

INSTRUMENT IDENTIFICATION LETTERS (ISA-5.1, AS USED IN THIS SET)

LETTER	FIRST LETTER (MEASURED / INITIATING)	MODIFIER	SUCCEEDING LETTER (FUNCTION)
A	ANALYSIS (GAS QUALITY)		ALARM
B	BURNER, COMBUSTION		
C			CONTROL
D		DIFFERENTIAL	
E			PRIMARY ELEMENT (SENSOR)
F	FLOW		
G			GLASS / GAUGE (LEVEL GAUGE)
H	HAND (MANUAL INITIATED)		HIGH
I			INDICATE
L	LEVEL		LOW
P	PRESSURE		
Q		INTEGRATE / TOTALIZE	
S		SAFETY (PSV, TSV)	SWITCH
T	TEMPERATURE		TRANSMIT
V			VALVE, DAMPER
W			WELL (THERMOWELL)
X	UNCLASSIFIED (PIG, POWER)		UNCLASSIFIED
Y			RELAY, COMPUTE, CONVERT
Z	POSITION		
HH / LL			HIGH-HIGH / LOW-LOW (TRIP)
O / C			OPEN / CLOSED (ZSO, ZSC)

PROJECT TAG PREFIXES (NOT ISA LETTER CODES)

PREFIX	MEANING	PREFIX	MEANING
SDV	SHUTDOWN VALVE (EH, FC)	BDV	MANUAL BLOWDOWN VALVE
MOV	MOTOR-OPERATED VALVE	HV	HAND VALVE (SUFFIX A, B..)
FCV/LCV/TCV	ELECTRIC CONTROL VALVE	PCV	SELF-CONTAINED REGULATOR
CKV	CHECK VALVE	RO	RESTRICTION ORIFICE
GD	COMBUSTIBLE GAS DETECTOR	PVRV / FA	P/V RELIEF VALVE / ARRESTOR
SP / SMP	SAMPLE PROBE / SAMPLER	IJ	INSULATING JOINT
FC	FLOW CONDITIONER	BMS	BURNER MANAGEMENT SYSTEM

TAG NUMBER FORMAT

PT-133A = FUNCTION LETTERS - LOOP NUMBER - SUFFIX. AREA 100; LOOP NUMBERS PER BASIS SECTION 8. SUFFIX LETTERS A, B, C.. IDENTIFY REDUNDANT ELEMENTS (PT-133A/B/C) AND MINOR ITEMS ADDED ON THE P&IDS ON AN EXISTING LOOP (E.G. HV-101A, VENT / DRAIN AND ROOT VALVES). ALL TAGS SHOWN ON THE P&IDS ARE LISTED IN PRO-LST-101 (LINE AND TAG REGISTER).

GENERAL NOTES

- THESE P&IDS ARE GOVERNED BY BASIS OF DESIGN GEN-DB-001. TAGS PER BASIS APPENDIX A AND INSTRUMENT INDEX INS-LST-001.
- STATION MAOP 1,440 PSIG, ASME B16.5 CLASS 600 RF, DESIGN TEMPERATURE -20 TO 150 F ABOVE GRADE, 32 TO 120 F BURIED. HEATER COIL 1,440 PSIG AT 250 F. PIPING PER ASME B31.8 AND 49 CFR 192, DESIGN FACTOR 0.50.
- HYDROSTATIC TEST 2,160 PSIG MINIMUM (1.5 x MAOP) FOR 8 HOURS. HIGH-POINT VENTS (HPV) AND LOW-POINT DRAINS (LPD) ARE PROVIDED AT EVERY HIGH AND LOW POINT AND ON EVERY ISOLATABLE SECTION; FINAL LOCATIONS PER PIPING GA.
- VENT, DRAIN AND TEST CONNECTIONS 3/4 IN AND SMALLER: CLASS 6000 SOCKET WELD, NORMALLY CLOSED, WITH THREADED PLUG OR CAP.
- ALL AUTOMATED VALVES USE ZERO-EMISSION ELECTRIC OR SELF-CONTAINED ELECTRO-HYDRAULIC ACTUATORS. NO NATURAL GAS PNEUMATIC DEVICES (40 CFR 60 SUBPART OOOOB). SDVs FAIL CLOSED; MOVs AND FCVs FAIL AS-IS.
- SETPOINTS SHOWN ARE FROM BASIS SECTION 9 AND THE INSTRUMENTATION ALARM / TRIP LIST. SETPOINTS NOT FIXED BY THE BASIS ARE SHOWN AS 'PER INS ALARM / TRIP LIST' OR AS HOLDS.

