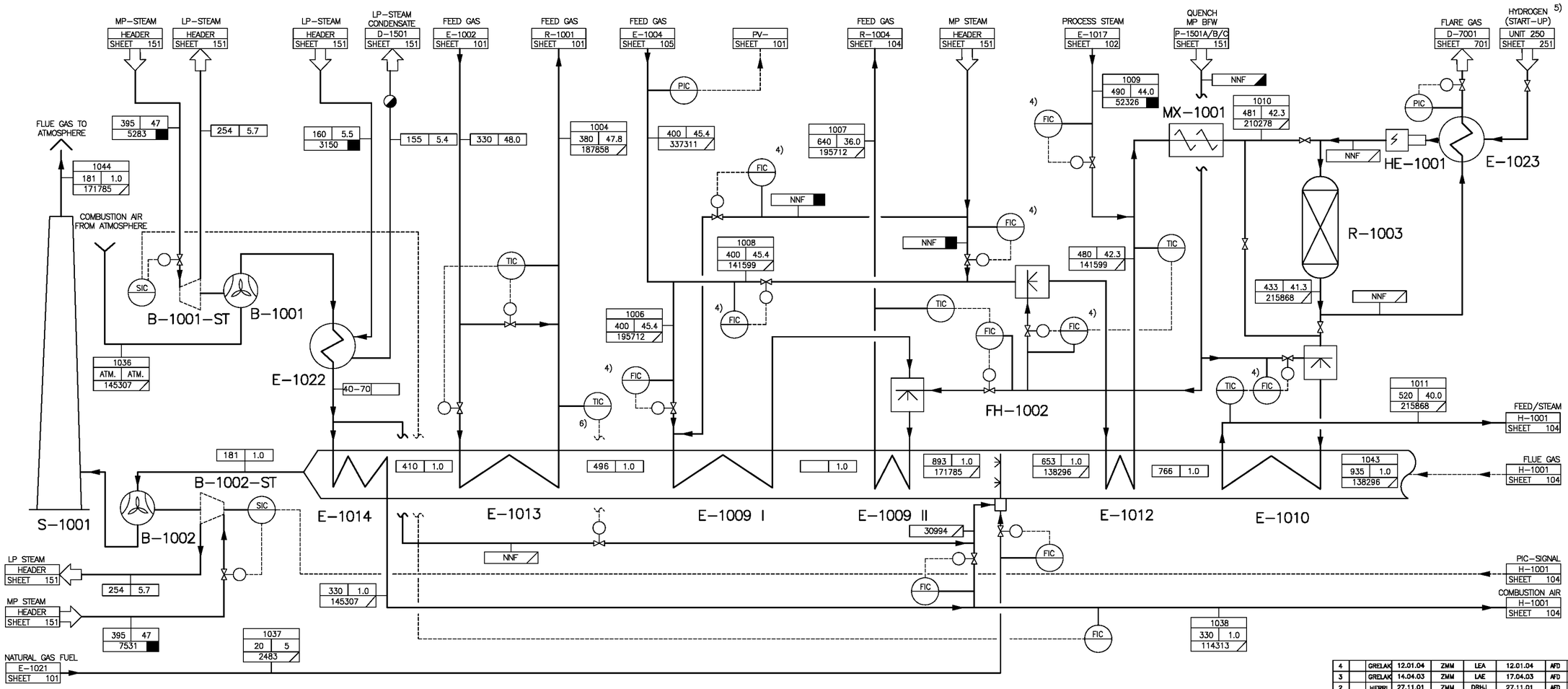
S-1001	B-1002	B-1002 ST	E-1022	B-1001	B-1001-ST	E-1014	E-1013	E-1009 I-II	E-1012	FH-1002	MX-1001	E-1010	R-1003	HE-1001	E-1023
FLUE GAS STACK	FLUE GAS FAN 848 KW 7)	STEAM TURBINE FOR FLUE GAS FAN 848 KW 7)	STEAM AIR PREHEATER	COMBUSTION AIR FAN 503 KW 7)	STEAM TURBINE FOR COMBUSTION AIR FAN 503 KW 7)	COMBUSTION AIR PREHEATER 54.3 GJ/H	NATURAL GAS PREHEATER 21.2 GJ/H	FEED PREHEATER AUTOTHERMAL REFORMER 104.1 GJ/H	FEED PREHEATER PREREFORMER 23.9 GJ/H	AUXILIARY BURNER 81.1 GJ/H	PIPING INLINE MIXER	FEED PREHEATER STEAM REFORMER 36.9GJ/H	PREREFORMER	ELECTRICAL START-UP HEATER 0.53 GJ/H (norm. 0)	START -UP INTERCHANGER 2.4 GJ/H (norm. 0)

