

C:\Users\jmdulic\appdata\local\temp\afubliuh_2052\31971-FLOWS.dwg
PLOT DATE Jan 02, 2013, module

PROJECT DESCRIPTION

ONE (1) NATURAL GAS COMPRESSOR PACKAGE
FOR: EOG RESOURCES LTD.
LOCATION NAME: CLARKS CREEK FACILITY
MOUNTRAIL COUNTY, ND
SEC 7 TOWNSHIP 151N RANGE 94W

FABRICATED BY:

ENERFLEX SYSTEMS INC.
CALGARY, ALBERTA, CANADA

TANK CAPACITIES

GLYCOL STORAGE TANK: 109 US GALLONS
WASTE OIL STORAGE TANK: 109 US GALLONS
COMPR. LUBE OIL DAYTANK: 56 US GALLONS
ENGINE LUBE OIL DAYTANK: 56 US GALLONS

DESIGN CRITERIA & APPLICABLE CODES

SITE ELEVATION:	1800 FT ABOVE MEAN SEA LEVEL
BAROMETRIC PRESSURE:	13.753 PSIA
AMBIENT TEMPERATURE:	MAXIMUM 100°F MINIMUM -20°F
WIND SPEED:	MAXIMUM 160 km/hr
PROCESS INLET:	DESIGN 230 PSIG @ 300°F
PROCESS FINAL DISCHARGE:	DESIGN 1932 PSIG @ 350°F
INSTRUMENT GAS:	MINIMUM PRESSURE 50 PSIG MAXIMUM PRESSURE 150 PSIG QUALITY FILTERED/DRY, 50°F MAXIMUM DEW POINT
APPLICABLE CODE:	CODE PIPING B31.3 - LATEST EDITION NON-CODE PIPING EFX C01, 1mm CA VESSEL ASME SECTION VIII EXCHANGER ASME SECTION VIII STRUCTURAL AWS D1.1 ELECTRICAL NEC
REGISTRATION:	VESSEL, COOLER AB,BC,SK,NB
MISCELLANEOUS:	GASKETS CG TYPE, SPIRAL WOUND, GRAPHITE FILLED, 316SS BOLTING STUDS - SA-193-B7, NUTS - SA-194-2H PROCESS PIPE CARBON STEEL UTILITY PIPE CARBON STEEL FLANGES RAISED FACE (UNLESS OTHERWISE NOTED) ORIFICE PLATES REMOVABLE FULL BORE ORIFICE, SUCTION & DISCHARGE FOR EACH CYLINDER
TUBING & FITTINGS: (SPE-010-TUB)	PROCESS TUBING - 316(SS) SMLS FITTINGS - 316(SS) FERRULES - 316(SS) UTILITY TUBING - 316(SS) SMLS FITTINGS - 316(SS) FERRULES - 316(SS) FRAME INTERNALS TUBING - 316(SS) SMLS FITTINGS - 316(SS) RIGID ALUMINUM CONDUIT SUITABLE FOR USE IN: CLASS 1, DIV 2, GROUP D
ELECTRICAL:	

POWER REQUIREMENTS

ENGINE IGNITION SYSTEM:	VOL: 24 VDC			
CONTROL PANEL:	VOL: 24 VDC	AMPS:	NOM: 4.0	MAX: 10
FIRE DETECTION:	VOL: 24 VDC	AMPS:	NOM: 0.1	MAX: 0.3
LEL DETECTION:	VOL: 24 VDC	AMPS:	NOM: 0.2	MAX: 0.3
LIGHTS: (EXT.)	150W, 120 VAC/3PH/60HZ			
(INT.)	150W, 120 VAC/3PH/60HZ			

SYSTEM CONSUMABLES

COMPRESSOR CRANKCASE LUBE OIL:	SAE 40, LOW ASH, 15 US GALLONS
COMPRESSOR CYLINDER LUBE OIL	SAE 40, LOW ASH
ENGINE CRANKCASE LUBE OIL:	SAE 40, LOW ASH, 44 US GALLONS
GLYCOL:	50% ETHYLENE INHIBITED GLYCOL/WATER SOLUTION IN ENGINE & AUXILIARY JACKET WATER SYSTEMS EJW CAPACITY: 65 US GALLONS AJW CAPACITY: 24 US GALLONS

DESIGN SPECIFICATION:

ENERFLEX LTD. (EFX) SCOPE OF SUPPLY ON THIS PROJECT CONSISTS OF ONE SKIDDED GAS COMPRESSOR PACKAGE.

PACKAGE CONSISTS OF ONE (1) H24GSI ENGINE DRIVING AN COMPRESSOR-ARIEL JGJ/4, THREE STAGE, SWEET NATURAL GAS COMPRESSOR.

PRIMER:	-CAC-ENG-SPC-001,FIN-1, ECO PRIME WATER BASED PRIMER, CLOVERDALE 703 SERIES.
PAINT:	-CAC-ENG-SPC-001, FIN-1, ECOLOGIC WATER BASED INDUSTRIAL ENAMEL CARLSBAD CANYON TAN
COLOR:	CARLSBAD CANYON TAN
PROCESS PIPING:	-5% RADIOGRAPHIC TESTING - RT2 -1/16" CORROSION ALLOWANCE -NO PWHT -SSPC-SP3 -SPOOLING BETWEEN CONE STRAINER AND COMPRESSOR SUCTION FLANGE SANDBLASTED INTERNALLY SSPC-SP6 -NO PICKLING
VESSELS:	-5% RADIOGRAPHIC TESTING - RT2 -NO PWHT -SSPC-SP3 -NO PICKLING -SPOOLING BETWEEN CONE STRAINER AND COMPRESSOR SUCTION FLANGE SANDBLASTED INTERNALLY SSPC-SP6



						DATE	05/28/12	SCALE	NTS		ENERFLEX Calgary, Alberta, Canada	P & I DIAGRAM PROJECT DESCRIPTION & OVERVIEW				
						DRAWN BY	A.HAMMOND	CHECKED BY	L. Dioguino				APPROVED BY	S. Pritchard		
						PROJECT MANAGER	S. Pritchard	PROJECT ENGINEER	L. Dioguino							
1	FINAL AS-BUILT	DEC.11/12	MD	LD	CUST PO											
0	ISSUED FOR CONSTRUCTION	09/17/12	AH	LD												
A	ISSUED FOR APPROVAL	08/10/12	SE	LD												
REV	DESCRIPTION	DATE	BY	APR	APEGGA PERMIT No: P8651		STEP CODE	N/A	WORK ORDER	31971	DWG NO	31971-099	SHT	1	REV	1

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V211
1ST STAGE
SUCTION SCRUBBER
MFG: EFX
SIZE: 20" OD X 60" S/S
MAWP: 230 PSIG @ 300°F
MDMT: -20°F @ 230 PSIG
CA: 1/16"
MAT'L: CARBON STEEL
ELEMENTS: MESH PAD
SN: 31971211
CRN: T1386.213

