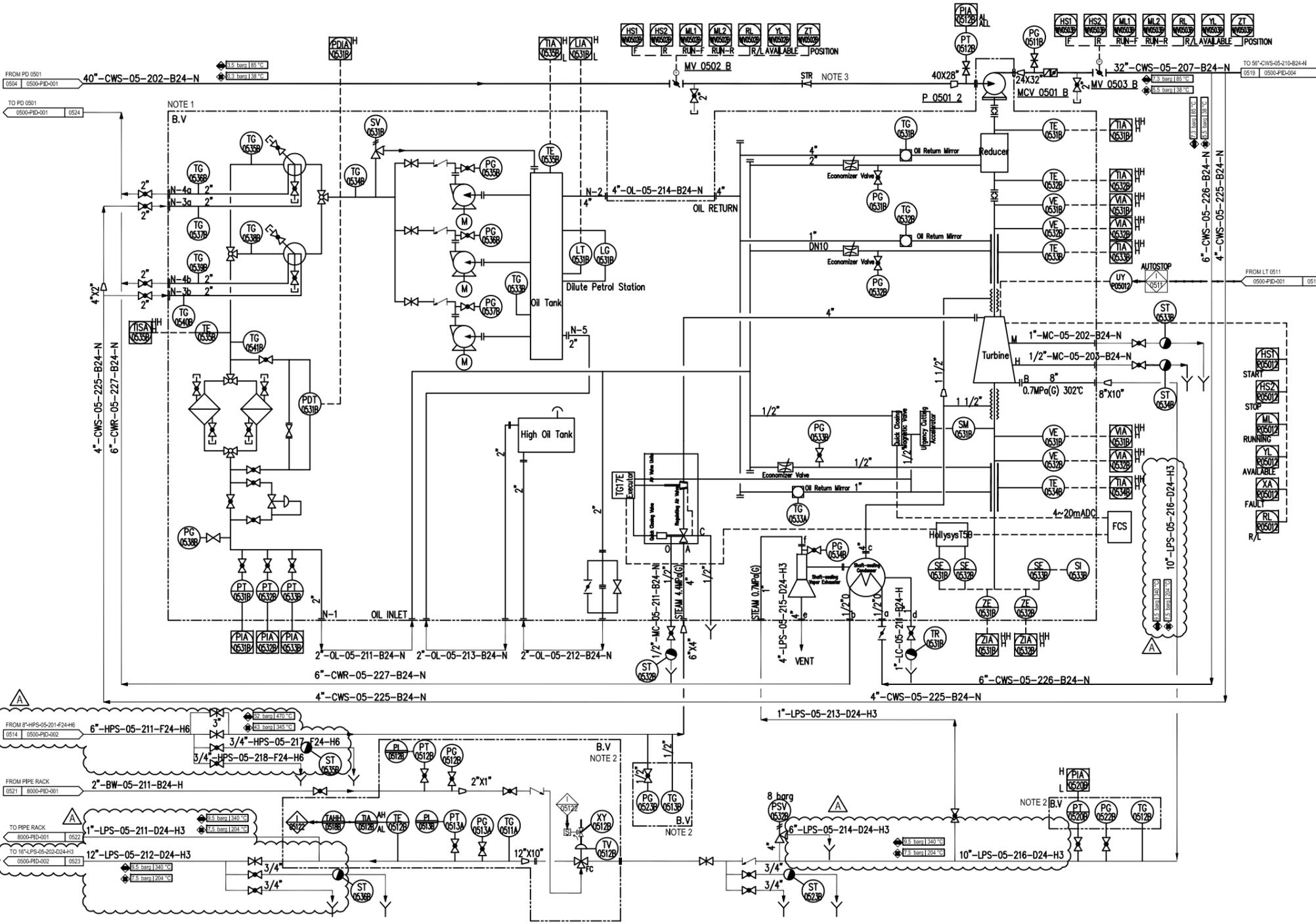
PROJECT	MKP Methanol Project
UNIT	COOLING WATER UNIT
PHASE	DETAIL ENGINEERING
SCALE	SHEET 1 TOT. 1 SIZE A1
OWNER DWG NO.	MKP-11-DE-0500-PR-PID-002



