

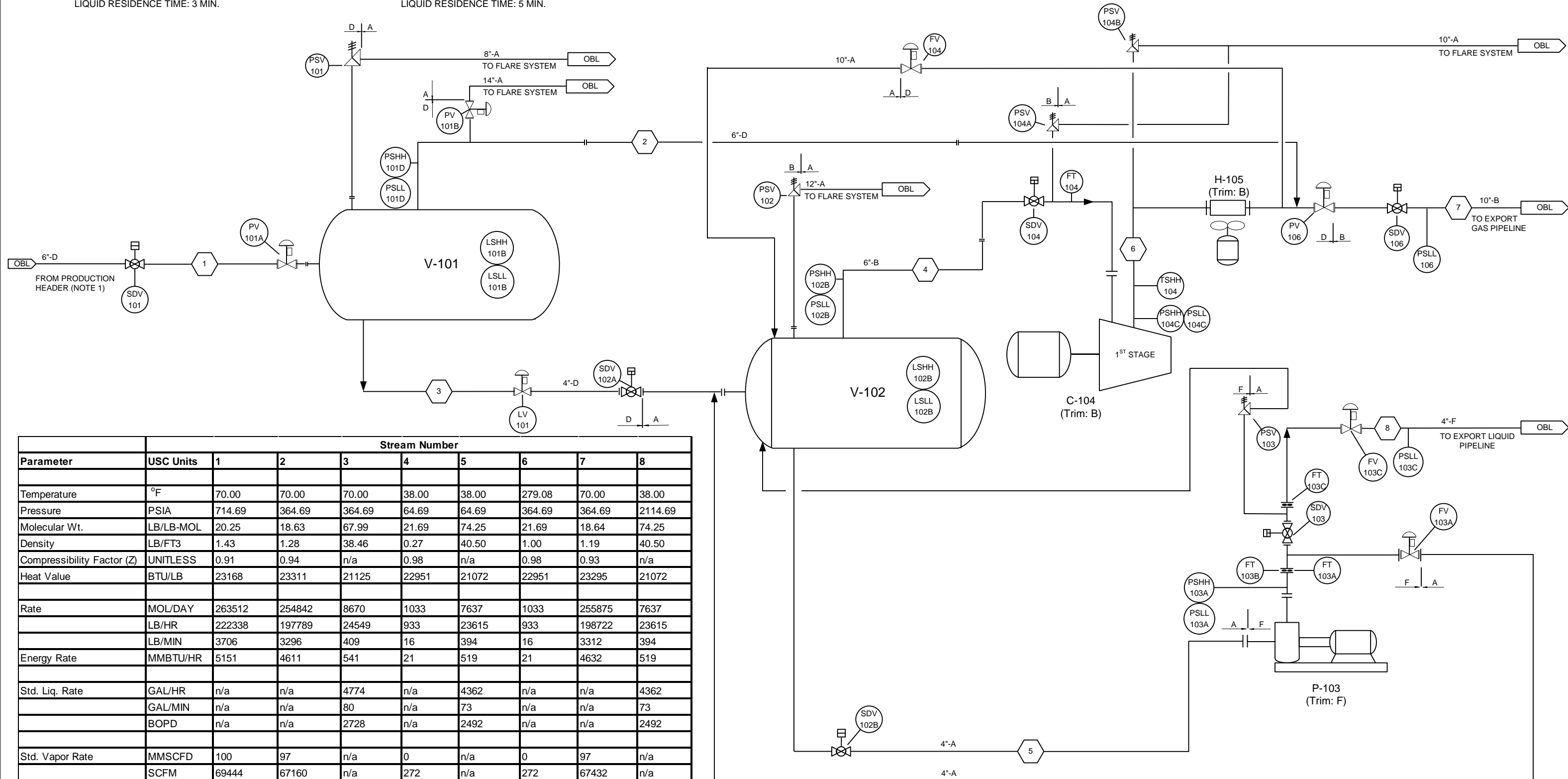
V-101
HIGH PRESSURE SEPARATOR
 SIZE: 60" I.D. (1.52 M) X 18'-6" S/S (5.64 M)
 DESIGN: 1200 PSIG (82.7 BAR)/FV AT 300°F (149°C)
 OPERATING: 350 PSIG (24.2 BAR) AT 70°F (21°C)
 LIQUID RESIDENCE TIME: 3 MIN.

V-102
LOW PRESSURE SEPARATOR
 SIZE: 42" I.D. (1.07 M) X 13'-6" S/S (4.11 M)
 DESIGN: 75 PSIG (5.2 BAR)/FV AT 300°F (149°C)
 OPERATING: 50 PSIG (3.5 BAR) AT 38°F (3°C)
 LIQUID RESIDENCE TIME: 5 MIN.

P-103
EXPORT PUMP
 CAPACITY: 100 GPM (0.38 SCM) @ 2200 PSIG (151.7 BAR)
 DIFFERENTIAL PRESSURE: 2100 PSIG (144.8 BAR)
 MOTOR: 200 HP

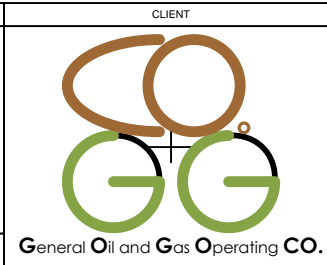
C-104
GAS COMPRESSOR
 CAPACITY: 0.50 MMSCFD (14160 SCMD)
 SUCTION: 50 PSIG (3.4 BAR) AT 70°F (21°C)
 DISCHARGE: 350 PSIG (24.1 BAR) AT 279.1°F (137.3°C)
 MOTOR: 73 HP

H-105
COMPRESSOR DISCHARGE COOLER
 DUTY: 0.12 MMBTU/HR (35.2 KW)
 DESIGN: 500 PSIG (34.4 BAR) AT 350°F (177°C)
 OPERATING: 350 PSIG (24.1 BAR) AT 279.1°F (137.3°C)



