 TORUS	· Owner LINE LIST			Document No.	MEC-LST-001	
				Revision / Date	A · September 29, 2026	
				Issue purpose	Issued for Review	
MECHANICAL · LINE LIST						
Rev.	Date	Revision description	Prepared	Reviewed	Approved	
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NOTES

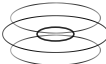
1. This list records the physical and design data of every line on the station P&IDs, PRO-DWG-101 to PRO-DWG-113, using the line numbers of PRO-LST-101, P&ID Line and Tag Register. Lengths are centreline lengths measured on the piping model that produced the general arrangement PIP-DWG-001 and the isometrics PIP-DWG-010 to -015; they include fittings and valves. Net pipe quantities by size and wall are in the mechanical material take-off.
2. Operating pressure (psig) and temperature (°F) are the envelope of design cases C1 to C7 of GEN-DB-001, Basis of Design, taken from the station hydraulic model of PRO-CAL-002. Case C6 (heater out of service in winter) gives the lowest temperatures downstream of the control valves; it is an upset case, not a normal operating point.
3. Design conditions follow MEC-CAL-001, Pipe Wall Thickness, and MEC-CAL-006, Flanges, Gaskets and Bolting. Class 600 Group 1.1 flanges limit class A6 to 1,440 psig up to 133 °F and 1,420 psig at 150 °F. Line 1022 also carries the heater-outlet coincident condition of 1,360 psig at 200 °F. Piping classes are defined in PIP-SPC-001, Piping Material Specification.
4. Test pressures are from MEC-CAL-003, Hydrostatic Test, and are given at the high point and the low point of each test section.
5. Post-weld heat treatment is not required for any line: every piping wall is under 0.75 in, and the thickest welded pressure part (the PR-101 barrel, 0.844 in) is vessel scope.
6. Lines 1060, 1061 and 1110 are class A6 up to the spec break flange downstream of LCV-104 / RO-104, HV-101F and HV-104E, and class D1 downstream. Line 1060 is NPS 2 through SDV-106, LCV-104 and RO-104 and NPS 4 downstream, sized below the erosional velocity at the flash rate. The D1 portion has no closed valve other than the locked-open T-101 inlet valves.
7. Vent lines 1070 to 1077, 1120, 1160, 1161 and 1170 are class S1 (Class 150, dual-certified 304/304L stainless, minimum design temperature -150 °F) because blowdown through the restriction orifices chills the downstream piping below the carbon steel minimum design metal temperature. They are open to atmosphere through VS-101.
8. Lines 1103, 1162 and 1171 are the NPS 1 socket-weld equalizing bypasses around SDV-101, SDV-102 and SDV-103, each with one throttling globe valve.
9. Line 1042 is buried with 48 in minimum cover and passes under internal road R-3. It is about 96 ft long plus the riser because the IJ-102 riser sits south of road R-3, so no above-grade pipe crosses a road.
10. Instrument, analyzer and sampler tubing (class T1) is listed in Table 1-4 for completeness; its design, supply and installation are measurement scope (MEA-CAL-004, SPC-SPC-014). Pressurized tubing is rated for full line pressure because a failed-open regulator can expose it to that pressure.
11. Vendor-scope lines (FG-101 internals, H-101 burner train) are listed for completeness; their design data are on the vendor drawings (HOLD H-15).
12. Abbreviations: A/G above grade; U/G buried; BW butt weld; SW socket weld; RT radiography; AUT automated ultrasonic testing; MT / PT magnetic particle / liquid penetrant; IC insulation for heat conservation; ET electric tracing; STA soil-to-air transition; ARO abrasion-resistant overlay.