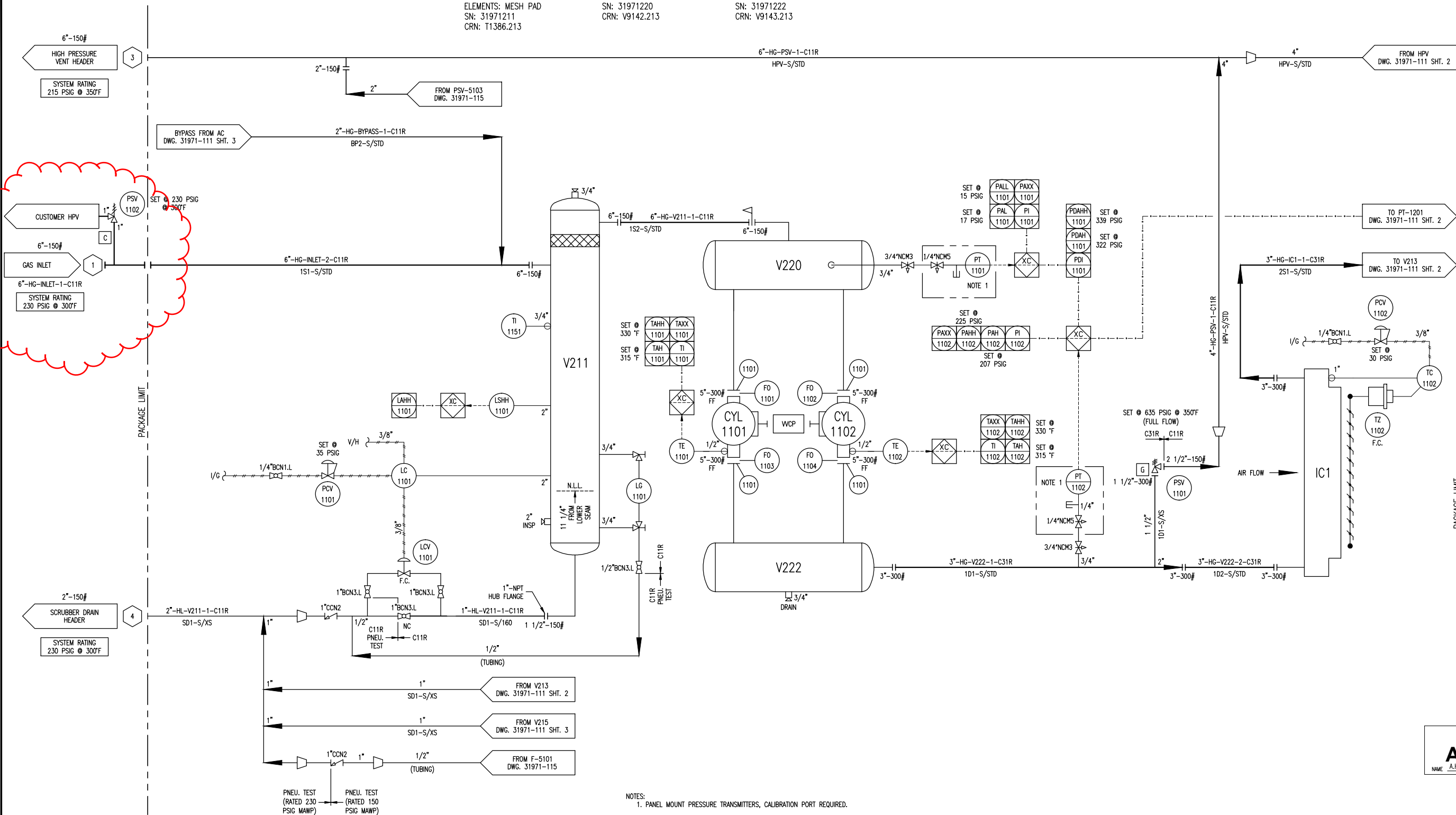
V220
1ST STAGE
SUCTION BOTTLE
MFG: EFX
SIZE: 12 3/4" OD X 60" S/S
MAWP: 230 PSIG @ 300°F
MDMT: -20°F @ 230 PSIG
CA: 1/16"
MAT'L: CARBON STEEL
SN: 31971220
CRN: V9142.213

V222
1ST STAGE
DISCHARGE BOTTLE
MFG: EFX
SIZE: 10 3/4" OD X 50" S/S
MAWP: 645 PSIG @ 350°F
MDMT: -20°F @ 645 PSIG
CA: 1/16"
MAT'L: CARBON STEEL
SN: 31971222
CRN: V9143.213

CYL1101
1ST STAGE
COMPRESSION CYLINDER
MFG: ARIEL
MODEL: 8-3/8 RJ
SIZE: 8.000" BORE
MAWP: 635 PSIG
THROW: #1
SN: C-137499

CYL1102
1ST STAGE
COMPRESSION CYLINDER
MFG: ARIEL
MODEL: 8-3/8 RJ
SIZE: 8.000" BORE
MAWP: 635 PSIG
THROW: #3
SN: C-137501

IC1
1ST STAGE
COOLER SECTION
MAWP: 645 PSIG @ 350°F
MDMT: -20°F @ 645 PSIG
CA: 1/16"



NOTES:
1. PANEL MOUNT PRESSURE TRANSMITTERS, CALIBRATION PORT REQUIRED.

						DATE	05/28/12	SCALE	NTS	ENERFLEX Calgary, Alberta, Canada	P & I DIAGRAM PROCESS GAS STAGE #1					
						DRAWN BY	A.HAMMOND	CHECKED BY	L. Dioquino					APPROVED BY	S. Pritchard	
						PROJECT MANAGER	S. Pritchard	PROJECT ENGINEER	L. Dioquino							
						CUST PO										
1	FINAL AS-BUILT	DEC.11/12	MD	LD												
0	ISSUED FOR CONSTRUCTION	09/17/12	AH	LD												
A	ISSUED FOR APPROVAL	08/10/12	SE	LD												
REV	DESCRIPTION	DATE	BY	APR	APEGGA PERMIT No: P8651		STEP CODE	490 511 591	WORK ORDER	31971	DWG NO	31971-111	SHT	1	REV	1

V213
2ND STAGE
SUCTION SCRUBBER

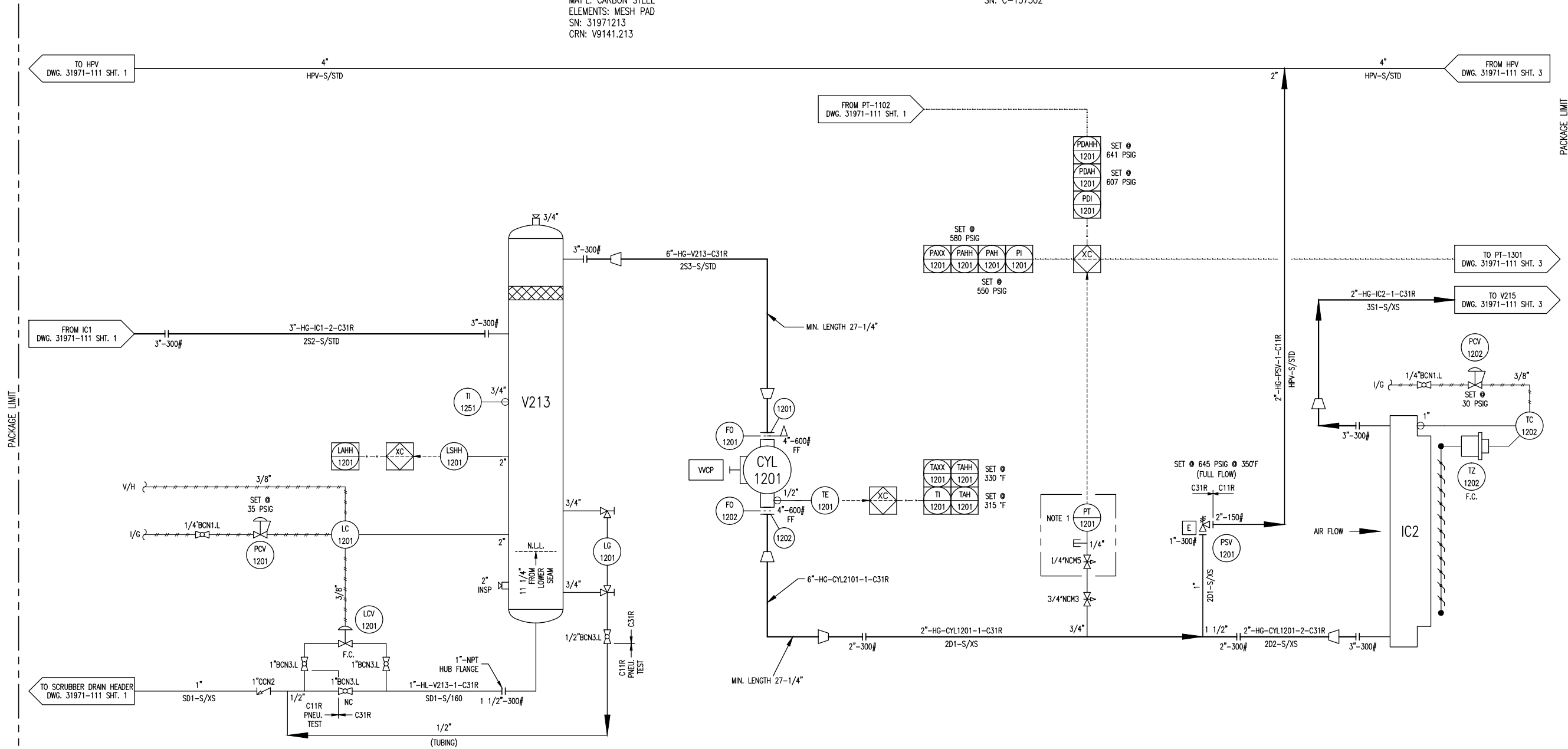
MFG: EFX
SIZE: 20" OD X 60" S/S
MAWP: 655 PSIG @ 300°F
MDMT: -20°F @ 655 PSIG
CA: 1/16"
MAT'L: CARBON STEEL
ELEMENTS: MESH PAD
SN: 31971213
CRN: V9141.213