Item	Equipment	Capacity	Head	Density	Insulation	Auxiliary Piping
P 0501 1	COOLING WATER PUMP	4500 m ³ /h	55 m	993 kg/m ³	NONE	BY STEAM TURBINE VENDOR
MV 0502 A	ELECTRIC BUTTERFLY VALVE	40"	4 kW	7.3 barg	85 °C	BY VENDOR
MV 0503 A	ELECTRIC BUTTERFLY VALVE	32"	4 kW	7.3 barg	85 °C	BY VENDOR
MCV 0501 A	MULTIFUNCTIONAL HYDRAULIC CONTROL VALVE	32"	7.3 barg	85 °C	BY VENDOR	BY VENDOR

Counter Signing	Sign	Date

Node 0501



GENERAL NOTES

1. THE DRAWING OF TURBINE SHALL BE APPROVED BY STEAM TURBINE VENDOR .
2. ALL OF THESE SHALL BE SUPPLIED BY STEAM TURBINE VENDOR .
3. A MOVABLE PIPING SUPPORT SHALL BE USED AND CONICAL STRAINER SHALL BE INSTALLED INSIDE A SPOOL IN ORDER TO MAKING CLEANING POSSIBLE.

REFERENCE DRAWINGS

NO.	DESCRIPTION

SYMBOLS AND LEGENDS

START	HS1
STOP	HS2
RUNNING	ML
AVAILABLE	YL
FAULT	XA
R/L	RL

KEY PLAN



REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

OWNER: **Middle East Kimiaye Pars Company**

CONTRACTOR: **HALDOR TOPSØE A/S**

CONTRACTOR: **TCC 中國天辰工程有限公司**

CONTRACTOR DRAWING NO. **MKP-11-DE-0500-EE06-PID-003**

SHEET **01** TOTAL **01**

SUB-CONTRACTOR DRAWING NO.

