

DWG. SET  
REVISION  
A

NOT FOR CONSTRUCTION

DRAFT

INSTRUMENT ABBREVIATIONS (INSIDE INSTRUMENT BALLOONS)			
AA*	ANALYSIS ALARM	PCV	PRESSURE CONTROL VALVE (SELF-CONTAINED)
AC	ANALYSIS CONTROLLER (SAMPLER)	PDA*	PRESSURE DIFFERENTIAL ALARM
AE	ANALYSIS ELEMENT (SAMPLER)	PDCV	PRESSURE DIFFERENTIAL CONTROL VALVE
	ANALYSIS INDICATOR	PDI	PRESSURE DIFFERENTIAL INDICATOR
AIC	ANALYSIS INDICATING CONTROLLER	PDIC	PRESSURE DIFFERENTIAL INDICATING CONTROLLER
AIS*	ANALYSIS INDICATING SWITCH	PDIS	PRESSURE DIFFERENTIAL INDICATING SWITCH
AIT	ANALYSIS INDICATING TRANSMITTER	PDR	PRESSURE DIFFERENTIAL RECORDER
AP	ANALYSIS POINT (CHROMATOGRAPH)	PDS*	PRESSURE DIFFERENTIAL SWITCH
AR	ANALYSIS RECORDER	PDT	PRESSURE DIFFERENTIAL TRANSMITTER
AS*	ANALYSIS SWITCH	PI	PRESSURE INDICATOR
AT	ANALYSIS TRANSMITTER (CHROMATOGRAPH)	PIC	PRESSURE INDICATING CONTROLLER
AV	ANALYSIS CONTROL VALVE	PIT	PRESSURE INDICATING TRANSMITTER
AY	ANALYSIS RELAY	PR	PRESSURE RECORDER
BA*	BURNER ALARM	PRC	PRESSURE RECORDING CONTROLLER
BE	BURNER ELEMENT	PRV	PRESSURE REGULATING VALVE
BS	BURNER SWITCH	PS*	PRESSURE SWITCH
	VOLTAGE INDICATOR	PSE	PRESSURE SAFETY HEAD
ES*	VOLTAGE SWITCH	PSV	PRESSURE SAFETY/RELIEF VALVE
FA*	FLOW ALARM	PT	PRESSURE TRANSMITTER
FC	FLOW CONTROLLER	PV	PRESSURE CONTROL VALVE
FCV	FLOW CONTROL VALVE	PY	PRESSURE RELAY
FE	FLOW ELEMENT	SA*	SPEED ALARM
FFC	FLOW RATIO CONTROLLER	SDV	SHUTDOWN VALVE
	FLOW INDICATOR	SE	SPEED ELEMENT (TACHOMETER PICK-UP)
	FLOW INDICATING CONTROLLER	SS*	SPEED SWITCH
FO	FLOW ORIFICE (RESTRICTION ORIFICE)	ST	SPEED TRANSMITTER
FQ	FLOW TOTALIZER/FLOW COMPUTER	STR	STRAINER
FQI	FLOW TOTALIZING INDICATOR	TA*	TEMPERATURE ALARM
FQS*	FLOW TOTALIZING SWITCH	TC	TEMPERATURE CONTROLLER
FR	FLOW RECORDER	TCV	TEMPERATURE CONTROL VALVE (SELF-CONTAINED)
FRCV	FLOW RECORDING CONTROL VALVE	TDI	TEMPERATURE DIFFERENTIAL INDICATOR
FS*	FLOW SWITCH	TE	TEMPERATURE ELEMENT (WITH THERMOWELL)
FT	FLOW TRANSMITTER	THCP	THERMOSTATIC HEATER CONTROL PROBE
FV	FLOW VALVE	TI	TEMPERATURE INDICATOR (WITH THERMOWELL)
FX	FLOW STRAIGHTENING VANE	TIC	TEMPERATURE INDICATING CONTROLLER
FY	FLOW RELAY	TICV	TEMPERATURE INDICATING CONTROL VALVE
FYY	FLOW COMPUTING RELAY (MASS)	TR	TEMPERATURE RECORDER
HC	HAND CONTROLLER	TRC	TEMPERATURE RECORDING CONTROLLER
HCV	HAND CONTROL VALVE	TRCV	TEMPERATURE RECORDING CONTROL VALVE
HS	HAND SWITCH	TS*	TEMPERATURE SWITCH
HV	HAND SELECTOR VALVE	TT	TEMPERATURE TRANSMITTER
	LEVEL DEVICE	TIT	TEMPERATURE INDICATING TRANSMITTER
LA*	LEVEL ALARM	TV	TEMPERATURE CONTROL VALVE
LC	LEVEL CONTROLLER	TW	TEMPERATURE TEST CONNECTION (THERMOWELL)
LCV	LEVEL CONTROL VALVE	VA*	VIBRATION ALARM
LG	LEVEL GAUGE GLASS	VE	VIBRATION ELEMENT
	LEVEL INDICATOR (OTHER THAN LG)	VS*	VIBRATION SWITCH
LIC	LEVEL INDICATING CONTROLLER	X	RESERVED FOR SHUTDOWN DEVICE
LR	LEVEL RECORDER	XA*	ANNUNCIATOR POINT
LS*	LEVEL SWITCH	XI	PIG PASSAGE INDICATOR
LT	LEVEL TRANSMITTER	XY	SPECIAL RELAY (USUALLY A SOLENOID)
LV	LEVEL VALVE	Y	DEVICE: 1/P, SDV, RELAY, ETC.
MA*	MOISTURE ALARM	ZA*	POSITION ALARM (MOTION)
MC	MOISTURE CONTROLLER	ZE	POSITION DETECTOR (MOTION)
ME	MOISTURE ELEMENT	ZIC	POSITION INDICATOR LAMP (VALVE CLOSED)
	MOISTURE INDICATOR	ZIO	POSITION INDICATOR LAMP (VALVE OPEN)
MR	MOISTURE RECORDER	ZS*	POSITION SWITCH (MOTION)
MS*	MOISTURE SWITCH	ZSC	POSITION INDICATOR SWITCH (VALVE CLOSED)
MT	MOISTURE ANALYZER/TRANSMITTER	ZSO	POSITION INDICATOR SWITCH (VALVE OPEN)
OSA*	OVER SPEED ALARM	ZT	POSITION TRANSMITTER
OSS*	OVER SPEED SWITCH		
PA*	PRESSURE ALARM		
PC	PRESSURE CONTROLLER		

