APPENDIX B

SURFACE FACILITIES INSTRUMENTATION SUMMARY

Description/Location	ADM Tag	Measurement	Brand	Model	Service	Compatibility with Fluid	Range Maximum >20%	Operating Range	Instrument Range Maximum	Operating Range Units	Measurement Required for Permit Compliance	Activates Automated Equipment Shutdown
Well Annulus pressure	PIT-014	Pressure	Durkin	Note 1	Dry CO_2	Yes	Note 1	Note 1	Note 1	psig	Yes	No
Pipeline outlet pressure (Wellhead Pressure)	PIT-009	Pressure	Durkin	Note 1	Dry CO_2	Note 1	Note 1	0 - 2000	Note 1	psig	Yes	Yes
Pipeline outlet CO_2 temperature	TIT-009	Temperature	ICT	Note 1	Dry CO_2	Note 1	Note 1	95 - 115	Note 1	°F	Yes	No
Pipeline pressure upstream of Wellhead Tree	PIT-013	Pressure	Durkin	Note 1	Dry CO_2	Note 1	Note 1	0 - 2000	Note 1	psig	No	No
Injection flow rate	FIT-006	Flow	SCADASense	4203	Dry CO_2	Yes	Yes	23,000 - 101,000	122913	lb/hr	Yes	No
Pipeline inlet pressure (downstream of the flow control valve)	PIT-008	Pressure	Durkin	264HSVKTA1L1N2	Dry CO_2	Yes	Yes	0 - 2000	8700	psig	No	No
Pipeline inlet CO_2 temperature	TIT-008	Temperature	ICT	R1T185L483-002(11/16)SC-6HN-22(6)	Dry CO_2	Yes	Yes	95 - 115	200	°F	No	No
Pipeline inlet Pressure (upstream of the flow control valve)	PIT-007	Pressure	Durkin	Note 1	Dry CO_2	Note 1	Note 1	0 - 2000	Note 1	psig	No	No
Multistage Pump discharge temperature	TIT-010	Temperature	ICT	Note 1	Dry CO_2	Note 1	Note 1	95 - 115	200	°F	No	Yes
Multistage Pump discharge pressure	PIT-010	Pressure	Durkin	Note 1	Dry CO_2	Yes	Note 1	1400 - 2000	Note 1	psig	No	Yes
Multistage Pump suction pressure	PIT-011	Pressure	Durkin	Note 1	Dry CO_2	Yes	Note 1	0 - 1400	Note 1	psig	No	No
HE-204 A/B outlet pressure	PIT-006	Pressure	Durkin	264HSVKTA1L1N2	Dry CO_2	Yes	Yes	0 - 1400	8700	psig	No	No
HE-204A/B CO_2 outlet temperature	TIT-006	Temperature	ICT	R1T185L483-002(11/16)SC-6HN-22(6)	Dry CO_2	Yes	Yes	95 -105	200	°F	No	No
HE-204 A/B inlet pressure	PT-005	Pressure	Durkin	264HSSSTA1L1N2	Dry CO_2	Yes	Yes	0 - 1400	2320	psig	No	No
PV-005 outlet temperature (CO_2 Vent)	TIT-004	Temperature	ICT	Note 1	Dry CO_2	Note 1	Note 1	100 - 250	Note 1	°F	No	No
Compressor Discharge Flow	FIT-005	Flow	SCADASense	4203	Dry CO_2	Yes	Yes	23,000 - 101,100	121295	lb/hr	No	No

