

JOB NO : 00429	PAGE 6 OF 7	REV.	DATE	DESCRIPTION	PREP'D	CHK'D	APPV'D
PROJECT : Jordan Research and Training Reactor		P0	2014.08.21	First Issue	J.H.LEE	S.H.Hong	S.H.LEE
CLIENT : Jordan Atomic Energy Commission		R0	2014.11.24	For Revision	J.H.LEE	S.H.Hong	S.H.LEE
DOC. NO. JR-169-SI-481-001		R1	2015.04.01	For Revision	<i>SH</i>	<i>SH</i>	<i>SH</i>

GENERAL				PROCESS CONDITIONS			
1	TAG NO.	JR-321-DGA-001		13	FLUID	STATE	GAS
2	QUANTITY	P&ID NO.	1 JR-321-DM-171-001	14		UNIT	MAX
3	SERVICE	EXPANSION TANK		15	FLOW	KG/SEC	-
		TK-001		16	TEMPERATURE	DEG C	120
4	LINE SIZE (inches)	EQUIPMENT NO.	3/4" -	17	INLET PRESSURE	kPag	1000
5	PIPE MATERIAL CLASS	HXD		18	OUTLET PRESSURE	kPag	1000
6	QUALITY CLASS	T		19	DENSITY	KG/M3	-
7	SAFETY CLASS	Non		20	SPECIFIC GRAVITY		-
8	SEISMIC CATEGORY	II		21	VISCOSITY	Cp	-
9	RADIATION TOLERANCE	5 Gy		22			
10	ELECTRICAL ENCLOSURE (ANALYZER PANEL)	NEMA 12		23			
11				24			
12				25			

SAMPLE PROBE				ANALYZER SYSTEM DATA			
26	PROBE TYPE	1/4" Lok		36	NO OF STREAMS	One	
27	INSERTION MECH	Suction type		37	SAMPLING CONDITIONING	Required	
28	INSERTION LENGTH	Suction type		38	LOCATION	Field	
29	PROBE MATERIAL	-		39	HEAT TRACING	N/A	
30	FLANGE RATING	N/A		40	MOUNTING TYPE	Self Standing	
31				41	SCHEMATIC DIAGRAM	Refer to the drawing	
32				42	SAMPLE LINE CONNECTION SIZE	1/4" O.D(Note 4)	
33				43	RETURN LINE CONNECTION SIZE	1/4" O.D(Note 4)	
34				44	SAMPLING PUMP	Supply	
35				45			

ANALYZER				UTILITY CONDITIONS			
46	TYPE	Thermal Conductivity		58	INSTRUMENT AIR PRESSURE	about 5-50 psi	
47	ANALOG SIGNAL OUTPUT	4 ~ 20 mA DC		59	STEAM PRESSURE	about 5- 50 psi	
48	DISCRETE SIGNAL OUTPUT	Dry Contact (3)		60	STEAM TEMPERATURE	0-50°C	
49	POWER SUPPLY	120VAC 50Hz		61	COOLING WATER PRESSURE	N/A	
50	DIAGNOSTIC CAPABILITY	Self-Diagnostic		62	COOLING WATER TEMPERATURE	N/A	
51	CALIBRATION	Auto Calibration		63	IP CLASS	IP65	
52	SPACE HEATER	N/A		64			
53	SENSITIVITY	± 2% OF F.S		65			
54	ACCURACY	± 1% OF F.S		66			
55	PANEL DISPLAY	Digital Display		67			
56	ALARM	2 Vol%(Deuterium)		68			
57	RESPONSE TIME	Less than 50 sec		69			

GAS COMPONENT			
		Vol %	RANGE
70	Deuterium (D2)	Max. 2	0~3 %
71	Nitrogen (N2)	Max. 78	-
72	Oxygen (O2)	Max. 20	-
73			
74			
75			

ACCESSORIES			
76	REFERENCE GAS	(Note6)	Instrument Air : N2 78%, O2 20%
77	ZERO CALIBRATION GAS	(Note6)	Instrument Air : N2 78%, O2 20%
78	SPAN CALIBRATION GAS	(Note5)	
79			

