

ENERFLEX

P&ID's (P.Eng Stamped)

PROJECT DESCRIPTION

TWO (2) PACKAGES EACH WITH (2) GENSETS RATED AT 1000 KW
PER GENSET.
FOR: SPRUCE RIDGE EXPANSION PROJECT
LOCATION: CS-2 WILLOW FLATS COMPRESSOR STATION
CS-N5 MACKIE CREEK COMPRESSOR STATION

FABRICATED BY:

GAS DRIVE GLOBAL
CALGARY, ALBERTA, CANADA

TANK CAPACITIES:

WASTE OIL TANKS:	1-TK-XX02	-1135 L
FRESH OIL DAY TANK:	1-TK-XX01	-250 L
EJW EXPANSION TANK:	1-TK-XX05	-31 L
AJW EXPANSION TANK:	1-TK-XX07	-72.5 L
WASTE GLYCOL TANK:	1-TK-XX09	-1135 L

DESIGN CRITERIA & APPLICABLE CODES

SITE ELEVATION:	CS-2	CS-N5
BAROMETRIC PRESSURE:	605m ASL	605m ASL
AMBIENT TEMPERATURE:	94.3 kPa	93.4 kPa
MAXIMUM	+27 CELCIUS	+26 CELCIUS
MINIMUM	-38 CELCIUS	-37 CELCIUS
SEISMIC:	E	C
APPLICABLE CODE:	831.3 - 2014 EDITION	
CODE PIPING	EPX C11, 1mm CA *NON-CODE UTILITY PIPE BUILT	
NON-CODE PIPING	FOLLOWING EPX C11 SPEC BUT DESIGNATED AS	
	NON-CODE (MAWP < 15 PSIG) TO ELIMINATE	
	REGISTRATION REQUIREMENTS	
EXCHANGER	ASME SECTION VIII, DIV 1	
STRUCTURAL	CWB	
ELECTRICAL	CEC, RIGID ALUMINUM CONDUIT	
	CSA B149.3-15 COMPLIANT	
FUEL GAS:	BC CRN	
REGISTRATION:	CS TYPE, SPIRAL WOUND, GRAPHITE FILLED, 316SS	
MISCELLANEOUS:	GASKETS	
	BOLTING	
	UTILITY PIPE	
	FLANGES	
SUITABLE FOR USE IN:	RAISED FACE (UNLESS OTHERWISE NOTED)	
	GENERAL CLASSIFICATION	

POWER REQUIREMENTS

SHORE POWER REQUIRED
MCC: 480 VAC, TBA A

EQUIPMENT VOLTAGES

GENERATOR:	480 VAC
ENGINE CONTROL SYSTEM:	24 VDC
GENERATOR CONTROL PANELS:	24 VDC
ENGINE STARTERS:	24 VDC
FUEL TRAIN:	24 VDC
PRELUBE PUMPS:	24 VDC
LIGHTING:	120 VAC
MCC:	480 VAC
ELECTRIC HEATERS:	480 VAC
ENGINE COOLER MOTORS:	460 VAC
GENERATOR COOLER MOTORS:	460 VAC
EXHAUST FAN MOTORS:	460 VAC
EMERGENCY LIGHTING:	120 VAC

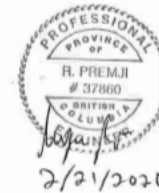
SYSTEM CONSUMABLES

ENGINE CRANKCASE LUBE OIL: TBC
50% ETHYLENE INHIBITED GLYCOL/WATER SOLUTION
IN ENGINE & AUXILIARY JACKET WATER SYSTEMS
EJW CAPACITY: 700 L SYSTEM VOLUME
AJW CAPACITY: 300 L SYSTEM VOLUME

DESIGN SPECIFICATION:

GAS DRIVE GLOBAL'S SCOPE OF SUPPLY ON THIS PROJECT CONSISTS OF TWO (2)
PACKAGES EACH WITH TWO (2) GENSETS RATED AT 1000KW CONTINUOUS DUTY

EACH GENSET CONSISTS OF ONE CATERPILLAR G3512 ENGINE DRIVING ONE CATERPILLAR
SRS-1467 GENERATOR.
PRIMER: -CAC-ENG-SPC-1, FIN-A, RED OXIDE
STRUCTURAL STEEL PAINT: -CAC-ENG-SPC-1, FIN-A, 20-F "WARM GREY"



SITE	PROJECT	UNIT NUMBER	DRIVER SERIAL	GENERATOR SERIAL
CS-2	YY=01	XX=91	E2T00178	G2L00412
CS-2	YY=01	XX=92	E2T00180	G2L00414
CS-N5	YY=02	XX=93	E2T00179	G2L00413
CS-N5	YY=02	XX=94	E2T00181	G2L00415

**FINAL
AS BUILT**
DATE: JUN 08/19

1	AS BUILT	MAY 08/19	JH	DA
0	ISSUED FOR CONSTRUCTION	OCT 01/18	JH	DA
E	ISSUED FOR APPROVAL	AUG 16/18	JH	DA
D	ISSUED FOR APPROVAL	JUN 17/18	CD	DA
C	ISSUED FOR APPROVAL-NO CHANGE	JUN 05/18	AT	DA
B	ISSUED FOR APPROVAL	MAY 08/18	AT	DA
A	ISSUED FOR APPROVAL	MAR 13/18	AT	DA
REV	DESCRIPTION	DATE	BY	APP

DATE	MAR 12/18	SCALE	DO NOT SCALE
DESIGNED BY	A. TRIN	CHECKED BY	D. ADDINGTON
PROJECT MANAGER	J. GARCIA	PROJECT ENGINEER	D. ADDINGTON
MANUFACTURED BY	2850052-004		

SPRUCE RIDGE EXPANSION
CS-2 7 CS-N5
PCE1000D

ENERFLEX
Calgary, Alberta,
Canada

P&ID PROJECT
DESCRIPTION AND
OVERVIEW

NO	E002662-YY-099	REV	1	REV	0
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G-080002
ALTERNATOR
MAKE: CATERPILLAR
MODEL: 315-1467
POWER: 1000 KW
480V/3PH/60HZ

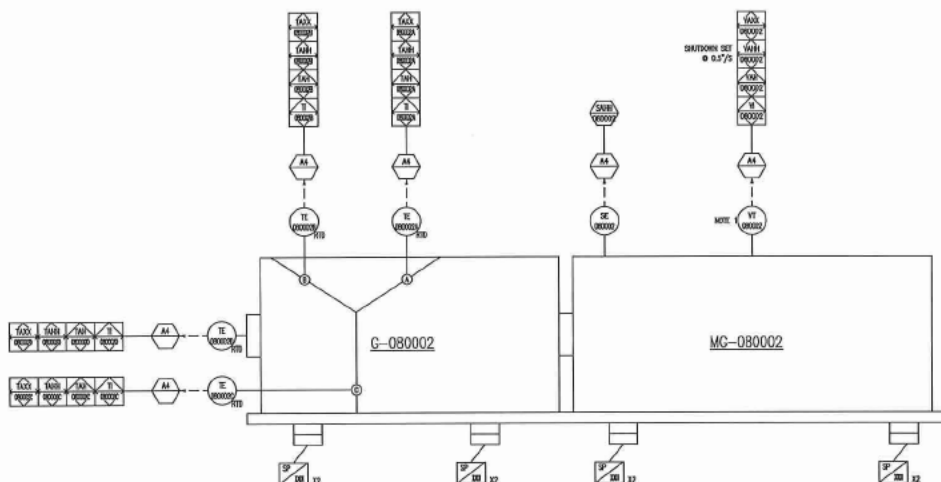
MG-080002
ENGINE
MAKE: CATERPILLAR
MODEL: C3512
POWER: 1000 KW @ 1500 RPM

VF-030003C/D
BUILDING FANS
MAKE: ACME
MODEL: D0303
POWER: 3 HP
480V/3PH/60HZ
13,000 CFM MAX.

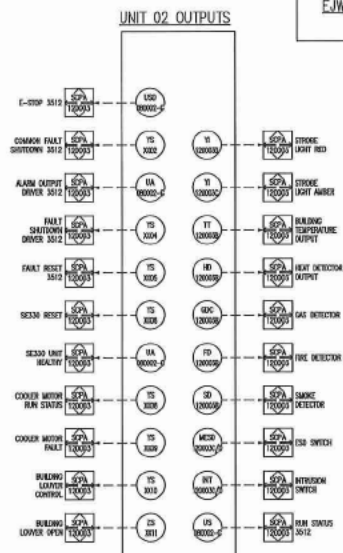
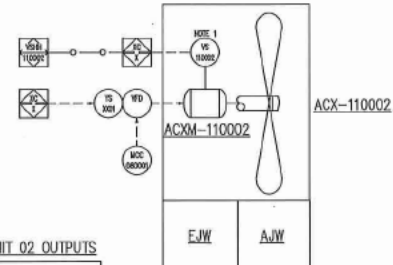
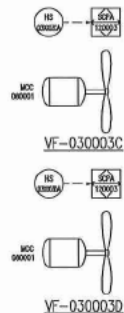
ACX-110002
COOLER
MAKE: AIR COOLED EXCHANGERS INC.
MODEL: A02161-10
DUTY: 20 HP
A/R: 100 KW

ACXM-110002
COOLER MOTOR
MAKE: TECO WESTINGHOUSE
MODEL: A02161-10
FRAME: WAX, L2-041, IEEE 041
POWER: 20 HP
480V/3PH/60HZ

MG-080002
CONTROL PANEL



SW BUILDING
SW x 4 BATTERY
SW SHD INSULATION



PROFESSIONAL
ENGINEER
R. PREMJEE
37960
BRITISH COLUMBIA
2/21/2020

PROFESSIONAL ENGINEER
DAVID ADDINGTON
ALBERTA
2/12/2020

- NOTES:
1. VIBRATION SWITCHES AND TRANSMITTERS TO BE FIRMLY MOUNTED TO THE MACHINE SURFACE, ORIENTED SO THE SENSITIVE AXIS POINTS INTO THE DIRECTION OF ROTATION NEAR CRANKSHAFT HEIGHT. (THE SENSITIVE AXIS FOR TRANSMITTERS IS IN LINE WITH THE SHAFT, FOR SWITCHES IT IS THE DIRECTION THE RESET BUTTON POINTS).
 2. MOUNT IN HIGH LOCATION TO MEASURE ROOM TEMPERATURE.