Parameter	USC Units	Stream Number							
		1	2	3	4	5	6	7	8
Temperature	°F	70.00	70.00	70.00	38.00	38.00	279.08	70.00	38.00
Pressure	PSIA	714.69	364.69	364.69	64.69	64.69	364.69	364.69	2114.69
Molecular Wt.	LB/LB-MOL	20.25	18.63	67.99	21.69	74.25	21.69	18.64	74.25
Density	LB/FT3	1.43	1.28	38.46	0.27	40.50	1.00	1.19	40.50
Compressibility Factor (Z)	UNITLESS	0.91	0.94	n/a	0.98	n/a	0.98	0.93	n/a
Heat Value	BTU/LB	23168	23311	21125	22951	21072	22951	23295	21072
Rate	MOL/DAY	263512	254842	8670	1033	7637	1033	255875	7637
	LB/HR	222338	197789	24549	933	23615	933	198722	23615
	LB/MIN	3706	3296	409	16	394	16	3312	394
Energy Rate	MMBTU/HR	5151	4611	541	21	519	21	4632	519
Std. Liq. Rate	GAL/HR	n/a	n/a	4774	n/a	4362	n/a	n/a	4362
	GAL/MIN	n/a	n/a	80	n/a	73	n/a	n/a	73
	BOPD	n/a	n/a	2728	n/a	2492	n/a	n/a	2492
Std. Vapor Rate	MMSCFD	100	97	n/a	0	n/a	0	97	n/a
	SCFM	69444	67160	n/a	272	n/a	272	67432	n/a

NOTES
 The Design Basis for this facility is 100 MMSCFD of natural gas at a pressure of 700 psig and a temperature of 70°F. The incoming production header pressure is assumed to be 700 psig in normal operation. The molar composition of the natural gas stream is: Methane – 90%, Ethane – 2%, Propane – 2%, N-Butane – 2%, N-Pentane – 2%, and N-Hexane – 2%.



REV	DESCRIPTION	DATE	BY	APP
0	As Built	9 Jun 09	SAG	BB
1	Revision	23 Jun 09	SAG	BB

