THERMAL RECOVERY SPECS: LINE DESIGNATION AND NUMBERING (REV.3):

ZZZ - SO - A B A - 10 - 1001 - 5 1 H - GT1

- ZZZ: Location Identifier (1)
- SO: Commodity
- A: Flange Rating
- B: Service
- A: Pipe Material
- 10: Line Size (NPS)
- 1001: Line Number
- 5: Insulation Thk
- 1: Insulation Type
- H: Tracing
- GT1: Tracing

LOCATION IDENTIFIERS: (1)

(C) CL1 - CL Commercial Plant Phases 1C to 1E, CL Sulphur Recovery Facility
FC3 - FC Commercial Plant Phases F & G
(D) FC1 - FC Sulphur Recovery Facility, Phases 1A-1E (typically MOCs/Specialty Projects - 2008 and later)
(3) FCP - FC Pilot Plant Facility (typically projects 2008 and later)
NL1 - NL Commercial Plant
(D) XYY - CL Production Pads, where
X = Pad Area Location (A, B, C)
YY = Production Pad Number (YY = 00 for pipelines & laterals)
XYY - FC Production Pads, where
X = Pad Area Location (E (East), N (North), W (West))
YY = Production Pad Number (YY = 00 for pipelines & laterals)
XYZ - FC and CL Brackish/Fresh Water Pads & Disposal Water Pads, where
X = Pad Area Location (A, B, C (Christina Lake) or E, N, W (Foster Creek))
Y = W (brackish/fresh water pads), D (disposal pads)
Z = Pad Number for brackish/fresh water pads and disposal pads

COMMODITIES:

AC	Compressed Air (3)	LA	Lean Amine	VS	Varsol
AG	Acid Gas	LG	Lean Glycol	VT	Vent
AL	Alum	LO	Lube Oil	WP	Potable Water
AS	Soda Ash	LS	Lime Slurry	WR	Regen Waste
BD	Blowdown	MS	Magox Slurry	WW	Waste Water (Sanitary)
BF	Boiler Feedwater	NI	Nitrogen		
BR	Brine	OD	Open Drain		
BU	Butane	PE	Produced Emulsion		
CA	Caustic	PG	Produced Gas		
CD	Closed Drain	PO	Polymer		
CH	Chemicals	PR	Propane		
CI	Carbon Dioxide (1)	PW	Produced Water		
CO	Hydrocarbon Condensate (1)	RA	Rich Amine		
CW	Cooling Water (closed system)	RB	Raw Brackish Water		
DE	Diesel	RF	Raw Fresh Water		
DL	Diluent	RG	Rich Glycol		
DW	Domestic Water (C)	RS	Recycle Slop/Off-spec		
FG	Fuel Gas	SB	Soft Brackish Water		
FL	Flare	SC	Steam Condensate		
FM	Foam	SF	Soft Fresh Water		
FW	Fire Water	SO	Sales Oil		
GL	Glycol Heating / Cooling Medium	SS	Lime Sludge		
HA	Hydrochloric Acid	SU	Sulphur		
HO	Hot Oil	UA	Utility Air		
HS	High Pressure Steam (1)	US	Utility Steam		
IA	Instrument Air	UW	Utility Water		

FLANGE RATING:

A	ANSI 150#	D	ANSI 900#
B	ANSI 300#	E	ANSI 1500#
C	ANSI 600#	F	ANSI 2500#

SERVICE:

A	Non-corrosives (1)	R	Light Sour Hydrocarbons (1)
B	Corrosives	S	Sour (1)
C	Chemicals	V	Steam, Boiler Feed Water (1)
D	Acid, Caustics (1)	W	Produced Water/Brackish Water
E	Brine	X	Low Temperature Sour
F	Cryogenics	Z	Low Temperature Corrosives
L	Low Temperature Non-corrosives		

PIPE MATERIAL:

A	Carbon Steel A106B	H	Internally Coated	X	Carbon Steel A333 Gr. 3 (1)
B	Carbon Steel A333 Gr. 6	J	Copper	Z	CSA Z245.1 (Z662)
C	Stainless Steel 316	K	High Density Polyethylene (HDPE)		
D	Stainless Steel 304	L	Polypropylene Lined Pipe		
E	Carbon Steel A106B (1)	M	Polytetraflouroethylene (PTFE) Lined Pipe (1)		
F	Fibreglass Reinforced Pipe (FRP) (1)	P	Polyvinylchloride (PVC) (1)		
G	Carbon Steel A106B Galvanized (1)	U	Duplex Stainless Steel 2205 (1)		

LINE SIZE
Indicates the Nominal Pipe Size (NPS) of the primary section of the line.

LINE NUMBER
Shall be assigned as a four character number issued sequentially starting with 0001 for each commodity.

INSULATION:
Thickness in millimeters, e.g., 25, 38, 51, 64, 76, 89 & 102

TYPE AND MATERIAL CODE:

(1)	H	Hot / Freeze Protection
	P	Personnel Protection
	C	Cold Insulation
	CP	Condensation Protection

TRACING TYPE:

	GT1	Glycol Traced Freeze Protection (Hold 10 °C)
	GT2	Glycol Traced Viscosity Control (Hold 45°C)
	GT3	Glycol Traced Viscosity Control (Hold Temp to be Specified)
(D)	ET1	Electric Traced Freeze Protection (Hold 10 °C)
	ET2	Electric Traced Viscosity Control (Hold 45°C)
	ET3	Electric Traced Viscosity Control (Hold Temp to be Specified)
	JHO	Jacketed Hot Oil

GENERAL NOTES:

1. Expansion temperature is the maximum pipe temperature resulting from abnormal operating conditions such as upsets, steam-out, steam tracing or regeneration. If no temp. is shown, the design temp will be taken as the expansion temp.
2. Show max. conditions of coincident pressure and temperature in these columns for stress calculations. If no pressure or temperature are shown, the max. coincident pressure and temperature will be taken as the design pressure and design temperature.
(2) Analysis column to be completed by the Stress Engineer based on Cenovus Specification TR-44-SPC-00-012-01 using the following:
C = CRITICAL LINE — This indicates a critical line that will require stress engineering performed by computer analysis.
M = MANUAL INSPECTION — This indicates a line that will require stress engineering performed by manual or hand calculation.
V = VISUAL — This indicates the possibility of a stress review by visual inspection.
3. MDMT is the minimum design metal temperature under pressure. Lines which are traced and insulated or depressured when not flowing warm fluid do not require design for minimum ambient temperature (-40°C).
(1) Deviation from MDMT specified in piping class requires FCCL approval through specification waiver process.
(1) 4. Refer to Cenovus' Painting and Galvanizing Spec TR-43-SPC-00-019-01.
5. ASME B31.3, B31.1, CSA Z662-03, CSA Z662-03 variance, etc.
6. Enter the NDE Category as per TR-44-SPC-00-001-01 Appendix 2 i.e. I,II,III,IV,V,VI,VII, VII, VIII, IX. The NDE (Non-Destructive Examination) category indicates the requirements for NDE other than radiography i.e. magnetic particle inspection, liquid penetrant inspection and hardness testing.
7. Hydrotest pressure is set according to ASME B31.3, clause 345.4.2(b) when design temperature exceeds 204 °C. Hydrotest B31.3 piping to 1.5 times the new and cold (37.8 deg. C) ANSI B16.5 flange rating unless pipe is the limiting factor. Enter N/A if a line is not tested with air or water.
(1) 8. Refer to TR Specification TR-44-SPC-00-028-01 "Piping Installation and Testing" for hydrotesting medium requirements when ambient conditions are below 5°C.