FINAL
AS BUILT
DATE: 08/19

REV	DESCRIPTION	DATE	BY	APP
1	AS BUILT	MAY 08/19	JM	DA
0	ISSUED FOR CONSTRUCTION	OCT 01/19	JM	DA
E	ISSUED FOR APPROVAL	AUG 16/19	JM	DA
D	ISSUED FOR APPROVAL	JUN 17/18	CD	DA
C	ISSUED FOR APPROVAL-NO CHANGE	JUN 05/18	AT	DA
B	ISSUED FOR APPROVAL	MAY 08/18	AT	DA
A	ISSUED FOR APPROVAL	MAR 13/18	AT	DA

DATE	MAR 12/18	SCALE	DO NOT SCALE
DESIGNED BY	A. TRAI	CHECKED BY	D. ADDINGTON
PROJECT MANAGER	J. GARCIA	PROJECT ENGINEER	D. ADDINGTON
PROJECT NUMBER	2850052-104		

SPRUCE RIDGE EXPANSION
CS-2.7 CS-N5
PCE1000D

ENERFLEX
Calgary, Alberta,
Canada

P&ID MAJOR
EQUIPMENT

DATE: 08/19
E002662-YY-112

REV: 2
0

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HX-090014
ENGINE OIL HEATER
MAKE: HOTSTART
MODEL: OCSM120410-000

F-090013
ENGINE OIL FILTER
MAKE: CATERPILLAR

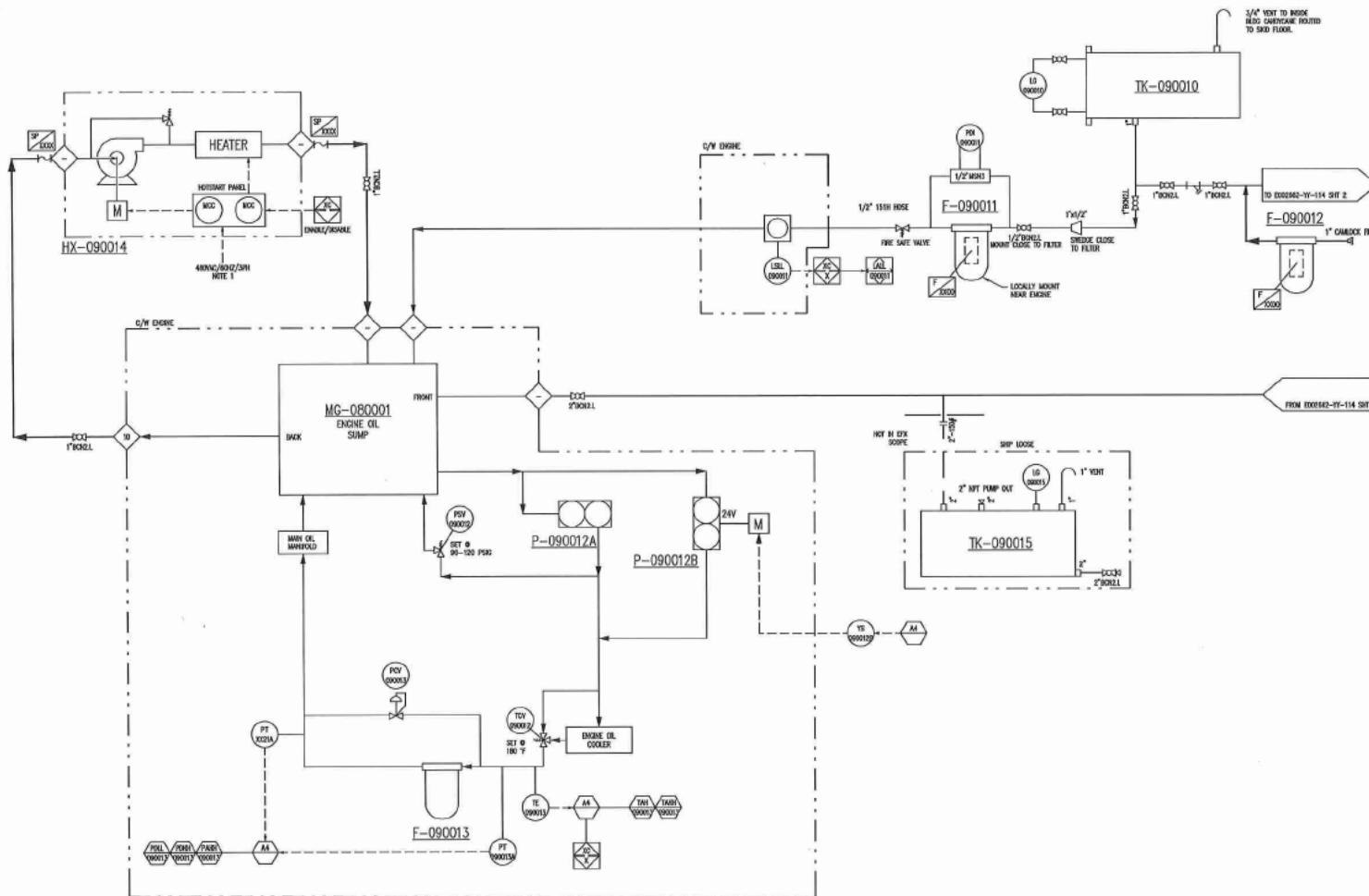
P-090012A
MECHANICAL OIL PUMP
MAKE: CATERPILLAR

P-090012B
ENGINE OIL PRELUBE PUMP
MAKE: CATERPILLAR
POWER: 24 VDC, CODE 5229E

F-090011/12
DAY OIL FILTER
MAKE: BALDWIN
MODEL: 0120

TK-090010
ENGINE OIL DAY TANK
MANUFACTURER: ENERFLEX
CAPACITY: 250 L

TK-090015
ENGINE OIL DRAIN TANK
MAKE: WESTEEL R1100
CAPACITY: 1135 L
SHIP LOOSE



NOTE:
1. SPRUCE RIDGE FIELD REQUIRED FOR HOT
START UNIT TO COVER OIL AND COOLER.

**FINAL
AS BUILT**
DATE: MAY 08/19

REV	DESCRIPTION	DATE	BY	APP
1	AS BUILT	MAY 08/19	JM	DA
2	ISSUED FOR CONSTRUCTION	OCT 01/18	JM	DA
3	ISSUED FOR APPROVAL	AUG 16/18	JM	DA
4	ISSUED FOR APPROVAL	JUN 17/18	CD	DA
5	ISSUED FOR APPROVAL	JUN 05/18	AT	DA
6	ISSUED FOR APPROVAL	MAY 08/18	AT	DA
7	ISSUED FOR APPROVAL	MAR 13/18	AT	DA

DATE	MAR 12/18	SCALE	DO NOT SCALE
DESIGNED BY	A. TRAI	ENGINEER BY	D. ADDINGTON
PROJECT MANAGER	J. GARCIA	PROJECT ENGINEER	D. ADDINGTON
PROJECT NO.	285905-2104	DATE	MAR 12/18

SPRUCE RIDGE EXPANSION
CS-2.7 CS-N5
PCE1000D

ENERFLEX
Calgary, Alberta,
Canada

P&ID ENGINE LUBE
OIL SYSTEM

DATE	E002662-YY-114	REV	1	0
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PROFESSIONAL
ENGINEER
R. PREMAJI
37960
BRITISH COLUMBIA
2/21/2020

