H–100
MANUFACTURER: NWP INDUSTRIES LP
SIZE: 72"ø x 36' LG
DUTY: 4.0 MMBTU/HR

E–100
MANUFACTURER: NWP INDUSTRIES LP
FOAM PANEL ENCLOSURE
SIZE: 24"D x 84"W x 80"H
1 1/2" GALVALUME/GALVALUME FOAM PANEL

C–100
MANUFACTURER: NWP INDUSTRIES LP
SIZE: 6" CL900 RF SCH XH
MAWP: 1575 PSIG (10,859 kPa) @ 200°F
MDMT: –20°F @ 1575 PSIG
C.A. 3.2mm (1/8"), CRN: P–9412.213

V–200
MANUFACTURER: LOTECH
SIZE: 8–5/8"O.D.x30"OAL
MAWP: 285 PSIG (1965 kPa) @ 650°F
MDMT: –20°F @ 285 PSIG
C.A. 3.2mm (1/8"), CRN: 0H22853.21345

BMS–100
BURNER MANAGEMENT SYSTEM
MFR: ACL
MODEL NO.: ACL CSC400
24 VDC
NOTE C

24 VDC POWER SUPPLY

SET @ 16 OZ
0.4 OZ VAC.
TH 100
LG 100
1/2"CL3000 NPT CPLG
1/2"CL3000 NPT CPLG
1/2" BR050
2"
2" CL150 RF FUTURE GLYCOL RETURN
1 1/2" H
LSLL 100
2"CL3000 NPT H.CPLG
SET @ 90°C
TC
H–100
2" 2" 4"
24" FIRETUBE AND STACK
C–100
18 PASSES
6" CL900 RF PROCESS INLET
6" CL900 RF PROCESS OUTLET
TE 102
TW 102
1"CL3000 NPT F.CPLG
TI 101
TW 101
3/4"CL3000 NPT F.CPLG
1"CL3000 NPT F.CPLG
SC 100
UY 102
VH
3/8" 316 SS TUBING 0.035"WT
PI 107
NM025
BF025G
BE 100
IGN / FFSD
NOTE J
3/4"
VENT TO ATM.
NOTE A & D
FG–1"–X–160A–0704
2" DRAIN
BR200
2" CL150 RF FUTURE GLYCOL SUPPLY
3/8" 316 SS TUBING 0.035"WT
14.9 PSI MAX
NOTE F
SET @ 4.5 PSI FALLING (31 kPa)
PSLL 100
PSHH 100
SET @ 11.25 PSI RISING (78 kPa)
NOTE F
PI 105
NM025G
1/4"
PI 104
NM025G
1/4"
BF025G CSO
3/4" NPT
RANGE 5–20 PSI FIELD SET
PRV 102
SY100
BF100G
6 PLACES TYP 1/4"x2"
NOTE A & D VENT TO ATM.
2" NPS VENT HEADER
LPD 2"x1" BR100
3/8" 316 SS TUBING 0.035"WT
FG–1"–W–80A–0705
1" NPT PIPE
1" NPT PIPE
NOTE H
PI 106
NM025
1"x1/4"
BF100G NOTE I
FG–1"–W–80A–0706
1" CL3000
TCV 100
VH
FC
1"x1/4"
BF025G CSO
SDV 100
VH
UY 100
1"x1/4"
14.9 PSI MAX
1" CL3000
1"
PI 201
NM025
1"x1/4"
1" x 1" "D" ORIFICE
PSV 200
SET @ 150 PSI
1" SCH 80
NOTE D VENT TO ATM W/ RAIN CAP
1"
FG–1"–W–80A–0703
2"x1"
2"
HLSD 200
PI 200
NM025
1"x1/4"
1" 3000# FUEL GAS INLET, SWEET MAX INLET 130 PSI
BR100
FG–1"–W–80A–0701
UY 101
PRV 103
PI 103
VENT O/S INDIVIDUALLY NOTE D
1/4"x1"
BF025G
1/4"
CSA B149.3 14.9 PSIG MAWP
ASME B31.3 NFS 130 PSIG MAWP
PRV 100
PI 100
SET @ 20 PSI (138 kPa)
BR025
1/4"x1/2"
1/2"x1"
PRV 101
PI 101
SET @ 80 PSI (552 kPa)
BR025
1/4"x1/2"
1/2"
SC 101
3/8" 316 SS TUBING 0.035"WT
NWP STOCK VALVE TRAIN SEE DWG NWPL–00030
E–100 ENCLOSURE LIMIT
SK–100 SKID LIMIT
V–200
1" 3000# DRAIN OUTLET
D–1"–W–80A–0500
BR100
CS100

ORIGINAL

REV	DATE	BY	CHK	APP	DESCRIPTION
0	FEB 24/25	ES	[illegible]	[illegible]	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
LINEHEATER PACKAGE SOUR
4.0 MM BTU/HR 72" O.D. x 36' LG

PIPING AND INSTRUMENTATION DIAGRAM

DWN:	CHK:	APP:
ES	[illegible]	[illegible]
DATE: FEB 24/25	DATE: APR 03 2025	DATE: APR 03 2025

SCALE: N.T.S.
SHEET: 1 OF 2
DWG: 11603-001-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
- 3 / 2 / 1 / A / VH — SWITCHING VALVE (AMOT)
- CONSTRUCTION REVISIONS
- MUFFLER

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. VENTS TO BE ORIENTATED AWAY FROM PERSONNEL.
C. ACL DRIVERS MAY BE SUPPLIED FOR LOW WATTAGE APPLICATIONS.
D. THE DISCHARGE OF VENT PIPING SHALL BE LOCATED MORE THAN 3FT FROM ANY BUILDING OPENING AND MORE THAN 10FT FROM ANY AIR INTAKE OR SOURCE OF IGNITION. EXTEND LINES AWAY FROM PERSONNEL AND BUILDING OPENINGS WITH SCREENS AND PROTECTED FROM WATER ENTRY
E. SHOP TO ADD UNIONS AS NEEDED.
F. PRESSURE SWITCHES MAY BE RESET BASED ON FUEL GAS QUALITY AND FUEL GAS COMPOSITION REPORT.
G. THE USE OF BUSHINGS IS NOT PERMITTED ON PROCESS PIPING.
H. ALL THREADED PIPING CA 1/16"
I. BALL VALVE MUST BE WITHIN OPERATORS REACH AT FLAME ARRESTOR.
J. BURNER TIP SHALL BE INSERTED A MINIMUIM OF 4" PAST THE BATH END PLATE.

REV A

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

REV A

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	–	–	–	–	–

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		RUN
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	

VALVE TAGGING

REV A.1

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

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

- 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)

REV A.1 ORIGINAL

REV	DATE	BY	CHK	APP	DESCRIPTION
0	FEB 24/25	ES	D	E	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
LINEHEATER PACKAGE SOUR
4.0 MM BTU/HR 72" O.D. x 36' LG

PIPING AND INSTRUMENTATION DIAGRAM

DWN:	CHK:	APP:
ES	D	E
DATE: FEB 24/25	DATE: APR 03 2025	DATE: APR 03 2025

SCALE:	SHEET:	DWG:	REV:
N.T.S.	2 OF 2	11603-001-P-000	0

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