NOTES:

1) PRESSURES ARE ABSOLUTE UNLESS OTHERWISE INDICATED.
2) STANDARD VAPOR CONDITIONS: 15°C, 1.01325 BAR (23.6449 SM3/KMOL)
3) NNF:NORMALLY NO FLOW:
4) TO STEAM / CARBON RATIO CONTROL.
5) HYDROGEN IS USED ONLY FOR START-UP
6) CONTROL AT UPSET CONDITIONS ONLY
7) RATED POWER



Stream No.:		1004		1006		1007		1008		1009		1010		1011		1036		1037		1038		1043		1044	
Process Stream		Feed Gas to R-1001		Feed Gas to E-1009		Feed Gas from E-1009 to R-1004		Feed Gas to E-1012		Process Steam to MX-1001		Feed / Steam to R-1003		Prereformed Gas to H-1001		Combustion Air to FH-1002/H-1001		Natural Gas Fued to FH-1002		Combustion Air to H-1001		Flue Gas from H-1001		Flue Gas from S-1001	
		Vapor		Vapor		Vapor		Vapor		Vapor		Vapor		Vapor		Vapor		Vapor		Vapor		Vapor		Vapor	
Comp.	Molweight	kmol/h	mol %	kmol/h	mol %	kmol/h	mol %	kmol/h	mol %	kmol/h	mol %	kmol/h	mol %	kmol/h	mol %	kmol/h	mol %	kmol/h	mol %	kmol/h	mol %	kmol/h	mol %	kmol/h	mol %
CO2	44.010	84.8	1.07	50.1	0.61	50.1	0.61	36.3	0.61			36.3	0.41	157.0	1.72			0.7	0.71			473.4	8.09	575.4	7.92
CO	28.010	9.9	0.12	6.0	0.07	6.0	0.07	4.4	0.07			4.4	0.05	1.8	0.02										
H2	2.016	218.1	2.74	127.5	1.54	127.5	1.54	92.2	1.54			92.2	1.04	537.9	5.89										
CH4	16.043	7247.9	91.23	4205.2	50.81	4205.2	50.81	3042.5	50.81			3042.5	34.21	2975.4	32.59			99.5	94.78						
N2	28.016	330.1	4.15	191.5	2.31	191.5	2.31	138.6	2.31			138.6	1.56	138.6	1.52	4587.3	74.65	4.0	3.84	3608.9	74.65	3803.0	65.02	4785.5	65.87
O2	32.000															1230.6	20.02			968.1	20.02	91.1	1.56	151.6	2.09
H2O	18.015	0.3	< 0.01	3665.3	44.28	3665.3	44.28	2851.8	44.28	2904.6	100.00	5556.4	62.48	5318.5	58.26	271.7	4.42	< 0.1	< 0.01	213.7	4.42	1433.2	24.50	1692.8	23.30
CH3OH	32.042	1.9	0.02	1.4	0.02	1.4	0.02	1.0	0.02			1.0	0.01												
C2H6	30.069	33.4	0.42	19.4	0.23	19.4	0.23	14.0	0.23			14.0	0.16					0.5	0.44						
C3H8	44.096	17.5	0.22	10.1	0.12	10.1	0.12	7.3	0.12			7.3	0.08					0.2	0.23						
C4H10	58.123																								
C5H12	72.151																								
Argon	39.948	1.1	0.01	0.7	0.01	0.7	0.01	0.5	0.01			0.5	0.01	0.5	0.01	55.8	0.91			43.9	0.91	48.2	0.82	60.1	0.83
Low Boilers																									
High Boilers																									
Total Flow	kmol/h	7945.0		8277.2		8277.2		5988.6		2904.6		8893.2		9129.6		6145.4		105.0		4834.6		5848.9		7265.2	
Total Flow	kg/h	131859		142591		142591		103185		52326		155491		155491		175005		1767		137677		158028		197123	
Total Flow	Sm³/h	187858		195712		195712		141599				210278		215868		145307		2483		114313		138296		171785	
Molweight	kg/kmol	16.597		17.227		17.227		17.227		18.015		17.484		17.032		28.478		16.827		28.478		27.018		27.133	
Stand.Dens.	kg/Sm³	0.70		0.73		0.73		0.73		0.78		0.74		0.72		1.20		0.71		1.20		1.14		1.15	
Eff.Density	kg/m³	14.45		14.11		8.15		14.11		12.99		11.93		10.40		1.11		3.48		0.57		0.27		0.70	
Specific Heat	kJ/kg°C	3.28		2.81		3.21		2.81		2.30		2.71		2.77		1.03		2.15		1.08		1.40		1.17	
Viscosity	cP	0.021		0.023		0.030		0.023		0.028		0.026		0.028		0.019		0.011		0.031		0.047		0.023	
Enthalpy	GJ/h	155.45		308.33		411.91		223.08		178.05		425.01		435.66		11.17		0.39		51.53		250.59		115.02	
	°C	380		400		640		400		490		481		520		ATM.		20		330		935		181	
Pressure	bar abs	47.8		45.4		36.0		45.5		44.0		42.3		40.0		ATM.		5.0		1.0		1.0		1.0	
Liquid Molar Fraction																									