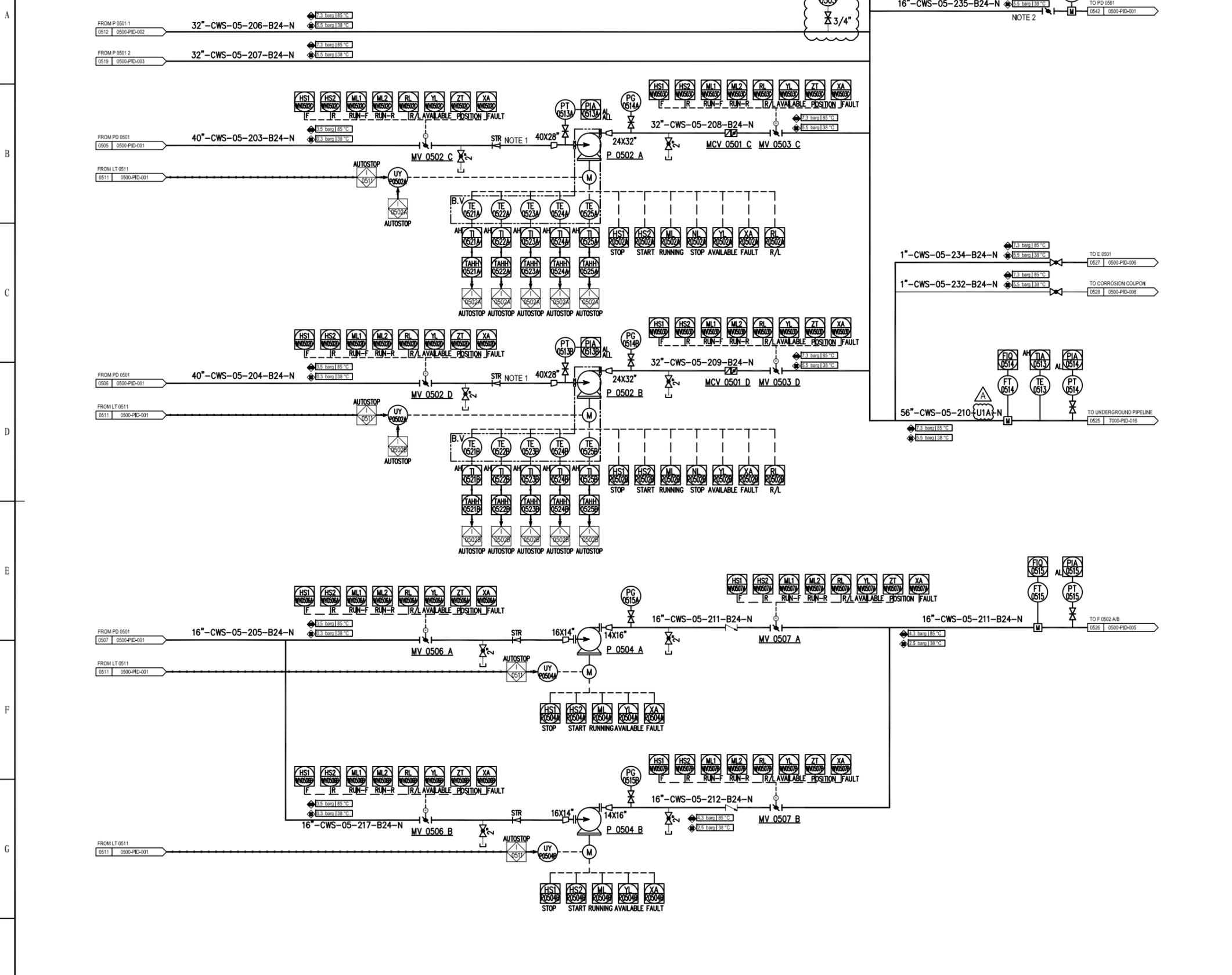
ITEM	DESCRIPTION	SIZE	DESIGN PRESS.	DESIGN TEMP.	MATERIAL	BY VENDOR
P 0501 2	COOLING WATER PUMP STEAM TURBINE	4500 m ³ /h	4 m	993 kg/m ³	NONE	BY STEAM TURBINE VENDOR
MV 0502 B	ELECTRIC BUTTERFLY VALVE	40"	7.3 barg	85 °C		BY VENDOR
MV 0503 B	ELECTRIC BUTTERFLY VALVE	32"	7.3 barg	85 °C		BY VENDOR
MCV 0501 B	MULTIFUNCTIONAL HYDRAULIC CONTROL VALVE	32"	7.3 barg	85 °C		BY VENDOR

PROJECT	UNIT	PHASE
MKP Methanol Project	COOLING WATER UNIT	DETAIL ENGINEERING

SCALE	SHEET	TOT.	SIZE	OWNER DWG NO.
	1	1	A1	MKP-11-DE-0500-PR-PID-003

Counter Signing Sign Date

Node 0501



GENERAL NOTES

1. A MOVABLE PIPING SUPPORT SHALL BE USED AND CONICAL STRAINER SHALL BE INSTALLED INSIDE A SPOOL IN ORDER TO MAKING CLEANING POSSIBLE.
2. A LOW NOISE HIGH PERFORMANCE BUTTERFLY VALVE SHOULD BE APPLIED.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

REV.	ISSUED FOR COMMENTS	06.06.2016	NIE XIAO	TIAN TAO	XIE XUAN		
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER:

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Kimiaye Pars Company**

CONTRACTOR	HALDOR TOPSØE A/S	DOCUMENT NAME	JOB NO.	DOC. NO.	REV.
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CONTRACTOR	TCC 中國天辰工程有限有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO.	MKP-11-DE-0500-EE06-PID-004
SUB-CONTRACTOR		SHEET	01 TOTAL 01
		SUB-CONTRACTOR DRAWING NO.	