INSTRUMENT SYMBOLS (FUNCTION LOCATION)



DISCRETE INSTRUMENT,
FIELD MOUNTED



DISCRETE, MAIN CONTROL PANEL
IN B-102 (OPERATOR ACCESSIBLE)



DISCRETE, LOCAL PANEL
(E.G. BMS PANEL AT H-101)



SHARED DISPLAY / CONTROL:
RTU AND SCADA (BPCS)



SAFETY PLC (SIS), SIL-CAPABLE,
INDEPENDENT OF THE BPCS



COMPUTER FUNCTION: FLOW
COMPUTER FQI-110 (B-102)



PACKAGE PLC / LOGIC
(VENDOR PACKAGE, E.G. GC)

A HORIZONTAL LINE = MAIN CONTROL
LOCATION; DOUBLE LINE = LOCAL PANEL;
NO LINE = FIELD MOUNTED.

SIGNAL AND CONNECTION LINES

- INSTRUMENT PROCESS CONNECTION / IMPULSE TUBING
- ELECTRIC SIGNAL (HARDWIRED 4-20 MA / DISCRETE)
- SOFTWARE OR DATA LINK (MODBUS, ETHERNET, HART)
- MECHANICAL LINK (LIMIT SWITCH, KEY INTERLOCK)

INTERLOCKS, SETPOINTS AND FAIL ACTIONS



INTERLOCK: NUMBER I-NN REFERS TO THE CAUSE AND EFFECT
MATRIX INS-LST-004. LOGIC ON DWG-111 (SIS) AND DWG-113 (BPCS).



PAHH 1,225 PSIG
SETPOINT ANNOTATION: ALARM / TRIP FUNCTION LETTERS AND VALUE
BESIDE THE BUBBLE (A = ALARM, HH / LL = TRIP). VALUES PER BASIS
SECTION 9 AND THE INS ALARM / TRIP LIST.

CODE	FAIL ACTION ON LOSS OF POWER OR SIGNAL	APPLIES TO
FC	FAIL CLOSED (SPRING RETURN)	SDV-101/102/103/106/141/165, XV-150A/B/C
FO	FAIL OPEN	NOT USED ON THIS PROJECT
FL	FAIL LAST (AS-IS), HANDWHEEL	MOVs, FCV-131/132, LCV-104

INTERLOCK SCHEDULE (DETAIL IN INS-LST-004)

NO.	FUNCTION	CAUSE	EFFECT
I-01	STATION ESD (SIS)	HS-201 TO HS-204, HS-215 GD-205/206 CONFIRMED, GD-207 HH, BE-213 FIRE, LOSS OF 24 VDC	CLOSE SDV-101/102/103/106/141 AND SDV-165; TRIP BMS-150. NO AUTO BLOWDOWN
I-02	OPSS SIF-01, SIL 2 (SIS)	PT-133A/B/C 2oo3 PAHH 1,225 PSIG	CLOSE SDV-102 (4 S) AND SDV-103
I-03	V-101 HH LEVEL SIF-02 (SIS)	LSHH-105 (26 IN)	CLOSE SDV-101
I-04	V-101 LL LEVEL SIF-03 (SIS)	LSLL-106 (3 IN)	CLOSE SDV-106, FORCE LCV-104 CLOSED
I-05	T-101 HH LEVEL SIF-04 (SIS)	LSHH-192 (64.8 IN)	CLOSE SDV-106, FORCE LCV-104 CLOSED
I-06	H-101 BMS SIF-05/06/07 (BMS SIL 2)	BE-153A/B 1oo2, LSL-154, LSH-154B, TSHH-155, TT-156 HH 140 F, PSL/PSH-164	CLOSE XV-150A/B/C, IGNITER OFF; SIS CLOSES SDV-165
I-07	GAS QUALITY SHUT-IN (BPCS)	AT-141 TO AT-144, TT-173 OFF-SPEC 15 MIN	RAMP FIC-131 TO ZERO, THEN XY-103Q CLOSES SDV-103
I-08	PR-101 CLOSURE INTERLOCK (MECH.)	BARREL PRESSURE / BDV-102 POSITION	CLOSURE CANNOT OPEN UNTIL BARREL VENTED
I-09	FIRE AND GAS (SIS)	GD-205/206/207, BE-213, XS-212, FSL-208	SDV-141, BEACONS XY-214, B-102 HVAC OFF, B-101 POWER OFF
I-10	FCV DUTY / STANDBY SWITCHOVER (BPCS)	ZT-131/132 DEVIATION > 5 % FOR 30 S, FCV FAULT	TRANSFER FY-131 OUTPUT TO STANDBY FCV
I-11	OUTLET PRESSURE HH (BPCS)	PT-134 1,200 PSIG	CLOSE FCV-131 / FCV-132 (LATCHED)
I-12	LIQUID LEVEL PERMISSIVES (BPCS)	LT-191 HH 57.6 IN, LT-104 LOW 6 IN	LIC-104 / LCV-104 HOLD CLOSED
I-13	METER VERIFICATION PERMISSIVES (BPCS)	MOV-115 COMMAND OUTSIDE VERIFICATION, ABORT	REJECT COMMAND, RESTORE RUN LINE-UP
I-14	HEATER MODE (BPCS)	HV-158C OPEN WITH HEATER ON (ZSO-158C)	TCV-152 LOW FIRE, HEATER DISABLE HS-150P
I-15	V-101 BYPASS PERMISSIVE (BPCS)	ZSO-103C HV-103C NOT CLOSED	FIC-131 START INHIBIT, ALARM
I-16	ESD CONSEQUENTIAL ACTIONS (BPCS)	SIS TRIP STATUS / SIS COMMS LOST	FCVS TO 0 %, FIC-131 TO MANUAL, HEATER DISABLE

