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PLOT DATE Aug 06, 2013, gpohl

## LINE IDENTIFICATION

### A–B–CD–EF–GHIJ–KL,M–N

A : NOMINAL LINE SIZE IN INCHES

B : FLUID / SERVICE

| | | | |
|---|---|---|---|
| A | AMMONIA | IG | INSTRUMENT GAS |
| AM | AMINE | L | LUBE OIL |
| C | CARBON DIOXIDE | N | NITROGEN |
| CO | CARBON MONOXIDE | NG | NATURAL GAS |
| CW | COOLING WATER | O | OXYGEN |
| F | FREON | P | PROPANE |
| FG | FUEL GAS | PG | PURGE GAS |
| G | GLYCOL | R | REFRIGERANT |
| H | HYDROGEN | S | STEAM |
| HE | HELIUM | SG | SYNGAS |
| HG | HYDROCARBON GAS | V | PRODUCED WATER |
| HL | HYDROCARBON LIQUID | W | WATER |
| IA | INSTRUMENT AIR | | |

C : EQUIPMENT TYPE / MODIFIER (IF REQUIRED)

| | | | |
|---|---|---|---|
| B | BLOWER OR FAN | H | HEATER |
| C | COMPRESSOR | JB | JUNCTION BOX |
| CPL | CONTROL PANEL | P | PUMP |
| D | DRIVER (MOTOR/ENGINE) | T | TOWER OR TANK |
| E | EXCHANGER | UH | UNIT HEATER |
| F | FILTER | V | PRESSURE VESSEL |
| FS | FLARE STACK | | |

D : EQUIPMENT NUMBER:
101 TO 999 SEQUENTIAL NUMBERS

CD LINES TO/FROM SKID CALLED UP AS
INLET, OUTLET, HEADER, DRAIN, SUPPLY, ETC.

EF : LINE NUMBER:
E : 1 TO 9 SEQUENTIAL NUMBERS FROM EQUIPMENT
1.1 FOR 1ST BRANCH CONNECTION FROM 1ST LINE
1.2 FOR 2ND BRANCH CONNECTION FROM 1ST LINE
F : SKID/AREA REFERENCE LETTER (A, B, C....)
('X' SIGNIFIES OFF SKID/INTERCONNECTING PIPE)

GHIJ : PIPING SPECIFICATION
G : MATERIAL GROUP
C CARBON STEEL
L LOW TEMPERATURE CARBON STEEL
S STAINLESS STEEL
H : ANSI 16.5 FLANGE CLASS
0 NON CODE
1 150# 6 600# 15 1500#
3 300# 9 900# 25 2500#
I : LINE MATERIAL SPECIFICATION REFERENCE:
PIPING SPECIFICATION NUMBER
J : R RECIPROCATING PACKAGE SPECIFICATION
BLANK FOR PROCESS PACKAGE SPECIFICATION

KL,M : INSULATION (IF REQUIRED)
K : INSULATION TYPE
C COLD HT HEAT TRACING
H HOT PP PERSONAL PROTECTION
HC HOT/COLD
L : INSULATION THICKNESS IN MILLIMETERS OR INCHES (")
M : TRACING (IF REQUIRED)
ET ELECTRICAL TRACING
GT GLYCOL TRACING
ST STEAM TRACING

N : PED PIPE IDENTIFICATION SUFFIX (IF REQUIRED)
SEP SOUND ENGINEERING PRACTICE LINE
CATI CATEGORY I LINE
CATII CATEGORY II LINE
CATIII CATEGORY III LINE

EXAMPLE: 3"–HG–V101–1A–C61R–HTXX,ET–CATII
3" – NOMINAL LINE SIZE
HG – HYDROCARBON GAS
V101 – PRESSURE VESSEL TAG NUMBER
1A – 1 FIRST LINE FROM VESSEL
A LOCATED ON SKID/AREA 'A'
C61R – C CARBON STEEL LINE
6 600# ANSI FLANGE RATING
1 LINE MATERIAL SPECIFICATION REFERENCE
R RECIPROCATING PACKAGE PIPE SPEC.
HT – HEAT TRACING INSULATION
XX – THICKNESS IN MILLIMETERS OR INCHES (")
ET – ELECTRIC TRACING
CATII – PED CATEGORY II LINE

## 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 | Y PATTERN 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 | BUTT WELD |
| 3 | FLANGED 300# | C | SW BY NPT |
| 6 | FLANGED 600# | F | NPT BY FLANGE (MANIFOLD) |
| 9 | FLANGED 900# | M | NPT MALE BY NPT FEMALE |
| 15 | FLANGED 1500# | N | NPT (THREADED) |
| 25 | FLANGED 2500# | S | SW (SOCKETWELD) |
| | | T | TUBE (IE: SWAGELOK) |

E : UNIQUE DESCRIPTION
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 | 1 | 150# |
| G | GATE | 1 | API–600 |
| C | CARBON STEEL | C | CHAIN OPERATOR |