PROFESSIONAL ENGINEER
DAVID ADDINGTON
2/12/2020

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HX-090024
ENGINE OIL HEATER
MAKE: HOTSTART
MODEL: GC5M120410-000

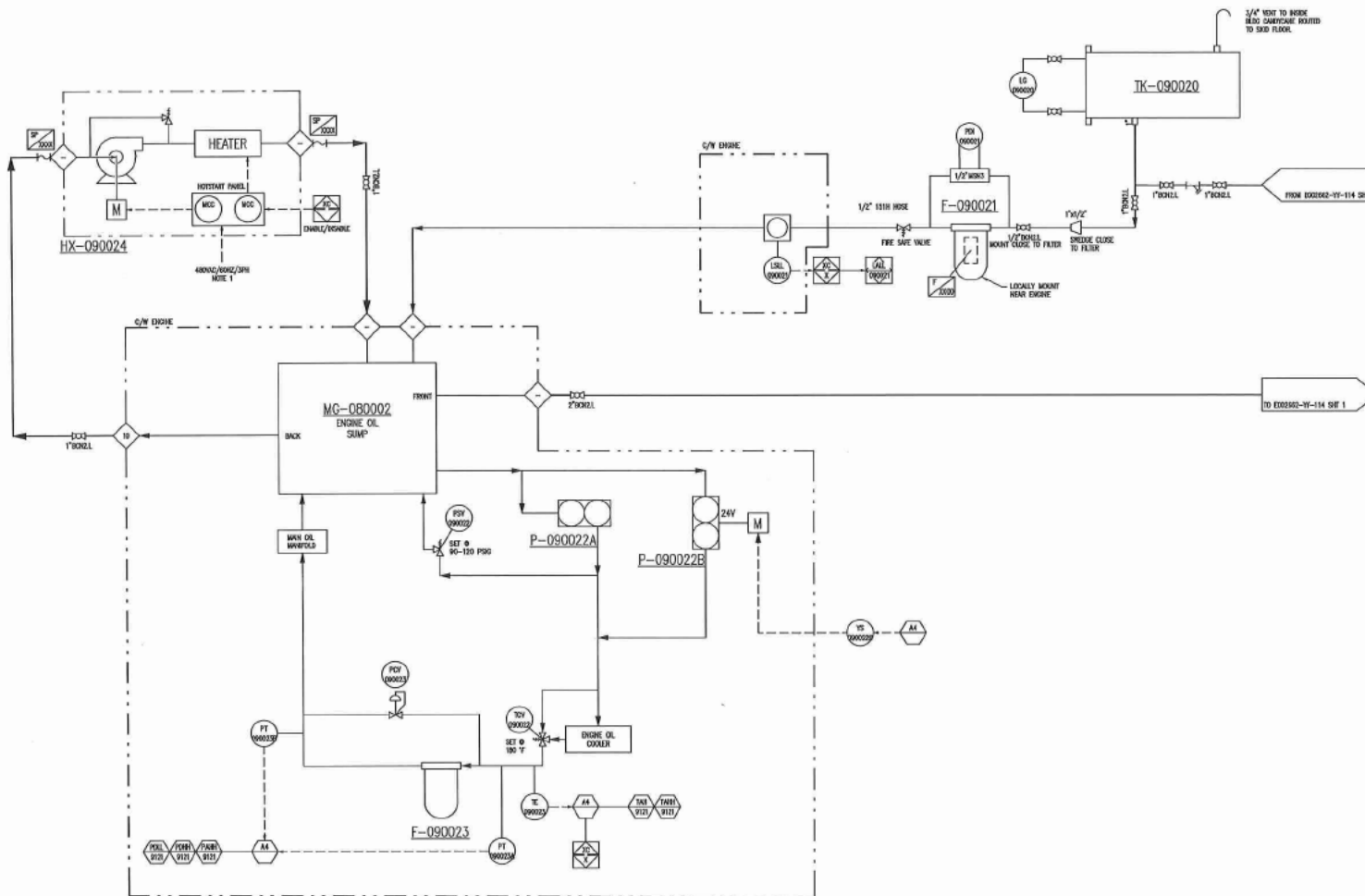
F-090023
ENGINE OIL FILTER
MAKE: CATERPILLAR

P-090022A
MECHANICAL OIL PUMP
MAKE: CATERPILLAR

P-090022B
ENGINE OIL PRELUBE PUMP
MAKE: CATERPILLAR
POWER: 24 VDC, CODE 5229E

F-090021
DAY OIL FILTER
MAKE: BALDWIN
MODEL: D123

TK-090020
ENGINE OIL DAY TANK
MANUFACTURER: ENERFLEX
CAPACITY: 250 L



NOTE:
1. SHOLE 40004 FLEED FOR CONSTRUCTION
2. SHOLE 40004 FLEED FOR CONSTRUCTION

**FINAL
AS BUILT**
DATE: MAR 13/18

REV	DESCRIPTION	DATE	BY	APR
1	AS BUILT	MAY 08/18	JM	DA
2	ISSUED FOR CONSTRUCTION	OCT 01/18	JM	DA
3	ISSUED FOR APPROVAL	AUG 16/18	JM	DA
4	ISSUED FOR APPROVAL	JUN 17/18	CD	DA
5	ISSUED FOR APPROVAL	JUN 05/18	AT	DA
6	ISSUED FOR APPROVAL	MAY 08/18	AT	DA
7	ISSUED FOR APPROVAL	MAR 13/18	AT	DA

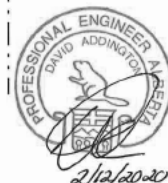
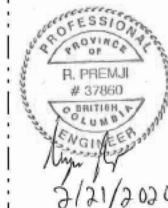
SPRUCE RIDGE EXPANSION
CS-2.7 CS-N5
PCE1000D

ENERFLEX
Calgary, Alberta,
Canada

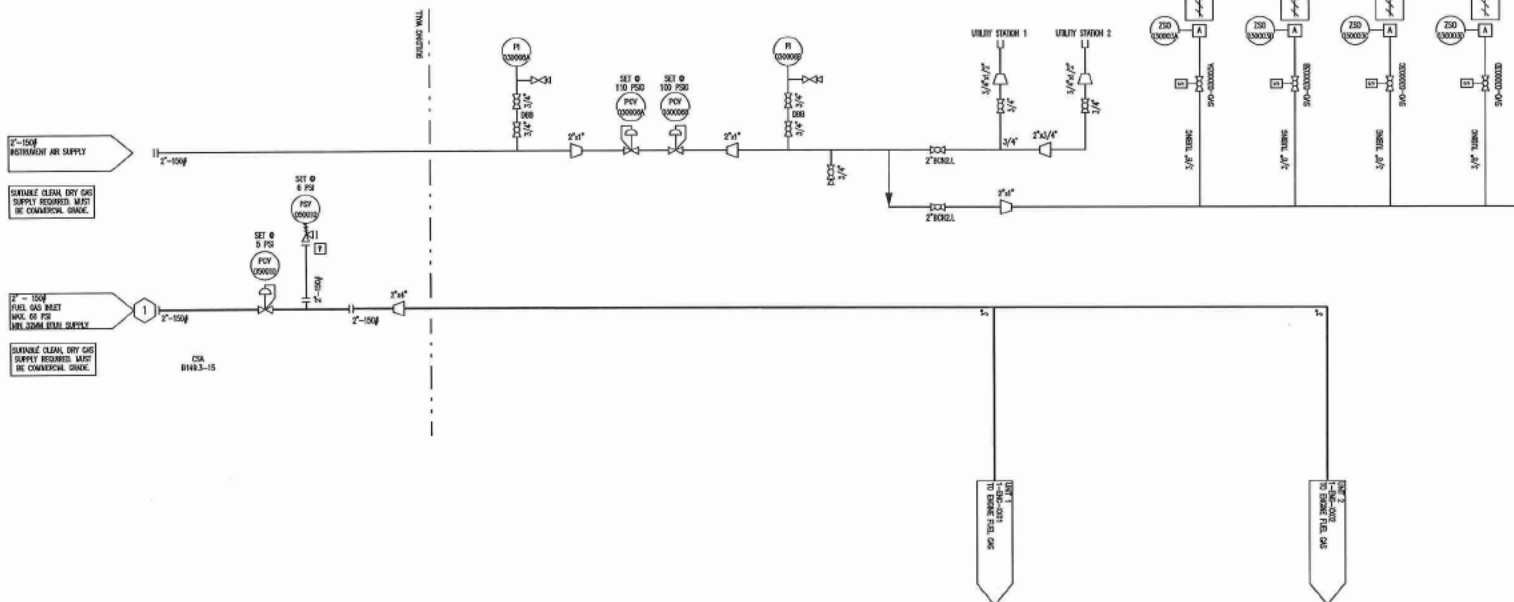
P&ID ENGINE LUBE
OIL SYSTEM

E002662-YY-114

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NOTES:
1. FUEL SYSTEM WILL BE SUBJECTED TO PNEUMATIC TESTING AT A PRESSURE OF 90 PSIG FOR A DURATION OF 180 MINUTES.

FINAL AS BUILT
DATE: 08/08/18

REV	DESCRIPTION	DATE	BY	APP
1	AS BUILT	MAY 06/19	JM	DA
2	ISSUED FOR CONSTRUCTION	OCT 01/18	JM	DA
3	ISSUED FOR APPROVAL	AUG 16/18	JM	DA
4	ISSUED FOR APPROVAL	JUN 17/18	CD	DA
5	ISSUED FOR APPROVAL	JUN 09/18	AT	DA
6	ISSUED FOR APPROVAL	MAY 08/18	AT	DA
7	ISSUED FOR APPROVAL	MAR 13/18	AT	DA

DATE	MAR 12/18	SCALE	DO NOT SCALE
DESIGNED BY	A. TRAN	CHECKED BY	D. ADDINGTON
PROJECT MANAGER	J. GARCEA	PROJECT ENGINEER	D. ADDINGTON
CUSTOMER NO.	2850052404		
DATE	MAR 12/18	SCALE	DO NOT SCALE

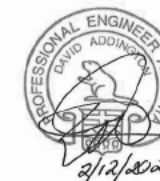
SPRUCE RIDGE EXPANSION
CS-2.7 CS-N5
PCE1000D