CYL1201
2ND STAGE
COMPRESSION CYLINDER

MFG: ARIEL
MODEL: 6-3/8 RJ
SIZE: 6.00" BORE
MAWP: 1270 PSIG
THROW: #4
SN: C-137502

IC2
2ND STAGE
COOLER SECTION

MAWP: 645 PSIG @ 350°F
MDMT: -20°F @ 645 PSIG
CA: 1/16"

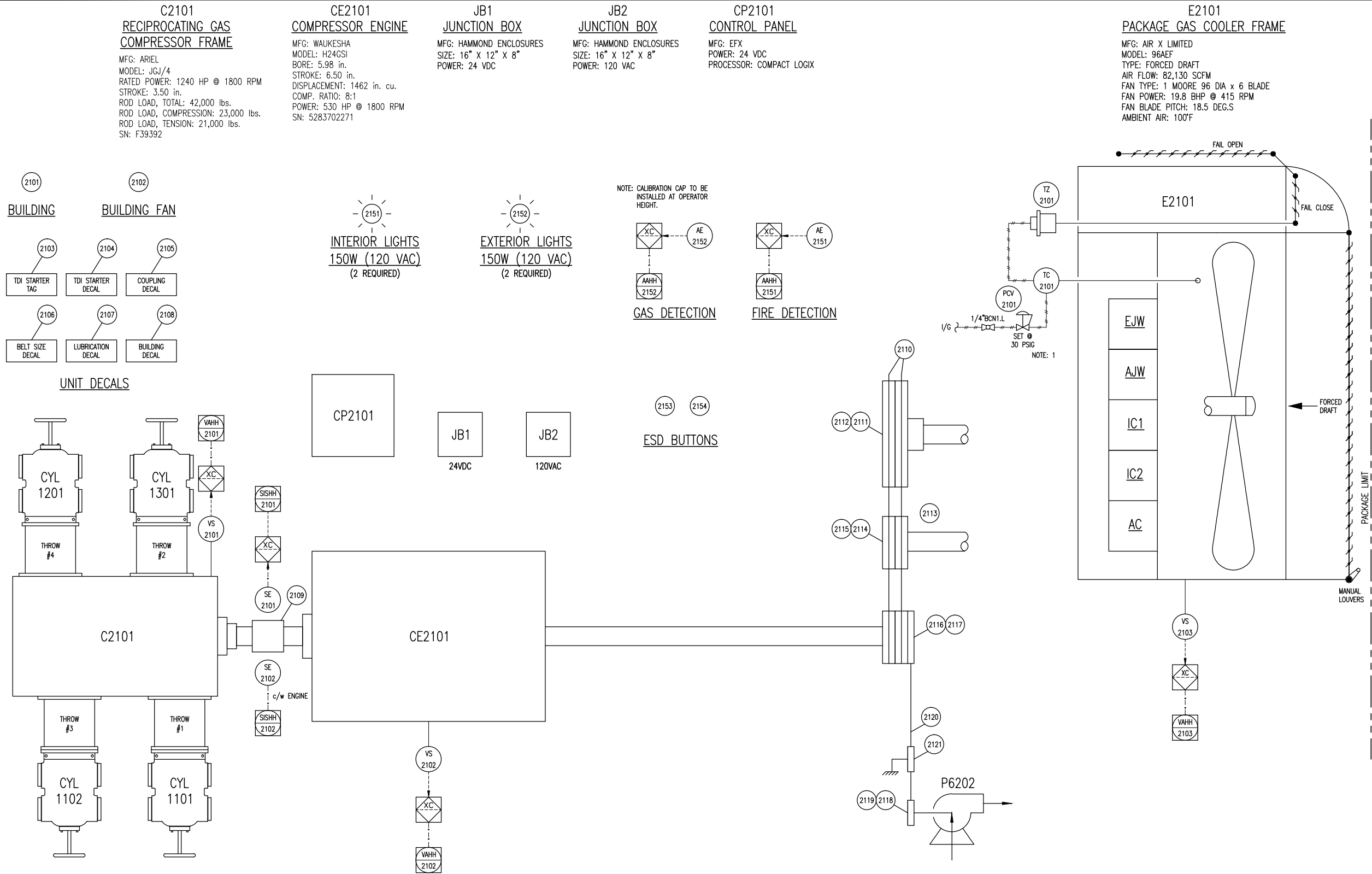


NOTES:
1. PANEL MOUNT PRESSURE TRANSMITTERS, CALIBRATION PORT REQUIRED.

FINAL AS BUILT
NAME: A.HAMMOND DATE: DEC.11/12

							DATE	05/28/12	SCALE	NTS		ENERFLEX Calgary, Alberta, Canada	P & I DIAGRAM PROCESS GAS STAGE #2					
							DRAWN BY	A.HAMMOND	CHECKED BY	L. Dioquino				APPROVED BY	S. Pritchard			
							PROJECT MANAGER	S. Pritchard	PROJECT ENGINEER	L. Dioquino								
							CUST PO											
	1	FINAL AS-BUILT		DEC.11/12	MD	LD	APEGGA PERMIT No:	P8651	STEP CODE	490 511 591	WORK ORDER	31971	DWG NO	31971-111	SHT	2	REV	1
	0	ISSUED FOR CONSTRUCTION		09/17/12	AH	LD												
	A	ISSUED FOR APPROVAL		08/10/12	SE	LD												
	REV	DESCRIPTION		DATE	BY	APR												

PACKAGE LIMIT



NOTE: 1. INSTALLATION ON FULL COUPLING AT OPERATOR HEIGHT.

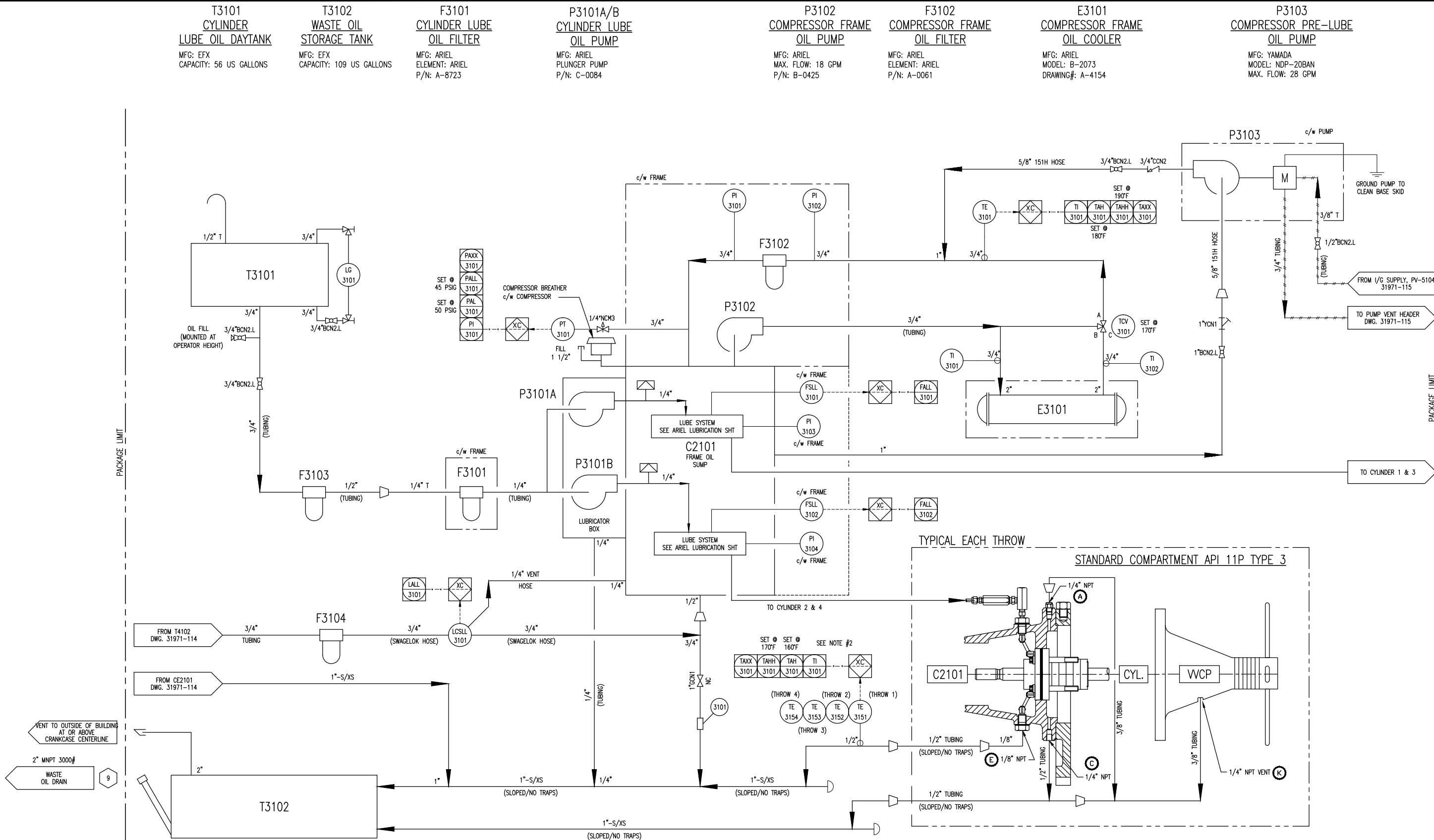
FINAL
AS BUILT
NAME J. CUI DATE DEC.11/12