LINE ROUTING

Table 1-1: Line Routing Data

Line	NPS	Service	From	To	P&ID	Length ft	U/G ft
12"-G-1001-A6	12	Natural gas	IJ-101 (TI-01, Owner lateral riser)	PR-101 / SDV-101	PRO-DWG-101	82	0
12"-G-1002-A6	12	Natural gas	SDV-101	V-101 inlet N1	PRO-DWG-101, PRO-DWG-102	48	0
12"-G-1004-A6	12	Natural gas	Line 1002 (V-101 bypass, LC)	Line 1003	PRO-DWG-102	35	0
12"-G-1003-A6	12	Natural gas	V-101 outlet N2	Meter inlet header 1010 (skid flange TI-S1)	PRO-DWG-102, PRO-DWG-103	76	0
12"-G-1010-A6	12	Natural gas	Line 1003 (skid flange TI-S1)	Meter runs MR-110 / MR-120	PRO-DWG-103	13	0
10"-G-1011-A6	10	Natural gas	Header 1010	Header 1020 (MR-110)	PRO-DWG-103	38	0
10"-G-1012-A6	10	Natural gas	Header 1010	Header 1020 (MR-120)	PRO-DWG-103	38	0
10"-G-1015-A6	10	Natural gas	Run 1 outlet (1011)	Run 2 inlet (1012)	PRO-DWG-103	34	0
12"-G-1020-A6	12	Natural gas	Meter outlet header (SK-110)	H-101 inlet N1	PRO-DWG-103, PRO-DWG-105	134	0
12"-G-1021-A6	12	Natural gas	Line 1020 (H-101 bypass)	Line 1022	PRO-DWG-105	8	0
12"-G-1022-A6	12	Natural gas	H-101 outlet N2	Control valve inlet header	PRO-DWG-105, PRO-DWG-107	89	0
12"-G-1031-A6	12	Natural gas	Header 1022	Header 1033 (FCV-131 branch)	PRO-DWG-107	18	0
12"-G-1032-A6	12	Natural gas	Header 1022	Header 1033 (FCV-132 branch)	PRO-DWG-107	18	0
12"-G-1033-A6	12	Natural gas	Control valve outlet header	SDV-102	PRO-DWG-107	37	0



