

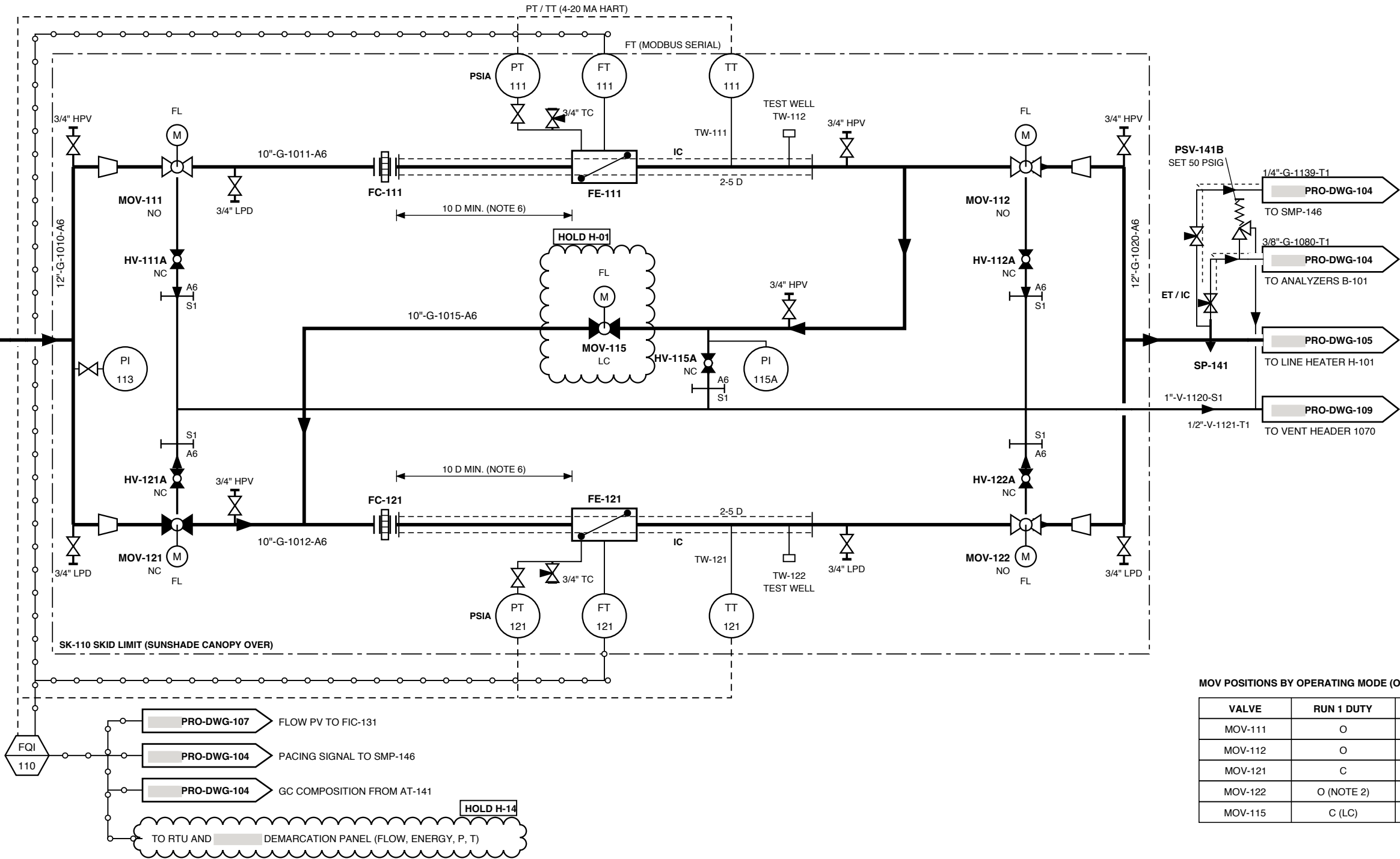
SK-110
METER SKID (WITH SUNSHADE CANOPY)
NOMINAL 48 FT x 14 FT
HEADERS NPS 12, RUNS NPS 10, CLASS 600 RF
DESIGN: 1,440 PSIG @ -20 / 150 F

MR-110 / MR-120
METER RUNS 1 AND 2 (2 x 100 %)
NPS 10 SCH 80 AGA 9 METER TUBE, BORE MATCHED
FC-111 / FC-121 PERFORATED PLATE
FLOW-CALIBRATED WITH OWN TUBE AND FC (NOTE 1)

FE-111 / FE-121
ULTRASONIC METERS (FT-111 / FT-121)
MULTIPATH, NPS 10 CLASS 600 RF, AGA 9
120 MMSCFD EACH AT 900 PSIG (CASE C5)
VENDOR DATA HOLD H-15

FQI-110
DUAL-RUN FLOW COMPUTER (IN B-102)
API 21.1 EGM, AGA 8 DETAIL / GERG-2008, AGA 9
DIAGNOSTICS
LIVE GC COMPOSITION (HOURLY)