Description/Location	ADM Tag	Measurement	Brand	Model	Service	Compatibility with Fluid	Range Maximum >20%	Operating Range	Instrument Range Maximum	Operating Range Units	Measurement Required for Permit Compliance	Activates Automated Equipment Shutdown
Moisture Analyzer downstream of Dehydration Unit	ARX-006	Moisture	AMETEK	5100-NCM	Dry CO2	Yes	Yes	0 - 630	2500	ppmv	No	No
VS-201 4th Stage discharge pressure	PTX-204B	Pressure	Rosemount	3051CG	Dry CO_2	Yes	Yes	0 - 1400	4000	psig	No	Yes
VS-201 4th Stage Cylinder 5 temperature	TIT-204B	Temperature	Rosemount	3144	Dry CO_2	Yes	Yes	220 -265	500	°F	No	Yes
VS-201 4th Stage suction scrubber temperature	TIT-204A	Temperature	Rosemount	3144	Dry CO_2	Yes	Yes	90 -100	200	°F	No	Yes
VS-201 4th Stage suction scrubber pressure	PTX-204A	Pressure	Rosemount	3051CG	Dry CO_2	Yes	Yes	0 -650	1000	psig	No	Yes
VS-201 3rd Stage discharge pressure	PTX-203B	Pressure	Rosemount	3051CG	Wet CO_2	Yes	Yes	0 - 650	1000	psig	No	Yes
VS-201 3rd Stage Cylinder 6 temperature	TIT-203B	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	220 - 260	500	°F	No	Yes
VS-201 3rd Stage suction scrubber temperature	TIT-203A	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	90 - 100	200	°F	No	Yes
VS-201 3rd Stage suction scrubber pressure	PTX-203A	Pressure	Rosemount	3051CG	Wet CO_2	Yes	Yes	0 - 250	500	psig	No	Yes
VS-201 2nd Stage discharge pressure	PTX-202B	Pressure	Rosemount	3051CG	Wet CO_2	Yes	Yes	0 - 250	500	psig	No	Yes
VS-301 2nd Stage Cylinder 4 temperature	TIT-202C	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	270 - 315	500	°F	No	Yes
VS-201 2nd Stage Cylinder 2 temperature	TIT-202B	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	270 - 315	500	°F	No	Yes
VS-201 2nd Stage suction scrubber temperature	TIT-202A	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	90 - 100	200	°F	No	Yes
VS-201 2nd Stage suction scrubber pressure	PTX-202A	Pressure	Rosemount	3051CG	Wet CO_2	Yes	Yes	0 - 75	250	psig	No	Yes
VS-201 1st Stage discharge pressure	PTX-201B	Pressure	Rosemount	3051CG	Wet CO_2	Yes	Yes	0 - 75	250	psig	No	Yes
VS-201 1st Stage Cylinder 3 temperature	TIT-201C	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	250 - 295	500	°F	No	Yes
VS-201 1st Stage Cylinder 1 temperature	TIT-201B	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	250- 295	500	°F	No	Yes
VS-201 1st Stage suction scrubber temperature	TIT-201A	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	90 - 100	200	°F	No	Yes
VS-201 1st Stage suction scrubber pressure	PTX-201A	Pressure	Rosemount	3051CG	Wet CO_2	Yes	Yes	0 - 25	60	psig	No	Yes