						DATE	05/28/12	SCALE	NTS	ENERFLEX Calgary, Alberta, Canada	P & I DIAGRAM DRIVE TRAIN/ CONTROL PANEL			
2	FINAL AS-BUILT	DEC.11/12	MD	LD	DRAWN BY	A.HAMMOND	CHECKED BY	L. Dioguino	APPROVED BY			S. Pritchard		
1	MOVE SPEED SENSOR 2101 LOCATION & ADD A SPEED SENSOR 2102	10/10/12	JC	LD	PROJECT MANAGER	S. Pritchard	PROJECT ENGINEER S. Pritchard							
0	ISSUED FOR CONSTRUCTION	09/17/12	AH	LD	CUST PO									
A	ISSUED FOR APPROVAL	08/10/12	SE	LD	APEGGA PERMIT No: P8651									
REV	DESCRIPTION	DATE	BY	APR	STEP CODE	151 198 511 712 721	WORK ORDER	31971	DWG NO	31971-112	SHT	1	REV	2

PLOT DATE Jan 02, 2013, midulic c:\Users\midulic\AppData\Local\Temp\AcPublish_2052\31971-FLUWS.dwg

PACKAGE LIMIT

PACKAGE LIMIT



NOTES:

1. Ⓢ LETTER TAGS REFER TO DWG. #DANDV-ARIELSTD.
2. PACKING TEMPERATURE SET POINTS MUST BE REVIEWED AND RESET POST START UP.
TAH SET POINT = OPERATING TEMP. + 15°F
TAHH SET POINT = OPERATING TEMP. + 25°F

**FINAL
AS BUILT**
NAME J. CUI DATE DEC.11/12

REV	DESCRIPTION	DATE	BY	APR
2	FINAL AS-BUILT	DEC.11/12	MD	LD
1	REVISED AS NOTED	10/16/12	JC	LD
0	ISSUED FOR CONSTRUCTION	09/17/12	AH	LD
A	ISSUED FOR APPROVAL	08/10/12	SE	LD

DATE	05/28/12	SCALE	NTS
DRAWN BY	A.HAMMOND	CHECKED BY	L. Diogino
PROJECT MANAGER	S. Pritchard	PROJECT ENGINEER	L. Diogino
CUST PO			