\* ALARMS, SWITCHES AND ANNUNCIATORS MAY HAVE SUFFIX LETTERS AS FOLLOWS:  
L DENOTES LOW ALARM  
LL DENOTES LOW SHUTDOWN  
H DENOTES HIGH ALARM  
HH DENOTES HIGH SHUTDOWN

VALVE IDENTIFICATION (NON-INSTRUMENTATION)		
EXAMPLE: BDC TYPE: B CONNECTION: C		
TYPE:	PRESSURE CLASS:	CONNECTION:
A GATE	A 150# ANSI	A FLANGED, RAISED FACE
B BALL	B 300# ANSI	B FLANGED, RING JOINT
C PLUG	C 400# ANSI	C WELD X FLANGED, RAISED FACE
D GLOBE	D 600# ANSI	D WELD X FLANGED, RING JOINT
E NEEDLE	E 900# ANSI	E WELD X WELD
F BUTTERFLY	F 1500# ANSI	F SOC. X SOC.
G SWING CHECK	G 2500# ANSI	G SCREWED, FPT
H WAFER CHECK	J 6000# WOG	H SCREWED, MPT
J BALL CHECK	P 150# WOG	I SCREWED, MPT X FPT
P PISTON CHECK	Q 200# WOG	J FLANGED, FLAT FACE
S SOLENOID	R 300# WOG	
X SPECIAL	S 800# WOG	
	T 1000# WOG	
	U 2000# WOG	
	W 3000# WOG	
	X 175# WOG	
	Y 125# WOG	