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Line	NPS	Service	From	To	P&ID		Length ft	U/G ft
12"-G-1040-A6	12	Natural gas	SDV-102	CKV-171 / SDV-103	PRO-DWG-107,	PRO-DWG-108	27	0
12"-G-1041-A6	12	Natural gas	SDV-103	IJ-102	PRO-DWG-108		72	0
12"-G-1042-A6	12	Natural gas	IJ-102	tap valve outboard flange (TI-02)	PRO-DWG-108		108	94
8"-G-1101-A6	8	Natural gas	PR-101 barrel kicker nozzle	Line 1001 downstream of HV-101A	PRO-DWG-101		44	0
2"-G-1102-A6	2	Natural gas	Line 1001 upstream of HV-101B	PR-101 barrel (equalizing)	PRO-DWG-101		14	0
2"-F-1050-A6	2	Fuel gas	Line 1003 (HV-161A)	FG-101 inlet (HV-161B)	PRO-DWG-102,	PRO-DWG-106	15	0
2"-F-1051-A1	2	Fuel gas	FG-101 (header 1152) via HV-165A / SDV-165	H-101 burner train (1140 / 1141)	PRO-DWG-105,	PRO-DWG-106	222	215
1"-F-1052-A1	1	Fuel gas	FG-101 (header 1152) via HV-165B	G-101 fuel inlet	PRO-DWG-106		124	121
2"-L-1060-A6	2	Liquids (hydrocarbon / water)	V-101 barrel N5 via SDV-106 / LCV-104 / RO-104	Spec break flange, 1060 D1 (NPS 3)	PRO-DWG-102		28	0
4"-L-1060-D1	4	Liquids (hydrocarbon / water)	Spec break downstream of RO-104 (2x4 reducer)	T-101 inlet manifold 1190 (HV-191A)	PRO-DWG-102,	PRO-DWG-110	92	0
2"-L-1110-A6/D1	2	Liquids (hydrocarbon / water)	V-101 barrel N6 (filter section drain)	Line 1060 (D1) downstream of RO-104	PRO-DWG-102		28	0
2"-L-1061-A6/D1	2	Liquids (hydrocarbon / water)	PR-101 drain N4	T-101 inlet manifold 1190 (HV-191B)	PRO-DWG-101,	PRO-DWG-110	46	0
4"-L-1190-D1	4	Liquids (hydrocarbon / water)	T-101 inlet manifold (1060, 1061)	T-101 roof inlet N1 (dip pipe)	PRO-DWG-110		26	0
3"-L-1191-D1	3	Liquids (hydrocarbon / water)	T-101 loadout nozzle N3	Truck loadout connection (dry-break)	PRO-DWG-110		16	0
2"-L-1192-D1	2	Liquids (hydrocarbon / water)	T-101 bottom drain N4	Plugged outlet in containment	PRO-DWG-110		4	0
4"-L-1193-D1	4	Liquids (hydrocarbon / water)	Secondary containment sump	Grade (after inspection)	PRO-DWG-110		6	0
8"-V-1070-S1	8	Vent / blowdown gas	Vent header (all branches)	VS-101 inlet N1	PRO-DWG-109		290	0
3"-V-1071-S1	3	Vent / blowdown gas	PSV-101 outlet	Vent header 1070	PRO-DWG-102,	PRO-DWG-109	39	0
4"-V-1072-S1	4	Vent / blowdown gas	BDV-181 / RO-181 outlet (2x4 expander at RO)	Vent header 1070	PRO-DWG-101,	PRO-DWG-109	39	0
2"-V-1075-S1	2	Vent / blowdown gas	BDV-102 / RO-102 barrel vent	Vent header 1070	PRO-DWG-101,	PRO-DWG-109	28	0
2"-V-1077-S1	2	Vent / blowdown gas	PSV-161 outlet (FG-101), replaces 1150	Vent header 1070	PRO-DWG-106,	PRO-DWG-109	50	0
1"-V-1120-S1	1	Vent / blowdown gas	Skid DBB bleed collector (MOV body bleeds)	Vent header 1070	PRO-DWG-103,	PRO-DWG-109	55	0
4"-V-1073-S1	4	Vent / blowdown gas	BDV-182 / RO-182 outlet (2x4 expander at RO)	Vent header 1070	PRO-DWG-105,	PRO-DWG-109	35	0
2"-V-1076-S1	2	Vent / blowdown gas	PSV-157 outlet	Vent header 1070	PRO-DWG-105,	PRO-DWG-109	34	0
2"-V-1074-S1	2	Vent / blowdown gas	BDV-183 / RO-183 outlet	Vent header 1070	PRO-DWG-108,	PRO-DWG-109	96	0
3/4"-V-1160-S1	3/4	Vent / blowdown gas	TSV-136 outlet	Vent header 1070	PRO-DWG-107,	PRO-DWG-109	4	0
1"-V-1161-S1	1	Vent / blowdown gas	HV-133D outlet	Vent header 1070	PRO-DWG-107,	PRO-DWG-109	30	0
2"-V-1170-S1	2	Vent / blowdown gas	HV-172A / RO-172B outlet	Line 1074 (to header 1070)	PRO-DWG-108,	PRO-DWG-109	3	0
1"-G-1103-A6	1	Natural gas	Line 1001 upstream of SDV-101	Line 1002 downstream of SDV-101	PRO-DWG-101		8	0
1"-G-1162-A6	1	Natural gas	Line 1033 upstream of SDV-102	Line 1040 downstream of SDV-102	PRO-DWG-107		7	0
1"-G-1171-A6	1	Natural gas	Line 1040 upstream of SDV-103	Line 1041 downstream of SDV-103	PRO-DWG-108		9	0
1"-F-1140-A1	1	Fuel gas	Line 1051 (fuel riser at H-101)	H-101 main burner	PRO-DWG-105		vendor	0
1/2"-F-1141-A1	1/2	Fuel gas	Line 1051 (fuel riser at H-101)	H-101 pilot burner	PRO-DWG-105		vendor	0
2"-F-1151-A1	2	Fuel gas	PCV-161 outlet	PCV-162 inlet	PRO-DWG-106		vendor	0
2"-F-1152-A1	2	Fuel gas	PCV-162 outlet (FT-163, PT-164)	Split to 1051 / 1052	PRO-DWG-106		vendor	0

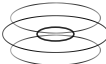


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DESIGN, OPERATING AND TEST CONDITIONS