MANUFACTURER			
80	MANUFACTURER	TSE	
81	MODEL NO.	2000A	

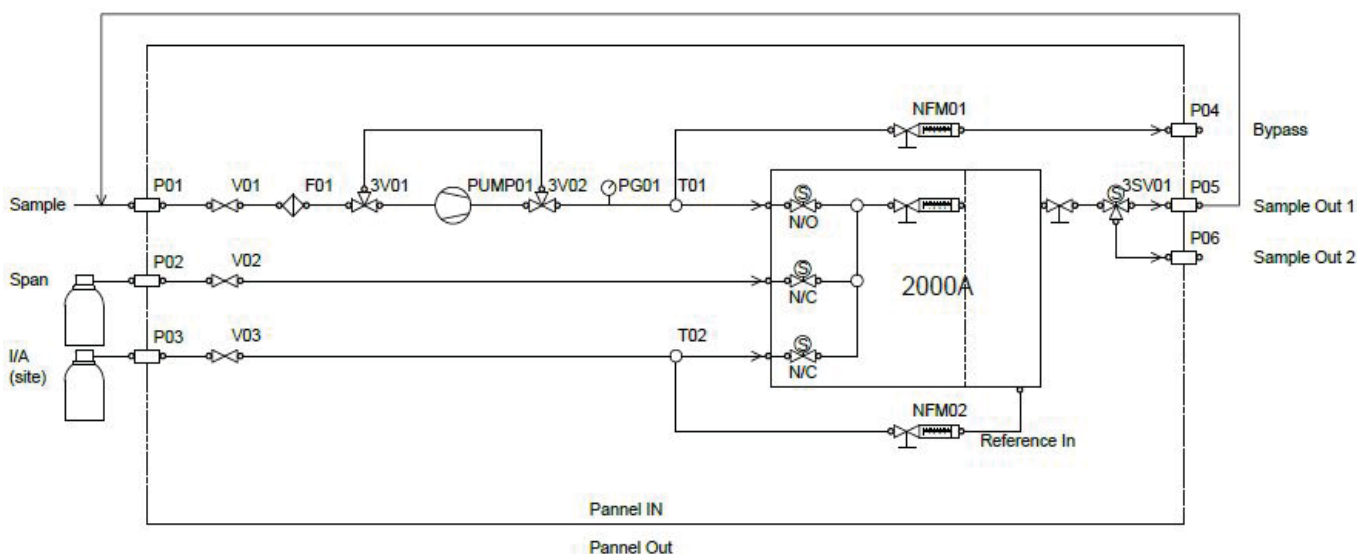
NOTES:

- (1) All wetted parts material will be stainless steel.
- (2) Supplier will clarify any required utility and power consumption in detail list.
- (3) Supplier will provide all necessary information on special accessories and auxiliary equipment required for installation, operation, and maintenance of the analyzers.

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- (4) Supplier will provide bulk head union for connecting 1/4" stainless tube.
- (5) Supplier will supply the calibration gas with capacity required for at least 1 years at normal operation.
- (6) One(1) Instrument air for reference gas and zero calibration gas is provided by purchaser, supplier will prepare 1/4" bulk head union for connection and appropriately divide the line to reference gas and zero calibration. (Supply Pressure : 550 Kpag)
- (7) Automatic flow control function will be provided.
- (8) The schematic diagram will be belows.

Because this diagram is just conceptual, Supplier will develop detail drawing with sample condition system for proper operation.



P&ID Symbol Chart

NO	SYMBOL	TAG	DESCRIPTION	MODEL	MAKER
01		P	BULKHEAD UNION	SS-400-61	SWAGELOK
02		V	2-WAY BALL VALVE	SS-42GS4	SWAGELOK
03		F	FILTER	SS-4F-7	SWAGELOK
04		3V	3-WAY BALL VALVE	SS-43GXS4	SWAGELOK
05		PG	PRESSURE GAUGE	230.15.2" CBM	WIKA
06		T	TEE UNION	SS-400-3	SWAGELOK
07		PUMP	VACUUM PRESSURE PUMP	GA-380	ENOMOTO
08		NFM	NEEDLE FLOW METER	VFA Series	DWYER
09		3SV	3-WAY SOLENOID VALVE		BURKERT