P&ID FOR COOLING WATER PUMP		PROJECT	MKP Methanol Project
		UNIT	COOLING WATER UNIT
		PHASE	DETAIL ENGINEERING
SCALE	SHEET 1	TOT. 1	SIZE A1
OWNER DWG NO.	MKP-11-DE-0500-PR-PID-004		

P 0502 A/B	COOLING WATER PUMP	MV 0502 C/D	ELECTRIC BUTTERFLY VALVE	MV 0503 C/D	ELECTRIC BUTTERFLY VALVE	P 0504 A/B	SIDE FILTER PUMP	MV 0506 A/B	ELECTRIC BUTTERFLY VALVE	MV 0507 A/B	ELECTRIC BUTTERFLY VALVE	MCV 0501 C/D	MULTIFUNCTIONAL HYDRAULIC CONTROL VALVE
CAPACITY	4500 m ³ /h	SIZE	40"	SIZE	32"	CAPACITY	640 m ³ /h	SIZE	16"	SIZE	16"	SIZE	32"
HEAD	55 m	POWER	4 kW	POWER	4 kW	HEAD	25 m	POWER	4 kW	POWER	4 kW	DESIGN PRESS.	7.3 barg
DENSITY@OT	993 kg/m ³	DESIGN PRESS.	7.3 barg	DESIGN PRESS.	7.3 barg	DENSITY@OT	993 kg/m ³	DESIGN PRESS.	4.3 barg	DESIGN PRESS.	4.3 barg	DESIGN TEMP.	85 °C
INSULATION/TRACING	NONE	DESIGN TEMP.	85 °C	DESIGN TEMP.	85 °C	INSULATION/TRACING	NONE	DESIGN TEMP.	85 °C	DESIGN TEMP.	85 °C	MATERIAL	BY VENDOR
AUXILIARY PIPING	BY PUMP VENDOR	AUXILIARY PIPING	BY VENDOR	AUXILIARY PIPING	BY PUMP VENDOR	AUXILIARY PIPING	BY PUMP VENDOR	AUXILIARY PIPING	BY VENDOR	AUXILIARY PIPING	BY VENDOR	AUXILIARY PIPING	BY VENDOR