## LINE CODE

- PRIMARY PROCESS LINE
- SECONDARY PROCESS LINE
- MINOR PROCESS LINE
- AUXILIARY PROCESS LINE
- INSTRUMENT/IMPULSE LINE
- ELECTRIC SIGNAL
- FILLED CAPILLARY TUBE
- PNEUMATIC LINE
- MECHANICAL LINK
- INSTRUMENT DATA LINK
- INTERCONNECTING PIPING
- SKID LIMIT
- FUTURE
- SONIC OR ELECTRO–MAGNETIC SIGNAL (GUIDED)
- SONIC OR ELECTRO–MAGNETIC SIGNAL (UN–GUIDED)

## VALVE CONNECTIONS

(COMBINATIONS MAY BE USED)

- THREADED
- SOCKET WELDED
- BUTT WELDED
- FLANGED

## VALVE TYPES

- ANGLE GLOBE VALVE
- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- DIAPHRAGM VALVE
- DUMP VALVE
- GATE VALVE
- GAUGE VALVE
- GLOBE VALVE
- NEEDLE VALVE
- NEEDLE VALVE W/BLEED
- MANIFOLD VALVE
- PLUG VALVE
- PINCH VALVE
- QUICK ACTING VALVE
- VALVE W/PLUG
- 3–WAY VALVE
- 4–WAY VALVE

## CONTROL VALVES

- DIAPHRAGM CONTROL VALVE
- DIAPHRAGM CONTROL VALVE W/ POSITIONER
- INLET PRESSURE REGULATOR SELF–CONTAINED
- OUTLET PRESSURE REGULATOR SELF–CONTAINED
- DIFFERENTIAL PRESSURE REGULATOR SELF–CONTAINED
- INLET PRESSURE REGULATOR
- OUTLET PRESSURE REGULATOR
- HYDRAULIC / PNEUMATIC PISTON OPERATED OR SPRING RETURN
- PNEUMATIC RELAY VALVE
- 2–WAY SOLENOID VALVE
- MOTOR ACTUATED
- ROTARY MOTOR ACTUATED
- 3–WAY SOLENOID VALVE
- THERMOSTATIC CONTROL VALVE
- PRESSURE SAFETY /RELIEF VALVE — DESIGNATES API ORIFICE SIZE
- PRESSURE SAFETY /RELIEF VALVE PILOT OPERATED — DESIGNATES API ORIFICE SIZE

## INSTRUMENT IDENTIFICATION GENERAL REFERENCE (ISA – S5.1)

| | FIRST LETTER | (MODIFIER) SUCCEEDING LETTERS | PRIMARY ELEMENT | INDICATOR | RECORDER | CONTROLLER BLIND | CONTROLLER INDICATING | CONTROLLER RECORDING | TRANS–MITTER | CONTROL SWITCH | CONTROL ALARM | CONTROL VALVE OR REGULATOR | SELF–ACTIVATED VALVE | RELAY OR CONVERTOR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | ANALYSIS | ALARM | AE | AI | AR | AC | AIC | ARC | AT | AS( ) | AA( ) | AV | | AY |
| B | BURNER FLAME | | | | | | | | | | | | | |
| C | CONDUCTIVITY | CONTROL OR CLOSE | CE | CI | CR | CC | CIC | CRC | CT | CS( ) | CA( ) | CV | | CY |
| D | DENSITY OR MASS (DIFFERENTIAL) | 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 | FY |
| G | GAUGING | GLASS | GE | GI | GR | GC | GIC | GRC | GT | GS( ) | GA( ) | GV | | |
| H | HAND | HIGH | | | | HC | HIC | HRC | HT | HS( ) | | HV | HCV | HY |
| 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( ) | KV | | KY |
| L | LEVEL | LOW OR LIGHT | LE | LI | LR | LC | LIC | LRC | LT | LS( ) | LA( ) | LV | LCV | LY |
| M | MOISTURE, HUMIDITY | MIDDLE OR INTERMEDIATE | ME | MI | MR | MC | MIC | MRC | MT | MS( ) | MA( ) | MV | | MY |
| N | USER'S CHOICE | | | | | | | | | | | | | |
| O | USER'S CHOICE | ORIFICE OR OPEN | | | | | | | | | | | | |
| P | PRESSURE OR VACUUM | POINT | PE | PI | PR | PC | PIC | PRC | PT | PS( ) | PA( ) | PV | PCV | PY |
| Q | QUANTITY OR EVENT (INTEGRATE/TOTALIZE) | | | QI | QR | QC | QIC | QRC | QT | QS( ) | QA( ) | QV | | QY |
| R | RELIEF OR RESTRICTION OR RADIOACTIVITY | RECORD OR PRINT | RE | RI | RR | RC | RIC | RRC | RT | RS( ) | RA( ) | | | RY |
| S | SPEED OR FREQUENCY | SWITCH OR SAFETY | | SI | SR | SC | SIC | SRC | ST | SS( ) | SA( ) | | | SY |
| T | TEMPERATURE | TRANSMIT | TE | TI | TR | TC | TIC | TRC | TT | TS( ) | TA( ) | TV | TCV | TY |
| U | MULTI–VARIABLE | MULTIFUNCTION | | UI | UR | UC | UIC | URC | | | | UV | | |
| V | VIBRATION OR VISCOSITY | VALVE OR DAMPER | VE | VI | VR | VC | VIC | VRC | VT | VS( ) | VA( ) | VV | | VY |
| W | WEIGHT OR FORCE | WELL | WE | WI | WR | WC | WIC | WRC | WT | WS( ) | WA( ) | WV | | WY |
| X | LIGHT | UNCLASSIFIED (DIAGNOSTIC) | XE | XI | XR | XC | XIC | XRC | XT | XS( ) | XA( ) | 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 |

