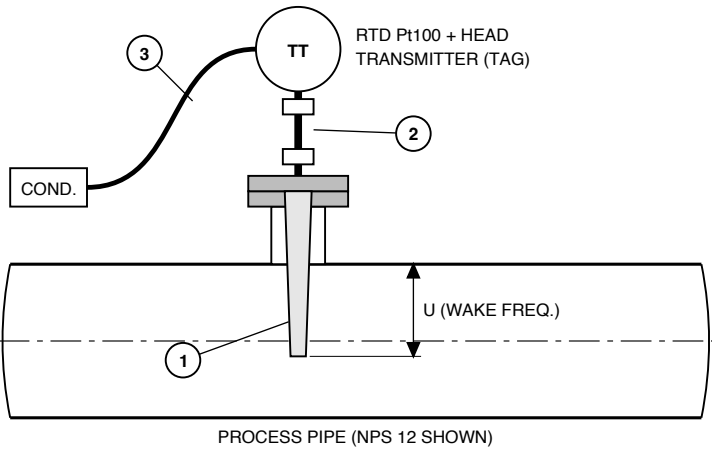


HU-T TEMPERATURE (THERMOWELL + HEAD XMTR)

1-1/2 in RF FLANGED THERMOWELL (CL 600), TIP IN MIDDLE THIRD OF PIPE; WAKE FREQUENCY PER ASME PTC 19.3 TW. TEST WELLS (TW-112/122): SAME, WITH PLUG AND CHAIN.



BILL OF MATERIALS

NO	CODE	DESCRIPTION (PER INSTALLATION)	QTY	UNIT
1	TW-FLG	THERMOWELL (UNDER OWN TAG, QTY 0)	0	ea
2	FTG-UNN	UNION-NIPPLE-UNION 1/2 NPT, 316 SS	1	ea
3	CND-FLX	FLEX CONDUIT 3/4 in x 36 in, CL I DIV 2	1	ea

APPLIES TO (8):

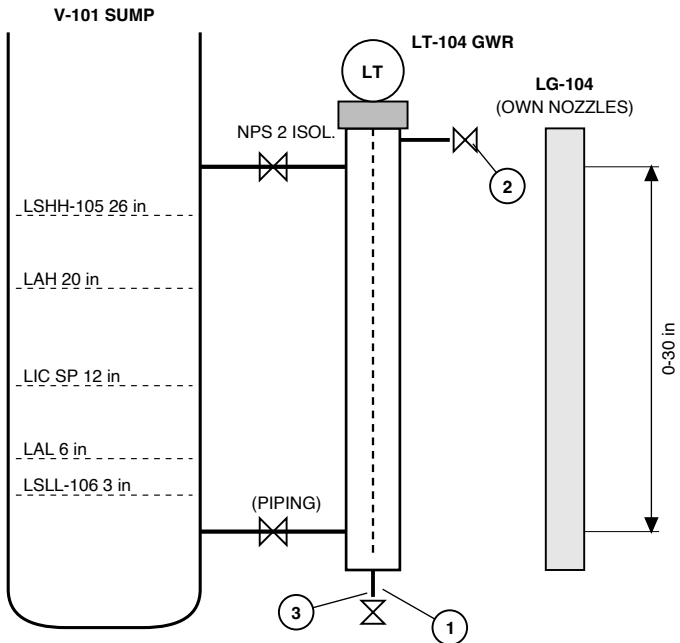
TT-101, TT-111, TT-121, TT-151, TSHH-155, TT-156, TT-135, TT-173

NOTES:

TW BORE AND U-LENGTH PER TW
CALC (ASME PTC 19.3 TW).
CUSTODY TT: 2-5 D DOWNSTREAM USM.

HU-L1 GWR IN EXTERNAL CAGE + MAG. GAUGE (V-101)

CAGE AND LG CHAMBER SIZED TO COVER 0-30 in; LSHH-105 AND LSLL-106 ON SEPARATE VESSEL NOZZLES (HU-LS), NOT ON CAGE.



BILL OF MATERIALS

NO	CODE	DESCRIPTION (PER INSTALLATION)	QTY	UNIT
1	TUB-050	TUBING 1/2 OD x 0.049 WALL, 316 SS SMLS	6	ft
2	VLV-NDL	NEEDLE VALVE 1/2 NPT, 316 SS	2	ea
3	FTG-CONN	TUBE CONNECTOR 1/2 OD x 1/2 NPT, 316 SS	4	ea

APPLIES TO (2):

LT-104, LG-104

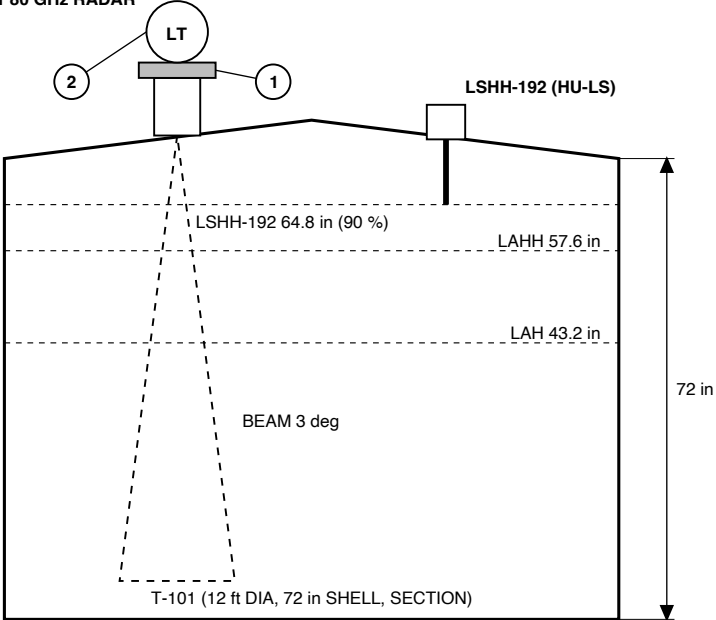
NOTES:

GWR PROBE LENGTH = CAGE LENGTH
- 2 in. CAGE CL 600, 1,440 psig.
VENT / DRAIN TO CLOSED DRAIN.