Counter Signing Sign Date

Node 0501

GENERAL NOTES

1. INSTRUMENT AIR PIPE HEADER WILL BE CONNECTED TO ALL PNEUMATIC VALVE.

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

REV.	ISSUED FOR COMMENTS	06.06.2016	Nie Xiao	Tian Tao	Xie Xuan		
	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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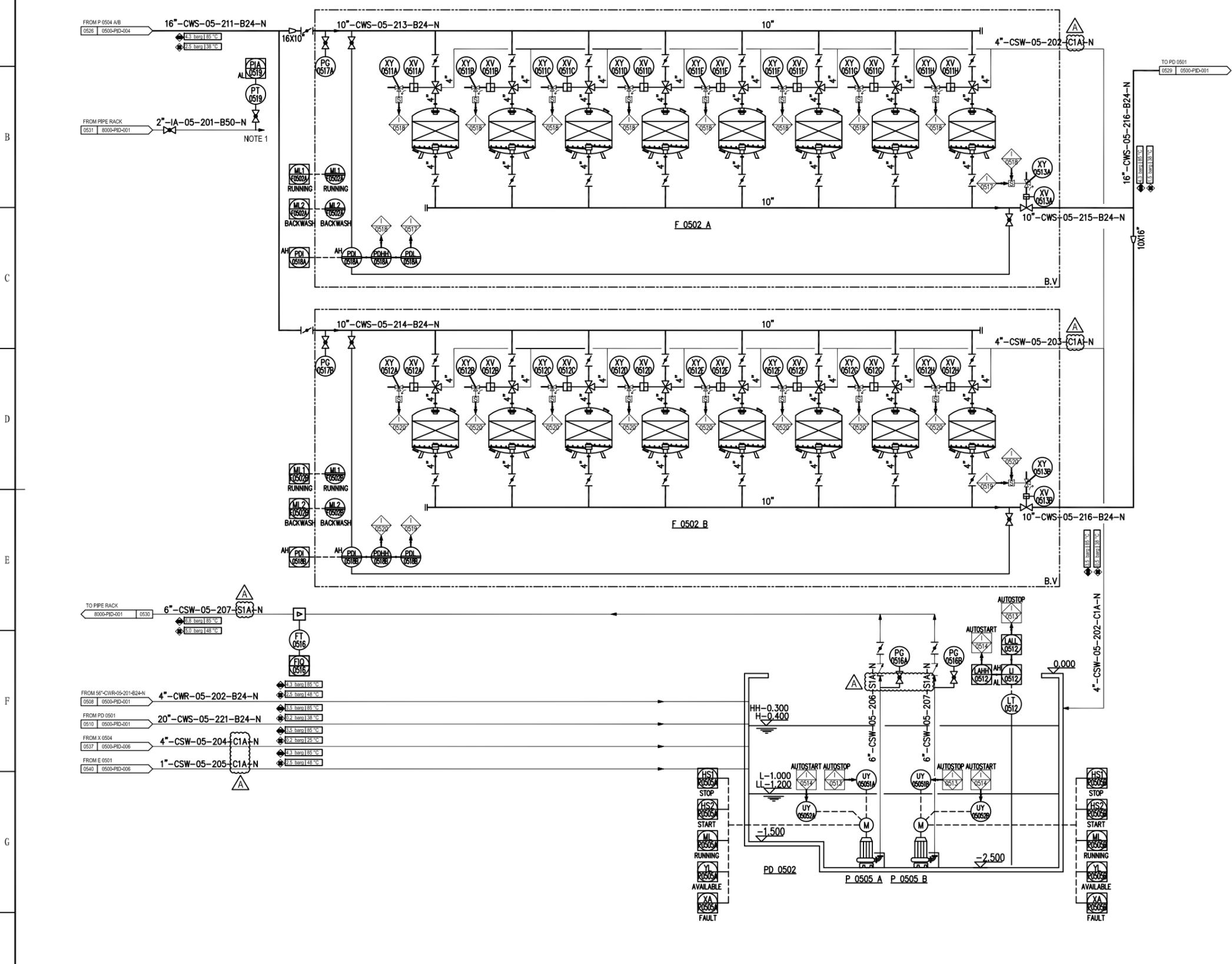
OWNER:



**Middle East
Kimiaye Pars Company**

CONTRACTOR	HALDOR TOPSØE A/S	DOCUMENT NAME:		JOB NO.:	DOC. NO.:	REV.:	
CONTRACTOR	TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION	CONTRACTOR DRAWING NO.	MKP-11-DE-0500-EE06-PID-005	SHEET	01	TOTAL	01
		SUB-CONTRACTOR DRAWING NO.		SHEET		TOTAL	