Table 1-2: Design, Operating and Test Conditions

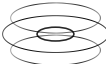
Line	Design P psig	Design T °F	Oper. P psig	Oper. T °F	Test P psig (high / low)	Medium	Test section
12"-G-1001-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	900 to 1,150	45 to 120	2,175 / 2,180	Water	TS-01A
12"-G-1002-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	899 to 1,150	45 to 120	2,175 / 2,180	Water	TS-01A
12"-G-1004-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	897 to 1,149	45 to 120	2,175 / 2,180	Water	TS-01A
12"-G-1003-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	896 to 1,148	45 to 120	2,175 / 2,180	Water	TS-01A
12"-G-1010-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	896 to 1,147	45 to 120	2,175 / 2,175	Water	PT-01
10"-G-1011-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	895 to 1,147	45 to 120	2,175 / 2,175	Water	PT-01
10"-G-1012-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	895 to 1,147	45 to 120	2,175 / 2,175	Water	PT-01
10"-G-1015-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	895 to 1,147	45 to 120	2,175 / 2,175	Water	PT-01
12"-G-1020-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	894 to 1,146	45 to 120	2,175 / 2,177; 2,175 / 2,175	Water	TS-01B, PT-01
12"-G-1021-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	891 to 1,146	45 to 120	2,175 / 2,177	Water	TS-01B
12"-G-1022-A6	1,440 @ 133 °F; 1,360 @ 200 °F	-20 to 200	890 to 1,145	45 to 120	2,175 / 2,177	Water	TS-01B
12"-G-1031-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	752 to 1,145	18 to 120	2,175 / 2,177	Water	TS-01B
12"-G-1032-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	752 to 1,145	18 to 120	2,175 / 2,177	Water	TS-01B
12"-G-1033-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	752 to 1,002	18 to 115	2,175 / 2,177	Water	TS-01B
12"-G-1040-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	751 to 1,002	18 to 115	2,175 / 2,177	Water	TS-01B
12"-G-1041-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	751 to 1,001	18 to 115	2,175 / 2,179	Water	TS-02
12"-G-1042-A6	1,440	32 to 120 (buried)	750 to 1,001	18 to 115	2,175 / 2,179	Water	TS-02
8"-G-1101-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	900 to 1,150	45 to 120	2,175 / 2,180	Water	TS-01A
2"-G-1102-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	900 to 1,150	45 to 120	2,175 / 2,180	Water	TS-01A
2"-F-1050-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	897 to 1,148	45 to 120	2,175 / 2,180	Water	TS-01A
2"-F-1051-A1	285 @ 100 °F; 272 @ 150 °F	-20 to 150	15 (PCV-162 set, HOLD H-15)	40 to 95 (E-161)	435 / 438	Water	TS-03
1"-F-1052-A1	285 @ 100 °F; 272 @ 150 °F	-20 to 150	15 (PCV-162 set, HOLD H-15)	40 to 95 (E-161)	435 / 438	Water	TS-03
2"-L-1060-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	0 to 1,148 (A6 part) / 0 to 15 (D1)	-5 to 120	2,175 / 2,176	Water	PT-03
4"-L-1060-D1	285 @ 100 °F; 272 @ 150 °F	-20 to 150	0 to 1,148 (A6 part) / 0 to 15 (D1)	-5 to 120	435 / 439	Water	TS-05
2"-L-1110-A6/D1	1,440 (A6) / 285 (D1)	-20 to 133 (A6); -20 to 150 (D1)	0 to 1,148 (A6 part) / 0 to 15 (D1)	-5 to 120	D1: 435 / 439; A6: 2,175 / 2,176	Water	TS-05, PT-03
2"-L-1061-A6/D1	1,440 (A6) / 285 (D1)	-20 to 133 (A6); -20 to 150 (D1)	0 to 1,148 (A6 part) / 0 to 15 (D1)	-5 to 120	A6: 2,175 / 2,180; D1: 435 / 439	Water	TS-01A, TS-05
4"-L-1190-D1	285 @ 100 °F; 272 @ 150 °F	-20 to 150	0 to 1,148 (A6 part) / 0 to 15 (D1)	-5 to 120	435 / 439	Water	TS-05
3"-L-1191-D1	285 @ 100 °F; 272 @ 150 °F	-20 to 150	0 to 1,148 (A6 part) / 0 to 15 (D1)	-5 to 120	435 / 439	Water	TS-05
2"-L-1192-D1	285 @ 100 °F; 272 @ 150 °F	-20 to 150	0 to 1,148 (A6 part) / 0 to 15 (D1)	-5 to 120	435 / 439	Water	TS-05
4"-L-1193-D1	285 @ 100 °F; 272 @ 150 °F	-20 to 150	0 to 1,148 (A6 part) / 0 to 15 (D1)	-5 to 120	435 / 439	Water	TS-05
8"-V-1070-S1	275 @ 100 °F; 255 @ 150 °F	-150 to 150	0 (blowdown / relief transient)	ambient; JT cold on blowdown	418 / 422	Water	TS-04
3"-V-1071-S1	275 @ 100 °F; 255 @ 150 °F	-150 to 150	0 (blowdown / relief transient)	ambient; JT cold on blowdown	418 / 422	Water	TS-04
4"-V-1072-S1	275 @ 100 °F; 255 @ 150 °F	-150 to 150	0 (blowdown / relief transient)	ambient; JT cold on blowdown	418 / 422	Water	TS-04
2"-V-1075-S1	275 @ 100 °F; 255 @ 150 °F	-150 to 150	0 (blowdown / relief transient)	ambient; JT cold on blowdown	418 / 422	Water	TS-04
2"-V-1077-S1	275 @ 100 °F; 255 @ 150 °F	-150 to 150	0 (blowdown / relief transient)	ambient; JT cold on blowdown	418 / 422	Water	TS-04
1"-V-1120-S1	275 @ 100 °F; 255 @ 150 °F	-150 to 150	0 (blowdown / relief transient)	ambient; JT cold on blowdown	418 / 422	Water	TS-04