Description/Location	ADM Tag	Measurement	Brand	Model	Service	Compatibility with Fluid	Range Maximum >20%	Operating Range	Instrument Range Maximum	Operating Range Units	Measurement Required for Permit Compliance	Activates Automated Equipment Shutdown
VS-301 4th Stage discharge pressure	PTX-304B	Pressure	Rosemount	3051CG	Dry CO_2	Yes	Yes	0 - 1400	4000	psig	No	Yes
VS-301 4thStage Cylinder 5 temperature	TIT-304B	Temperature	Rosemount	3144	Dry CO_2	Yes	Yes	220 - 265	500	°F	No	Yes
VS-301 4th Stage suction scrubber temperature	TIT-304A	Temperature	Rosemount	3144	Dry CO_2	Yes	Yes	90 - 100	200	°F	No	Yes
VS-301 4th Stage suction scrubber pressure	PTX-304A	Pressure	Rosemount	3051CG	Dry CO_2	Yes	Yes	0 -650	1000	psig	No	Yes
VS-301 3rd Stage discharge pressure	PTX-303B	Pressure	Rosemount	3051CG	Wet CO_2	Yes	Yes	0 -650	1000	psig	No	Yes
VS-301 3rd Stage Cylinder 6 temperature	TIT-303B	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	220 -260	500	°F	No	Yes
VS-301 3rd Stage suction scrubber temperature	TIT-303A	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	90 - 100	200	°F	No	Yes
VS-301 3rd Stage suction scrubber pressure	PTX-303A	Pressure	Rosemount	3051CG	Wet CO_2	Yes	Yes	0 - 250	500	psig	No	Yes
VS-301 2nd Stage discharge pressure	PTX-302B	Pressure	Rosemount	3051CG	Wet CO_2	Yes	Yes	0 - 250	500	psig	No	Yes
VS-301 2nd Stage Cylinder 4 temperature	TIT-302C	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	270 - 315	500	°F	No	Yes
VS-301 2nd Stage Cylinder 2 temperature	TIT-302B	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	270 -315	500	°F	No	Yes
VS-301 2nd Stage suction scrubber temperature	TIT-302A	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	90 - 100	200	°F	No	Yes
VS-301 2nd Stage suction scrubber pressure	PTX-302A	Pressure	Rosemount	3051CG	Wet CO_2	Yes	Yes	0 - 75	250	psig	No	Yes
VS-301 1st Stage discharge pressure	PTX-301B	Pressure	Rosemount	3051CG	Wet CO_2	Yes	Yes	0 - 75	250	psig	No	Yes
VS-301 1st Stage Cylinder 3 temperature	TIT-301C	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	250 - 295	500	°F	No	Yes
VS-301 1st Stage Cylinder 1 temperature	TIT-301B	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	250 - 295	500	°F	No	Yes
VS-301 1st Stage suction scrubber temperature	TIT-301A	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	90 - 100	200	°F	No	Yes
VS-301 1st Stage suction scrubber pressure	PTX-301A	Pressure	Rosemount	3051CG	Wet CO_2	Yes	Yes	0 - 25	60	psig	No	Yes
Oxygen Analyzer downstream of Blower	ARX-001	Oxygen	Note 1	Note 1	Wet CO_2	Note 1	Note 1	0 - 100	Note 1	ppmv	No	No
Blower discharge temperature	TIT-101B	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	175 - 230	300	°F	No	Yes

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Blower discharge pressure	PTX-101B	Pressure	Rosemount	3051CG	Wet CO_2	Yes	Yes	0 - 18	60	psig	No	Yes
Blower suction pressure	PTX-101A	Pressure	Rosemount	3051CG	Wet CO_2	Yes	Yes	0 - 1	50 (Note 2)	psia	No	Yes
Blower inlet separator temperature	TIT-101A	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	40 -100	200	°F	No	No
HE-302 outlet temperature	TIT-414	Temperature	ICT	Note 1	Wet CO_2	Note 1	Note 1	90 - 100	Note 1	°F	No	No
HE-301 outlet temperature	TIT-412	Temperature	ICT	Note 1	Wet CO_2	Note 1	Note 1	90 - 100	Note 1	°F	No	No
VS-204 inlet temperature	TIT-406	Temperature	ICT	Note 1	Dry CO_2	Note 1	Note 1	90 - 100	Note 1	°F	No	No
HE-202 outlet temperature	TIT-404	Temperature	ICT	Note 1	Wet CO_2	Note 1	Note 1	90 - 100	Note 1	°F	No	No
HE-201 outlet temperature	TIT-402	Temperature	ICT	Note 1	Wet CO_2	Note 1	Note 1	90 - 100	Note 1	°F	No	No
VS-304 inlet temperature	TIT-416	Temperature	ICT	Note 1	Dry CO2	Note 1	Note 1	90 - 100	Note 1	°F	No	No
Blower Aftercooler Outlet Separator temperature	TIT-102B	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	90 - 100	200	°F	No	No
Blower Aftercooler Separator outlet pressure	PTX-102	Pressure	Rosemount	3051CG	Wet CO_2	Yes	Yes	0 - 18	60	psig	No	No
HE-101 CO_2 outlet temperature	TIT-102A	Temperature	Rosemount	3144	Wet CO_2	Yes	Yes	90 - 100	250	°F	No	No
Differential pressure of CO_2 across the inlet separator & Contactor	DP-401	Differential Pressure	Durkin	264DSHSSA2A1L 1N2	Wet/Dry CO_2	Yes	Yes	0 - 5	23.2	psi	No	No
Shell-side inlet pressure of HE-403	PIT-4403A	Pressure	Durkin	264HSPSTA1L1N 2	TEG	Yes	Yes	0 - 105	150	psig	No	No
Shell-side outlet pressure of HE-403	PIT-4403B	Pressure	Durkin	264HSPSTA1L1N 2	TEG	Yes	Yes	0 - 105	150	psig	No	No
Shell-side inlet pressure of HE-402	PIT-4402A	Pressure	Durkin	264HSPSTA1L1N 2	TEG	Yes	Yes	0 - 100	150	psig	No	No
Shell-side outlet pressure of HE-402	PIT-4402B	Pressure	Durkin	264HSPSTA1L1N 2	TEG	Yes	Yes	0 - 100	150	psig	No	No
Shell-side inlet temperature of HE-403	TIT-4403A	Temperature	ICT	R1T185H483-002(11/16)SC-6HN-22(6)	TEG	Yes	Yes	195 - 215	450	°F	No	No
Shell-side outlet temperature of HE-403	TIT-4403B	Temperature	ICT	R1T185H483-002(11/16)SC-6HN-22(6)	TEG	Yes	Yes	310 - 330	450	°F	No	No
Tube-side outlet temperature of HE-403	TIT-4402D	Temperature	ICT	R1T185H483-002(11/16)SC-6HN-22(6)	TEG	Yes	Yes	300 - 320	450	°F	No	No
Tube-side outlet temperature of HE402	TIT-4402C	Temperature	ICT	R1T185L483-002(11/16)SC-6HN-22(6)	TEG	Yes	Yes	95 - 115	150	°F	No	No