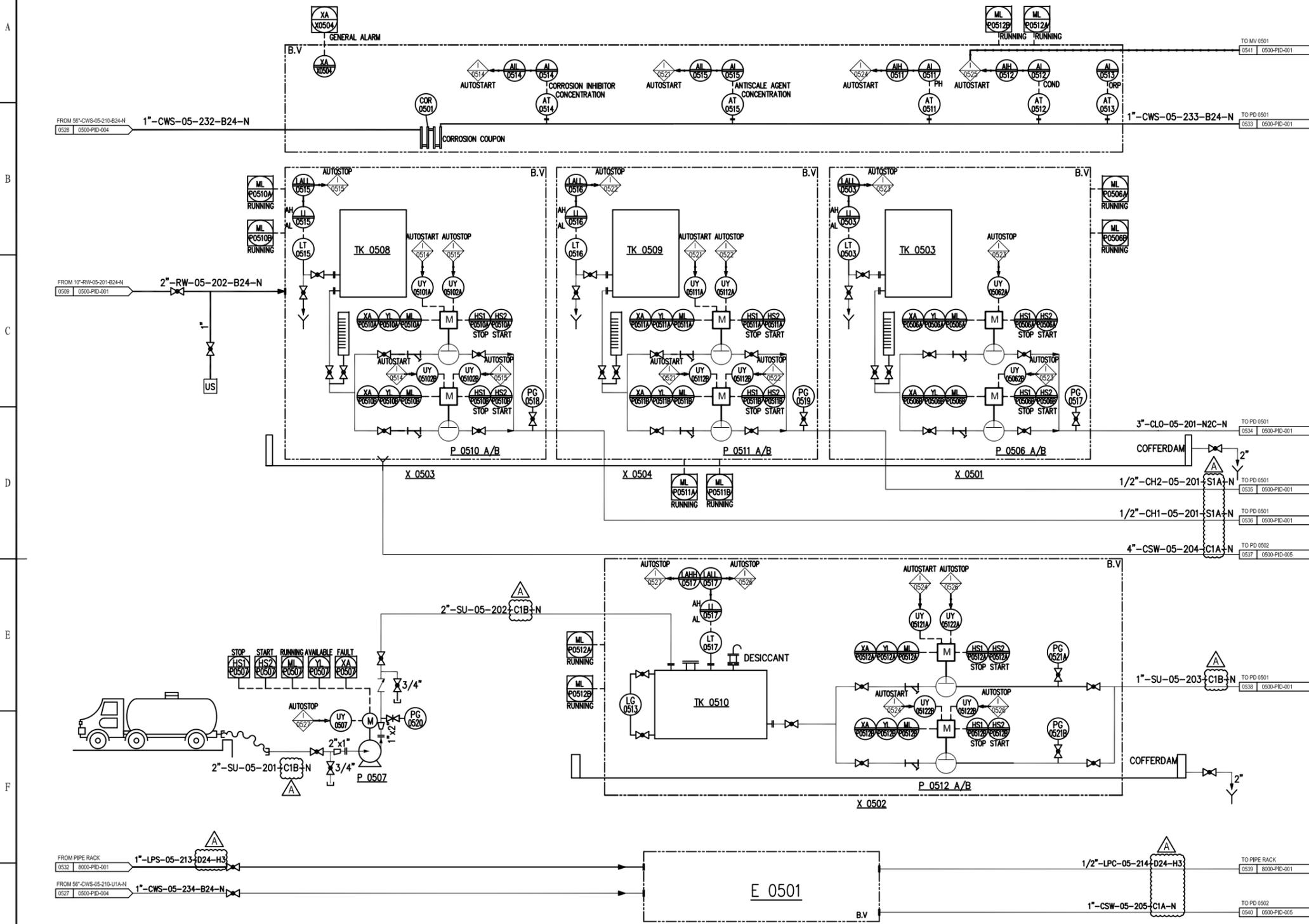
PROJECT		MKP Methanol Project
UNIT		COOLING WATER UNIT
PHASE		DETAIL ENGINEERING
SCALE	SHEET 1	TOT. 1
SIZE	A1	OWNER DWG NO.
		MKP-11-DE-0500-PR-PID-005



F 0502 A/B	COOLING WATER FILTER QUARTZ SAND	PD 0502	CLEAN SALTY WATER POND	P 0505 A/B	CLEAN SALTY WATER PUMP
CAPACITY	320 m ³ /h	LXWH(mm)	10000X6500X1500	CAPACITY	55 m ³ /h
MATERIAL SHELL	C.S	NOMINAL CAPACITY	80 m ³	HEAD	50 m
DENSITY@OT	993 kg/m ³	DESIGN PRESS.	ATM	DENSITY@OT	989 kg/m ³
INSULATION/TRACING	NONE	DESIGN TEMP.	85 °C	INSULATION/TRACING	NONE
AUXILIARY PIPING	BY VENDOR	INSULATION	NONE	AUXILIARY PIPING	BY VENDOR