DRAWN	DATE
S. A. Gray	9 Jun 09
B. Buck	23 Jun 09

KENEXIS
 3366 Riverside Drive, Suite 200, Columbus OH 43221


DRAWING TITLE
**Process Flow Diagram
 Gas Production Facility**

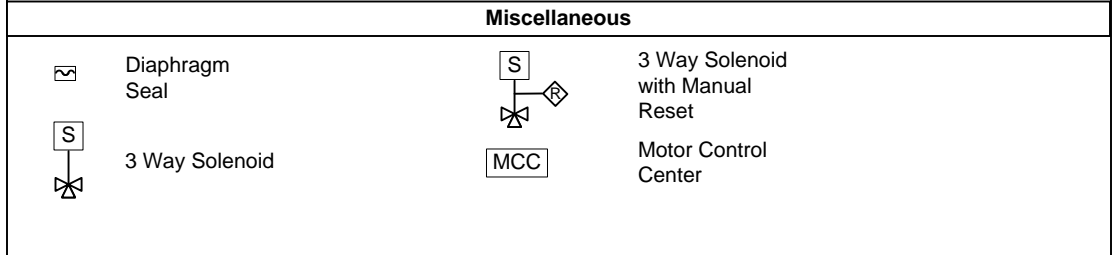
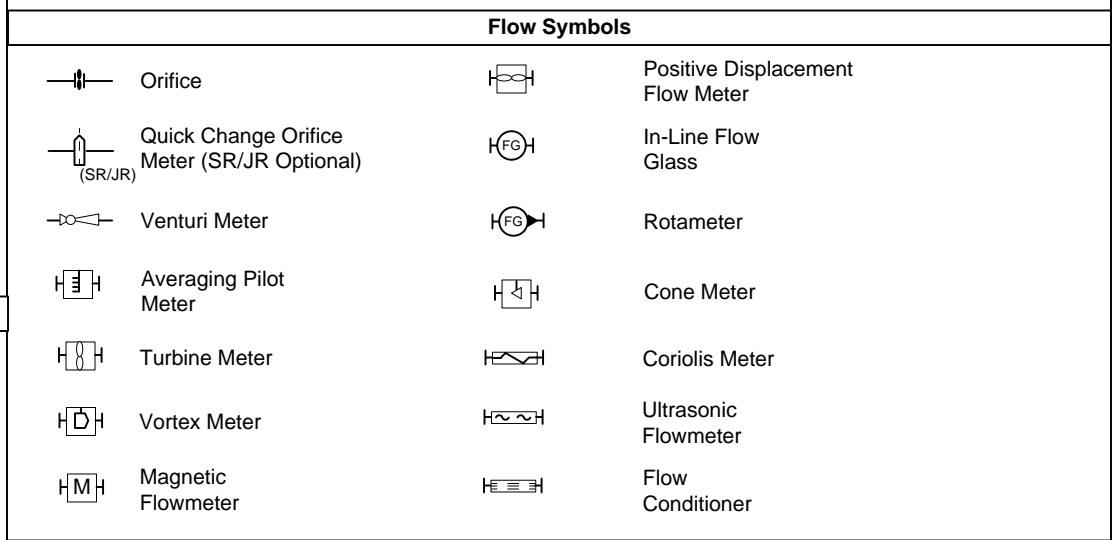
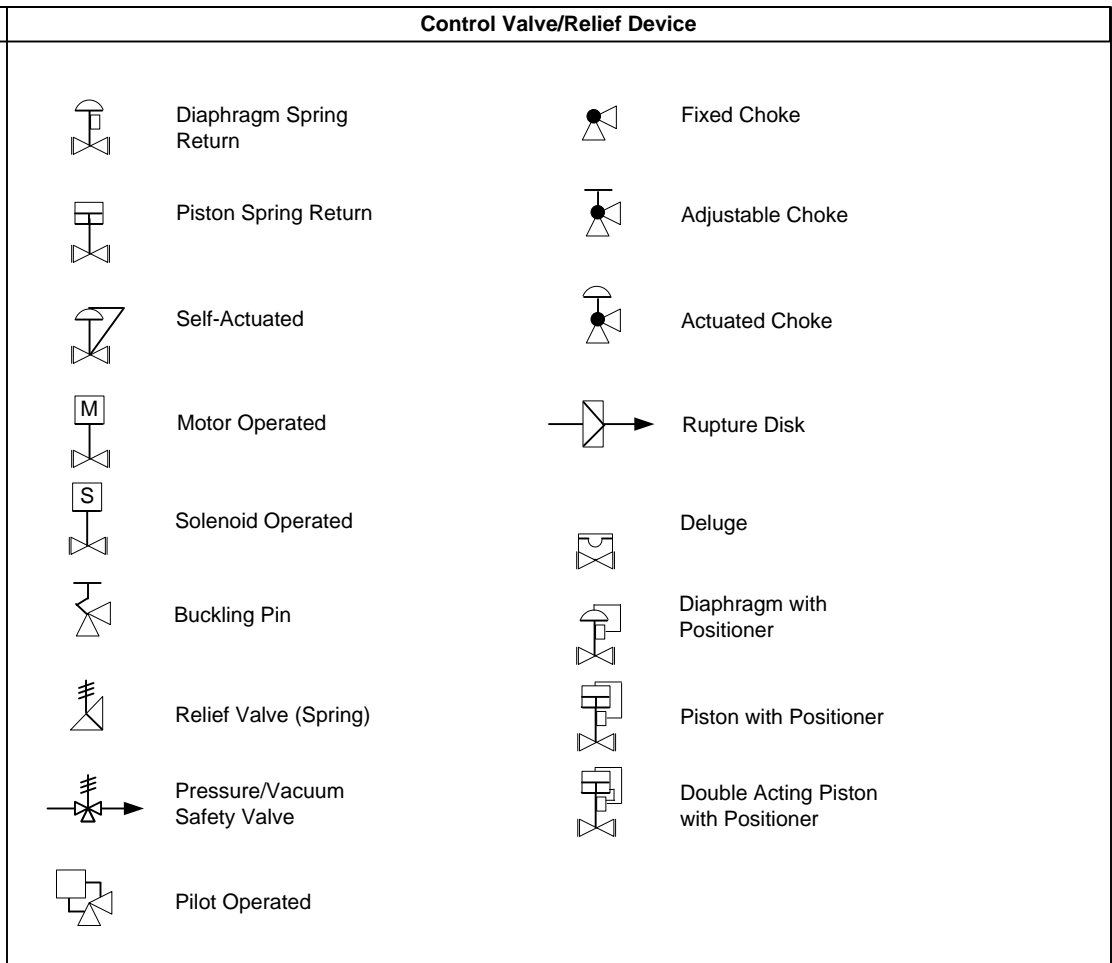
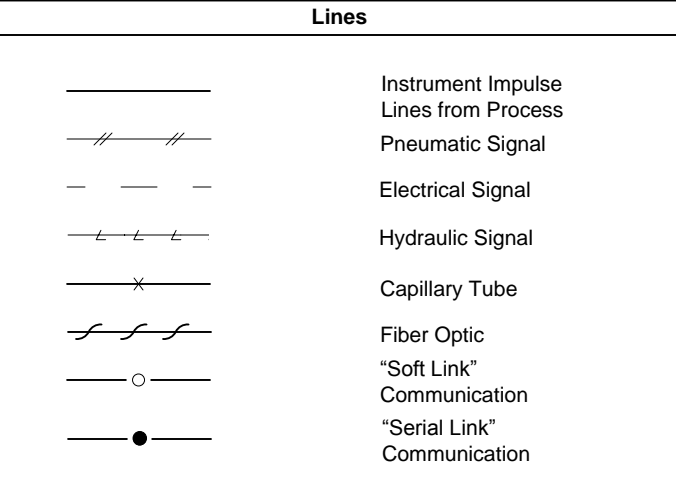
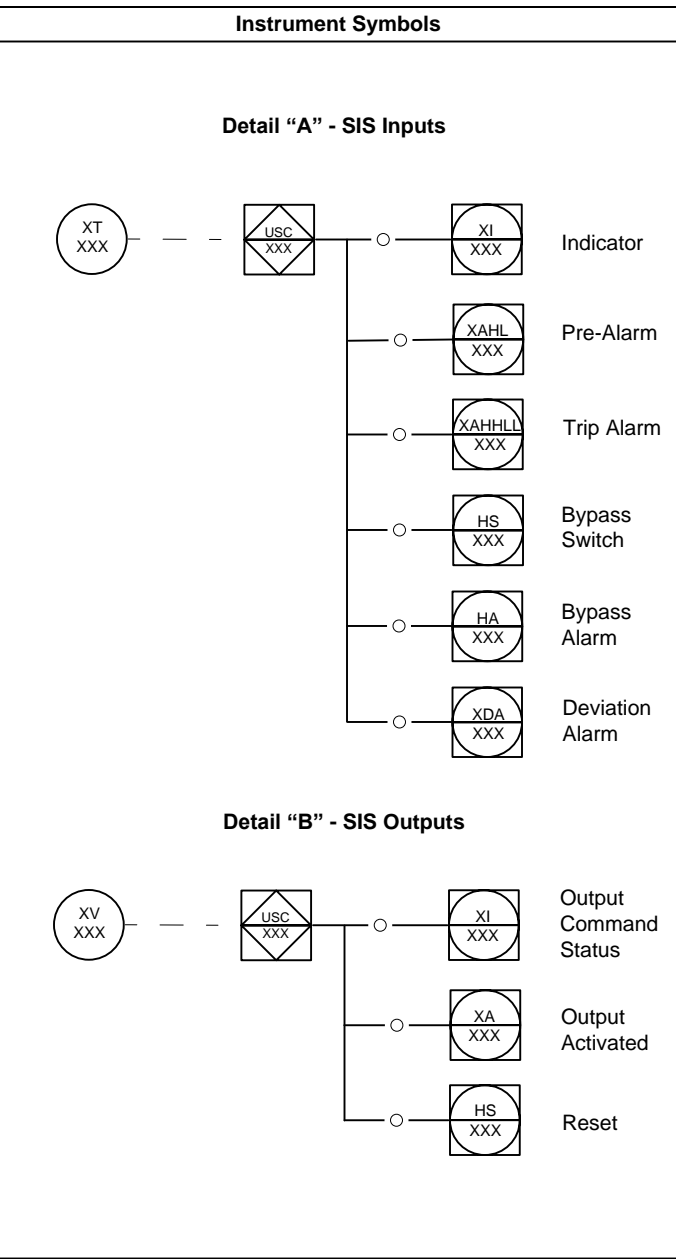
DRAWING NUMBER: D-254-001
 SHEET: 1 OF 1
 REV: 1

