

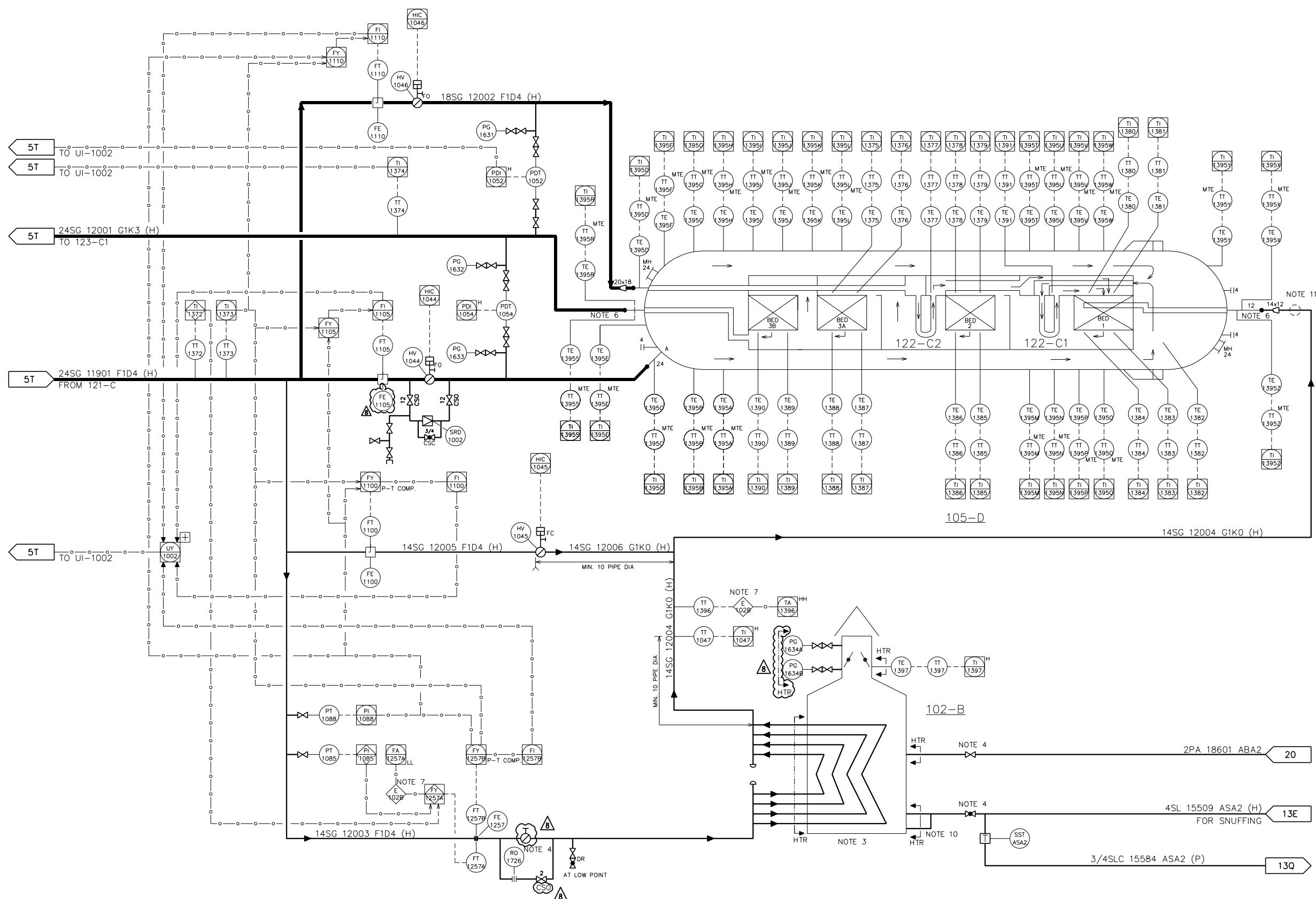
105-D	
AMMONIA SYNTHESIS CONVERTER	
DES./OPER TEMP. °C 285/182	
DES./OPER.PRESS. kg/cm ² G 170/154.7	
INSULATION/THICK. mm NA	
MATERIAL 2.1/4Cr-1Mo	
DIMENSION ((IDx(TL-TL))) mm 3400x33400	
VOLUME CATALYST m ³ 43.5 (BED 1) 43.5 (BED 2) 32.75 (BED 3A) 32.75 (BED 3B)	

122-C1/C2	
AMMONIA CONVERTER BED 1/BED 2 INTERCHANGER	

102-B	
START-UP HEATER	
DES./OPER TEMP °C 466/245;402	
DES./OPER.PRESS. kg/cm ² G 152.7/102.3;100.43	
MATERIAL COIL A312 TP304H	
HEAT DUTY Gcal/h 12.8	