APEGGA PERMIT No: P8651

STEP CODE 511 591

WORK ORDER 31971

ENERFLEX
Calgary, Alberta,
Canada

DWG NO 31971-113

P & I DIAGRAM
COMPRESSOR LUBE
OIL & UTILITIES

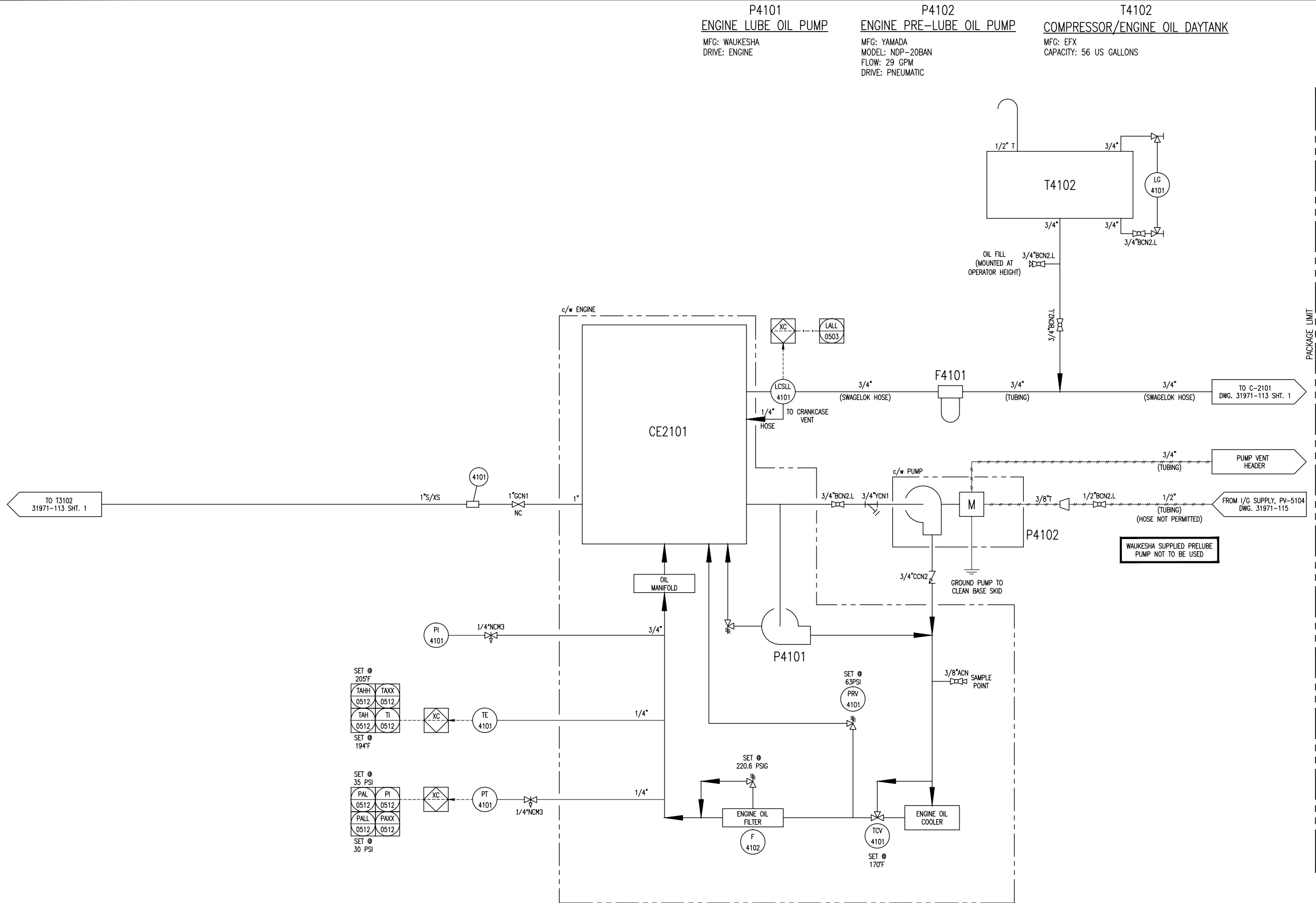
SHT 1

REV 2

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PACKAGE LIMIT



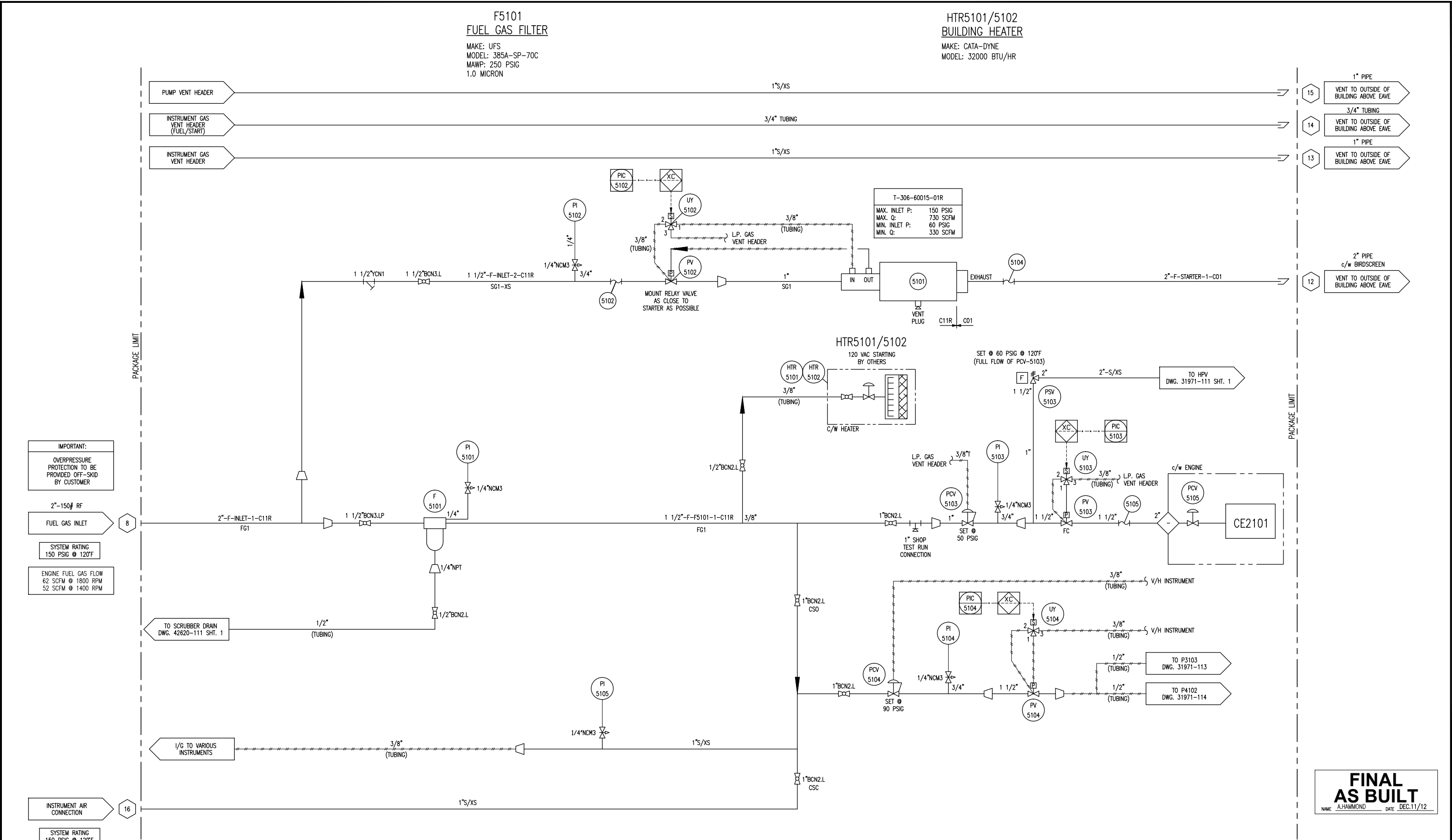
PACKAGE LIMIT

**FINAL
AS BUILT**
NAME J. CUI DATE DEC.11/12

						DATE	05/28/12	SCALE	NTS		ENERFLEX Calgary, Alberta, Canada	P & I DIAGRAM ENGINE LUBE OIL				
2	FINAL AS-BUILT	DEC.11/12	MD	LD	DRAWN BY	A.HAMMOND	CHECKED BY	L. Diogino	APPROVED BY				S. Pritchard			
1	REVISED MOTOR MARK AND ADD PUMP GROUND LINE	10/10/12	JC	LD	PROJECT MANAGER	S. Pritchard	PROJECT ENGINEER	L. Diogino								
0	ISSUED FOR CONSTRUCTION	09/17/12	AH	LD	CUST PO											
A	ISSUED FOR APPROVAL	08/10/12	SE	LD												
REV	DESCRIPTION	DATE	BY	APR	APEGGA PERMIT No: P8651		STEP CODE	511 591	WORK ORDER	31971	DWG NO	31971-114	SHT	1	REV	2

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						DATE	05/28/12	SCALE	NTS	ENERFLEX Calgary, Alberta, Canada	P & I DIAGRAM START / FUEL GAS SUPPLY							
						DRAWN BY	A.HAMMOND	CHECKED BY	L. Dioguino					APPROVED BY	S. Pritchard			
						PROJECT MANAGER	S. Pritchard	PROJECT ENGINEER S. Pritchard										
						CUST PO												
1	FINAL AS-BUILT	DEC.11/12	MD	LD		APEGGA PERMIT No: P8651			STEP CODE	511 591	WORK ORDER	31971	DWG NO	31971-115	SHT	1	REV	1
0	ISSUED FOR CONSTRUCTION	09/17/12	AH	LD														
A	ISSUED FOR APPROVAL	08/10/12	SE	LD														
REV	DESCRIPTION				DATE	BY	APR											

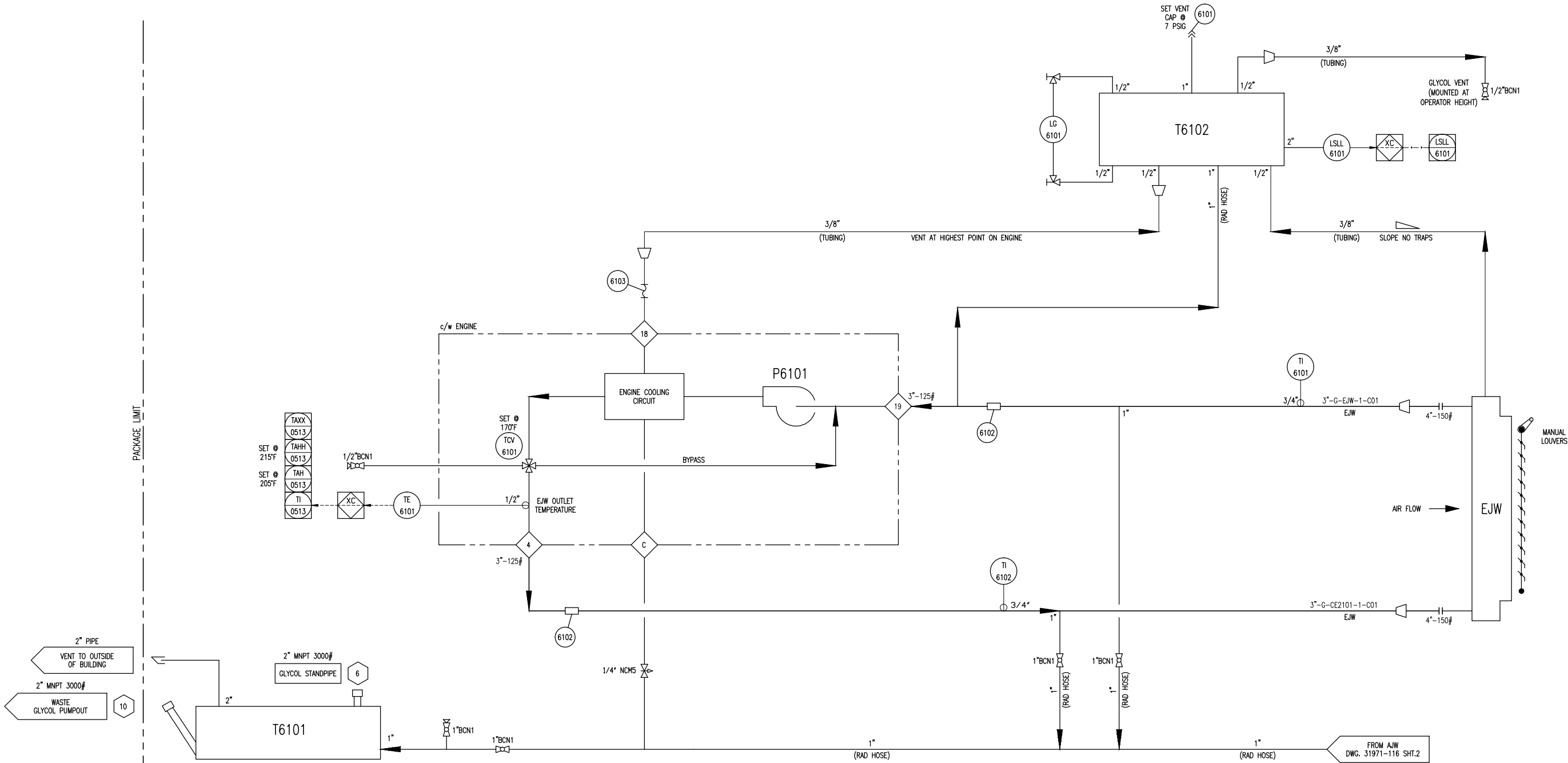
PLOT DATE Jan 02, 2013, module C:\Users\mdule\appdata\local\temp\202\31971-FLWS.dwg