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Process Legend Sheet	Instrument Function	Alarm Low, Low-Low	Alarm High, High-High	Alarm High/Low	Element	Gauge/Glass (Direct)	Indicate	Light (Status Indication)	Transmitter (Note 1)	Controller (Note 2)	Valve, Damper, Louver	Valve, Self-Restraining	Switch Low	Switch High	Switch High/Low	Compute, Convert, Relay
Process Variable		AL(L)	AH(H)		E	G	I	L	T	CI	V	CV	SL(L)	SH(H)		Y
A	Analysis	AAL	AAH		AE		AI		AT	AIC	AV		ASL	ASH		AY
B	Burner, Combustion	BAL	BAH		BE		BI		BT	BIC	BV		BSL	BSH		BY
BD	Blowdown	BDAH									BDV					BDY
C	Choice (Conductivity)	CAL	CAH				CI		CT	CIC			CSL	CSH		CY
D	Choice (Density)	DAL	DAH				DI		DT	DIC			DSL	DSH		DY
E	Voltage	EAL	EAH				EI		ET				ESL	ESH		EY
F	Flow/Flowrate	FAL	FAH		FE	FG	FI		FT	FIC	FV	FCV	FSL	FSH		FY
FF	Flow Ratio	FFAL	FFAH				FFI		FFT	FFIC	FFV		FFSL	FFSH		FFY
G	User's Choice															
H	Hand									HIC	HV					HY
I	Current (Electric)	IAL	IAH				II		IT	IIC			ISL	ISH		IY
J	Power	JAL	JAH				JI		JT	JIC			JSL	JSH		JY
K	Time															
L	Level	LAL	LAH	LALH		LG	LI		LT	LIC	LV	LCV	LSL	LSH	LSLH	LY
LX	Level, Safety	LXALL	LXAHH						LXT							
M	User's Choice (Moisture)															
N	User's Choice															
O	User's Choice															
P	Pressure	PAL	PAH				PI		PT	PIC	PV	PCV	PSL	PSH		PY
PD	Pressure Differential	PDAL	PDAH				PDI		PDT	PDIC	PDV	PDCV	PDSL	PDSH		PDY
PF	Pressure Ratio	PFAL	PFHAH				PFI			PFIC	PFV		PFSL	PFSH		PFY
PX	Pressure, Safety	PXALL	PXAHH		PSE				PXT		PSV					
Q	Quantity															
R	Radiation															
S	Speed	SAL	SAH				SI		ST	SIC	SV		SSL	SSH		SY
SD	Shutdown										SDV					SDY
T	Temperature	TAL	TAH		TE	TG	TI		TT	TIC	TV	TCV	TSL	TSH		TY
TD	Temperature Differential	TDAL	TDAH				TDI			TDIC	TDV		TDSL	TDSH		TDY
TX	Temperature, Safety	TXALL	TXAHH						TXT							
U	Multi-Variable	UAL	UAH						UT	UIC	UV		USL	USH		UY
V	Vibration	VAL	VAH		VE		VI		VT				VSL	VSH		VY
W	Weight	WAL	WAH		WE		WI		WT	WIC			WSL	WSH		WY
X	Unclassified						XI		XT	XIC	XV	XCV	XSL	XSH		
Y	Event, State, Presence						YI	YL								YY
Z	Position	ZAL	ZAH				ZI	ZL	ZT	ZIC			ZSL	ZSH		ZY

