BMS-200
BURNER MANAGEMENT SYSTEM
ACL MODEL CSC 400

H-200
LINE HEATER
MFR: NWP INDUSTRIES
SIZE: 62" OD X 20' S/S
DUTY: 2,000,000 BTU/HR

E-200
ENCLOSURE
24"W x 60"L x 72"H
1-1/2" POLYURETHANE FOAM PANEL
GALVALUME INTERNAL/EXTERNAL

C-100A
PREHEAT COIL A
MFR: NWP INDUSTRIES
MAWP: 5171 PSIG @ 200'F
XRAY: 100%
PWHT: YES
C.A.: 1/16"
CRN: P9417.213

C-100B
REHEAT COIL B
MFR: NWP INDUSTRIES
MAWP: 5171 PSIG @ 200'F
XRAY: 100%
PWHT: YES
C.A.: 1/16"
CRN: P9417.213

V-200
FUEL GAS SCRUBBER
MFR: LOTECH MANU.
SIZE: 8-5/8" OD X 36" OAL
MAWP: 285 PSIG @ 650'F
MDMT: -20'F @ 285 PSIG
CA: 1/8", PWHT: NO
CRN: AB, BC

SKID LIMIT

NOTE B
24 VDC
BMS-200
LSL 200
2"CL3000 NPT CPLG
SET @ 16 OZ 0.4 OZ VAC.
TH 200
1/2" 0.035" WT TUBING
LG 200
1/2" COUPLING
1/2" COUPLING
2"CL3000 NPT H.CPLG
BF050
1 1/2" H
H-200
TSHH SET @ 90°C
TC
3/4"
FIRETUBE AND STACK
4"
C-100A
PRE-HEAT COIL A
8 PASS - 4" 2500 RTJWN
C-100B
RE-HEAT COIL B
8 PASS - 4" 2500 RTJWN
PRE-HEAT INLET
PRE-HEAT OUTLET
RE-HEAT INLET
RE-HEAT OUTLET
PI 107
NM025
BF025G
BE 200
IGN / FFSD
3/4" NPT CPLG CL3000
TE 202
TW 202
1"CL3000 NPT F.CPLG
TI 201
TW 201
1"CL3000 NPT F.CPLG
1"CL3000 NPT F.CPLG
UY 102
VH
SC 101
3/8" TUBING 0.035"WT
NOTE A VENT TO ATM.
14.9 PSI MAX
PSLL 100
SET @ 4.5 PSI FALLING (31 kPa)
PSHH 100
SET @ 11.25 PSI RISING (78 kPa)
PI 105
NM025G
1/4"
BF025G CSO
PI 104
NM025G
1/4"
BF025G CSO
ZSC ZSO
UY 100
VH
SDV 100
TCV 100
VH
FC
1"x1/4"
14.9 PSI MAX
3/4" NPT
RANGE 9 PSIG FINAL SET
PRV 102
SY100
BF100G
1"
CL3000
1"
1/2"x1"
NOTE C
1" CL3000
BF100G
UY 101
NC
PRV 103
PI 103
RANGE 0-35 PSI FIELD SET
V/O INDIVIDUALLY
BF025G
1/4"x1"
CSA B149.3 ASME B31.3 NFS
14.9 PSIG MAWP
NWP STOCK VALVE TRAIN - SEE DWG NWPL-00030
E-200 ENCLOSURE LIMIT
SC 200
3/8" TUBING 0.035"WT
PRV 200
PI 200
SET @ 20 PSI (138 kPa)
VH
BF025
1/4"x1/2"
PRV 201
PI 201
SET @ 80 PSI (552 kPa)
VH
BF025
1/4"x1/2"
FG-1"-X-160C-0702
1" NPT PIPE
FG-1"-W-80A-0703
1" NPT PIPE
FG-1"-W-80A-0701
2"CL3000 H. CPLG
BR200
5 PLACES TYP
1/4"x2"
NOTE A VENT TO ATM.
2" NPS VENT STACK
LPD
1/2"x2"
BF050
PI 200
NM025
1"x1/4"
1"
2"x1"
2"
PSV 200
1"X1"
SET @ 150 PSIG
RAIN CAP
ATM
HLSD 200
V-200
1"
BF100
FG-1"-W-80A-0700
NWP
CLIENT
FUEL GAS
1"CL3000
1" NPT MAX PRESSURE 150 PSIG
1"X3/4"
1"
BR075
SKID LIMIT SK-200