ENERFLEX
Calgary, Alberta,
Canada

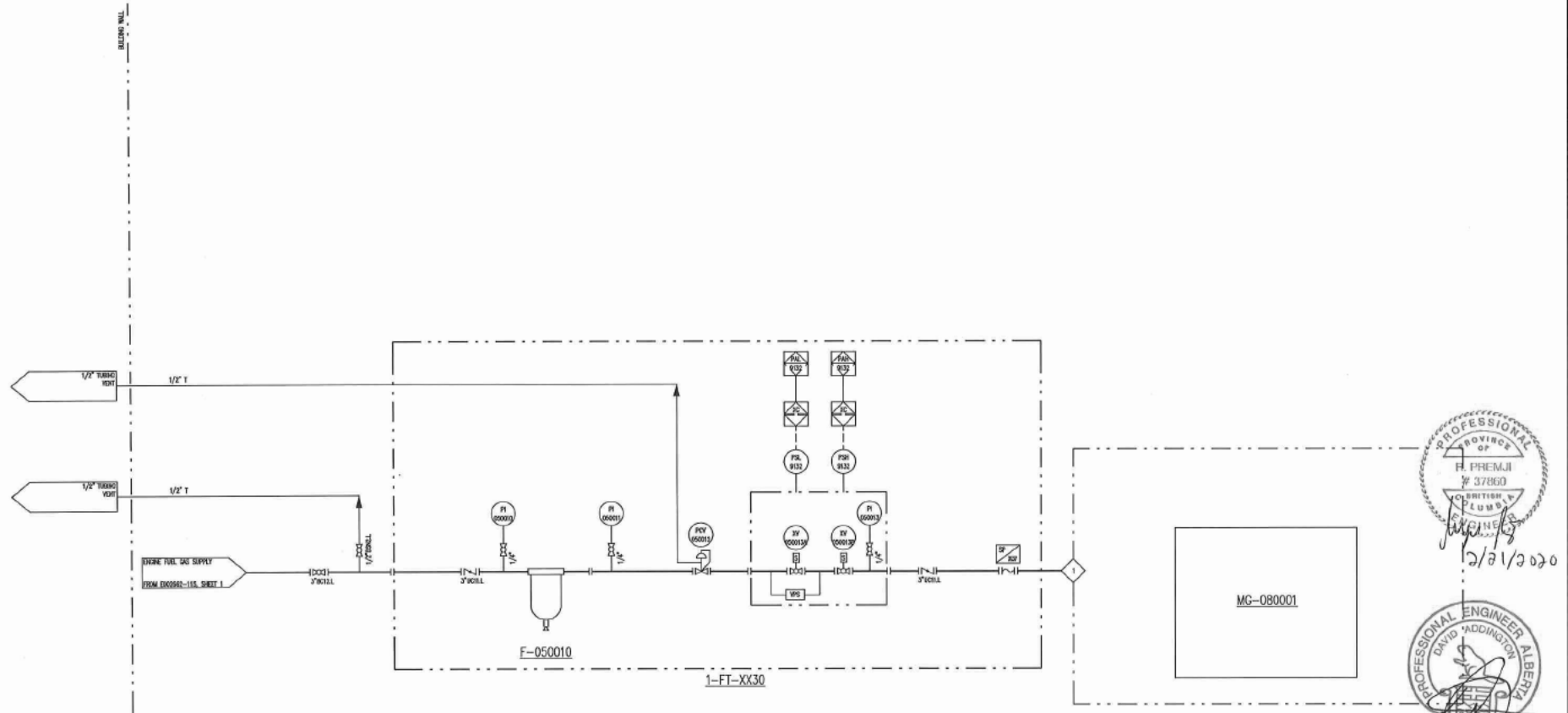
P&ID FUEL GAS
HEADER SYSTEM

E002662-YY-115

1 0



1-FI-XX30
FUEL TRAIN
MWK: FIRING/DINGS
PE: GP2343 473-4647



NOTES:
1. VIBRATION SWITCHES AND TRANSMITTERS TO BE FIRMLY MOUNTED TO THE MACHINE SURFACE, ORIENTED SO THE SENSITIVE AXIS POINTS INTO THE DIRECTION OF ROTATION NEAR CRANKSHAFT HEIGHT. (THE SENSITIVE AXIS FOR TRANSMITTERS IS IN LINE WITH THE SHOD, FOR SWITCHES IT IS THE DIRECTION THE RESET BUTTON POINTS).

**FINAL
AS BUILT**
MWK: J. MACDONALD DATE: MAY 08/19

REV	DESCRIPTION	DATE	BY	APP
I	AS BUILT	MAY 08/19	JM	DA
D	ISSUED FOR CONSTRUCTION	OCT 01/19	JM	DA
E	ISSUED FOR APPROVAL	AUG 16/19	JM	DA
D	ISSUED FOR APPROVAL	JUN 17/19	CD	DA
C	ISSUED FOR APPROVAL	JUN 05/19	AT	DA
B	ISSUED FOR APPROVAL	MAY 08/19	AT	DA
A	ISSUED FOR APPROVAL	MAR 13/19	AT	DA

DATE	MAR 12/18	SCALE	DO NOT SCALE
DESIGNED BY	A. TRAM	CHECKED BY	D. ADDINGTON
PROJECT MANAGER	J. GARCIA	PROJECT ENGINEER	D. ADDINGTON
NOTATION NO.	2850052404		

SPRUCE RIDGE EXPANSION
CS-2 7 CS-N5
PCE1000D

ENERFLEX
Calgary, Alberta,
Canada

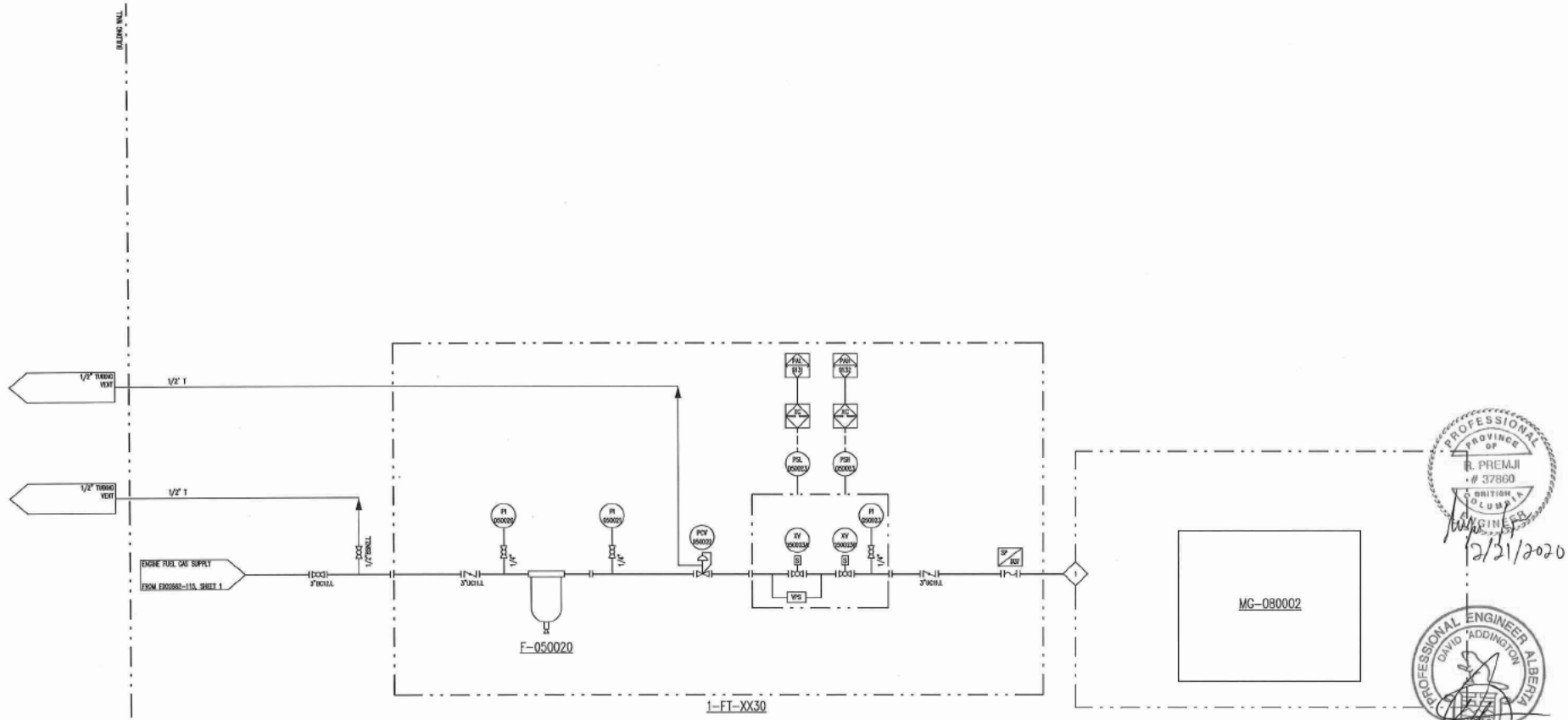
P&ID START/FUEL
GAS SYSTEM

DOC NO: E002662-YY-115

SHEET: 2 OF 0

PROFESSIONAL ENGINEER
OF ALBERTA
H. PREMJI
37860
2/21/2020
PROFESSIONAL ENGINEER
DAVID ADDINGTON

1-FI-XX30
FUEL TRAIN
MAKE: FRISING/DUNGS
PI: 0P2343 473-4647



NOTES:
1. VIBRATION SWITCHES AND TRANSMITTERS TO BE FIRMLY MOUNTED TO THE MACHINE SURFACE, ORIENTED SO THE SENSITIVE AXIS POINTS INTO THE DIRECTION OF ROTATION NEAR CRANKSHAFT HEIGHT. (THE SENSITIVE AXIS FOR TRANSMITTERS IS IN LINE WITH THE STUD, FOR SWITCHES IT IS THE DIRECTION THE RESET BUTTON POINTS).