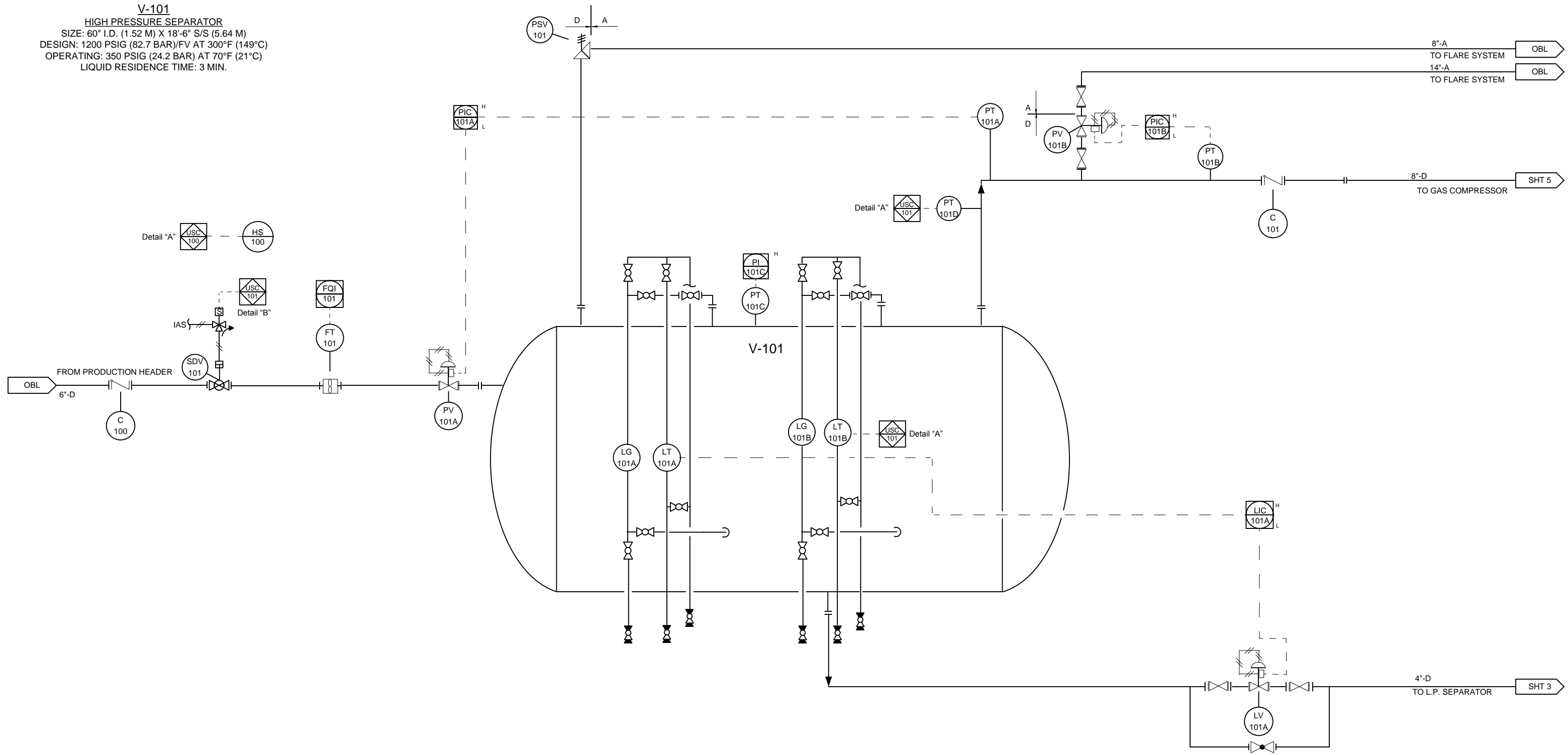
ANSI Piping Pressure Specifications at 300°F (149°C)			
Piping Class	ANSI Class Rating	Maximum Design Pressure	Material of Construction
A	150#	230 psi (15.9 bar)	Carbon Steel
B	300#	655 psi (45.2 bar)	Carbon Steel
D	600#	1315 psi (90.7 bar)	Carbon Steel
E	900#	1970 psi (135.8 bar)	Carbon Steel
F	1500#	3280 psi (226.2 bar)	Carbon Steel

NOTES:	CLIENT	REV	DESCRIPTION	DATE	BY	APP	DRAWN	S. A. Gray	9 Jun 09
1. All electronic transmitters are indicating transmitters.		0	As Built	9 Jun 09	SAG	BB		B. Buck	23 Jun 09
2. If an "I" is omitted, the device is a non-indication controller.		1	Revision	23 Jun 09	SAG	BB			




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V-101
HIGH PRESSURE SEPARATOR
 SIZE: 60" I.D. (1.52 M) X 18'-6" S/S (5.64 M)
 DESIGN: 1200 PSIG (82.7 BAR)/FV AT 300°F (149°C)
 OPERATING: 350 PSIG (24.2 BAR) AT 70°F (21°C)
 LIQUID RESIDENCE TIME: 3 MIN.



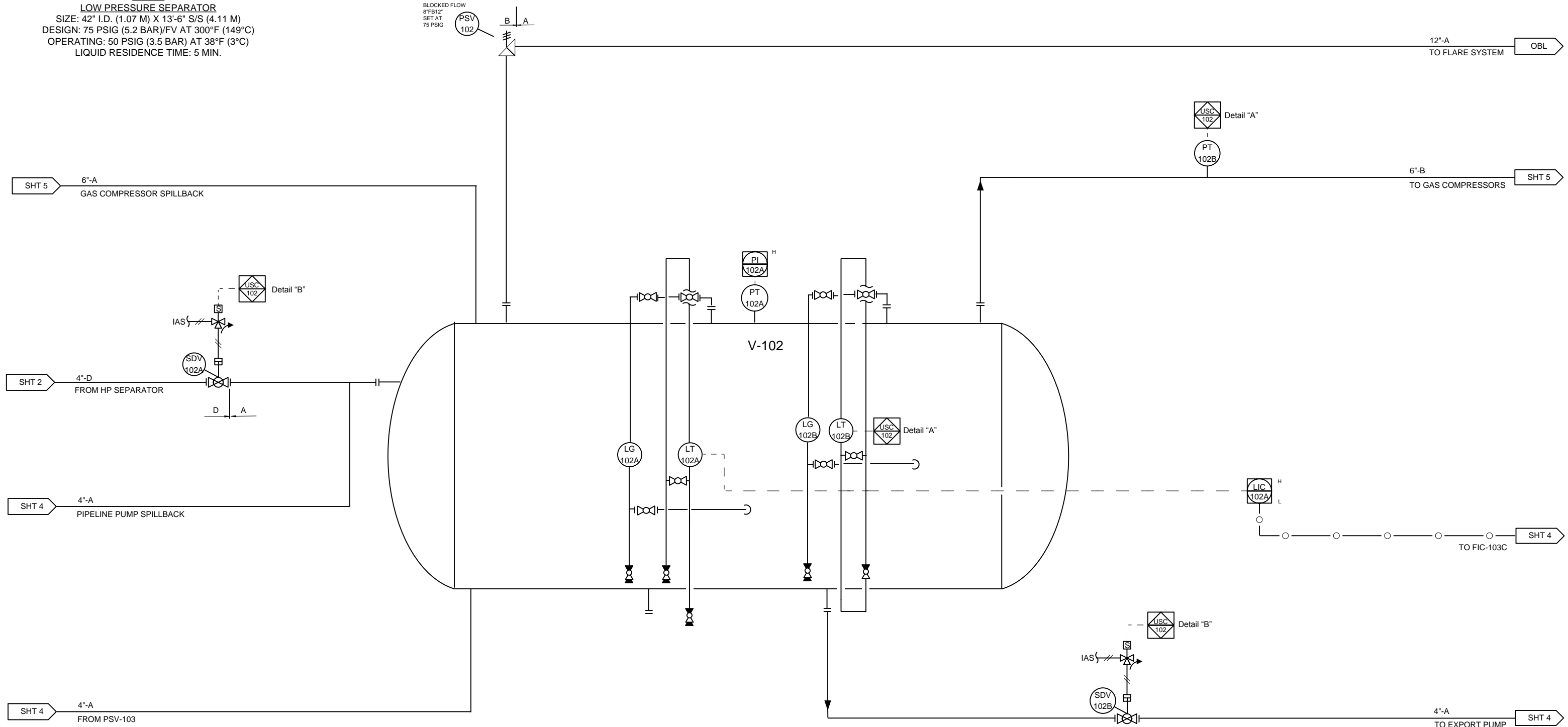
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1	Revision	23 Jun 09	SAG	BB					