T6101
WASTE GLYCOL TANK
MFG: EFX
CAPACITY: 109 US GALLONS

P6101
ENGINE JACKET
WATER PUMP
MFG: WAUKESHA
MAX. FLOW: 130 GPM
DRIVE: ENGINE

T6102
GLYCOL (EJW) SURGE TANK
MFG: EFX
CAPACITY: 8 US GALLONS
TOTAL SYSTEM VOLUME: 62 US GALLONS
MAT'L: SA-36

EJW
ENGINE JACKET WATER
COOLER SECTION
MAWP: 14 PSIG @ 300°F
NON-CODE VESSEL



**FINAL
AS BUILT**
NAME J. CUI DATE DEC.11/12

				DATE 05/28/12		SCALE NTS		ENERFLEX Calgary, Alberta, Canada		P & I DIAGRAM COOLING SYSTEM ENGINE JACKET WATER	
2	FINAL AS-BUILT	DEC.11/12	MD	LD	DRAWN BY A.HAMMOND	CHECKED BY L. Dioguardo	APPROVED BY S. Pritchard				
1	CHANGE 1" BALL VALVE TO 1/4" NEEDLE VALVE	10/10/12	JC	LD	PROJECT MANAGER S. Pritchard	PROJECT ENGINEER L. Dioguardo					
0	ISSUED FOR CONSTRUCTION	09/17/12	AH	LD	CUST PO						
A	ISSUED FOR APPROVAL	08/10/12	SE	LD	APEGGA PERMIT No: P8651		STEP CODE 511 531 591	WORK ORDER 31971	DWG NO 31971-116	SHT 1	REV 2
REV	DESCRIPTION		DATE	BY	APR						

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E3101
COMPRESSOR FRAME
OIL COOLER

MFG: ARIEL
MODEL: B-2073
DWG #: A-4154

P6201
AUXILIARY JACKET
WATER PUMP

MFG: WAUKESHA
MAX. FLOW: 35 GPM
DRIVE: ENGINE

P6202
AUXILIARY GLYCOL
CIRCULATION PUMP

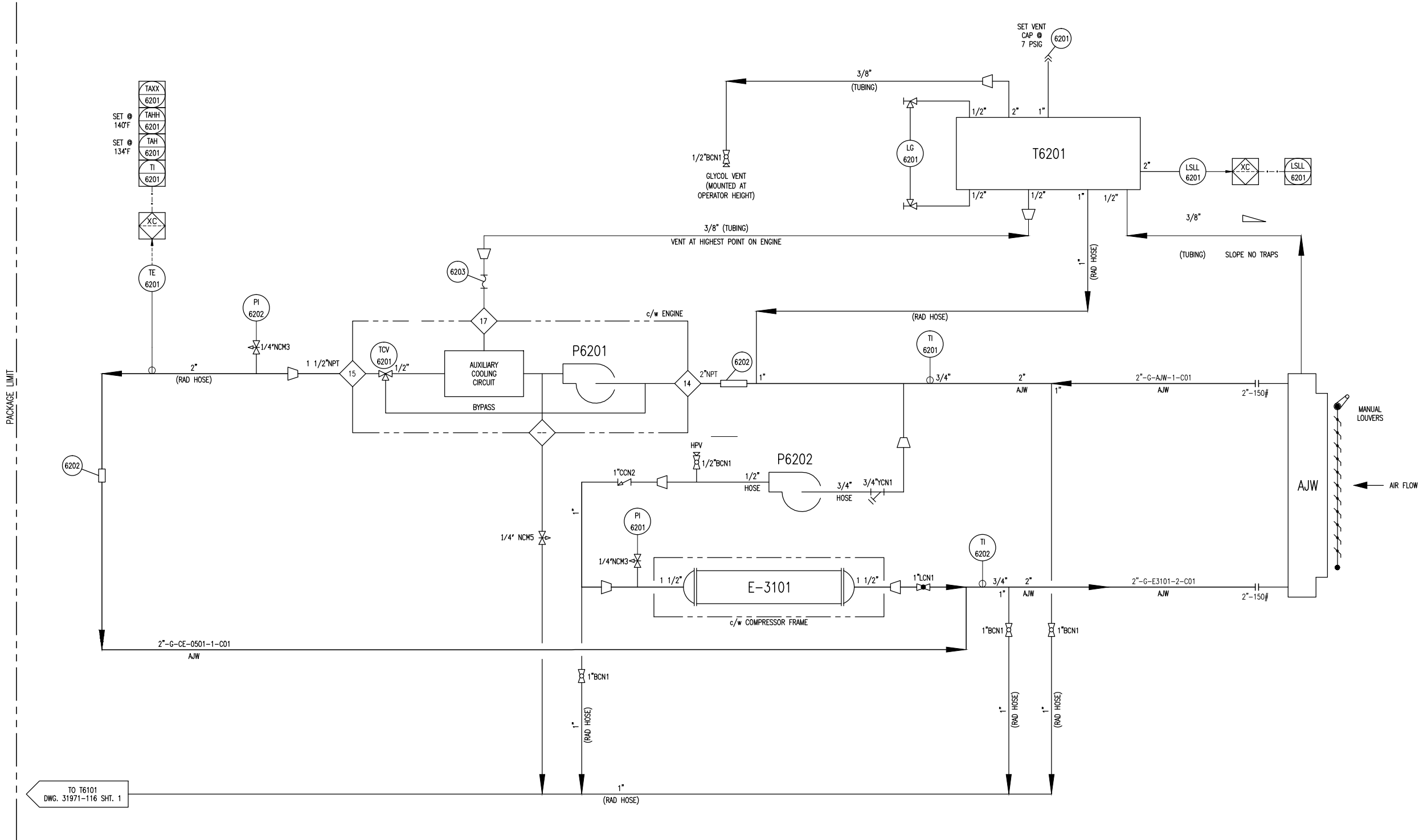
MFG: SMITH CAMERON
MAX. FLOW: 9 GPM
DRIVE: BELT DRIVEN

T6201
GLYCOL (AJW) SURGE TANK

MFG: EFX
CAPACITY: 3 US GALLONS
TOTAL SYSTEM VOLUME: 23 US GALLONS
SIZE:
MAT'L: SA-36

AJW
AUXILIARY JACKET WATER
COOLER SECTION

MAWP: 14 PSIG @ 300°F
NON-CODE VESSEL



**FINAL
AS BUILT**
NAME J. CUI DATE DEC.11/12

REV	DESCRIPTION	DATE	BY	APR
2	FINAL AS-BUILT	DEC.11/12	MD	LD
1	MOVE THERMOCOUPLE LOCATION. CHANGE 1" BALL VALVE TO 1/4" NEEDLE VALVE	10/10/12	JC	LD
0	ISSUED FOR CONSTRUCTION	09/17/12	AH	LD
A	ISSUED FOR APPROVAL	08/10/12	SE	LD

DATE	05/28/12	SCALE	NTS
DRAWN BY	A. HAMMOND	CHECKED BY	L. Daquino
PROJECT MANAGER	S. Pritchard	PROJECT ENGINEER	L. Daquino
CUST PO			