FINAL AS BUILT
DATE: MAR 12/18

REV	DESCRIPTION	DATE	BY	APP
1	AS BUILT	MAY 08/19	JM	DA
2	ISSUED FOR CONSTRUCTION	OCT 01/18	JM	DA
3	ISSUED FOR APPROVAL	AUG 16/18	JM	DA
4	ISSUED FOR APPROVAL	JUN 17/18	CD	DA
5	ISSUED FOR APPROVAL	JUN 05/18	AT	DA
6	ISSUED FOR APPROVAL	MAY 08/18	AT	DA
7	ISSUED FOR APPROVAL	MAR 13/18	AT	DA

DATE	MAR 12/18	SCALE	DO NOT SCALE
DESIGNED BY	A. TRAN	CHECKED BY	D. ADDINGTON
PROJECT MANAGER	J. GARCIA	PROJECT ENGINEER	D. ADDINGTON
NOTIFICATION	2850052404		

SPRUCE RIDGE EXPANSION
CS-2 7 CS-N5
PCE1000D

ENERFLEX
Calgary, Alberta,
Canada

P&ID START/FUEL
GAS SYSTEM

DOC NO	E002662-YY-115	REV	3	REV	0
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PROFESSIONAL ENGINEER
PROVINCE OF ALBERTA
37860
DAVID ADDINGTON
2/21/2020
2/12/2020

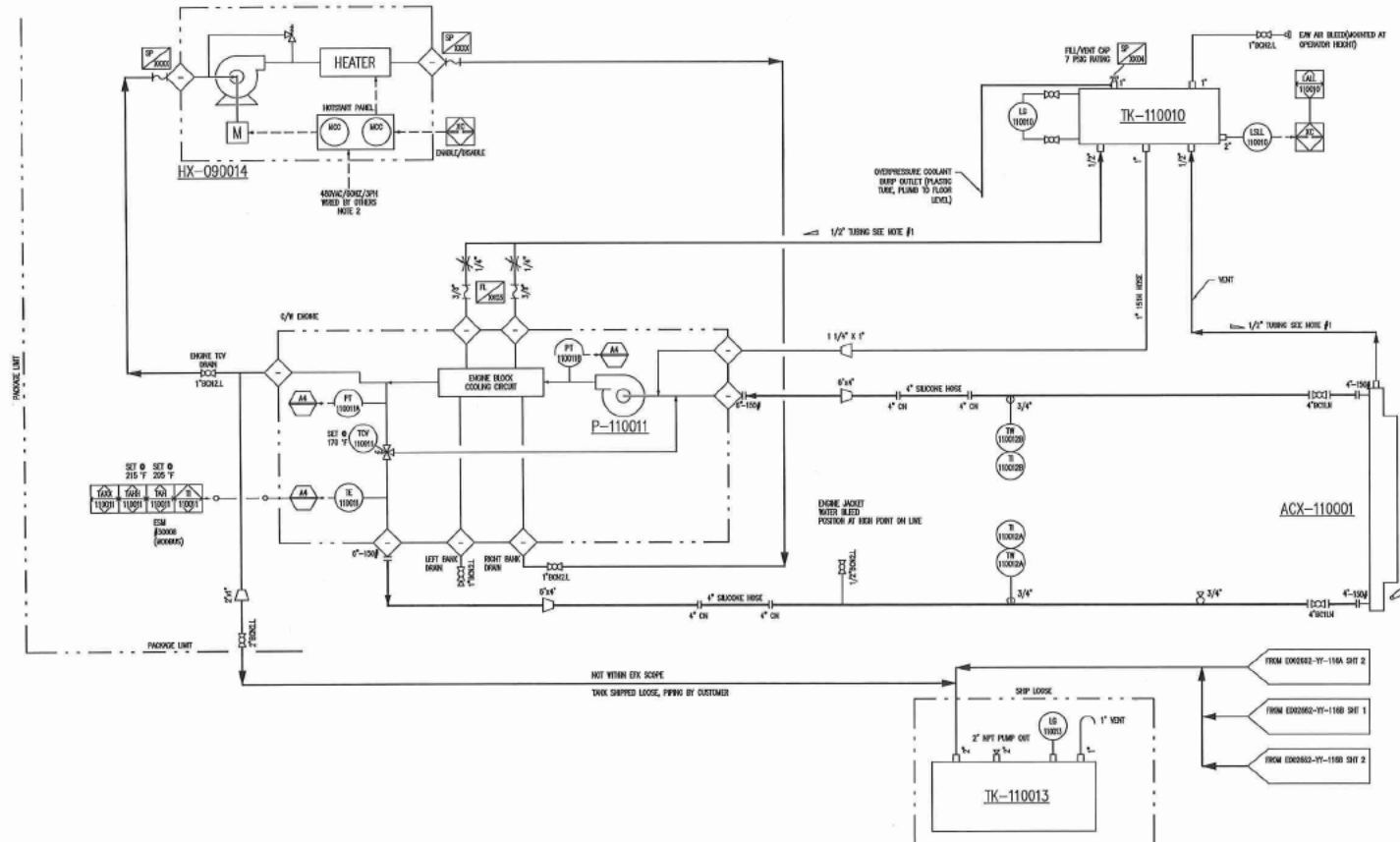
HX-090014
ENGINE OIL HEATER
MAKE: HOTSTART
MODEL: OCSN3120410-000

P-110011
EJW WATER PUMP
MAKE:
CAPACITY: 1250 L/MIN, MECHANICAL DRIVE

TK-110010
EJW EXPANSION TANK
CAPACITY: 72.5 L

ACX-110001
EJW COOLER SECTION
MAKE: AIR COOLED EXCHANGERS INC.
DUTY: 707 KW

TK-110013
WASTE GLYCOL TANK
MAKE: WESTEEL P1100
CAPACITY: 1135 L



- NOTES:
1. SLOPE ALL VENTS UP & CONNECT TO THE BOTTOM OF THE SURGE TANK, 1/4"-1/2" PER FOOT NO 10WPS.
 2. SINGLE A60WG FEED REQUIRED FOR HOT START UNIT TO COVER OIL AND GLYCOL.

FINAL AS BUILT
NAME: J. MACDONALD DATE: MAY 08/19

REV	DESCRIPTION	DATE	BY	APP
1	AS BUILT	MAY 08/19	JM	DA
0	ISSUED FOR CONSTRUCTION	OCT 01/18	JM	DA
E	ISSUED FOR APPROVAL	ALG 16/18	JM	DA
D	ISSUED FOR APPROVAL	JUN 17/18	CD	DA
C	ISSUED FOR APPROVAL	JUN 05/18	AT	DA
B	ISSUED FOR APPROVAL	MAY 08/18	AT	DA
A	ISSUED FOR APPROVAL	MAR 13/18	AT	DA

DATE	MAR 12/18	SCALE	DO NOT SCALE
DESIGNED BY	A. TRAN	CHECKED BY	D. ADDINGTON
PROJECT MANAGER	J. GARCIA	SUBJECT ENGINEER	D. ADDINGTON
NOTATION	2850052-001		

SPRUCE RIDGE EXPANSION
CS-2.7 CS-N5
PCE1000D

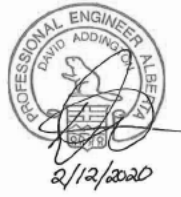
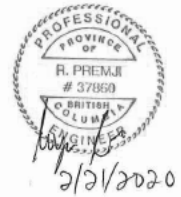
ENERFLEX
Calgary, Alberta,
Canada

P&ID ENGINE JACKET
WATER SYSTEM

E002662-YY-116A

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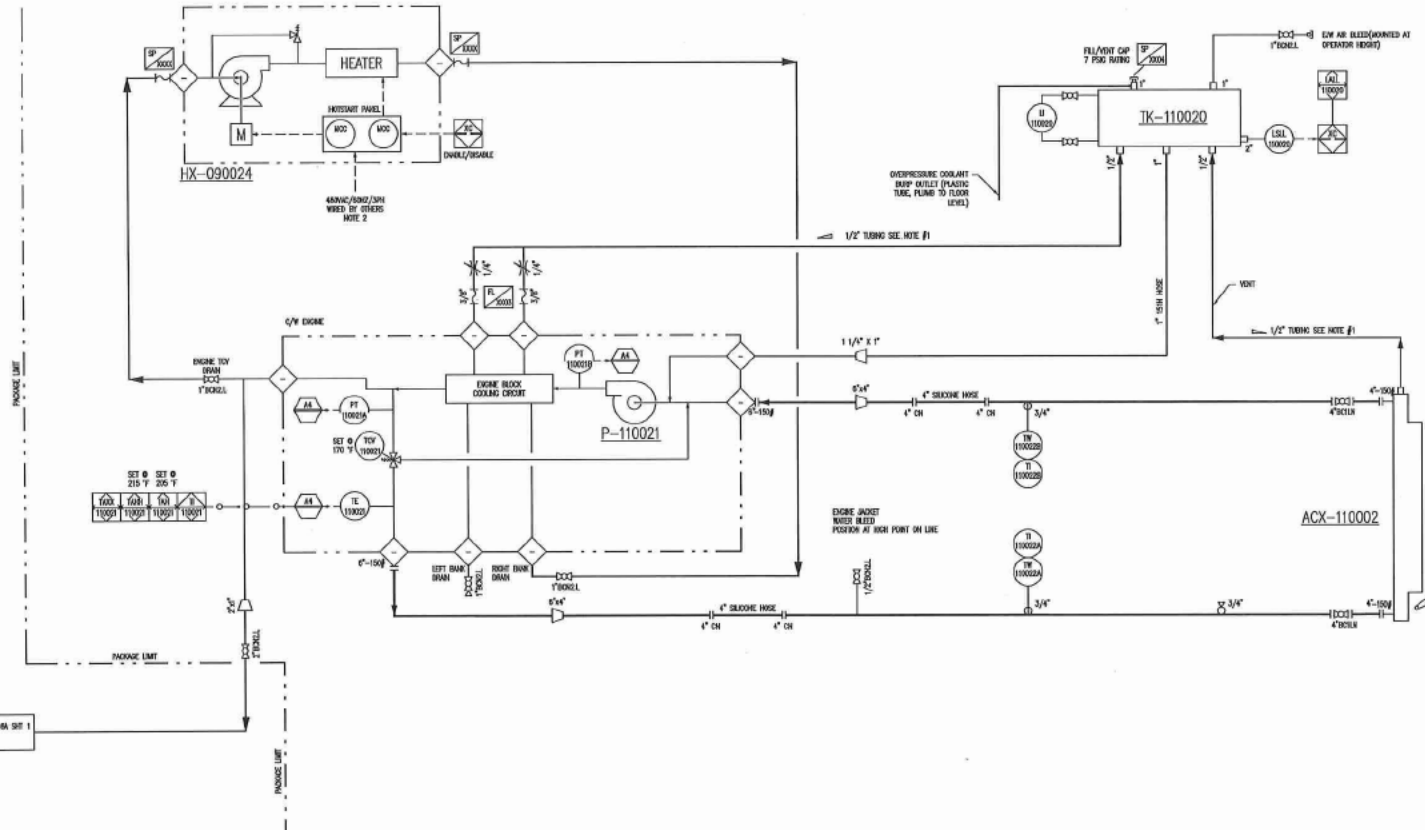