NOTES		CLIENT		DRAWN		CHECKED		APPROVED		KENEXIS 3366 Riverside Drive, Suite 200, Columbus OH 43221 DRAWING TITLE High Pressure Separator Gas Production Facility
		 General Oil and Gas Operating CO.		S. A. Gray		B. Buck				
				9 Jun 09		23 Jun 09				
				DRAWING NUMBER		SHEET		REV		
				D-254-002		2 OF 6		1		

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V-102
LOW PRESSURE SEPARATOR
 SIZE: 42" I.D. (1.07 M) X 13'-6" S/S (4.11 M)
 DESIGN: 75 PSIG (5.2 BAR)/FV AT 300°F (149°C)
 OPERATING: 50 PSIG (3.5 BAR) AT 38°F (3°C)
 LIQUID RESIDENCE TIME: 5 MIN.

BLOCKED FLOW
 8" FB 12"
 SET AT
 75 PSIG

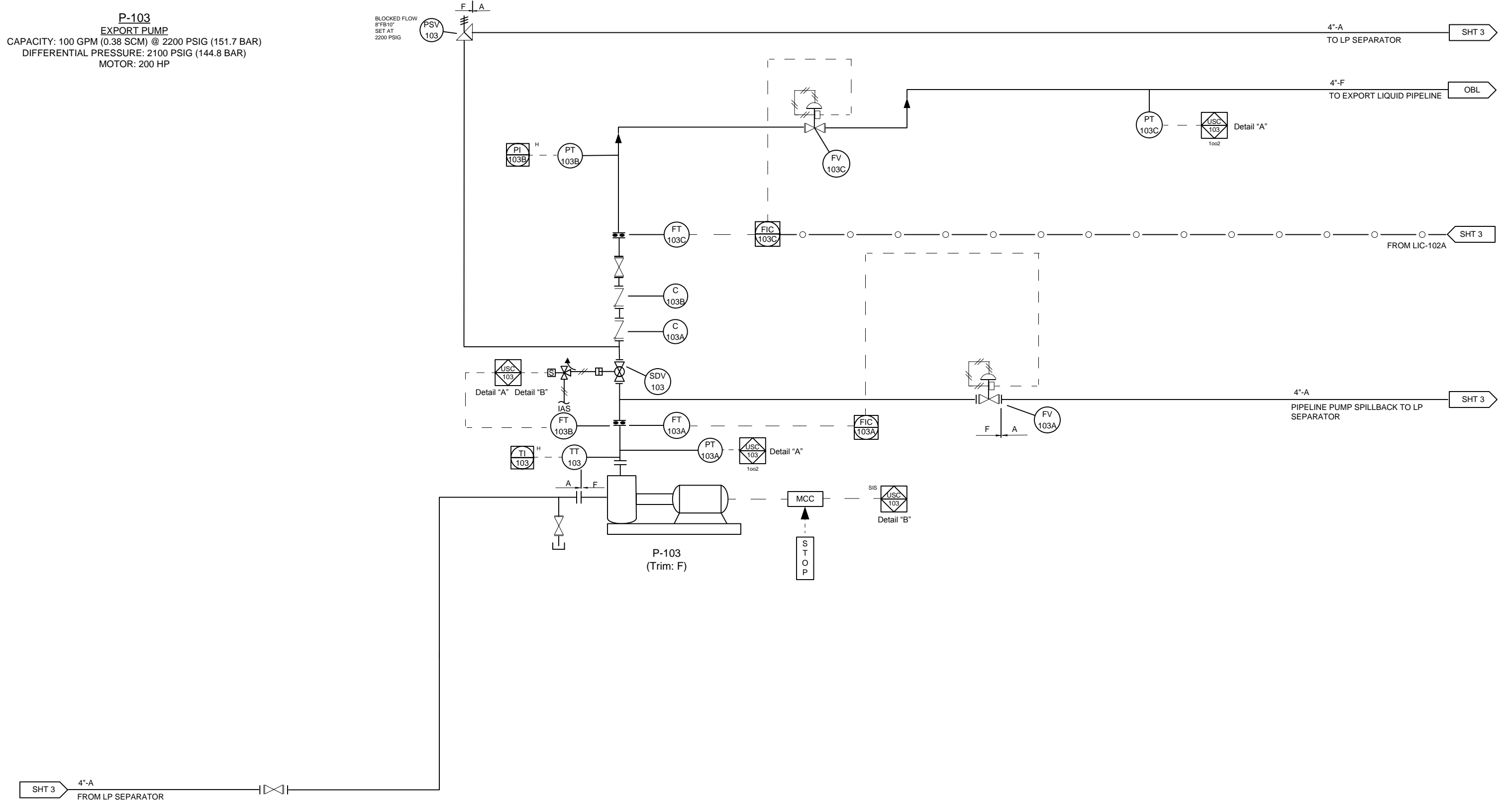


REV	DESCRIPTION	DATE	BY	APP	DRAWN	DATE	CLIENT
0	As Built	9 Jun 09	SAG	BB	S. A. Gray	9 Jun 09	 General Oil and Gas Operating CO.
1	Revision	23 Jun 09	SAG	BB	B. Buck	23 Jun 09	
					CHECKED		KENEXIS 3366 Riverside Drive, Suite 200, Columbus OH 43221 DRAWING TITLE Low Pressure Separator Gas Production Facility
					APPROVED		
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							SHEET 3 OF 6
							REV 1