ORIGINAL

REV	DATE	BY	CHK	APP	DESCRIPTION
0	OCT 31/23	LT	D		ISSUED FOR CONSTRUCTION

DRAWING REVISIONS

ISSUED FOR CONSTRUCTION

SIGNED: _____
DATE: _____
W.O.: _____
S/N: _____

ALL DIMENSIONS IN INCHES

NWP INDUSTRIES LP
P.O. BOX 6280, INNISFAIL, AB T4G 1S9
PH: (403) 227-4100 FAX: (403) 227-4102

NWP INDUSTRIES LP
2.0 MM BTU/Hr LINEHEATER
SOUR SERVICE

PIPING AND INSTRUMENTATION DIAGRAM

DWN:	CHK:	APP:
LT	D	
DATE: AUG 29/23	DATE: NOV 01 2023	DATE: NOV 01 2023

SCALE: N.T.S.
SHEET: 1 OF 2
DWG: 11605-001-P-000
REV: 0

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LINE TYPE LEGEND

- MAJOR PROCESS LINE
- UTILITY LINE
- BUILDING LIMITS
- ENCLOSURE LIMITS
- ALTERNATE LIMITS
- CUST/VENDOR SUPPL. LIMITS
- HIDDEN LINE
- EQUIPMENT OUTLINE
- INSTRUMENT PNEUMATIC LINE
- PROCESS/UTILITY TUBING LINE
- INSTRUMENT CAPILLARY LINE
- ELECTRICAL DATALINK LINE
- ELECTRICAL CONNECTION LINE
- HYDRAULIC LINE
- MECHANICAL LINK LINE

INSULATION LEGEND

2.5" PP / 3" C — * THICKNESS
C=COLD
H=HOT
PP=PERSONEL PROTECTION

25H ET / 3"H GT — * THICKNESS c/w TRACING
ET=ELEC. TRACE
GT=GLYCOL TRACE
OT=OIL TRACE
ST=STEAM TRACE

VALVE SYMBOL LEGEND

- BALL VALVE
- SPRING RETURN BALL VALVE
- GLOBE VALVE
- GATE VALVE
- CHECK VALVE
- PLUG VALVE
- NEEDLE VALVE
- INLINE CHOKE VALVE
- 4-WAY VALVE
- 3-WAY VALVE
- BUTTERFLY VALVE
- BASKET/CONE STRAINER
- TEE STRAINER
- Y STRAINER
- RUPTURE DISC
- PRESSURE RELIEF VALVE
- ANGLE VALVE
- ANGLE CHOKE VALVE
- GAUGE VALVE
- BLOCK & BLEED NEEDLE VALVE
- XXXXX — MULTIIPORT MANIFOLD

VALVE CONNECTION LEGEND

- THRD VALVE
- THRD/SW VALVE
- SW VALVE
- FLANGED VALVE

TOPWORKS SYMBOL LEGEND

- DIAPHRAGM ACTUATOR
- ACTUATOR WITH HANDWHEEL
- ACTUATOR WITH POSITIONER
- REGULATOR WITH HANDWHEEL
- BACK PRESS. REGULATOR
- PRESS. REDUCING REGULATOR
- PISTON ACTUATOR
- ACTUATOR WITH POSTIONER
- ROTARY PISTON ACTUATOR
- ROTARY MOTOR ACTUATOR
- SOLENOID

METERING

- METER RUN
- ORIFICE METER
- FLOW CONDITIONER
- VORTEX METER
- POSITIVE DISPLACEMENT METER
- TURBINE/PROPELLER METER
- MASS FLOW METER
- FLOW INDICATOR

MISC TAG SYMBOL LEGEND

- IG / 1 — INSTR. GAS TO AND FROM
- IA / 1 — INSTR. AIR TO AND FROM
- RTU — RTU
- I / P — I/P ELECTRO PNEUMATIC

MISC SYMBOLS LEGEND

- FLANGE / BLIND FLANGE
- BW CAP / THRD CAP
- UNION
- TOL/CPLG w/PLUG
- BREAK
- CONCENTRIC REDUCER
- CONCENTRIC SWAGE
- FOT FOT — ECC REDUCERS
- SKID EDGE SCARFED VENT
- FLEXIBLE HOSE
- CAMLOCK CONNECTION
- SPEC. BLIND-CLOSED/OPEN
- PIPE/TUBING FLOW ARROW
- SPEC/RESPONSIBILITY BREAK
- FLANGED NOZZLE
- MANWAY
- PANEL LOAD
- GROUND
- SKID DRAIN
- PIG BAR
- CONNECTION INDICATOR/ PAGE CONTINUATOR
- LIGHT
- SPEED CONTROL
- 3VH — SWITCHING VALVE (AMOT)
- CONSTRUCTION REVISIONS
- MUFFLER

