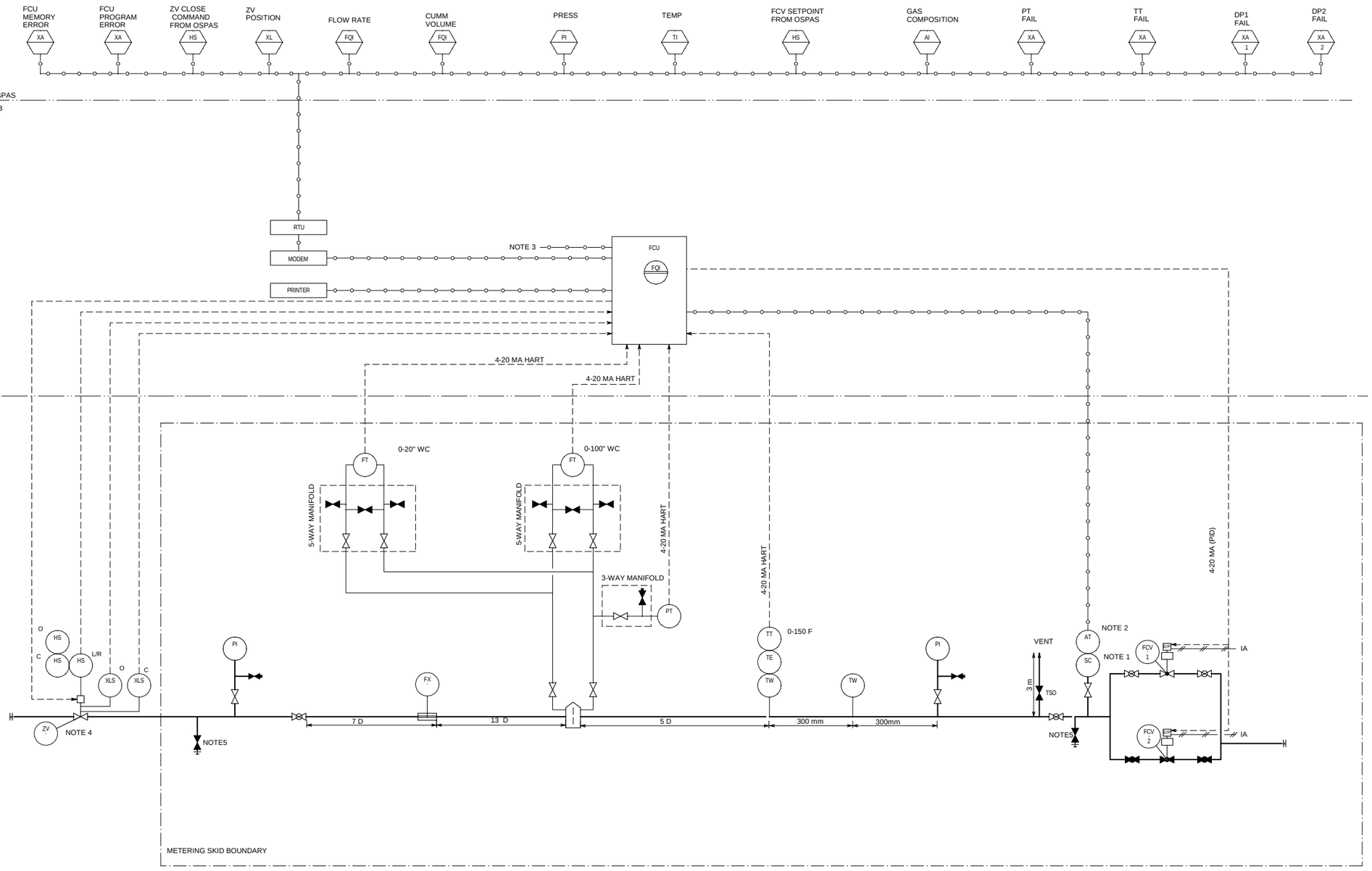


NOTES:

1. SAMPLE CONNECTION AS PER SA STANDARD DRAWING AC-036045.
2. AT TO BE A GC UNLESS A REPRESENTATIVE GAS COMPOSITION CAN BE OBTAINED FROM AN ONLINE GC INSTALLED AT A COMMON GAS SUPPLY HEADER. IN THIS CASE THE PROPONENT MAY REQUEST A FLOW-BASED COMPOSITE SAMPLER. IN EITHER CASE THE OUTLET OF PROBE SHALL HAVE A CONNECTION FOR MANUAL SAMPLING.
3. RS 232 FOR SERVICE LAP TOP.
4. PROVIDED BY OTHER
5. VALVE NOT NEEDED WHEN A TOTAL SHUTDOWN OF METERING SYSTEM IS ACCEPTABLE.

