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LINE IDENTIFICATION

A-B-CD-E-FGH-I,J

- A : NOMINAL LINE SIZE IN INCHES**
- B : FLUID**
- | | | | |
|----|--------------------|----|-------------------------|
| A | AMMONIA | IA | INSTR. AIR SUPPLY |
| C | CARBON DIOXIDE | IG | INSTR. GAS SUPPLY |
| CW | COOLING WATER | L | LUBE OIL (COMPRESSOR) |
| F | FUEL GAS | N | NITROGEN |
| G | GLYCOL | O | OXYGEN |
| H | HYDROGEN | P | PROPANE |
| HG | HYDROCARBON GAS | V | PRODUCED/PROCESS WATER |
| HL | HYDROCARBON LIQUID | W | WATER SUPPLY (SOFTENED) |
| HM | HEAT MEDIUM | | |
- C : EQUIPMENT TYPE**
- | | | | |
|---|------------|---|-----------------|
| B | BLOWER/FAN | P | PUMP |
| C | COMPRESSOR | S | OIL SKIMMER |
| E | EXCHANGER | T | TANK |
| F | FILTER | V | PRESSURE VESSEL |
| H | HEATER | | |
- MODIFIER
- | | |
|---|--------|
| E | ENGINE |
| M | MOTOR |
- D : EQUIPMENT NUMBER:** 1 TO 999 SEQUENTIAL NUMBERS
- E : LINE NUMBER:** 1 TO 9 SEQUENTIAL NUMBERS FROM EQUIPMENT
- FGH : PIPING SPECIFICATION**
- F : MATERIAL GROUP**
- | | |
|---|------------------------|
| C | CARBON STEEL |
| L | LOW TEMP. CARBON STEEL |
| S | STAINLESS STEEL |
- G : ANSI 16.5 FLANGE CLASS**
- | | | | |
|---|------|----|-------|
| 1 | 150# | 9 | 900# |
| 3 | 300# | 15 | 1500# |
| 6 | 600# | 25 | 2500# |
- H : LINE MATERIAL SPECIFICATION REFERENCE:** 1 TO 9 SEQUENTIAL NUMBERS

VALVE IDENTIFICATION

AⁿBCDE,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 | Y | Y-STRAINER |
| M | MANIFOLD | U | BUTTERFLY |
- 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# | F | NPT BY FLANGE (MANIFOLD) |
| 3 | FLANGED 300# | N | NPT (THREADED) |
| 6 | FLANGED 600# | M | NPT MALE BY NPT FEMALE |
| 9 | FLANGED 900# | S | SW (SOCKETWELD) |
| B | BUTT WELD | T | TUBE (SWAGELOCK) |
| C | SW BY NPT | | |
- E : IDENTIFIER - NUMBER USED TO SPECIFY VALVE** 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

- III : MODIFIER / GENERAL**
- | | |
|----|--|
| H | PLUS THICKNESS IN INCHES (HOT INSULATION) |
| C | PLUS THICKNESS IN INCHES (COLD INSULATION) |
| PP | PLUS THICKNESS IN INCHES (PERSONAL PROTECTION) |
| HT | PLUS THICKNESS IN INCHES (HEAT TRACING) |
| ST | STEAM TRACING |
| GT | GLYCOL TRACING |
| ET | ELECTRICAL TRACING |
- EXAMPLE: 3"-A-V1-2-C11-HT1", ET**
- 3" - LINE SIZE
- A - AMMONIA
- V1 - VESSEL
- 2 - SECOND LINE FROM VESSEL
- C11 - CARBON STEEL LINE
- 1 150# ANSI FLANGE RATING
- 1 LINE MATERIAL SPECIFICATION REFERENCE
- HT1" - HEAT TRACING INSULATION 1" THICK
- ET - ELECTRIC TRACING

CONTROL VALVES

- | | | | |
|--|--|--|---------------------------------------|
| | POSITIONER | | MOTOR ACTUATOR |
| | DIAPHRAGM CONTROL VALVE | | HYDRAULIC / PNEUMATIC PISTON OPERATED |
| | OUTLET PRESSURE REGULATOR (SELF-CONTAINED) | | VALVE W/ BLEED |
| | INLET PRESSURE REGULATOR (SELF-CONTAINED) | | VALVE W/ PLUG |
| | PRESSURE DIFFERENTIAL CONTROL VALVE (SELF-CONTAINED) | | PRESSURE SAFETY/RELIEF VALVE |
| | TWO-WAY SOLENOID VALVE | | DESIGNATES ORIFICE LETTER (SIZE) |
| | THREE-WAY SOLENOID VALVE | | |