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P-103
EXPORT PUMP
 CAPACITY: 100 GPM (0.38 SCM) @ 2200 PSIG (151.7 BAR)
 DIFFERENTIAL PRESSURE: 2100 PSIG (144.8 BAR)
 MOTOR: 200 HP

BLOCKED FLOW
 8" FB 10"
 SET AT
 2200 PSIG



NOTES

CLIENT

General Oil and Gas Operating CO.

REV	DESCRIPTION	DATE	BY	APP
0	As Built	9 Jun 09	SAG	BB
1	Revision	23 Jun 09	SAG	BB

DRAWN	DATE
S. A. Gray	9 Jun 09
B. Buck	23 Jun 09

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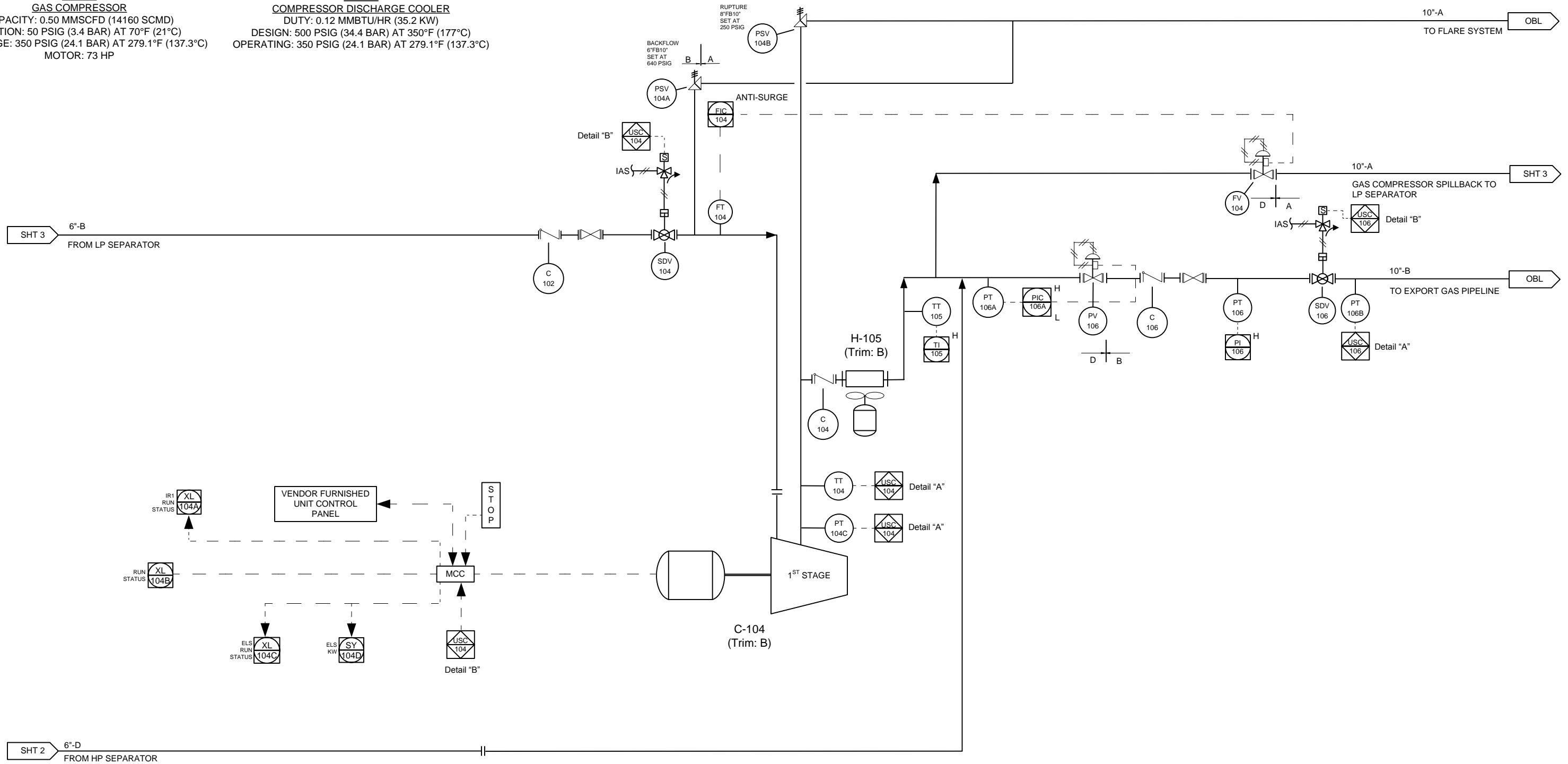
DRAWING TITLE
Pipeline Pump
Gas Production Facility

DRAWING NUMBER	SHEET	REV
D-254-002	4 OF 6	1

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C-104
GAS COMPRESSOR
 CAPACITY: 0.50 MMSCFD (14160 SCMD)
 SUCTION: 50 PSIG (3.4 BAR) AT 70°F (21°C)
 DISCHARGE: 350 PSIG (24.1 BAR) AT 279.1°F (137.3°C)
 MOTOR: 73 HP