HX-090024
ENGINE OIL HEATER
MAKE: HOTSTART
MODEL: DC5M310410-000

P-110021
EJW WATER PUMP
MAKE:
CAPACITY: 1250 L/MIN, MECHANICAL DRIVE

TK-110020
EJW EXPANSION TANK
CAPACITY: 72.5 L

ACX-110002
EJW COOLER SECTION
MAKE: AIR COOLED EXCHANGERS INC.
DUTY: 707 KW



PROFESSIONAL
ENGINEER
ALBERTA
R. PREMJI
37860
5/21/2020
2/12/2020

- NOTES:
1. SLOPE ALL VENTS UP & CONNECT TO THE BOTTOM OF THE SURGE TANK, 1/4"-1/2" PER FOOT NO TRAPS.
 2. SINGLE 480MM FEED REQUIRED FOR HOT START UNIT TO COVER OIL AND GLYCOL.

**FINAL
AS BUILT**
DATE: 04/06/2020
BY: [Signature]

REV	DESCRIPTION	DATE	BY	APP
1	AS BUILT	MAY 08/19	JM	DA
0	ISSUED FOR CONSTRUCTION	OCT 01/18	JM	DA
E	ISSUED FOR APPROVAL	AUG 16/18	JM	DA
D	ISSUED FOR APPROVAL	JUN 17/18	CD	DA
C	ISSUED FOR APPROVAL	JUN 05/18	AT	DA
B	ISSUED FOR APPROVAL	MAY 08/18	AT	DA
A	ISSUED FOR APPROVAL	MAR 13/18	AT	DA

DATE	MAR 12/18	SCALE	DO NOT SCALE
DESIGNED BY	A. TRAN	CHECKED BY	D. ADDINGTON
PROJECT MANAGER	J. GARCIA	PROJECT ENGINEER	D. ADDINGTON
PROJECT NO.	2850052-M04		
DATE	MAR 12/18	BY	DA

SPRUCE RIDGE EXPANSION
CS-2.7 CS-N5
PCE1000D

ENERFLEX
Calgary, Alberta,
Canada

P&ID ENGINE JACKET
WATER SYSTEM

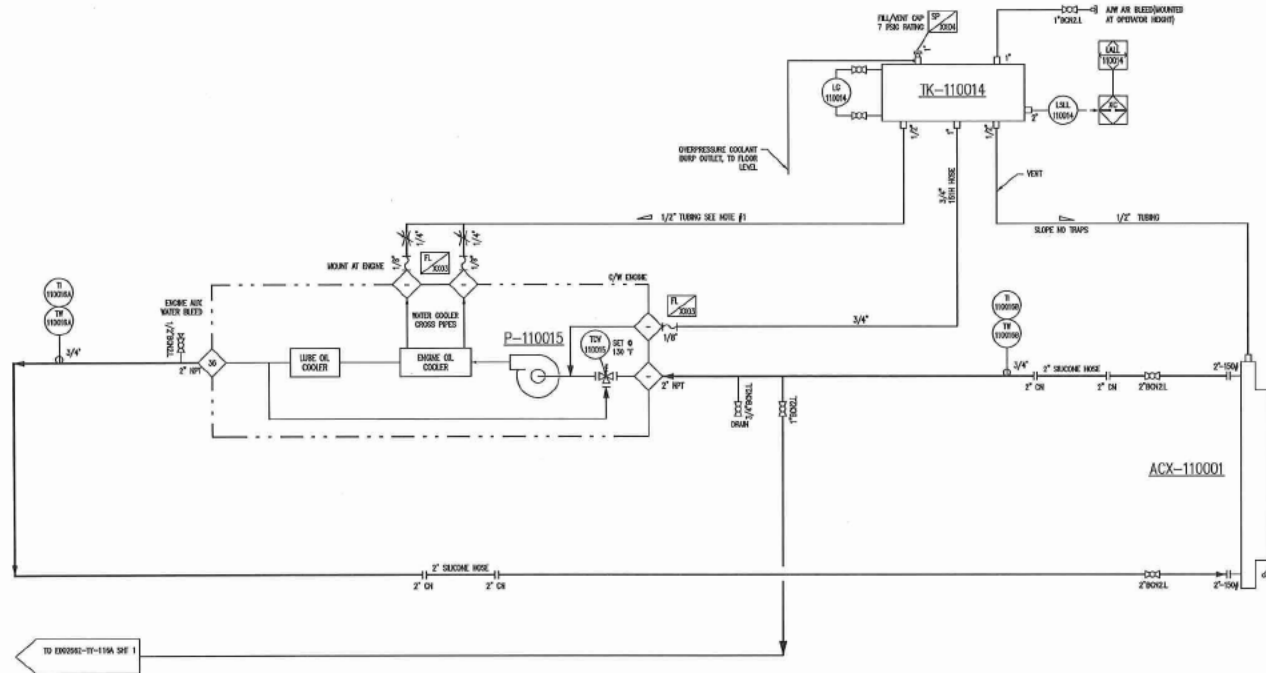
E002662-YY-116A

SHEET 2 OF 0

P-110015
AJW PUMP
MAKE: CATERPILLAR
CAPACITY: 375 L/MIN, MECANICAL DRIVE

TK-110014
AJW EXPANSION TANK
CAPACITY: 31 L

ACX-110001
AJW COOLER SECTION
MAKE: AIR COOLED EXCHANGERS INC.
DUTY: 108 KW



NOTES:
1. SLOPE ALL VENTS UP & CONNECT TO THE BOTTOM OF THE SURGE TANK, 1/4\"-1/2\" PER FOOT NO TRAPS.

**FINAL
AS BUILT**
DATE: 08/19/19 BY: [Signature]

REV	DESCRIPTION	DATE	BY	APP
1	AS BUILT	MAY 08/19	2M	DA
0	ISSUED FOR CONSTRUCTION	OCT 01/18	2M	DA
E	ISSUED FOR APPROVAL	AUG 16/18	2M	DA
D	ISSUED FOR APPROVAL	JUN 17/18	CD	DA
C	ISSUED FOR APPROVAL-NO CHANGE	JUN 05/18	AT	DA
B	ISSUED FOR APPROVAL	MAY 08/18	AT	DA
A	ISSUED FOR APPROVAL	MAR 13/18	AT	DA

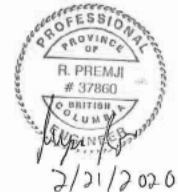
DATE	MAR 12/18	SCALE	DO NOT SCALE
DESIGNED BY	A. TRAN	CHECKED BY	D. ADDINGTON
PROJECT MANAGER	J. GARCEA	PROJECT ENGINEER	D. ADDINGTON
NOTATION NO.	2850052404		