MISCELLANEOUS

- | | | | |
|--|----------------------------------|--|--|
| | FLEXIBLE CONNECTION | | CONTINUOUS LIQUID DRAINER OR STEAM TRAP |
| | SPECTACLE BLIND (LINE OPEN) | | SKID TIE-POINTS |
| | SPECTACLE BLIND (LINE CLOSED) | | OPEN DRAIN |
| | FLOW GLASS | | INSULATION - (C) COLD (H) HOT (HT) HEAT TRACING (PP) PERSONAL PROTECTION |
| | RUPTURE DISC FOR PRESSURE RELIEF | | ELECTRIC HEAT TRACE |
| | RUPTURE DISC FOR VACUUM RELIEF | | STEAM OR GLYCOL HEAT TRACE |
| | VORTEX BREAKER | | |
| | DIAPHRAM SEAL | | |

LINE CODE

- | | |
|--|--|
| | PRIMARY PROCESS LINE |
| | SECONDARY PROCESS LINE |
| | INSTRUMENT PROCESS LINE (TUBING) |
| | BY OTHERS |
| | SKID LIMIT |
| | PNEUMATIC SIGNAL |
| | ELECTRIC SIGNAL |
| | CAPILLARY TUBING |
| | INSTRUMENT SYSTEM LINK (ELECTRONIC MEMORY SHARING) |

VALVES

- | | |
|--|-------------------|
| | ANGLE GLOBE VALVE |
| | BALL VALVE |
| | BUTTERFLY VALVE |
| | CHECK VALVE |
| | GATE VALVE |
| | GLOBE VALVE |
| | NEEDLE VALVE |
| | PLUG VALVE |
| | 3-WAY VALVE |
| | 4-WAY VALVE |
| | START-UP STRAINER |
| | TEE STRAINER |
| | Y-STRAINER |

VALVE CONNECTIONS

- | | |
|--|-------------------------|
| | THREADED |
| | WELDED (BUTT OR SOCKET) |
| | THREADED BY WELDED |
| | FLANGED |

(MODIFIER)

	FIRST LETTER	SUCCEEDING LETTERS	PRIMARY ELEMENT	INDICATOR	RECORDER	CONTROLLER			TRANS-MITTER	CONTROL		CONTROL VALVE OR REGULATOR	SELF-ACTIVATED VALVE	RELAY OR CONVERTER
						BLIND	INDICATING	RECORDING		SWITCH	ALARM			
A	ANALYSIS	ALARM	AE	AI	AR	AC	AIC	ARC	AT	AS()	AA()	AV		AY
B	BURNER FLAME	USER'S CHOICE	BE	BI	BR	BC			BT	BS()	BA()	BV		BY
C	CONDUCTIVITY	CONTROL (CLOSE)	CE	CI	CR	CC	CIC	CRC	CT	CS()	CA()	CV		CY
D	DENSITY OR MASS (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()			KY
L	LEVEL	LIGHT (LOW)	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	POINT	ORIFICE (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	RADIOACTIVITY	RECORD OR PRINT	RE	RI	RR	RC	RIC	RRC	RT	RS()	RA()			RY
S	SPEED OR FREQUENCY	SWITCH		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		UY
V	VIBRATION	VALVE OR DAMPER	VE	VI	VR	VC	VIC	VRC	VT	VS()	VA()	WV		VY
W	WEIGHT OR FORCE	WELL	WE	WI	WR	WC	WIC	WRC	WT	WS()	WA()	WV		WY
X	UNCLASSIFIED	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