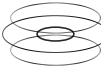
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Line	Design P psig	Design T °F	Oper. P psig	Oper. T °F	Test P psig (high / low)	Medium	Test section
4"-V-1073-S1	275 @ 100 °F; 255 @ 150 °F	-150 to 150	0 (blowdown / relief transient)	ambient; JT cold on blowdown	418 / 422	Water	TS-04
2"-V-1076-S1	275 @ 100 °F; 255 @ 150 °F	-150 to 150	0 (blowdown / relief transient)	ambient; JT cold on blowdown	418 / 422	Water	TS-04
2"-V-1074-S1	275 @ 100 °F; 255 @ 150 °F	-150 to 150	0 (blowdown / relief transient)	ambient; JT cold on blowdown	418 / 422	Water	TS-04
3/4"-V-1160-S1	275 @ 100 °F; 255 @ 150 °F	-150 to 150	0 (blowdown / relief transient)	ambient; JT cold on blowdown	418 / 422	Water	TS-04
1"-V-1161-S1	275 @ 100 °F; 255 @ 150 °F	-150 to 150	0 (blowdown / relief transient)	ambient; JT cold on blowdown	A6: 2,175 / 2,177; S1: 418 / 422	Water	TS-01B, TS-04
2"-V-1170-S1	275 @ 100 °F; 255 @ 150 °F	-150 to 150	0 (blowdown / relief transient)	ambient; JT cold on blowdown	418 / 422	Water	TS-04
1"-G-1103-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	-	-	2,175 / 2,180	Water	TS-01A
1"-G-1162-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	-	-	2,175 / 2,177	Water	TS-01B
1"-G-1171-A6	1,440 @ 133 °F; 1,420 @ 150 °F	-20 to 150	-	-	2,175 / 2,179	Water	TS-02
1"-F-1140-A1	per class	-20 to 150	-	-	per vendor / SPC-SPC-014	-	H-101 vendor burner train
1/2"-F-1141-A1	per class	-20 to 150	-	-	per vendor / SPC-SPC-014	-	H-101 vendor burner train
2"-F-1151-A1	per class	-20 to 150	-	-	per vendor / SPC-SPC-014	-	FG-101 vendor skid
2"-F-1152-A1	per class	-20 to 150	-	-	per vendor / SPC-SPC-014	-	FG-101 vendor skid

MATERIAL, EXAMINATION AND FINISH

Table 1-3: Material, Examination and Finish

Line	Wall	Pipe material	NDE	PWHT	Insulation	Coating / paint	Iso / GA
12"-G-1001-A6	STD (0.375 in)	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	PIP-DWG-010
12"-G-1002-A6	STD (0.375 in)	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	PIP-DWG-010
12"-G-1004-A6	STD (0.375 in)	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001
12"-G-1003-A6	STD (0.375 in)	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	PIP-DWG-011
12"-G-1010-A6	STD (0.375 in)	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	PIP-DWG-011
10"-G-1011-A6	Sch 80 (0.594 in)	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	IC (meter tube FC to test well, 1.5 in, per MEA)	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001
10"-G-1012-A6	Sch 80 (0.594 in)	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	IC (meter tube, per MEA)	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001
10"-G-1015-A6	Sch 80 (0.594 in)	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001
12"-G-1020-A6	STD (0.375 in)	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	PIP-DWG-012
12"-G-1021-A6	STD (0.375 in)	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	PIP-DWG-012
12"-G-1022-A6	STD (0.375 in)	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	PIP-DWG-012
12"-G-1031-A6	STD (0.375 in)	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	Acoustic insulation, mandatory: FCV-131 body and 10 ft downstream (PIP-SPC-001)	3-coat paint (SPC-SPC-010)	PIP-DWG-013
12"-G-1032-A6	STD (0.375 in)	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	Acoustic insulation, mandatory: FCV-132 body and 10 ft downstream (PIP-SPC-001)	3-coat paint (SPC-SPC-010)	PIP-DWG-013