ORIGINAL

GENERAL NOTES

1. SHOP INSTALL ADDITIONAL PIPE SUPPORTS WHERE REQ'D.
2. SHIP LOOSE ITEMS TO BE BOXED AND SEALED PRIOR TO SHIPMENT.
3. PLUG AND PROTECT ALL OUTLETS PRIOR TO SHIPMENT.
4. ROUTE PIPING TO ENSURE NO LIQUID TRAPS.
5. ALL PIPING MATERIAL TO BE STANDARD TEMP U.N.O.
6. HYDROTEST PROCESS PIPING TO 1.5 x M.A.W.P.
7. ALL PIPING AND PROCESS TUBING LINES TO BE TESTED PER ASME B31.3 NFS.
8. INSTRUMENT SUPPLY LINES TO BE TESTED PER ABSA AB-522 DIRECTIVE.

CUSTOMER NOTES

A. VENT TERMINATIONS MUST HAVE SCREENS AND POINT DOWNWARDS.
B. ACL DRIVERS MAY BE SUPPLIED FOR LOW WATTAGE APPLICATIONS.
C. BALL VALVE MUST BE WITHIN OPERATORS REACH AT FLAME ARRESTOR.

REV A

ABBREVIATIONS

ASSY	ASSEMBLY	HPV	HIGH POINT VENT	MISC.	MISCELLANOUS
ATM	ATMOSPHERE	HS	HYDRAULIC SUPPLY	PD	POSITIVE DISPLACEMENT
BBL	BARREL	HT	HEAT TRACE	P/I	PNEUMATIC TO CURRENT
BD	BLOWDOWN	IA	INSTRUMENT AIR	P/L	PIPELINE
BTU	BRITISH THERMAL UNITS	ID	INSIDE DIAMETER	PLC	PROGRAMMABLE LOGIC CONTR.
CC	CORROSION COUPON	IG	INSTRUMENT GAS	PO	PUMP OUT
CP	CORROSION PROBE	INJ. PT	INJECTION POINT	RF	RAISED FACE
CSC	CAR SEAL CLOSED	I/P	CURRENT TO PNEUMATIC	RO	RESTRICTION ORIFICE
CSO	CAR SEAL OPEN	I/S	INSIDE	RP	REDUCED PORT
c/w	COMPLETE WITH	LLL	LOW LIQUID LEVEL	RTJ	RING TYPE JOINT
DB&B	DOUBLE BLOCK & BLEED	LPD	LOW POINT DRAIN	RTU	REMOTE TRANSMITTING UNIT
ESD	EMERGENCY SHUTDOWN	LSD	LEGAL SUBDIVISION	SP	SAMPLE POINT
ET	ELECTRICAL TRACE	MAWP	MAX. ALLOW. WORK PRES.	s/c	SHOP COAT
FC	FAIL CLOSE	MDMT	MIN. DESIGN METAL TEMP.	SG	SPECIFIC GRAVITY
FFSD	FAIL CLOSE	MCC	MOTOR CONTROL CENTER	SS	STAINLESS STEEL
FO	FAIL OPEN	MISC.	MISCELLANOUS	S/S	SEAM TO SEAM
FRD	FLOAT RELEASE DEVICE	NC	NORMALLY CLOSED	TK	TANK
FP	FULL PORT	NLL	NORMAL LIQUID LEVEL	T/T	TANGENT TO TANGENT
GO	GEAR OPERATED	NO	NORMALLY OPEN	UNO	UNLESS NOTED OTHERWISE
GT	GLYCOL TRACE	NTS	NOT TO SCALE	VH	VENT HEADER
HC	HOSE CONNECTION	OD	OUTSIDE DIAMETER	ZSC	POSITION/LIMIT SWITCH CLOSE
HLL	HIGH LIQUID LEVEL	O/S	OUTSIDE	ZSO	POSITION/LIMIT SWITCH OPEN

INSTRUMENTATION IDENTIFICATION AS PER ANSI/ISA-5.1-2009

LETTER	FIRST LETTERS		SUCCEEDING LETTERS		
	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
	MEASURED/INITIATING VARIABLE	VARIABLE MODIFIER	READOUT/PASSIVE FUNCTION	OUTPUT/ACTIVE FUNCTION	FUNCTION MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE			CONTROL	CLOSE
D	USER'S CHOICE	DIFFERENCE, DIFFERENTIAL			DEVIATION
E	VOLTAGE		SENSOR, PRIMARY ELEMENT		
F	FLOW, FLOW RATE	RATIO			
G	USER'S CHOICE		GLASS, GAUGE, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT		INDICATE		
J	POWER		SCAN		
K	TIME, SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	USER'S CHOICE				MIDDLE, INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE, TOTALIZE	INTEGRATE, TOTALIZE		
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL, PROBE		
X	UNCLASSIFIED	X-AXIS	ACCESSORY DEVICES, UNCLASSSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, PRESENCE	Y-AXIS		AUXILIARY DEVICES	
Z	POSITION, DIMENSION	Z-AXIS, SAFETY INSTRUMENTED SYSTEM		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