- NOTES**
- EACH USM IS FLOW-CALIBRATED AT AN ACCREDITED FACILITY WITH ITS OWN METER TUBE AND FLOW CONDITIONER, AT 7 OR MORE FLOW RATES, BEFORE DELIVERY. DO NOT SEPARATE OR ROTATE SPOOLS AFTER CALIBRATION.
 - ONE RUN IN SERVICE (DUTY), ONE ON STANDBY. POSITIONS SHOWN ARE RUN 1 DUTY. THE STANDBY RUN STAYS PRESSURIZED WITH ITS OUTLET MOV OPEN AND NEVER BLOCKED IN AT BOTH ENDS: AN ISOLATED RUN IN SUN REACHES ABOUT 1,570 PSIG ; NO RUN THERMAL RELIEF IS FITTED (TSV-113 / 123 WITHDRAWN). A RUN ISOLATED FOR MAINTENANCE IS DEPRESSURED THROUGH ITS DBB BLEEDS. MOVs FAIL AS-IS (FL).
 - SERIES VERIFICATION (QUARTERLY MINIMUM AND ON DIAGNOSTIC DRIFT), AT CASE C2 RATES OR LOWER (ADDS 3.84 PSI AT 120 MMSCFD): OPEN MOV-115, CLOSE MOV-112 AND MOV-121, KEEP MOV-111 AND MOV-122 OPEN. METERS MUST AGREE WITHIN 0.3 %. WITNESS BY (HOLD H-01).
 - MOV-115 IS LOCKED CLOSED EXCEPT DURING VERIFICATION. SEAT INTEGRITY OF EVERY MOV IS PROVEN THROUGH ITS DBB BODY BLEED VALVE (PI-115A ON MOV-115), DISCHARGING TO BLEED HEADER 1120. SPEC BREAK A6 / S1 AT EACH BLEED VALVE OUTLET.
 - METER TUBES FROM FC TO TEST WELL ARE INSULATED FOR HEAT CONSERVATION (IC) AND SHADED BY THE SK-110 CANOPY TO LIMIT THERMAL STRATIFICATION.
 - UPSTREAM AND DOWNSTREAM LENGTHS ARE MINIMUMS PER AGA 9 AND THE MANUFACTURER INSTALLATION-EFFECTS TEST; FINAL LENGTHS BY VENDOR (HOLD H-15). TT-1X1 2 TO 5 D DOWNSTREAM OF THE METER.
 - PT-111 / PT-121 ARE ABSOLUTE-PRESSURE (PSIA) TRANSMITTERS ON THE METER BODY PRESSURE TAP (PF). TC = 3/4 IN TEST CONNECTION FOR PT VERIFICATION. TW-1X2 TEST WELLS FOR TT VERIFICATION.
 - SP-141 IS ON OUTLET HEADER 1020 DOWNSTREAM OF BOTH METER RUNS, TOP OF PIPE, TIP IN THE CENTER THIRD (API 14.1 / GPA 2166). LINES 1080 (REDUCED PRESSURE, ANALYZERS) AND 1139 (LINE PRESSURE, SMP-146) ARE HEAT TRACED (ET) AND INSULATED (IC) TO B-101. PSV-141B (SET 50 PSIG) AT THE PROBE REGULATOR OUTLET LIMITS THE PRESSURE AT RO-141A IF THE REGULATOR FAILS OPEN; OUTLET 1121 TO BLEED HEADER 1120.
 - FQI-110 COMPUTES VOLUME AND ENERGY WITH AGA 8 DETAIL / GERG-2008 USING THE LIVE GC COMPOSITION (HOURLY UPDATE) AND ARCHIVES PER API 21.1. TARGET UNCERTAINTY 0.5 % VOLUME, 0.6 % ENERGY (K = 2) FROM 20 TO 120 MMSCFD; BELOW 20 MMSCFD 0.53 % / 0.62 % (HOLD H-01).



MOV POSITIONS BY OPERATING MODE (O = OPEN, C = CLOSED)

VALVE	RUN 1 DUTY	RUN 2 DUTY	SERIES 1 TO 2
MOV-111	O	C	O
MOV-112	O	O (NOTE 2)	C
MOV-121	C	O	C
MOV-122	O (NOTE 2)	O	O
MOV-115	C (LC)	C (LC)	O

NOTES / REFERENCES
REF: PRO-DWG-100 SH 1-2 (LEGEND)
REF: INS-LST-004 (CAUSE AND EFFECT)
REF: GEN-DB-001 SECTIONS 8.2, 9.5
REF: AGA REPORT NO. 9 (2022), API MPMS 21.1

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 METER SKID SK-110
ULTRASONIC METER RUNS MR-110 / MR-120
DRAWN: _____ CHECKED: _____ APPROVED: _____
DWG NO. **PRO-DWG-103**
SHEET 1 OF 1 REV A