LEGEND

PIPING MATERIAL SPECIFICATION SAES-L-005

- PROCESS LINE
- INSTRUMENT AIR LINE
- INSTRUMENT ELECTRICAL LINE
- REDUCER
- SPECTACLE PLATE-OPEN
- SPECTACLE PLATE-CLOSED
- GATE VALVE
- GLOBE VALVE
- CHECK VALVE
- PLUG VALVE
- BALL VALVE
- DOUBLE DISC GATE VALVE
- ANGLE VALVE
- PRESS.RELIEF VALVE
- VACUUMRELIEF VALVE
- MOTOR OPERATED VALVE
- PISTON OPERATED VALVE
- CONTROL VALVE
- BALL TYPE CONTROL VALVE WITH POSITIONER
- SOLENOID VALVE
- VALVE NORMALLY CLOSED
- ORIFICE METER
- STRAIGHT VANES

TSO -TIGHT SHUT OFF
S.C. - SAMPLE CONN.
-DRAIN TO PRESSURE SEWER
OWS -OILY WATER SEWER
D -DRAIN
V -VENT

INSTRUMENT DEFINITION & SYMBOLS SAES-J-004

AC/AFO	-AIR TO CLOSE/ AIR FAILURE OPEN
AC/AFS	-AIR TO CLOSE/AIR FAILURE STEADY
AO/AFC	-AIR TO OPEN/ AIR FAILURE CLOSE
AO/AFS	-AIR TO OPEN/AIR FAILURE STEADY
AOV	-AIR OPERATED VALVE
AT	-ANALYZER TRANSMITTER
DT	-DENSITY TRANSMITTER
ESD	-EMER. SHUTDOWN SYSTEM
FC	- FLOW CONTROLLER
FV	-FLOW CONTROL VALVE
FCV	-FLOW CONTROL VALVE (SELF-ACTUATED)
FE	-FLOW ELEMENT
FG	-FLOW SIGHT GLASS
FHV	-FLOW MANUAL CONT. VALVE
FHTD	-FLOW MANUAL TRANSDUCER
FIC	-FLOW INDICATOR CONTROLLER
FM	-FLOW METER
FO	-RESTRICTION ORIFICE
FQI	-FLOW TOTALIZER INDICATOR
FR	-FLOW RECORDER
FT	-FLOW TRANSMITTER
FY	-FLOW RELAY
H/C	-HAND INDICATOR CONTROLLER
HS	-HAND SWITCH
LA	-LEVEL ALARM
LV	-LEVEL CONTROL VALVE
LCV	-LEVEL CONTROL VALVE (SELF-ACTUATED)
LG	-LEVEL GAUGE GLASS
LIC	-LEVEL INDICATOR CONTROLLER
LI	-LEVEL INDICATOR
LR	-LEVEL RECORDER
LS	-LEVEL SWITCH
LT	-LEVEL TRANSMITTER
LTD	-LEVEL TRANSDUCER
ML	-MOTOR STATUS LIGHT
MOV	-MOTOR OPERATED VALVE
NA	-ANNUNCIATOR
PB	-PUSHBUTTON
PC	-PRESSURE CONTROLLER
PV	-PRESS. CONTROL VALVE
PCV	-PRESS. CONTROL VALVE (SELF ACTUATED)
PDC	-PRESS. DIFF. CONTROLLER
PDI	-PRESS. DIFF. INDICATOR
PDIC	-PRESSURE DIFFERENTIAL INDICATOR CONTROLLER
PDIS	-PRESSURE DIFFERENTIAL INDICATOR SWITCH
PDT	-PRESS. DIFF. TRANSMITTER
PDTD	-PRESS. DIFF. TRANSDUCER
PG	-PRESSURE GAGE
PI	-PRESSURE INDICATOR
PIC	-PRESS. INDICATOR CONTROLLER
PR	-PRESSURE RECORDER
PS	-PRESSURE SWITCH
PT	-PRESSURE TRANSMITTER
PX	-PRESSURE POINT
PY	-PRESS. COMPUTATION MOD.
PZV	-PRESSURE RELIEF VALVE
RTD	-RESIST. TEMP. DETECTOR
SI	-SPEED INDICATOR
SS	-SPEED SWITCH
TC	-TEMP. CONTROLLER
TV	-TEMP. CONTROL VALVE
TCV	-TEMP. CONTROL VALVE (SELF-ACTUATED)
TE	-TEMP. ELEMENT
TG	-THERMOMETER
THS	-TEMP. HAND SWITCH
TI	-TEMP. INDICATOR
TR	-TEMP. RECORDER
TS	-TEMP. SWITCH
TT	-TEMP. TRANSMITTER
TTD	-TEMP. TRANSDUCER
TW	-THERMOWELL
VE	-VIBRATION ELEMENT
VS	-VIBRATION SWITCH
VT	-VIBRATION TRANSMITTER
XL	-PILOT LIGHT (NOT FOR MOTOR)
XS	-LIMIT SWITCH
ZV	-SAFETY SHUTDOWN VALVE