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MECHANICAL · LINE LIST								
Line	Wall	Pipe material	NDE	PWHT	Insulation	Coating / paint	Iso / GA	
12"-G-1033-A6	STD (0.375 in)	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	PIP-DWG-013	
12"-G-1040-A6	STD (0.375 in)	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	PIP-DWG-014	
12"-G-1041-A6	STD (0.375 in)	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	PIP-DWG-014	
12"-G-1042-A6	XS (0.500 in), API RP 1102	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint A/G (SPC-SPC-010); FBE U/G (SPC-SPC-009); STA wrap	PIP-DWG-015	
8"-G-1101-A6	Sch 80 (0.500 in)	API 5L X52 PSL2	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001	
2"-G-1102-A6	Sch 80 (0.218 in)	ASTM A106 Gr B	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001	
2"-F-1050-A6	Sch 80 (0.218 in)	ASTM A106 Gr B	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001	
2"-F-1051-A1	Sch 80 (0.218 in)	ASTM A106 Gr B	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	FBE 14-16 mil + ARO at bores (SPC-SPC-009)	GA PIP-DWG-001	
1"-F-1052-A1	Sch 80 (0.179 in)	ASTM A106 Gr B	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	FBE 14-16 mil + ARO at bores (SPC-SPC-009)	GA PIP-DWG-001	
2"-L-1060-A6	Sch 80 (0.218 in)	ASTM A106 Gr B	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001	
4"-L-1060-D1	Sch 80 (0.337 in)	ASTM A106 Gr B	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001	
2"-L-1110-A6/D1	Sch 80 (0.218 in)	ASTM A106 Gr B	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001	
2"-L-1061-A6/D1	Sch 80 (0.218 in)	ASTM A106 Gr B	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001	
4"-L-1190-D1	Sch 80 (0.337 in)	ASTM A106 Gr B	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001	
3"-L-1191-D1	Sch 80 (0.300 in)	ASTM A106 Gr B	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001	
2"-L-1192-D1	Sch 80 (0.218 in)	ASTM A106 Gr B	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001	
4"-L-1193-D1	Sch 80 (0.337 in)	ASTM A106 Gr B	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001	
8"-V-1070-S1	Sch 40S (0.322 in)	ASTM A312 TP304/304L	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	None (stainless S1, not painted;)	GA PIP-DWG-001	
3"-V-1071-S1	Sch 40S (0.216 in)	ASTM A312 TP304/304L	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	None (stainless S1, not painted;)	GA PIP-DWG-001	
4"-V-1072-S1	Sch 40S (0.237 in)	ASTM A312 TP304/304L	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	None (stainless S1, not painted;)	GA PIP-DWG-001	
2"-V-1075-S1	Sch 40S (0.154 in)	ASTM A312 TP304/304L	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	None (stainless S1, not painted;)	GA PIP-DWG-001	
2"-V-1077-S1	Sch 40S (0.154 in)	ASTM A312 TP304/304L	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	None (stainless S1, not painted;)	GA PIP-DWG-001	
1"-V-1120-S1	Sch 80S (0.179 in)	ASTM A312 TP304/304L	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	None (stainless S1, not painted;)	GA PIP-DWG-001	
4"-V-1073-S1	Sch 40S (0.237 in)	ASTM A312 TP304/304L	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	None (stainless S1, not painted;)	GA PIP-DWG-001	