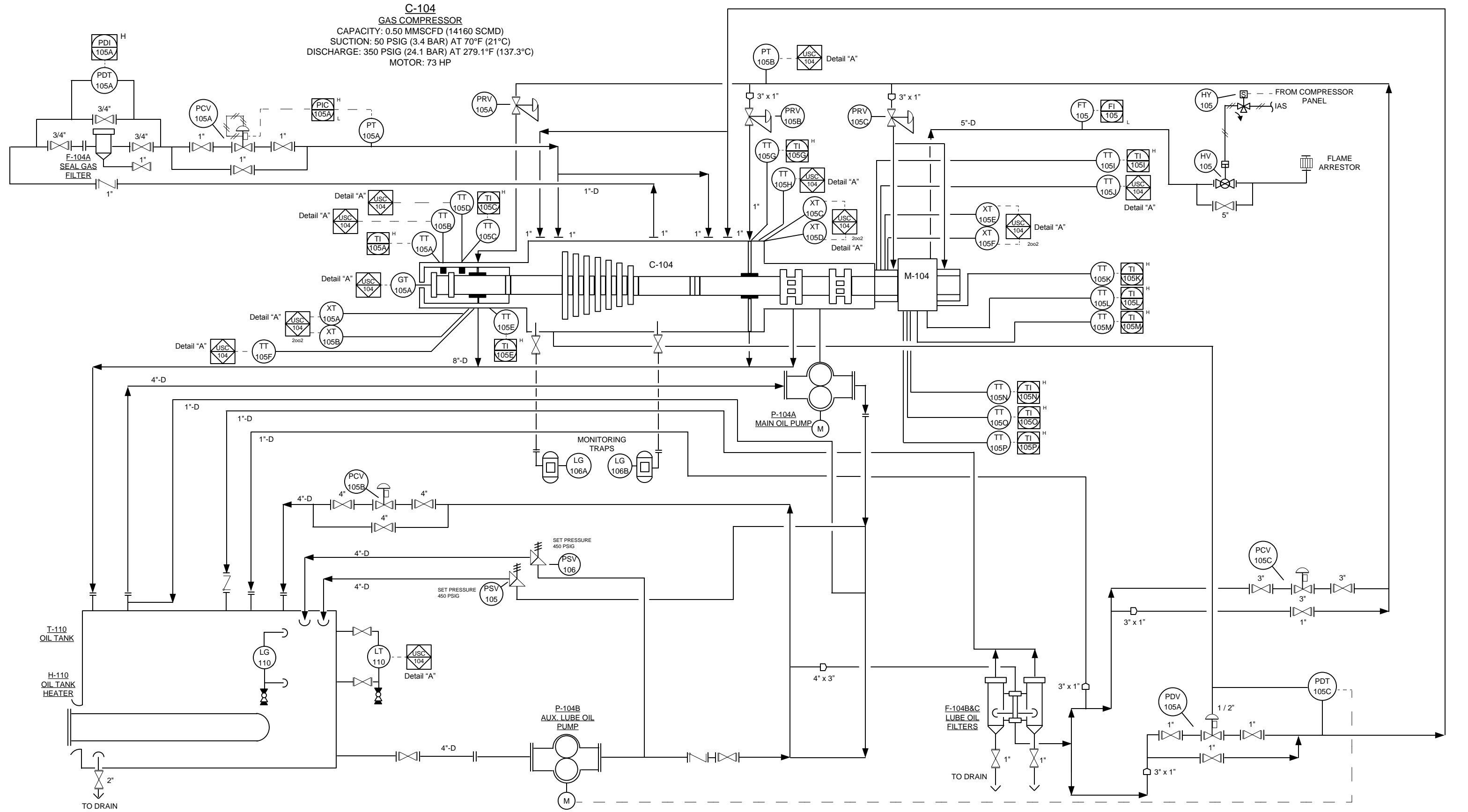
H-105
COMPRESSOR DISCHARGE COOLER
 DUTY: 0.12 MMBTU/HR (35.2 KW)
 DESIGN: 500 PSIG (34.4 BAR) AT 350°F (177°C)
 OPERATING: 350 PSIG (24.1 BAR) AT 279.1°F (137.3°C)



REV	DESCRIPTION	DATE	BY	APP	DRAWN	DATE	CLIENT		
0	As Built	9 Jun 09	SAG	BB	S. A. Gray	9 Jun 09			
1	Revision	23 Jun 09	SAG	BB	B. Buck	23 Jun 09			
							NOTES CLIENT DESCRIPTION DATE BY APP DRAWN S. A. Gray 9 Jun 09 CHECKED B. Buck 23 Jun 09 APPROVED APPROVED FILE PATH \SERVER1\kenexis Data\Training Courses\Sample Process for Training\DWG-PFD_PIDs.vsd SCALE -		
DRAWING TITLE Gas Compressor Gas Production Facility							DRAWING NUMBER D-254-002	SHEET 5 OF 6	REV 1


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**C-104
GAS COMPRESSOR**
 CAPACITY: 0.50 MMSCFD (14160 SCMD)
 SUCTION: 50 PSIG (3.4 BAR) AT 70°F (21°C)
 DISCHARGE: 350 PSIG (24.1 BAR) AT 279.1°F (137.3°C)
 MOTOR: 73 HP



NOTES

CLIENT



General Oil and Gas Operating CO.

REV	DESCRIPTION	DATE	BY	APP
0	As Built	9 Jun 09	SAG	BB
1	Revision	23 Jun 09	SAG	BB

DRAWN	DATE	BY	APP
S. A. Gray	9 Jun 09	SAG	BB
B. Buck	23 Jun 09		

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 3366 Riverside Drive, Suite 200, Columbus OH 43221

DRAWING TITLE
Gas Compressor Utility Details
Gas Production Facility

DRAWING NUMBER	SHEET	REV
D-254-002	6 OF 6	1

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