
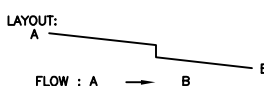
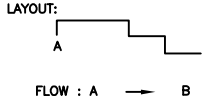
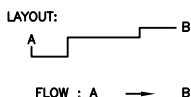
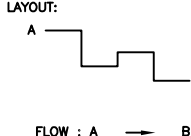


1. UNIT IDENTIFICATION NUMBER					2. GENERAL NOTES										NOTES														
					2.1 GENERAL NOTES 1- THE SIMPLIFY ROUTING OF PROCESS FLOW LINES, SOME PIECES OF EQUIPMENT MAY APPEAR IN MORE THAN ONE PLACE ON THE FLOW DIAGRAM EQUIPMENT SO DUPLICATED WILL BE INDICATED BY DASHED LINES. 2- INSTRUMENT IDENTIFICATION AS ILLUSTRATED ARE BASED ON IPS-E-PR-230 AND THE INSTRUMENT SOCIETY OF AMERICA STANDARDS S_5.1 AND S_5.3. 3- WHEN NECESSARY PIPING AND / OR EQUIPMENT SYMBOLS MAY BE INCLUDED AS PART OF AN INSTRUMENT LOOP. 4- DIMENSION FROM CENTER OF LC BALLOON TO TANGENT LINE OR BOTTOM OF HORIZONTAL VESSEL INDICATES NORMAL LEVEL. 5- DIMENSION UNDER LC BALLOON INDICATES FLOAT RANGE. 6- DIMENSION UNDER LC BALLOON INDICATES VISIBLE GLASS LENGTH. 7- DIMENSION UNDER LS BALLOON INDICATES POINT OF ACTUATION OF LS UNIT ABOVE TANGENT LINE OR BOTTOM OF HORIZONTAL VESSEL. 8- PIPING COMPONENTS NOT IDENTIFIED BY INSTRUMENT OR MECHANICAL EQUIPMENT, NUMBER, ETC. AND NOT COVERED BY THE PIPING MATERIAL SPECIFICATION, ARE IDENTIFIED BY SPECIAL ITEM NUMBER. 9- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFICALLY NOTED. 10- HIGH POINT VENTS AND LOW POINT DRAINS USED FOR HYDRAULIC TEST PURPOSES ONLY SHALL BE PROVIDED BUT ARE NOT SHOWN ON THE P & ID. VENT FOR HYDRAULIC TEST PURPOSE SHALL BE PROVIDED ONLY FOR 2" AND LARGER LINE. 11- PROVIDE DOUBLE ISOLATION VALVES (BALL VALVES AND BLEED VALVES) FOR VENT TO ATMOSPHERIC FOR HYDROCARBON SERVICES WHICH ARE ABOVE 300# RATING. FOR 300# RATING AND UNDER ONE SINGLE BALL VALVE, FOR ACID GAS SYSTEM VENTS AND DRAINS USE DOUBLE ISOLATION BALL VALVE FOR ALL CLASSES. FOR RELIEF VALVE BYPASS, IN CLASS OF 600# AND HIGHER, DOUBLE ISOLATION VALVE (SINGLE BALL VALVE + GLOBE VALVE) FOR 300# AND UNDER ONE SINGLE BALL VALVE. 12- ALL DRAINS TO ATMOSPHERE ARE BALL VALVE WITH CAP. FOR ALL CLASS RATING. FOR PIPING CLASS 600# AND HIGHER USE DOUBLE BLOCK VALVES FOR 2" AND HIGHER. 13- VALVED VENT SHALL BE INSTALLED AT VAPOR POCKET OF 14" AND LARGER LIQUID LINE. 14- VALVED DRAIN ON SUCTION PIPING OF PUMP EXCEPT CLEAN SERVICE SHALL BE LED TO DRIP FUNNEL WITH EXTENDED TAIL PIPE PLUGGED AT END OR FLANGED WITH SPECTACLE BLIND INSERTED AS SHOWN. 15- ALL CLOSED PRESSURE RELIEF VALVE DISCHARGE LEADS SHALL BE FREE DRAINING FROM PRESSURE RELIEF VALVE TO THE TOP OR SIDE OF THE DISCHARGE HEADER. 16- 9MM WEEP HOLES ARE PROVIDED AT LOW POINTS OF PRESSURE RELIEF VALVE AND RAPTURE DISC DISCHARGING TO ATMOSPHERE. 