SPRUCE RIDGE EXPANSION
CS-2 7 CS-N5
PCE1000D

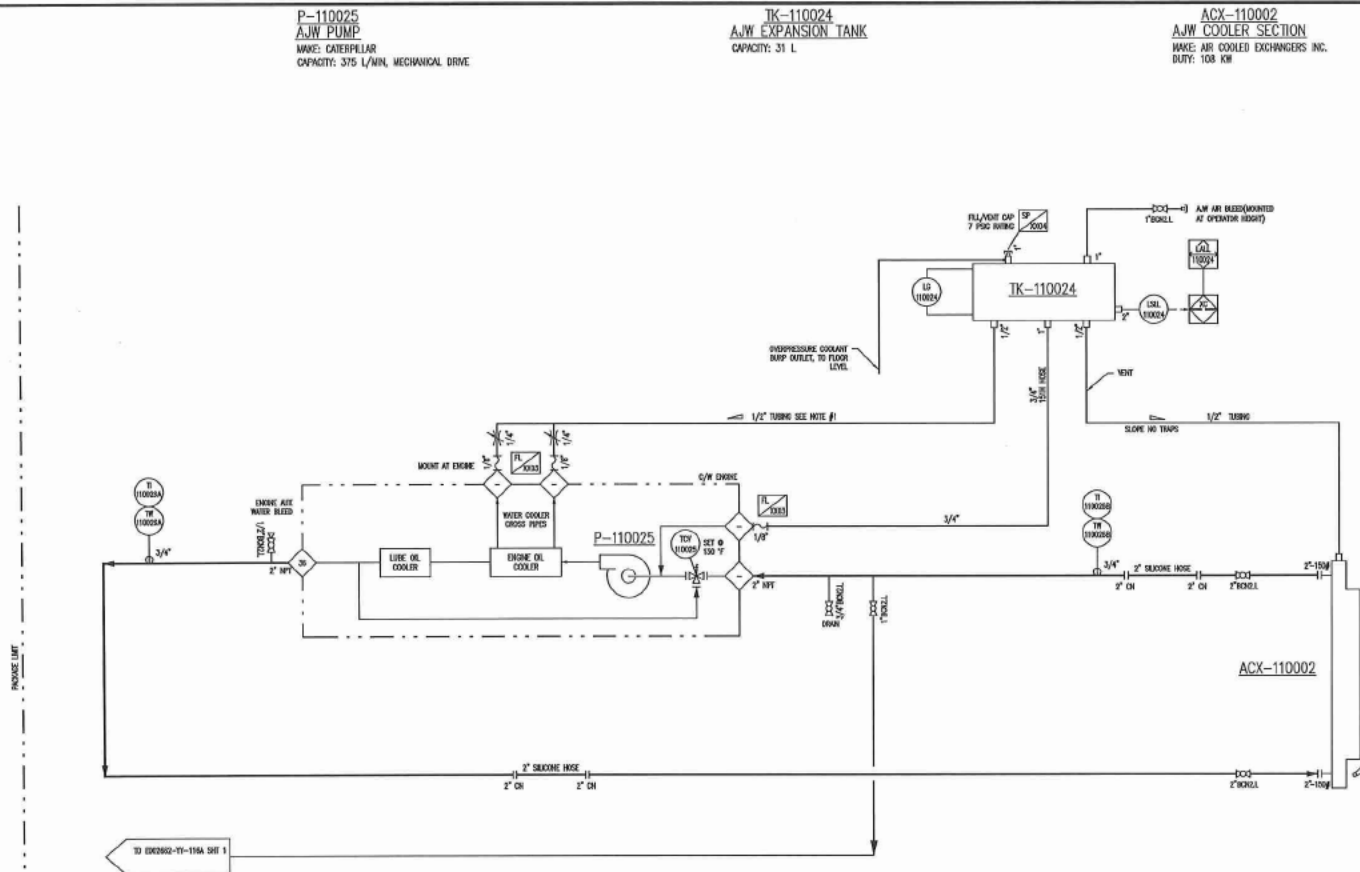
ENERFLEX
Calgary, Alberta,
Canada

P&ID ENGINE AUXILIARY
WATER SYSTEM

DATE	08/19	PROJECT	E002662-YY-116B	REV	1	0
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NOTES:
1. SLOPE ALL VENTS UP & CONNECT TO THE BOTTOM OF THE SURGE TANK, 1/4\"-1/2\" PER FOOT NO TRAPS.

**FINAL
AS BUILT**
DATE: JUNE 04/19

REV	DESCRIPTION	DATE	BY	APP.
1	AS BUILT	MAY 09/19	JM	DA
2	ISSUED FOR CONSTRUCTION	OCT 04/18	JM	DA
3	ISSUED FOR APPROVAL	AUG 16/18	JM	DA
4	ISSUED FOR APPROVAL	JUN 17/18	CD	DA
5	ISSUED FOR APPROVAL-NO CHANGE	JUN 05/18	AT	DA
6	ISSUED FOR APPROVAL	MAY 08/18	AT	DA
7	ISSUED FOR APPROVAL	MAR 13/18	AT	DA

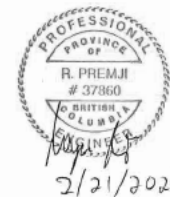
DATE	MAR 12/18	SCALE	DO NOT SCALE
DESIGNED BY	A. TRANI	CHECKED BY	D. ADDINGTON
PROJECT MANAGER	J. GARCIA	PROJECT ENGINEER	D. ADDINGTON
CONTRACT NO.	2850052104		

SPRUCE RIDGE EXPANSION
CS-2.7 CS-N5
PCE1000D

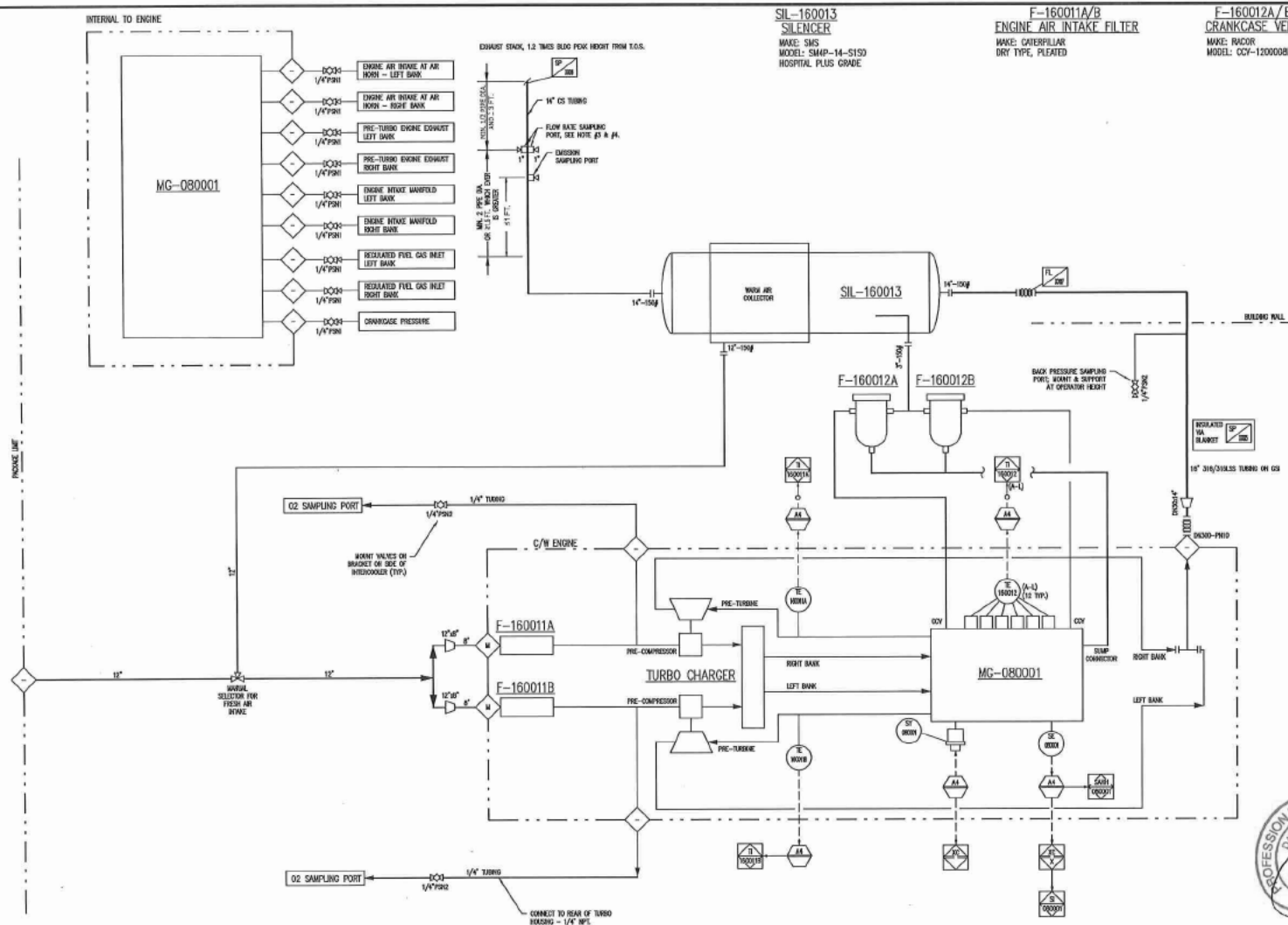
ENERFLEX
Calgary, Alberta,
Canada

P&ID ENGINE AUXILIARY
WATER SYSTEM

DATE	E002662-YY-116B	REV	2	BY	0
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- NOTE:**
1. INSULATION FROM ENGINE EXHAUST OUTLET TO OUTSIDE OF BUILDING WALL.
 2. SAMPLING PORT TURNINGS AND VALVES SHALL BE POST MOUNTED.
 3. TWO FLOW RATE SAMPLING PORTS SHALL BE PERPENDICULAR TO EACH OTHER.
 4. EMISSION SAMPLE POINTS CONFORM TO USA/CANADIAN REQUIREMENT.