NOTES

- FOR GENERAL NOTES AND SYMBOLS SEE DRAWING 4A, 4B.
- DELETED.
- FOR FUEL GAS PIPING AND CONTROLS SEE DRAWING 19C.
- MINIMUM 15M FROM FURNACE.
- RUPTURE DISK TO PROTECT 121-C AGAINST DIFFERENTIAL PRESSURE.
- NOT INSULATE NOZZLE.
- REFER TO WRITE-UP BY CONTROL SYSTEMS ENGINEERING FOR INTERLOCK DESCRIPTION.
- DELETED.
- DELETED.
- TOTAL OF 10 SNUFFING STEAM NOZZLE.
- 14" FLANGE TO FLANGE (AS WAREHOUSE SPARE) TO BE PROVIDED ONLY FOR FUTURE INSTALLATION AND MAINTENANCE PURPOSE.



RE-ISSUED FOR CONSTRUCTION (AFC-3)	TS	ABA	DU	HOM	ANS	HK	US	OL	V	14/11/13
7/1 RE-ISSUED FOR CONSTRUCTION (AFC-2)	TS	ABA	DU	HOM	ANS	HK	US	OL	V	28/06/13
6/2 RE-ISSUED FOR CONSTRUCTION (AFC-1)	TS	ABA	DU	HOM	ANS	HK	US	OL	V	10/04/13
5/3 ISSUED FOR CONSTRUCTION (AFC)	EB	ABA	DU	RW	AM	SPK	US	OL	V	26/11/12
4/E ISSUED FOR APPROVAL (AFD-1)	EB	ABA	DU	RW	U	SPK	US	OL	V	29/09/12
2/C ISSUED FOR DETAIL DESIGN (AFD-2)	EB	ABA	JAK	YSH	BOP	HN	SIN	OL	V	14/05/12
REV. DESCRIPTION	DRW	CHD	DES	CHD	APD	APD	AUT	ISSUE	DATE	

REVISIONS
PROJECT NAME : KALTIM-5 PROJECT
2500 MTPD AMMONIA AND 3500 MTPD UREA
BONTANG, EAST KALIMANTAN, INDONESIA

CLIENT NAME : PT. PUPUK KALIMANTAN TIMUR

KBR

Engineering Services by
KBR Technical Services, Inc.

THIS DOCUMENT CONTAINS TECHNICAL INFORMATION THAT IS SUBJECT TO U.S. EXPORT CONTROL REGULATIONS, INCLUDING RESTRICTIONS ON THE EXPORT OR TRANSFER OF THE ITEM (GOODS, TECHNOLOGY OR SOFTWARE) TO SANCTIONED COUNTRIES, ENTITIES, OR PERSONS. IT MAY NOT BE EXPORTED EXCEPT AS AUTHORIZED UNDER APPLICABLE U.S. EXPORT CONTROL REQUIREMENTS.

THIS DOCUMENT CONTAINS INFORMATION WHICH IS PROPRIETARY TO TOYO ENGINEERING CORPORATION. THIS INFORMATION IS TO BE HELD IN CONFIDENCE. NO DISCLOSURE, REPRODUCTION OR OTHER USE OF THIS DOCUMENT IS TO BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF TOYO ENGINEERING CORPORATION.

THE DRAWING CONTAINS PROPRIETARY INFORMATION OF TOYO ENGINEERING CORPORATION. THIS DRAWING DESCRIBES THE MATERIALS DESCRIBED THEREIN MAY NOT BE COPIED OR DISCLOSED IN ANY FORM OR BY ANY MEANS, WHOLLY OR IN PART, TO ANYONE WHO IS NOT AN EMPLOYEE OF TOYO ENGINEERING CORPORATION, WHO HAS BEEN PROVIDED WHOLLY OR IN PART IN ANY MANNER EXCEPT AS EXPRESSLY PERMITTED BY TOYO ENGINEERING CORPORATION.

CONTRACTOR : PT. INIKRAYA PERSADA TEKNIK

ABB. FOR ISSUE : C-CLIENT
S-SUPPLIER
S-SITE
V-VENDOR

ISSUE MARK : 14-Nov-13

CONTRACTOR WORK NUMBER : 10107 / BA096300 / 11-018-01

PIPING & INSTRUMENT FLOW DIAGRAM
AMMONIA SYNTHESIS CONVERTER

SCALE : DWG. NO. K5-01-E1-PD-5U-T

DOC. NO. K5-01-E1-PD-022-T SHEET 022/073 REV.B