INSTRUMENT BALLOONS			
	INSTRUMENT FOR TWO FUNCTIONS OR TWO MEASURED VARIABLES		SIGNAL TO AUXILIARY CONTROL PANEL-MOUNTED ON FRONT
	FIELD MOUNTED INSTRUMENT		SIGNAL TO AUXILIARY CONTROL PANEL-MOUNTED ON REAR
	SURFACE MOUNTED SENSOR		REMOTE TELEMETRY UNIT
	SIGNAL TO REMOTELY MOUNTED CONTROL PANEL-MOUNTED ON FRONT		PILOT LIGHT
	SIGNAL TO REMOTELY MOUNTED CONTROL PANEL-MOUNTED ON REAR		G=GREEN R=RED W=WHITE

INTERLOCK LOGIC			
	COMPLEX OR UNDEFINED INTERLOCK		RESET
	OUTPUT ONLY IF ALL INPUTS PRESENT		PILOT
	OUTPUT IF ANY INPUTS ARE PRESENT		EMERGENCY SHUTDOWN LOGIC

VALVE ACTUATORS			
	DIAPHRAGM		REGULATOR, SELF-CONTAINED
	DIAPHRAGM W/ MANUAL OVERRIDE		REGULATOR WITH EXTERNAL PRESSURE TAP
	DIAPHRAGM W/ POSITIONER		SOLENOID OPERATED VALVE
	ELECTROHYDRAULIC OPERATED VALVE		MOTOR OPERATED VALVE
	PISTON OPERATED VALVE, SINGLE ACTING		DOUBLE ACTING PISTON, SPRING RETURN
	PISTON OPERATED VALVE, DOUBLE ACTING		PISTON ACTUATOR (BECKER)
	REGULATOR, W/ INTEGRAL OUTLET PRESSURE RELIEF VALVE		

MANUALLY OPERATED VALVES			
	GATE VALVE, WELD END		3 VALVE MANIFOLD
	GATE VALVE, FLANGED END		5 VALVE MANIFOLD
	BALL VALVE, WELD END		GLOBE VALVE, WELD END
	BALL VALVE, FLANGED END		GLOBE VALVE, FLANGED END
	CHECK VALVE, WELD END		PLUG VALVE, WELD END
	CHECK VALVE, FLANGED END		PLUG VALVE, FLANGED END
	BUTTERFLY VLV., WELD END		3-WAY VALVE, WELD END
	BUTTERFLY VLV., FLANGED END		3-WAY VALVE, FLANGED END
	ANGLE VALVE, WELD END		4-WAY VALVE, WELD END
	ANGLE VALVE, FLANGED END		4-WAY VALVE, FLANGED END
	ANGLE CHECK VALVE, WELD END		EXCESS FLOW VALVE, WELD END
	ANGLE CHECK VALVE, FLANGED END		EXCESS FLOW VALVE, FLANGED END
	ANGLE CHOKE VALVE, WELD END		VACUUM SAFETY VALVE
	ANGLE CHOKE VALVE, FLANGED END		INSTRUMENT VALVE, 3-WAY SOLENOID
	PRESSURE SAFETY RELIEF VALVE		
	INSTRUMENT VALVE, NEEDLE		
	INSTRUMENT VALVE, GATE		
	INSTRUMENT VALVE, PLUG		
	INSTRUMENT VALVE, 3-WAY		
	INSTRUMENT VALVE, BALL		