**FINAL
AS BUILT**
DATE: 11/10/2020 BY: [Signature]

REV	DESCRIPTION	DATE	BY	APP
1	AS BUILT	MAY 08/19	JM	DA
2	ISSUED FOR CONSTRUCTION	OCT 01/18	JM	DA
3	ISSUED FOR APPROVAL	AUG 16/18	JM	DA
4	ISSUED FOR APPROVAL	JUN 17/18	CD	DA
5	ISSUED FOR APPROVAL	JUN 05/18	AT	DA
6	ISSUED FOR APPROVAL	MAY 08/18	AT	DA
7	ISSUED FOR APPROVAL	MAR 13/18	AT	DA

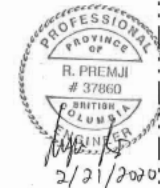
DATE	MAR 12/18	SCALE	DO NOT SCALE
DESIGNED BY	A. TRAN	CHECKED BY	D. ADDINGTON
PROJECT MANAGER	J. GARCIA	PROJECT ENGINEER	D. ADDINGTON
PROJECT NO.	2850052404		

SPRUCE RIDGE EXPANSION
CS-2 7 CS-N5
PCE1000D

ENERFLEX
Calgary, Alberta,
Canada

P&ID AIR/EXHAUST
SYSTEMS

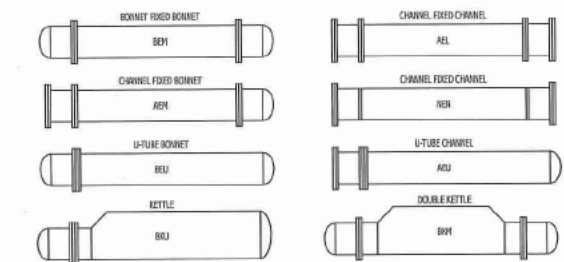
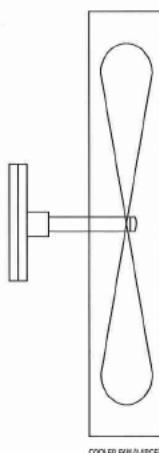
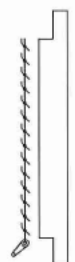
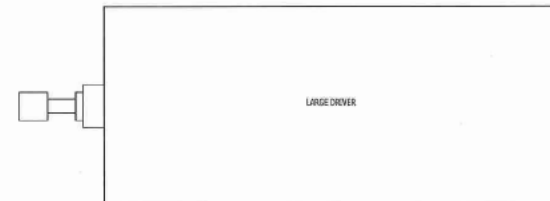
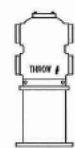
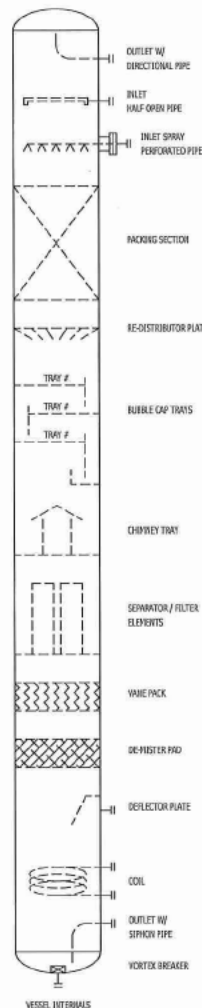
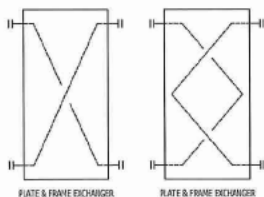
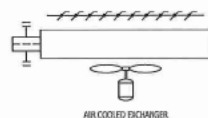
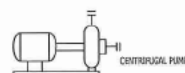
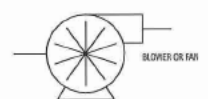
DATE	E002662-YY-117	REV	1	REV	0
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NO PARTY WITHOUT AUTHORIZATION FROM GAG DRIVE GLOBAL, LTD.

ABBREVIATIONS

ABN	ABSENT	HZ	SQUARE METERS
ATN	ATMOSPHERE	M3	CUBIC METERS
BN	BUTT WELD	MM	MILLIMETER
BP	BOTTOM OF PIPE	MAWP	MAXIMUM ALLOWABLE WORKING PRESSURE
CA	CORROSION ALLOWANCE	MCC	MOTOR CONTROL CENTER
CC	CORROSION COUPON	MMT	MAXIMUM DESIGN METAL TEMPERATURE
CS	CARBON STEEL	NIN	NOMINAL
CSC	CAR SEAL CLOSED	MM	MILLIMETER
CSO	CAR SEAL OPEN	MB	METRIC BAR
CUT	CUSTOMER	NC	NORMALLY CLOSED
DB	DEGREE	NL	NORMAL LIQUID LEVEL
Δ	DELTA (DIFFERENTIAL)	NO	NORMALLY OPEN
DBB	DOUBLE BLOCK & BLEED	NPT	NATIONAL PIPE THREAD
DESS.C	DEGREES CELSIUS	CAL	OVERALL LENGTH
DEG.F	DEGREES FAHRENHEIT	OD	OUTSIDE DIAMETER
DIE	DIRECT ACTING	FB	PUSH BUTTON
EL	ELEVATION	FL	Pilot Light
ESD	EMERGENCY SHUTDOWN	PLC	PROGRAMMABLE LOGIC CONTROLLER
ESDV	EMERGENCY SHUTDOWN VALVE	PPD	PIG PITS PER DAY
FC	FAIL CLOSED	PSIA	POUNDS / SQUARE INCH ABSOLUTE
FF	FLAT FACED	PSID	POUNDS / SQUARE INCH DIFFERENTIAL
FL	FLAT LAST	PSIG	POUNDS / SQUARE INCH GAUGE
FLG	FLANGED	REV	REVERSE ACTING
FO	FAIL OPEN	RF	RAISED FACE
FOB	FLAT ON BOTTOM	REFX	REFLEX GAUGE
FOT	FLAT ON TOP	RO	RESTRICTION ORIFICE
FTZ	SQUARE FEET	RTD	RESISTANCE TEMPERATURE DEVICE
FTJ	CUBIC FEET	RTJ	RING TYPE JOINT
IV	VACUUM	SCM	STANDARD CUBIC FEET PER MINUTE
IVCP	FIXED VOLUME CLEARANCE POCKET	SCX	SILENCE CONTROLLED RECTIFIER
FX	FROST EXTENSION	S/F	SPRINT TO FACE OF FLANGE
HE	HIGH	SO	SLIP ON
HLL	HIGH LIQUID LEVEL	SP	SETPOINT
HP	HIGH POINT	SPC	CALCULATED SETPOINT
HV	HIGH POINT VENT	SS	SELECTION SWITCH
HR	HEATER	S/S	SPRINT TO SPRING
ID	INSIDE DIAMETER	SV	SUCKER VALVE UNLOADER
KGS	KILOGRAMS	SW	SOCKET WELD
KPA	KILOPASCAL ABSOLUTE	TCK	THERMOCOUPLE (TYPE)
KPD	KILOPASCAL DIFFERENTIAL	TL	TUBE LENGTH
KPG	KILOPASCAL GAUGE	TS/TS	TUBESHEET TO TUBESHEET
KW	KILOWATTS	VB	VORTEX BREAKER
LBS	POUNDS	VH	VENT HEADER
LC	LOCKED CLOSED	VIA	VENT TO ATMOSPHERE
LL	LOW LIQUID LEVEL	VH	VENT TO HEADER
LO	LOCKED OPEN	VCP	VARIABLE VOLUME CLEARANCE POCKET
LP	LOW POINT	W	WITH
LPO	LOW POINT DRAIN	WO	WITHOUT



FOR
REFERENCE
ONLY
DATE: MAY 06/18

A	ISSUED FOR REFERENCE	MAR 13/18	AT	DA
REV	DESCRIPTION	DATE	BY	APP

DATE: MAR 12/18	SCALE: DO NOT SCALE	SPRUCE RIDGE EXPANSION CS-2.7 CS-N5 PCE1000D	ENERFLEX Calgary, Alberta, Canada	P&ID AIR/EXHAUST SYSTEMS
DESIGNED BY: A. TRANI	CHECKED BY: D. ADDINGTON			
PROJECT MANAGER: J. GARCIA	PROJECT ENGINEER: D. ADDINGTON			
PROJECT NUMBER: 2850052404		DATE: 03/15/2018	BY: J. GARCIA	APP: D. ADDINGTON
PROJECT TITLE: SPRUCE RIDGE EXPANSION		DATE: 03/15/2018	BY: J. GARCIA	APP: D. ADDINGTON
PROJECT LOCATION: SPRUCE RIDGE		DATE: 03/15/2018	BY: J. GARCIA	APP: D. ADDINGTON
PROJECT STATUS: IN PROGRESS		DATE: 03/15/2018	BY: J. GARCIA	APP: D. ADDINGTON
PROJECT PHASE: DESIGN		DATE: 03/15/2018	BY: J. GARCIA	APP: D. ADDINGTON
PROJECT DESCRIPTION: SPRUCE RIDGE EXPANSION		DATE: 03/15/2018	BY: J. GARCIA	APP: D. ADDINGTON
PROJECT DRAWING: P&ID AIR/EXHAUST SYSTEMS		DATE: 03/15/2018	BY: J. GARCIA	APP: D. ADDINGTON
PROJECT REVISION: 1		DATE: 03/15/2018	BY: J. GARCIA	APP: D. ADDINGTON
PROJECT REVISION: 2		DATE: 03/15/2018	BY: J. GARCIA	APP: D. ADDINGTON
PROJECT REVISION: 3		DATE: 03/15/2018	BY: J. GARCIA	APP: D. ADDINGTON
PROJECT REVISION: 4		DATE: 03/15/2018	BY: J. GARCIA	APP: D. ADDINGTON
PROJECT REVISION: 5		DATE: 03/15/2018	BY: J. GARCIA	APP: D. ADDINGTON
PROJECT REVISION: 6		DATE: 03/15/2018	BY: J. GARCIA	APP: D. ADDINGTON
PROJECT REVISION: 7		DATE: 03/15/2018	BY: J. GARCIA	APP: D. ADDINGTON
PROJECT REVISION: 8		DATE: 03/15/2018	BY: J. GARCIA	APP: D. ADDINGTON
PROJECT REVISION: 9		DATE: 03/15/2018	BY: J. GARCIA	APP: D. ADDINGTON
PROJECT REVISION: 10		DATE: 03/15/2018	BY: J. GARCIA	APP: D. ADDINGTON