APEGA PERMIT No: P8651

STEP CODE 511 531 591

WORK ORDER 31971

ENERFLEX
Calgary, Alberta,
Canada

DWG NO 31971-116

P & I DIAGRAM
COOLING SYSTEM
AUXILIARY JACKET WATER

SHT 2

REV 2

7101
EXHAUST SILENCER
MFG: EMIT
MODEL: EAH-2150T-0808F-21CE0



						DATE	05/28/12	SCALE	NTS		
2	FINAL AS-BUILT	DEC.11/12	MD	LD		DRAWN BY	A.HAMMOND	CHECKED BY	L. Diogino	APPROVED BY	S. Pritchard
1	CS EXHAUST STACK	10/17/12	JC	LD		PROJECT MANAGER	S. Pritchard	PROJECT ENGINEER	L. Diogino		
0	ISSUED FOR CONSTRUCTION	09/17/12	AH	LD		CUST PO					
A	ISSUED FOR APPROVAL	08/10/12	SE	LD		APEGA PERMIT NO:	P8651			STEP	511 5
REV	DESCRIPTION	DATE	BY	APR							

DATE 05/28/12		SCALE NTS	
DRAWN BY A. HAMMOND		CHECKED BY L. Diogino	APPROVED BY S. Pritchard
PROJECT MANAGER S. Pritchard		PROJECT ENGINEER L. Diogino	
CUST PO			
AEEGA PERMIT No: P8651			STEP CODE 511 5

P & I DIAGRAM
AIR / EXHAUST SYSTEMS

SHT	1	REV	2
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LINE IDENTIFICATION

A-B-CD-E-FGHI-J,J,J

A: NOMINAL LINE SIZE IN INCHES

B: FLUID

A AMMONIA L LUBE OIL
C CARBON DIOXIDE N NATURAL GAS
CO CARBON MONOXIDE O OXYGEN
F FUEL GAS P PROPANE
G GLYCOL PG PURGE GAS
HG HYDROCARBON GAS S STEAM
HL HYDROCARBON LIQUID SG SYNGAS
IA INSTR. AIR SUPPLY V WASTE PROCESS WATER
IG INSTR. GAS SUPPLY W WATER

C: ORIGIN OF LINE

AC AFTER COOLER IC INTERSTAGE COOLER
B BLOWER/FAN INLET PACKAGE INLET
BYPASS BYPASS STATION M MOTOR
BLOWDOWN BLOWDOWN STATION P PUMP
C COMPRESSOR PSV PRESSURE SAFETY VALVE
E EXCHANGER S OIL SKIMMER
F FILTER T TANK
H HEATER V PRESSURE VESSEL

D: EQUIPMENT NUMBER 1 TO 9 SEQUENTIAL NUMBERS

E: LINE NUMBER 1 TO 9 SEQUENTIAL NUMBERS FROM ORIGIN

FGHI: PIPING SPECIFICATION

F: MATERIAL GROUP

C CARBON STEEL
L LOW TEMPERATURE CARBON STEEL
S STAINLESS STEEL

G: FLANGE CLASS (ANSI 16.5)

1 150# 9 900#
3 300# 15 1500#
6 600# 25 2500#

H: LINE MATERIAL SPECIFICATION REFERENCE

1 TO 9 SEQUENTIAL NUMBERS

I: SPECIFICATION REFERENCE

R RECIPROCATING SPECIFICATION
BLANK SCREW SPECIFICATION

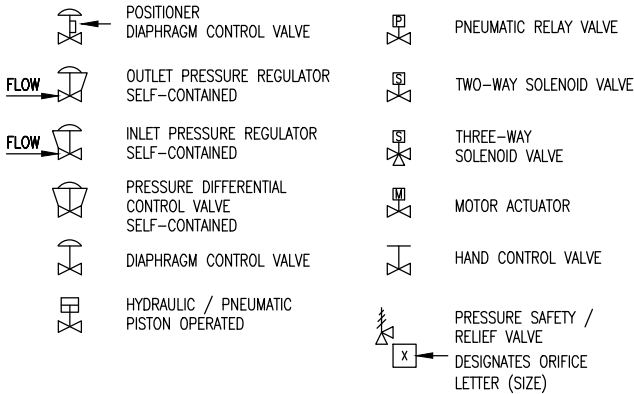
J,J,J: MODIFIER / GENERAL

H HOT INSULATION THICKNESS IN INCHES
C COLD INSULATION THICKNESS IN INCHES
PP PERSONAL PROTECTION THICKNESS IN INCHES
HT HEAT TRACING
ST STEAM TRACING
GT GLYCOL TRACING
ET ELECTRICAL TRACING

EXAMPLE: 3"-A-V401-2-C11R-ET,1"

3" LINE-SIZE
A AMMONIA
V401 OIL SEPARATOR
2 SECOND LINE FROM VESSEL
C11R C CARBON STEEL LINE
1 150# ANSI FLANGE RATING
1 LINE MATERIAL SPECIFICATION REFERENCE
R RECIPROCATING SPECIFICATION REFERENCE
ET,1" ELECTRICAL TRACING, 1" THICK INSULATION

CONTROL VALVES



VALVE IDENTIFICATION

A"BCDE.F

A: NOMINAL VALVE SIZE IN INCHES

B: TYPE

A ANGLE GLOBE N NEEDLE
B BALL P PLUG
C CHECK S START UP STRAINER
G GATE T TEE STRAINER
L GLOBE U BUTTERFLY
M MANIFOLD Y WYE STRAINER

C: BODY MATERIAL

B BRONZE L LOW TEMP. CARBON STEEL
C CARBON STEEL S STAINLESS STEEL
I CAST IRON

D: END CONNECTIONS

1 FLANGED 150# B BUT WELD
3 FLANGED 300# C SW BY NPT
6 FLANGED 600# F NPT BY FLANGE MANIFOLD)
9 FLANGED 900# N NPT (SCREWED)
15 FLANGED 1500# M NPT MALE BY NPT FEMALE
25 FLANGED 2500# S SW (SOCKETWELD)
T TUBE (SWAGELock)

E: IDENTIFIER NUMBER USED TO SPECIFY VALVE
REFER TO VALVE DATA SHEETS

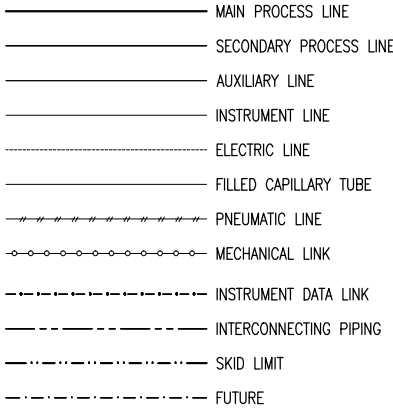
F: MODIFIER

C CHAIN OPERATOR O OXYGEN SERVICE/CLEANING
E EXTENDED BONNET P FULL PORT DESIGN
G GEAR OPERATOR R RTJ FLANGED
L LOCKING DEVICE S SPRING HANDLE (CLOSE)
N NACE TRIM X SPECIAL SPECIFICATIONS

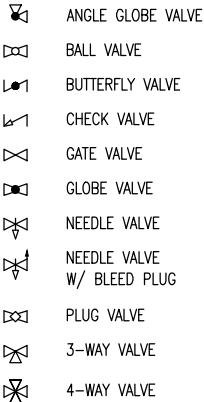
EXAMPLE: 6"GC11.C

6" VALVE SIZE C CARBON STEEL 1 API-600
G GATE 1 FLANGED 150# C CHAIN OPERATOR

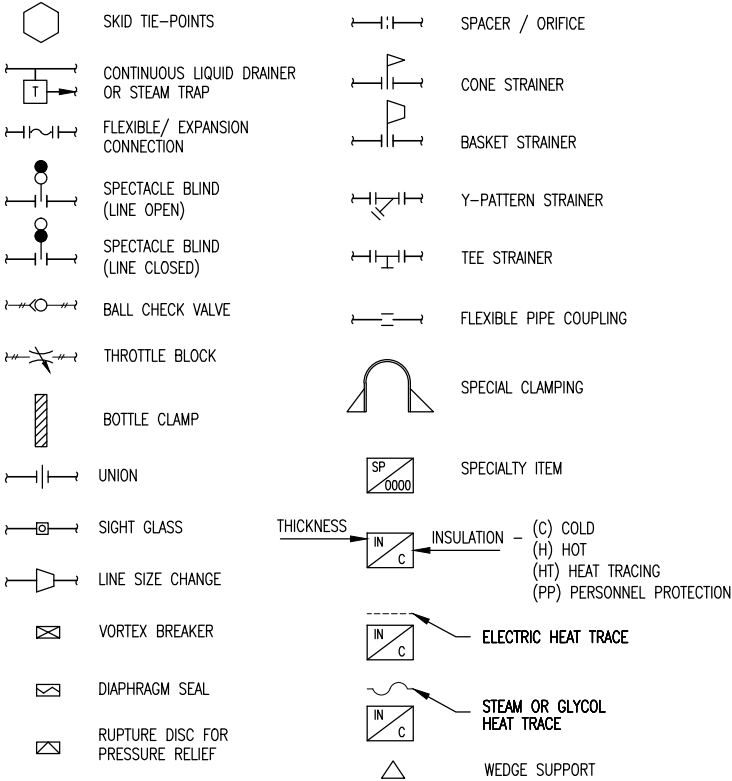
LINE CODE



VALVES



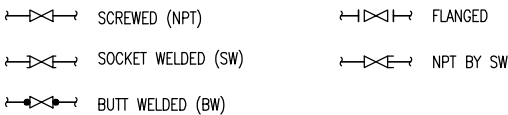
MISCELLANEOUS



(MODIFIER)