(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

- | | | | |
|--|---|--|--|
| | THERMOWELL (THREADED) | | RELAY OR CONVERTER |
| | THERMOWELL (WELDED) | | DESIGNATION: SIGNAL:
E VOLTAGE
H HYDRAULIC
I CURRENT (ELECTRICAL)
O ELECTROMAGNETIC OR SONIC
P PNEUMATIC
R RESISTANCE (ELECTRICAL) |
| | LOCAL MOUNTED | | PROGRAMMABLE LOGIC CONTROLLER (PLC)
XC REPRESENTS GENERAL LOGIC
X = PLC NUMBER
Y = PLC RACK NUMBER |
| | LOCAL PANEL MOUNTED | | INTERLOCK |
| | MOUNTED BEHIND OR IN LOCAL PANEL | | ELECTRICAL (HARD WIRE) INTERLOCK |
| | MAIN PANEL MOUNTED | | |
| | MOUNTED BEHIND OR IN MAIN PANEL | | |
| | MAN / MACHINE INTERFACE IN MAIN PANEL | | |
| | PILOT LIGHT
* COLOUR-- (A) AMBER (G) GREEN (R) RED (B) BLUE (O) ORANGE (W) WHITE | | |

ABBREVIATIONS

- | | | | |
|---------|-----------------------|-------|------------------------------------|
| AOUT | AUTOMATIC OUTPUT | MAMP | MAXIMUM ALLOWABLE WORKING PRESSURE |
| CA | CORROSION ALLOWANCE | MDMT | MINIMUM DESIGN METAL TEMPERATURE |
| CHO | CHAIN OPERATED | MIN | MINIMUM |
| CUST | CUSTOMER | MCC | MOTOR CONTROL CENTER |
| DIR | DIRECT ACTING | MOUT | MANUAL OUTPUT |
| DB | DEADBAND | MS | MOTOR STARTER |
| Δ | DELTA (DIFFERENTIAL) | NC | NORMALLY CLOSED |
| ESD | EMERGENCY SHUTDOWN | NLL | NORMAL LIQUID LEVEL |
| FC | FAIL CLOSED | NO | NORMALLY OPEN |
| FO | FAIL OPEN | MMI | MAN / MACHINE INTERFACE |
| FLP | FAIL LAST POSITION | PB | PUSH BUTTON |
| GAIN | GAIN | PL | PILOT LIGHT |
| HI | HIGH | PLC | PROGRAMMABLE LOGIC CONTROLLER |
| HS | HAND SWITCH | REV | REVERSE ACTING |
| HTR | HEATER | RST | RESET (INTEGRAL) |
| I/A | INSTRUMENT AIR SUPPLY | SCR | SILICON CONTROLLED RECTIFIER |
| I/G | INSTRUMENT GAS SUPPLY | S/F | SEAM TO FACE OF FLANGE |
| I/O | INPUT / OUPUT | SP | SETPOINT |
| LB/HR | POUNDS PER HOUR | SPC | CALCULATED SETPOINT |
| FT3/DAY | CUBIC FEET PER DAY | SS | SELECTOR SWITCH |
| FT3/HR | CUBIC FEET PER HOUR | S/S | SEAM TO SEAM |
| FT3/MIN | CUBIC FEET PER MINUTE | T/T | TANGENT TO TANGENT |
| LC | LOCKED CLOSED | TS/TS | TUBESHEET TO TUBESHEET |
| LO | LOCKED OPEN | T/L | TUBE LENGTH |
| MAX | MAXIMUM | V/H | VENT HEADER |

GENERAL NOTES

- TUBING TO BE 304SS, SEAMLESS, 0.035" WALL THICKNESS, CADMIUM PLATED CARBON STEEL FITTINGS WITH STAINLESS STEEL FERRULES.
- ALL TEMPERATURE INSTRUMENTS TO BE PROVIDED WITH A THERMOWELL.

								TITLE: P & I FLOW DIAGRAM LEGEND			
DRAWN BY: P. NOBLE				DATE: SEPT. 4, 2001				FOR: ANDERSON EXPLORATION LTD. 600 HP BOOSTER COMPRESSOR DREAU LSD: 1-5-78-21 W5M			
CHKD. BY: R. CALBUREAN				SCALE: NTS				W.O. No: 10822101			
APPR. BY: R. CALBUREAN				W.O. No: 10822101				DWG. No: 10822-101			
CUST. PO No:				SHEET No: 4 OF 4				REV: 2			
REV.	DESCRIPTION	DATE	BY	APPR.	PERMIT TO PRACTICE STAMP	ENGINEER STAMP					
2	AS BUILT	NOV.15/01	PN								
1	ISSUED FOR CONSTRUCTION	SEPT.4/01	PN	RC							