Counter Signing Sign Date

Node 0501



GENERAL NOTES

REFERENCE DRAWINGS

SYMBOLS AND LEGENDS

KEY PLAN

Issued For Comments	06.06.2016	Nie Xiao	Tian Tao	Xie Xuan			
REV.	PURPOSE OF ISSUE	DATE	DESIGN	DRAW	CHECK	REVIEW	APPROVE

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OWNER:

**Middle East
Kimiaye Pars Company**

HALDOR TOPSØE A/S DOCUMENT NAME: _____ JOB NO.: _____ SPEC. NO.: _____ REV. _____

TCC 中国天辰工程有限公司 CHINA TIANCHEN ENGINEERING CORPORATION CONTRACTOR DRAWING NO. MKP-11-DE-0500-EE06-PID-006 SHEET 01 TOTAL 01 SUB-CONTRACTOR DRAWING NO. _____ SHEET TOTAL

P&ID FOR CHEMICAL DOSING UNIT

PROJECT	MKP Methanol Project
UNIT	COOLING WATER UNIT
PHASE	DETAIL ENGINEERING

SCALE SHEET 1 TOT. 1 SIZE A1 OWNER DWG NO. MKP-11-DE-0500-PR-PID-006

P 0506 A/B	NaClO DOSING PUMP	TK 0503	NaClO DOSING TANK	P 0507	ACID UNLOADING PUMP	TK 0508	INHIBITOR DOSING TANK	P 0510 A/B	INHIBITOR DOSING PUMP	TK 0509	ANTISCALE DOSING TANK
CAPACITY	100 L/h	ID X HEIGHT(mm)	1500X2000	CAPACITY	3 m ³ /h	ID X HEIGHT(mm)	1000X1500	CAPACITY	0~50 L/h	ID X HEIGHT(mm)	1000X1500
HEAD	30 m	NOMINAL CAPACITY	3 m ³	HEAD	15 m	NOMINAL CAPACITY	1 m ³	HEAD	30 m	NOMINAL CAPACITY	1 m ³
DENSITY@OT	1000 kg/m ³	DESIGN PRESS.	ATM	DENSITY@OT	1840 kg/m ³	DESIGN PRESS.	ATM	DENSITY@OT	1000 kg/m ³	DESIGN PRESS.	ATM
INSULATION/TRACING	NONE	DESIGN TEMP.	85 °C	INSULATION/TRACING	NONE	DESIGN TEMP.	85 °C	INSULATION/TRACING	NONE	DESIGN TEMP.	85 °C
AUXILIARY PIPING	BY VENDOR	INSULATION	NONE	AUXILIARY PIPING	BY VENDOR	INSULATION	NONE	AUXILIARY PIPING	BY VENDOR	INSULATION	NONE
P 0511 A/B	ANTISCALE DOSING PUMP	TK 0510	SULFURIC ACID TANK	P 0512 A/B	ACID DOSING PUMP	E 0501	MONITORING HEAT EXCHANGER				
CAPACITY	0~50 L/h	ID X HEIGHT(mm)	1500X2000	CAPACITY	0~50 L/h	EXCHANGE AREA	4.8 m ²				
HEAD	30 m	NOMINAL CAPACITY	3 m ³	HEAD	30 m	DESIGN PRESS.(TU/SH)	5.5/5.0 barg				
DENSITY@OT	1000 kg/m ³	DESIGN PRESS.	ATM	DENSITY@OT	1840 kg/m ³	DESIGN TEMP.(TU/SH)	48/50 °C				
INSULATION/TRACING	NONE	DESIGN TEMP.	85 °C	INSULATION/TRACING	NONE	INSULATION	NO				
AUXILIARY PIPING	BY VENDOR	INSULATION	NONE	AUXILIARY PIPING	BY VENDOR						

Counter Signing Sign Date