FIRST LETTER	SUCCEEDING LETTERS	INSTRUMENT IDENTIFICATION GENERAL REFERENCE (ISA - S5.1)											
		PRIMARY ELEMENT	INDICATOR	RECORDER	BLIND	CONTROLLER INDICATING	RECORDING	TRANS-MITTER	CONTROL SWITCH	CONTROL ALARM	CONTROL VALVE OR REGULATOR	SELF-ACTUATED VALVE	RELAY OR CONVERTER
A	ANALYSIS	ALARM	AE	AI	AR	AC	AIC	ARC	AT	AS()	AA()	AV	AY
B	BURNER FLAME	USER'S CHOICE	BE	BI	BR	BC			BT	BS()	BA()	BV	BY
C	CONDUCTIVITY	CONTROL (CLOSE)	CE	CI	CR	CC	CIC	CRC	CT	CS()	CA()	CV	CY
D	DENSITY OR MASS (DIFFERENTIAL)		DE	DI	DR	DC	DIC	DRC	DT	DS()	DA()	DV	DY
E	VOLTAGE	PRIMARY ELEMENT	EE	EI	ER	EC	EIC	ERC	ET	ES()	EA()	EV	EY
F	FLOW (RATIO OR FRACTION)	SHUTDOWN FIRST OUT	FE	FI	FR	FC	FIC	FRC	FT	FS()	FA()	FV	FCV
G	GAUGING	GLASS	GE	GI	GR	GC	GIC	GRC	GT	GS()	GA()	GV	
H	HAND	(HIGH)				HC	HIC		HT	HS()		HV	HCV
I	CURRENT	INDICATE	IE	II	IR	IC	IIC	IRC	IT	IS()	IA()		IY
J	POWER (SCAN)		JE	JI	JR	JC	JIC	JRC	JT	JS()	JA()		JY
K	TIME	CONTROL STATION		KI	KR	KC	KIC	KRC	KT	KS()	KA()		KY
L	LEVEL	LIGHT (LOW)	LE	LI	LR	LC	LIC	LRC	LT	LS()	LA()	LV	LCV
M	MOISTURE, HUMIDITY	(MIDDLE OR INTERMEDIATE)	ME	MI	MR	MC	MIC	MRC	MT	MS()	MA()	MV	MY
N	USER'S CHOICE												
O	POINT	ORIFICE (OPEN)											
P	PRESSURE OR VACUUM	POINT	PE	PI	PR	PC	PIC	PRC	PT	PS()	PA()	PV	PCV
Q	QUANTITY OR EVENT (INTEGRATE/TOTALIZE)			OI	OR	OC	OIC	ORC	OT	OS()	OA()	QV	QY
R	RADIOACTIVITY	RECORD OR PRINT	RE	RI	RR	RC	RIC	RRC	RT	RS()	RA()		RY
S	SPEED OR FREQUENCY	SWITCH		SI	SR	SC	SIC	SRC	ST	SS()	SA()		SY
T	TEMPERATURE	TRANSMIT	TE	TI	TR	TC	TIC	TRC	TT	TS()	TA()	TV	TCV
U	MULTI-VARIABLE	MULTI-FUNCTION		UI	UR	UC	UIC	URC				UV	
V	VISCOSITY OR VIBRATION	VALVE OR DAMPER	VE	VI	VR	VC	VIC	VRC	VT	VS()	AA()	VV	VY
W	WEIGHT OR FORCE	WELL	WE	WI	WR	WC	WIC	WRC	WT	WS()	AA()	VV	WY
X	UNCLASSIFIED	UNCLASSIFIED (DIAGNOSTIC)	XE	XI	XR	XC	XIC	XRC	XT	XS()	SA()	XV	XY
Y	USER'S CHOICE	RELAY OR COMPUTE											YY
Z	POSITION	DRIVE OR ACTUATE	ZE	ZI	ZR	ZC	ZIC	ZRC	ZT	ZS()	ZA()		ZY

VALVE CONNECTIONS



(C) -CLOSE (O) -OPEN (XX) -DIAGNOSTIC SHUTDOWN
(H) -HIGH ALARM (L) -LOW ALARM (USED TO INDICATE THE
(HH)-HIGH SHUTDOWN (LL)-LOW SHUTDOWN DIAGNOSTIC CHECK REQ'D
ON THE ANALOG INPUT)

ABBREVIATIONS

BW	BUTT WELD	NB	NATIONAL BOARD
CA	CORROSION ALLOWANCE	NC	NORMALLY CLOSED
CS	CARBON STEEL	NO	NORMALLY OPEN
C/W	COMPLETE WITH	NPT	NATIONAL PIPE THREAD (SCREWED)
CSC	CAR SEALED CLOSED	PB	PUSH BUTTON
CSO	CAR SEALED OPEN	PL	PILOT LIGHT
CUST	CUSTOMER	PLC	PROGRAMMABLE LOGIC CONTROLLER
DB	DEAD BAND	PPD	PINTS PER DAY
Δ	DELTA (DIFFERENTIAL)	REV	REVERSE ACTING
DIR	DIRECT ACTING	RF	RAISED FACE
EFX	ENERFLEX LTD.	RTD	RESISTANCE TEMPERATURE DEVICE
ESD	EMERGENCY SHUTDOWN	RTJ	RING TYPE JOINT
FC	FLAT CLOSED	S/F	SEAM TO FACE OF FLANGE
FF	FLAT FACED	SS	STAINLESS STEEL
FO	FLAT OPEN	S/S	SEAM TO SEAM
FLP	FAIL LAST POSITION	SCFM	STANDARD CUBIC FEET PER MINUTE
FX	FROST EXTENSION	SO	SLIP-ON
FOT	FLAT ON TOP	SW	SOCKET WELD
HI	HIGH	SVU	SUCTION VALVE UNLOADER
HLL	HIGH LIQUID LEVEL	T	TUBING
HS	HAND SWITCH	V/H	VENT HEADER
I/A	INSTRUMENT AIR	VTA	VENT TO ATMOSPHERE
I/G	INSTRUMENT GAS	WCP	VARIABLE VOLUME CONTROL POCKET
I/P	CURRENT TO PRESSURE	FWCP	FIXED VOLUME CONTROL POCKET
I/O	INPUT / OUTPUT	W/	WITH
LLL	LOW LIQUID LEVEL	W/O	WITHOUT
LPD	LOW POINT DRAIN		
MAX	MAXIMUM		
MAWP	MAXIMUM ALLOWABLE WORKING PRESSURE		
MDMT	MINIMUM DESIGN METAL TEMPERATURE		
MCC	MOTOR CONTROL CENTER		
MIN	MINIMUM		
NLL	NORMAL LIQUID LEVEL		

FINAL
AS BUILT
NAME: A.HAMMOND DATE: DEC.11/12

				DATE 05/28/12		SCALE NTS				ENERFLEX Calgary, Alberta, Canada		LEGEND					
				DRAWN BY A-HAMMOND		CHECKED BY L. Dioguardo										APPROVED BY S. Pritchard	
				PROJECT MANAGER S. Pritchard		PROJECT ENGINEER S. Pritchard											
				CUST PO													
O		FINAL AS-BUILT		DEC.11/12		MD		LD									
A		ISSUED FOR REFERENCE		05/28/12		SE		LD									
REV		DESCRIPTION		DATE		BY		APR		APEGA PERMIT No: P8651		STEP CODE N/A		WORK ORDER 31971			
										DWG NO 31971-199		SHT 1		REV 0			