REV A.1

VALVE TAGGING

XX XXX XX

- BALL VALVE (FULL PORT) – BF
- BALL VALVE (REG. PORT) – BR
- BUTTERFLY VALVE – BU
- CHECK VALVE (BALL) – CB
- CHECK VALVE (PISTON) – CP
- CHECK VALVE (SWING) – CS
- CHECK VALVE (WAFER) – CW
- GATE VALVE – GA
- GLOBE VALVE – GL
- STRAINER (BASKET) – SB
- STRAINER (T) – ST
- STRAINER (Y) – SY
- SWAGELOK – SW
- NEEDLE VALVE (FEMALE x FEMALE) – NF
- NEEDLE VALVE (MALE x FEMALE) – NM
- MANIFOLD – MF

- 025 – 1/4"
- 038 – 3/8"
- 050 – 1/2"
- 075 – 3/4"
- 100 – 1"
- 200 – 2"
- 201 – 2" 150 ANSI
- 303 – 3" 300 ANSI
- 406 – 4" 600 ANSI
- 609 – 6" 900 ANSI
- 815 – 8" 1500 ANSI
- 1025 – 10" 2500 ANSI

- G – GAS SERVICE
- H – HIGH PRESSURE
- L – LOW TEMP.
- N – NACE
- Z – BOM CLARIFIER (1,2,...)

LINE TAGGING

XX–X"–X–XXXX–XXX

- DRAIN – D
- EMULSION – E
- FUEL GAS – FG
- GLYCOL – G
- HYDROCARBON – HC
- INSTRUMENT AIR/GAS – IA/IG
- PROCESS GAS – PG
- PRESSURE RELIEF – PR
- WATER – W
- VENT (ATMOS) – V

NOMINAL PIPE SIZE

- 150 ANSI – A
- 300 ANSI – B
- 600 ANSI – C
- 900 ANSI – D
- 1500 ANSI – E
- 2500 ANSI – F
- 2000# THRD/SW – T
- 3000# THRD/SW – W
- 6000# THRD/SW – X

PIPE SCHEDULE

- 0100–0199 EMULSION
- 0200–0299 PROCESS GAS
- 0300–0399 HYDROCARBON
- 0400–0499 WATER
- 0500–0599 DRAIN
- 0600–0699 PROCESS FLUID
- 0700–0799 FUEL GAS
- 0800–0899 PRESSURE RELIEF
- 0900–0999 OTHER
- 1000–1099 VENT (NO TESTING)

- A – 316 SS TUBING w/ 316 SS FITTINGS
- B – 316 SS TUBING w/ CS FITTINGS
- C – NOT APPLICABLE

REV A.1

TAG LEGEND

	LOCALLY MOUNTED	PRIMARY LOC. OR PANEL NORMALLY ACCESS. TO OPER.	AUXILIARY LOC. OR PANEL NORMALLY ACCESS TO OPER.	PRIMARY LOC. OR PANEL MOUNTED ON BACK OF PANEL	AUXILIARY LOC. OR PANEL MOUNTED ON BACK OF PANEL
DISCRETE	–	–	–	–	–
SHARED DISPLAY, SHARED CONTROL DISTRIBUTION, CONTROL VIDEO DISPLAY	–	–	–	–	–
COMPUTER FUNCTION, SOFTWARE FUCTION	–	–	–	–	–
PROGRAMMABLE LOGIC CONTROL	–	–	–	–	–

REV	DATE	BY	CHK	APP	DESCRIPTION
0	OCT 31/23	LT			ISSUED FOR CONSTRUCTION

DRAWING REVISIONS

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DATE: _____

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S/N: _____

ALL DIMENSIONS IN INCHES

NWP INDUSTRIES LP
P.O. BOX 6280, INNISFAIL, AB T4G 1S9
PH: (403) 227-4100 FAX: (403) 227-4102

NWP INDUSTRIES LP
2.0MM BTU/Hr LINEHEATER
SOUR SERVICE

PIPING AND INSTRUMENTATION LEGEND

DWN:	CHK:	APP:
LT		
DATE: AUG 29/23	DATE: NOV 01 2023	DATE: NOV 01 2023

SCALE:	SHEET:	DWG:	REV:
N.T.S.	2 OF 2	11605-001-P-000	0

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