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MECHANICAL · LINE LIST							
Line	Wall	Pipe material	NDE	PWHT	Insulation	Coating / paint	Iso / GA
2"-V-1076-S1	Sch 40S (0.154 in)	ASTM A312 TP304/304L	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	None (stainless S1, not painted;)	GA PIP-DWG-001
2"-V-1074-S1	Sch 40S (0.154 in)	ASTM A312 TP304/304L	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	None (stainless S1, not painted;)	GA PIP-DWG-001
3/4"-V-1160-S1	Sch 80S (0.154 in)	ASTM A312 TP304/304L	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	None (stainless S1, not painted;)	GA PIP-DWG-001
1"-V-1161-S1	Sch 80S (0.179 in)	ASTM A312 TP304/304L	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	None (stainless S1, not painted;)	GA PIP-DWG-001
2"-V-1170-S1	Sch 40S (0.154 in)	ASTM A312 TP304/304L	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	None (stainless S1, not painted;)	GA PIP-DWG-001
1"-G-1103-A6	Sch 80 (0.179 in)	ASTM A106 Gr B	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001
1"-G-1162-A6	Sch 80 (0.179 in)	ASTM A106 Gr B	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001
1"-G-1171-A6	Sch 80 (0.179 in)	ASTM A106 Gr B	100 % RT/AUT BW; 100 % MT/PT SW, fillet, branch	No	None	3-coat paint (SPC-SPC-010)	GA PIP-DWG-001
1"-F-1140-A1	per class	per class	per class	No	-	per vendor	H-101 vendor burner train
1/2"-F-1141-A1	per class	per class	per class	No	-	per vendor	H-101 vendor burner train
2"-F-1151-A1	per class	per class	per class	No	-	per vendor	FG-101 vendor skid
2"-F-1152-A1	per class	per class	per class	No	-	per vendor	FG-101 vendor skid

INSTRUMENT, ANALYZER AND SAMPLER TUBING

Table 1-4: Class T1 Tubing (Measurement Scope)

Line	OD x wall in	From	To	P&ID	Design P psig / T °F	Oper. P psig / T °F	Tracing
3/8"-G-1080-T1	3/8 x 0.049	SP-141 (reduced 25 psig after heated probe regulator)	B-101 analyzers	PRO-DWG-103, PRO-DWG-104	1,440 / -20 to 150	25 / 120 (traced)	HT-1080, 120 F maintain
1/2"-V-1121-T1	1/2 x 0.065	PSV-141B outlet (set 50 psig)	Bleed header 1120 (S1)	PRO-DWG-103	275 / -150 to 150	0 (relief only)	None
1/2"-V-1130-T1	1/2 x 0.065	SMP-146 purge / pump vent	Atmosphere 3 ft above B-101 roof	PRO-DWG-104	275 / -20 to 150	0	None
1/2"-V-1131-T1	1/2 x 0.065	AT-141 sample and carrier vent	Atmosphere 3 ft above B-101 roof	PRO-DWG-104	275 / -20 to 150	0	None
1/2"-V-1132-T1	1/2 x 0.065	AT-142 vent	Atmosphere 3 ft above B-101 roof	PRO-DWG-104	275 / -20 to 150	0	None
1/2"-V-1133-T1	1/2 x 0.065	AT-143 vent	Atmosphere 3 ft above B-101 roof	PRO-DWG-104	275 / -20 to 150	0	None
1/2"-V-1134-T1	1/2 x 0.065	AT-144 vent	Atmosphere 3 ft above B-101 roof	PRO-DWG-104	275 / -20 to 150	0	None
1/2"-V-1135-T1	1/2 x 0.065	PSV-141G outlet and sample bypass FI-141C	Atmosphere 3 ft above B-101 roof	PRO-DWG-104	275 / -20 to 150	0	None
1/4"-G-1136-T1	1/4 x 0.035	PCV-141E outlet (conditioned sample, 15 psig)	AT-141 to AT-144 inlets	PRO-DWG-104	1,440 / -20 to 150	15 / 35 to 120	Inside heated B-101
1/4"-G-1137-T1	1/4 x 0.035	Helium carrier cylinder PCV-141K	AT-141 GC carrier inlet	PRO-DWG-104	1,440 / -20 to 150	per GC vendor	Inside B-101
1/4"-G-1138-T1	1/4 x 0.035	Calibration gas cylinder PCV-141M	AT-141 GC calibration stream	PRO-DWG-104	1,440 / -20 to 150	per GC vendor	Inside B-101
1/4"-G-1139-T1	1/4 x 0.035	SP-141 full-pressure port	SMP-146 composite sampler	PRO-DWG-103, PRO-DWG-104	1,440 / -20 to 150	line (to 1,150) / 120 (traced)	HT-1139, 120 F maintain