DATA-LOGGER POINT
F-FLOW P-PRESS.
L-LEVEL T-TEMP.
X-MISC. A-ALARM

LOCAL PANEL MOUNTED INSTR.

BOARD MOUNTED INSTRUMENT

RIG
STATUS LIGHTS
R=RED, G=GREEN
PILOT LIGHT (DO NOT USE FOR MOTOR STATUS)

MOTOR STATUS PILOT LIGHT

LOCAL MOUNTED INSTRUMENT

MOUNTED BEHIND LOCAL PANEL

RACK MOUNTED (OR BACK OF PANEL)

ELECTRICAL SUPPLY REQUIRED

INSTRUMENT AIR SUPPLY REQUIRED

HIGH LOW

TWO PEN RECORDER

FOUNDATION FIELDBUS INSTRUMENT

DISTRIBUTED CONTROL/SHARED DISPLAY SYMBOLS

(DCS) DISTRIBUTED CONTROL SYSTEM, OPERATOR ACCESSIBLE IN CONTROL ROOM

(DCS) DISTRIBUTED CONTROL SYSTEM, OPERATOR INACCESSIBLE IN CONTROL ROOM

(DCS) DISTRIBUTED CONTROL SYSTEM, OPERATOR INACCESSIBLE IN FIELD

DISTRIBUTED CONTROL INTERCONNECTING LOGIC

CONTROLLER WITH BINARY OR SEQUENTIAL FUNCTIONS

(PLC) PROGRAMMABLE LOGIC CONTROLLER, NORMALLY INACCESSIBLE OR BEHIND THE PANEL DEVICE OR FUNCTIONS

(PLC) PROGRAMMABLE LOGIC CONTROLLER FUNCTION, CAN BE NORMALLY DISPLAYED ON CRT

LOCAL DCS OR AUXILIARY DCS LOCATION NORMALLY ACCESSIBLE TO OPERATOR

(PLC) PROGRAMMABLE LOGIC CONTROLLER I/O POINT NORMALLY INACCESSIBLE BY OPERATOR

REFERENCE DRAWINGS

LETTER IDENTIFICATION OF LINES	AE-036204
PIPING SYMBOLS	AB-036227
EQUIPMENT SYMBOLS	AB-036305
INSTRUMENT SYMBOLS	AC-036950
PIPING LAYOUT INDEX	
PLOT PLAN	
PROCESS FLOW DIAGRAM	
HYDROSTATIC TEST DIAGRAM	
DRAWING CONTROL FOR J.O.	
INSTRUMENT INSTALLATION SCHEDULES	

REVISION VALIDATION

THIS REVISION NO. 00 IS COVERED, FOR ALL APPROVAL AND CERTIFICATION REQUIREMENTS, PER SAEP-334, UNDER DRAWING COMPLETION CERTIFICATE NO:

768530-0810-002

DESIGN CERTIFICATION (DESIGN AGENCY)		REVIEW FOR KEY DRAWINGS (SAUDI ARAMCO) ☒ REQUIRED		OTHER
ENGG./DATE IDE July 28, 2010	CERTIFIED BY/DATE JDE July 28, 2010	CONST. AGENCY/DATE	OPERATIONS/DATE	BY/DATE Wr&I July 28, 2010

REV.NO.	DATE	REVISION DESCRIPTION

JOB ORDER/EWO NO. 10-00912

THIS REVISION IS NOT TO BE USED FOR CONSTRUCTION UNTIL CERTIFIED AND DATED

SAUDI ARABIAN OIL COMPANY

PIPING & INSTRUMENTATION DIAGRAM — DRAWING TYPE: PID

MEDIUM METERING SKID (GAS)

ORIFICE BASED

SPPID Template_Plant01 — SAUDI ARABIA

PLANT NO.	INDEX	DRAWING NUMBER	SHT. NO.	REV. NO.
990	A	AB-036182	001	00

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