Description/Location	ADM Tag	Measurement	Brand	Model	Service	Compatibility with Fluid	Range Maximum >20%	Operating Range	Instrument Range Maximum	Operating Range Units	Measurement Required for Permit Compliance	Activates Automated Equipment Shutdown
Temperature of CO_2 exiting the gas/glycol exchanger HE-401	TIT-401B	Temperature	ICT	R1T185L483-006SC-6HN-22(6)	Dry CO_2	Yes	Yes	90 - 100	200	°F	No	No
Shell-side inlet temperature of HE-402	TIT-4402A	Temperature	ICT	R1T185L483-002(11/16)SC-6HN-22(6)	TEG	Yes	Yes	255 - 275	300	°F	No	No
Shell-side outlet temperature of HE-402	TIT-4402B	Temperature	ICT	R1T185L483-002(11/16)SC-6HN-22(6)	TEG	Yes	Yes	300 -320	300	°F	No	No
Bulk temperature of TEG in the glycol flash separator	TI-402	Temperature	ICT	R1T185L483-006SC-6HN-22(6)	TEG	Yes	Yes	95 - 120	300	°F	No	No
Temperature of TEG exiting the bottom of the contactor	TI-401C	Temperature	ICT	R1T185L483-002(11/16/SC-6HN-22(6)	TEG	Yes	Yes	95 - 100	200	°F	No	No
Temperature of CO_2 exiting the contactor	TI-401A	Temperature	ICT	R1T185L483-006SC-6HN-22(6)	Dry CO_2	Yes	Yes	95 - 100	200	°F	No	No
Temperature of TEG at the outlet of the coil in the still column	TIT-4002A	Temperature	ICT	R1T185L483-002(11/16/SC-6HN-22(6)	TEG	Yes	Yes	100 -150	200	°F	No	No
Temperature of CO_2 to the dehydration unit inlet separator	TT-401	Temperature	ICT	R1T185L483-006SC-6HN-22(6)	Wet CO_2	Yes	Yes	90 - 100	200	°F	No	Yes

Note 1: Equipment is not ordered yet

Note 2: 3051CG Range 2 Upper Range Limit = 250 inH_2O (9 psi)