## MISCELLANEOUS

- INLINE FLANGE SET
- SPECTACLE BLIND (LINE OPEN)
- SPECTACLE BLIND (LINE CLOSED)
- UNION (NPT)
- ORIFICE FLANGE W/ SPACER
- PADDLE BLIND
- BLEED RING
- BASKET STRAINER
- CONE STRAINER
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- EXPANSION JOINT
- FLEXIBLE HOSE
- FLEXIBLE COUPLING
- TEE STRAINER
- Y–PATTERN STRAINER
- MAGNETIC METER
- VENTURI
- SIGHT GLASS
- SONIC FLOW METER
- POSITIVE DISPLACEMENT METER
- TURBINE OR PROPELLOR METER
- VORTEX METER
- BALL CHECK VALVE
- THROTTLE BLOCK
- PIG LAUNCHER / RECEIVER
- 15U x 5D — METER RUN
- FI — FLOW INDICATOR
- CONTINUOUS LIQUID DRAINER OR STEAM TRAP
- spec2 / spec1 — SPEC BREAK
- OPEN DRAIN
- THICKNESS MM OR (") — INSULATION TYPE
- INSULATION BLOCK W/ ELECTRIC HEAT TRACE
- INSULATION BLOCK W/ GLYCOL OR STEAM HEAT TRACE
- SP — SPECIALTY ITEM
- SIZE –RATING / TYPE PROCESS DESCRIPTION TO/FROM DRAWING/SHEET — CONTINUATION ARROW
- SIZE –RATING / TYPE PROCESS DESCRIPTION TO/FROM DRAWING/SHEET — CONTINUATION ARROW DUAL DIRECTION
- PIPE SLOPE DIRECTION
- VORTEX BREAKER
- DIAPHRAGM SEAL
- RUPTURE DISC FOR PRESSURE RELIEF
- RUPTURE DISC FOR VACUUM RELIEF
- EYE WASH
- SAFETY SHOWER
- SKID TIE–POINTS
- INSTRUMENT AIR
- INSTRUMENT GAS
- CURRENT/PRESSURE
- SPRAY NOZZLE
- VENT CAP
- BEVELED PIPE END
- END CAP
- PLUG
- LINE BREAK

(C) –CLOSE (O) –OPEN
(H) –HIGH ALARM (L) –LOW ALARM
(HH)–HIGH SHUTDOWN (LL)–LOW SHUTDOWN

(XX)–DIAGNOSTIC SHUTDOWN (USED TO INDICATE THE DIAGNOSTIC CHECK REQ'D ON THE ANALOG INPUT)

## INSTRUMENTS

- LOCAL MOUNTED
- LOCAL PANEL MOUNTED
- LOCAL PANEL MOUNTED BEHIND OR INSIDE
- MAIN PANEL MOUNTED
- MAIN PANEL MOUNTED BEHIND OR INSIDE
- BY OTHERS
- HUMAN MACHINE INTERFACE HMI (DCS)
- HUMAN MACHINE INTERFACE HMI (PLC)
- ENGINE CONTROL
- PROGRAMMABLE LOGIC CONTROLLER (PLC) XC REPRESENTS GENERAL LOGIC
- YYE — ALARM/SHUTDOWN
- I — INTERLOCK
- E — ELECTRICAL INTERLOCK (HARDWIRE)
- THERMOWELL (THREADED)
- THERMOWELL (SOCKET WELDED)
- THERMOWELL (FLANGED)
- * PILOT LIGHT
  * COLOUR
  (A) AMBER (B) BLUE
  (G) GREEN (O) ORANGE
  (R) RED (W) WHITE

FOR HAZOP REVIEW ONLY
NAME A.TRAN DATE AUG 06/13

| REV | DESCRIPTION | DATE | BY | APR |
|---|---|---|---|---|
| B | ISSUED FOR HAZOP | AUG 06/13 | AT | SG |
| A | ISSUED FOR APPROVAL | JUN 06/13 | CS | SG |

DATE MAY 15/13 | SCALE NTS
DRAWN BY C.SMITH | CHECKED BY SG | APPROVED BY SG
PROJECT MANAGER – | PROJECT ENGINEER –
CUST PO 4100000964
APEGGA PERMIT No: P8651 | STEP CODE | WORK ORDER 31979–01

DEVON CANADA CORPORATION
FERRIER CENTRAL
PROCESSING FACILITY
FUEL GAS STABILIZER

ENERFLEX
Calgary, Alberta, Canada

P & I DIAGRAM
PROCESS GAS
COOLER/DISCH. COALESCER

DWG NO 12632–199 | SHT 1 | REV B

Doc # C03-12632-199-001