HU-L2 NON-CONTACT RADAR ON TANK (T-101)

RADAR NOZZLE AWAY FROM INLET 2-L-1060 AND 1061 FILL STREAMS; NOZZLE PROJECTION < 6 in INTO VAPOUR SPACE.

LT-191 80 GHz RADAR



BILL OF MATERIALS

NO	CODE	DESCRIPTION (PER INSTALLATION)	QTY	UNIT
1	FTG-NOZ	RADAR NOZZLE ADAPTER FLG CL 150, SS	1	ea
2	CND-FLX	FLEX CONDUIT 3/4 in x 36 in, CL I DIV 2	1	ea

APPLIES TO (1):

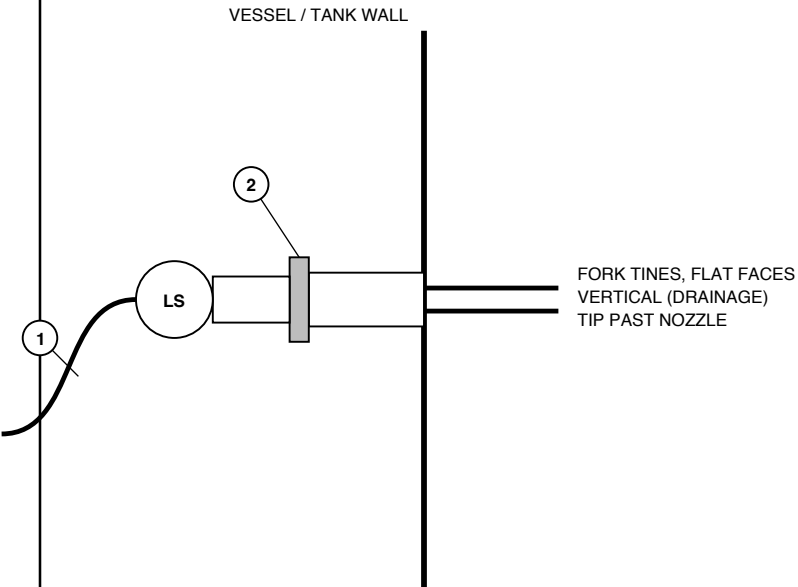
LT-191

NOTES:

80 GHz, 3 deg BEAM. AIM CLEAR OF
INTERNALS AND FILL STREAMS.
NOZZLE 18 in MIN FROM SHELL.
LSHH-192 INDEPENDENT NOZZLE.

HU-LS VIBRATING FORK LEVEL SWITCH

SIDE-MOUNTED VIBRATING FORK ON DEDICATED NOZZLE (NPS 1-1/2 OR 2 per vessel dwg). SWITCH POINT = NOZZLE CENTRELINE. RELAY / NAMUR OUTPUT, FAIL-SAFE (DE-ENERGIZED = ALARM).



BILL OF MATERIALS

NO	CODE	DESCRIPTION (PER INSTALLATION)	QTY	UNIT
1	CND-FLX	FLEX CONDUIT 3/4 in x 36 in, CL I DIV 2	1	ea
2	FTG-CPL	PROCESS CONN. ADAPTOR, 316 SS	1	ea

APPLIES TO (5):

LSHH-105, LSLL-106, LSL-154, LSH-154B, LSHH-192

NOTES:

LSHH-105, LSLL-106, LSL-154,
LSH-154B, LSHH-192. SEPARATE
NOZZLE FROM LT (INDEPENDENCE).

NOTES / REFERENCES

- TUBING 1/2 in OD 316 SS, SUPPORTED AT 5 ft MAX SPACING; MIN BEND RADIUS 3 x OD.
 - HEAT TRACING NOT REQUIRED: DRY PIPELINE-QUALITY GAS (BASIS 5.2, 7 lb/MMscf MAX).
 - ALL INSTRUMENTS CARRY STAINLESS TAG PLATES; SIS DEVICES YELLOW TAG.
 - ROOT VALVES, NOZZLES AND THERMOWELL CONNECTIONS BY PIPING / VESSEL VENDOR.
 - ALL ITEMS SHOWN ARE TYPICAL; QTY IN BOM ARE PER INSTALLATION (x APPLIES-TO COUNT).
 - LEAK TEST TUBING AT 1.1 x MAX OP. PRESSURE WITH NITROGEN BEFORE COMMISSIONING.
- REF: INS-DS-002, DS-004, DS-005

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: INSTRUMENTATION
SCALE: NTS

INSTRUMENT HOOK-UP TYPICALS

TEMPERATURE, LEVEL (GWR, RADAR), LEVEL SWITCH
DRAWN: ____ CHECKED: ____ APPROVED: ____
DWG NO. **INS-DWG-004**
SHEET 2 OF 2 REV A