REV.	LF/PS	NAME	DATE	NAME	NAME	DATE	STATUS	KIND OF REVISION
		PREPARED/CHANGED		CHECKED	APPROVED			
4		GRELAK	12.01.04	ZMM	LEA	12.01.04	AFD	ZAGROS COMMENTS ZS-LF/L-032 INCLUDED
3		GRELAK	14.04.03	ZMM	LAE	17.04.03	AFD	REVISION ACC. DETAIL DESIGN
2		HERRL	27.11.01	ZMM	DRHJ	27.11.01	AFD	REVISION ZAGROS COMMENTS INCLUDED
1		HERRL	23.10.01	ZMM	DRHJ	23.10.01	AFD	REVISION ZAGROS COMMENTS INCLUDED
0		HERRL	13.07.01	ZMM	KRER	13.07.01	FI	FIRST ISSUE

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SCALE: ORIGINAL SIZE: A1

NOMINATION:

BASIC DOCUMENT:

DCC DG DL-NO. VT 011430

JOB NAME: MEGA METHANOL IRAN

OWNER: NATIONAL PETROCHEMICAL COMPANY ZAGROS PETROCHEMICAL COMPLEX شرکت پتروشیمی زاگرس

PROJECT: 4th METHANOL PROJECT

OWNER: CONTRACTOR: DWG. NO. DIG-PR-008 REV. 4

CONTRACTOR: PETROCHEMICAL INDUSTRIES DESIGN & ENGINEERING COMPANY شرکت طراحی ومهندسی صنایع پتروشیمی

ZPC PROJ.NO. 40404277 PIDEC PROJ.NO. 1175 DWG. NO. REV.

lurgi engineering Lurgi

FLUE GAS HEAT RECOVERY UNIT 100

PROCESS FLOW DIAGRAM SHEET 103

LURGI JOB NO: 169666-01 LURGIDOCUMENT NO: 02038 REV. 4

EDV-IDNET-NO.: IGS7 E:\PIPE\696660IPFD\RUI D-02038.PID 010 12.01.04 RP IGW60