MISCELLANEOUS SYMBOLS		LINE LEGEND	
	POSITIVE DISPLACEMENT METER		CAPILLARY TUBING
	SENIOR ORIFICE FITTING		SENSING TUBING
	ORIFICE METER		PROCESS PIPING UNDERGROUND
	TEST STATION		PROCESS PIPING
	CONCENTRIC REDUCER		SECONDARY PIPING UNDERGROUND
	BLEED RING W/ GATE VALVE		SECONDARY PIPING
	LINE CAP		SECONDARY PIPING UNDERGROUND
	PLUG		BUILDING LIMITS
	HORN		ELECTRICAL CONDUIT
	EXPANSION JOINT		INTERNAL SYSTEM DATA LINK
	SPECTACLE BLIND: CLOSED		
	SPECTACLE BLIND: OPEN		
	ROTAMETER TYPE FLOW INDICATOR		
	FLOW NOZZLE		
	PITOT TUBE OR PITOT-VENTURI TUBE		
	IN-LINE MIXER		
	DIRECTIONAL ARROW		
	YALE CAP WITH BLEED VALVE		
	TRANSITION FROM ABOVE GROUND TO BELOW GROUND PIPING		
	INSULATING JOINT		
	FLANGE INSULATING SET		
	POLARIZATION CELL REPLACEMENT		
	POLARIZATION CELL REPLACEMENT FOR HAZARDOUS AREA LOCATION		
	DRY LINE HEATER		
	STRAIGHTENING VANES		
	ULTRASONIC FLOW METER		
	TURBINE METER (FLANGED)		
	IN-LINE FILTER STRAINER		
	FILTER		
	FILTER/DRYER		
	Y STRAINER		
	CONE STRAINER		
	LINE INSULATION W/ HEAT TRACING		
	FLANGES		
	FLAME ARRESTOR		
	SPARK ARRESTOR		
	FLEXIBLE HOSE		
	THREAD-0-LET		
	TOL WITH THERMOWELL		
	WELD-0-LET		
	SOC-0-LET		
	VENTURI TUBE		
	MASS FLOW METER		
	TIE-IN		
	RUPTURE DISC		
	HOSE CONNECTION		
	LINE SPEC CHANGE		
	LINE CONTINUATION BOX WITH I.D. AND DWG. NO.		
	DRAIN		
	VENT		

MISCELLANEOUS ABBREVIATIONS					
AC	AIR TO CLOSE	FA	FLAME ARRESTOR	MAOP	MAXIMUM ALLOWABLE OPERATING PRESSURE
AO	AIR TO OPEN	(FBO)	FURNISHED BY OWNER	MOP	MAXIMUM OPERATING PRESSURE
AOV	AIR OPERATED VALVE	FC	FAIL CLOSED	STPL	STOPPLE
AS	AIR SUPPLY	FO	FAIL OPEN	T/T	TANGENT TO TANGENT
ATM	ATMOSPHERE	FL	FAIL LAST POSITION	NC	NORMALLY CLOSED
BDV	BLOW DOWN VALVE	FE	FLANGED END	NO	NORMALLY OPEN
BS	BASKET STRAINER	GOV	GAS OPERATED VALVE	NS	NITROGEN SUPPLY
CC	CORROSION COUPON	Goy	GAS OPERATED SOLENOID	OP	OPERATING PRESSURE
COND.	CONDUCTIVITY	GS	GAS SUPPLY	OT	OPERATING TEMPERATURE
CSC	CAR SEAL CLOSED	HC	HOSE CONNECTION	PH	PH (ACIDITY)
CSO	CAR SEAL OPEN	HS	HYDRAULIC SUPPLY	RA	REVERSE ACTING
D	DRAIN	LC	LOCK CLOSED	RO	RESTRICTION ORIFICE
DM	DEMISTER	LO	LOCK OPEN	RTU	REMOTE TELEMETRY UNIT
EL	ELEVATION	MCC	MOTOR CONTROL CENTER	SC	SAMPLE CONNECTION
ES	ELECTRIC SUPPLY	MW	MANWAY	SD	SHUTDOWN
ESD	EMERGENCY SHUTDOWN			SOL	SOLENOID

COMPANY	DRAWING NO.	TITLE	REV.	DATE	A	4/24/13	DRAFT	FJC	MDF
	REFERENCE DRAWINGS				NO.	DATE	REMARKS	CAD	CHKD, APP.
							REVISIONS		



DRAWING SCALE: NONE  
PROOF LINE ONE INCH  
TO SCALE ONLY IF PLOTTED AT 22"x34"  
DRAWING SCALE CHECK SCALE: ACCURATE WHEN PROOF LINE MEASURES 1 INCH

VERMONT GAS SYSTEMS, INC.  
ADDISON NATURAL GAS PROJECT  
MAIN LINE VALVE  
TYPICAL  
PROCESS AND INSTRUMENTATION LEGEND

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