P&ID DRAWING INDEX

DWG NO.	SHEET	TITLE
PRO-DWG-100	1 OF 2	LEGEND AND SYMBOLS (SHEET 1)
PRO-DWG-100	2 OF 2	LEGEND AND SYMBOLS (SHEET 2)
PRO-DWG-101	1 OF 1	STATION INLET
PRO-DWG-102	1 OF 1	FILTER SEPARATOR
PRO-DWG-103	1 OF 1	METER SKID SK-110
PRO-DWG-104	1 OF 1	ANALYZERS AND SAMPLING
PRO-DWG-105	1 OF 1	LINE HEATER H-101
PRO-DWG-106	1 OF 1	FUEL GAS SKID FG-101
PRO-DWG-107	1 OF 1	CONTROL VALVES AND OPSS
PRO-DWG-108	1 OF 1	STATION OUTLET
PRO-DWG-109	1 OF 1	VENT AND BLOWDOWN
PRO-DWG-110	1 OF 1	DRAINS AND LIQUIDS
PRO-DWG-111	1 OF 1	STATION ESD AND SAFETY
PRO-DWG-112	1 OF 1	H-101 BURNER AND BMS
PRO-DWG-113	1 OF 1	BPCS INTERLOCKS AND ALARMS

- ITEMS IN CLOUDS ARE HOLDS FROM BASIS SECTION 14 AND RPT-002 SECTION 7 (H-01 TO H-20) AND MUST BE CLOSED BEFORE ISSUE FOR CONSTRUCTION. VENDOR-DEPENDENT VALUES ARE TYPICAL, CONFIRM WITH VENDOR DATA (HOLD H-15).
- HOT TAP, TAP VALVE, RTU AND REMOTE SHUTOFF ARE BY AND SHOWN FOR INTERFACE ONLY. OWNER UPSTREAM LATERAL IS BY OWNER. SCOPE BREAKS AT IJ-101 AND THE TAP VALVE FLANGE.
- VENT HEADER 1070 AND ALL LINES DOWNSTREAM OF RESTRICTION ORIFICES AND PSV / TSV OUTLETS ARE SPEC S1 (CLASS 150 STAINLESS, -150 F), OPEN TO VS-101 WITH NO BLOCK VALVES IN THE HEADER. PSV BLOCK VALVES, IF ANY, ARE CSO.
- SAFETY INSTRUMENTED FUNCTIONS: SIF-01 OPSS (SIL 2, SDV-102 AND SDV-103); SIF-02 TO SIF-04 V-101 / T-101 LEVEL TRIPS IN THE SAFETY PLC; SIF-05 TO SIF-07 BURNER MANAGEMENT IN THE SIL 2-CERTIFIED BMS-150. SIL PER SAF-RPT-002 LOPA.
- INSTRUMENT ROOT VALVES: 1/2 IN GAUGE / BLOCK-AND-BLEED MANIFOLDS. ANALYZER TUBING T1 IS 316 SS, HEAT TRACED AND INSULATED WHERE MARKED ET/IC.
- P&IDS ARE NOT TO SCALE. EQUIPMENT ELEVATION AND ORIENTATION ARE SCHEMATIC; SEE PLOT PLAN AND PIPING GA.

NOTES / REFERENCES

REF: ISA-5.1-2022 INSTRUMENTATION SYMBOLS AND IDENTIFICATION
REF: INS-LST-004 CAUSE AND EFFECT MATRIX
REF: GEN-DB-001 SECTIONS 8, 9 AND 14
REF: PRO-DWG-100 SHEET 1 (VALVES, LINES, ABBREVIATIONS)

REVISIONS

REV DATE DESCRIPTION BY CHK APP
A 2026-09-29 ISSUED FOR REVIEW (IFR)

PRELIMINARY - ISSUED FOR REVIEW - NOT FOR CONSTRUCTION

ENGINEER OF RECORD SEAL

NOT SEALED
PRELIMINARY
PE NO. _____

PROJECT

120 MMSCFD RECEIPT INTO
COUNTY,
DISCIPLINE: PROCESS
SCALE: NTS

P&ID LEGEND AND SYMBOLS

SHEET 2: INSTRUMENTS, INTERLOCKS, NOTES
DRAWN: ____ CHECKED: ____ APPROVED: ____
DWG NO.
PRO-DWG-100
SHEET 2 OF 2 REV A