17- DEFINITIONS : (1) FREE DRAINING : LINE TO BE ROUTED TO A POINT DESIGNATED WITH NO LIQUID POCKET AND NO VAPOR POCKET IN THE LINE. LAYOUT:  (2) SLOPED LINE : ELEVATION CHANGES ARE CONTINUOUSLY DOWNWARD ONLY. NO POCKETS ARE PERMITTED. SPECIFIC SLOPES REQUIRED ARE SHOWN BY SYMBOL. LAYOUT:  (3) NO LIQUID POCKET : NO LIQUID POCKET IN THE LINE. LAYOUT:  (4) NO VAPOR POCKET : NO VAPOR POCKET IN THE LINE. LAYOUT:  (5) GRAVITY FLOW : ELEVATION DOWNSTREAM NEVER EXCEED INLET ELEVATIONS. LINE MAY CONTAIN LIQUID POCKETS AND VAPOR POCKETS. LAYOUT: 					2.2 ABBREVIATIONS 2.2.1 VALVE & CONTROL VALVE BV : BALL VALVE CAO : CLOSE-AUTOMATIC-OPEN CCL : CABLE CONTROL CHV : CHECK VALVE CO : CHAIN OPERATED CSC : CAR SEALED CLOSED CSO : CAR SEALED OPEN D : DRAIN ESDV : EMERGRNCY SHUTDOWN VALVE FB : FULL BORE FC : FAIL CLOSED (CLOSE ON MINIMUM SIGNAL TO VALVE ACTUATOR) FCV : FLOW CONTROL VALVE FD : FLEX DISC VALVE FL : FAIL LOCKED FLC : FAIL LOCKED CLOSED: VALVE POSITION DOES NOT CHANGE ON LOSS OF ACTUATING MEDIUM SUPPLY FLO : FAIL LOCKED OPEN: VALVE POSITION DOES NOT CHANGE ON LOSS OF ACTUATING MEDIUM SUPPLY FO : FAIL OPEN (OPENS ON MINIMUM SIGNAL TO VALVE ACTUATOR) FP : FULL PORT GM : GEAR OPERATED AND MOTORIZED VALVE GO : GEAR OPERATED VALVE IAV : ACOUSTICAL INSULATED VALVE IHV : HOT INSULATED VALVE LC : LOCKED CLOSED LCV : LEVEL CONTROL VALVE LO : LOCKED OPEN MOV : MOTOR OPERATED VALVE NC : NORMALLY CLOSED NO : NORMALLY OPEN NV : NEEDLE VALVE ORB : ORBIT VALVE OV : OPERATING VALVE P : PLUGGED PCV : PRESSURE REGULATOR/ PRESSURE CONTROL VALVE PNA : POST INDICATOR VALVE PSE : RUPTURE DISK ASSEMBLY (PRESSURE SAFETY EQUIPMENT) PSV : PRESSURE SAFETY RELIEF VALVE PVSV : PRESSURE / VACUUM VALVE SR : SPLIT RANGE SS : SOFT SEAT VALVE ST : STELLITE VALVE T : TRAP TCV : TEMPERATURE CONTROL VALVE TSO : TIGHT SHUT-OFF VALVE V : VENT WR(J) : JACKETED PLUG VALVE WV : WARNING VALVE X : TYPE 316 STAINLESS STEEL TRIM VALVE XV : MULTIVARIABLE FINAL ELEMENT (ON/OFF VALVE) XX : 18-8 STAINLESS STEEL TRIM VALVE 2.2.2 PIPING CS : CARBON STEEL DN : DIAMETER NOMINAL FF : FLAT FACE FS : FORGED STEEL GA : GALVANIZED GRP : GLASS REINFORCED PLASTIC HB : HAMMER BLIND IC : INSULATED COLD IH : INSULATED HOT IS : INSULATED FOR PERSONNEL PROTECTION PB : PRESSURE BLIND PN : PRESSURE NOMINAL					2.2.3 OTHERS A/G : ABOVE GROUND B.L : BATTERY LIMIT COF : CENTER OF FLOAT DP : DESIGN PRESSURE ELEV : ELEVATION EM : EMERGENCY VENT F : FURNISHED F&P : FURNISHED & PIPED HHLL : HIGH HIGH LIQUID LEVEL HIL : HIGH INTERFACE LIQUID LEVEL HLL : HIGH LIQUID LEVEL IJ : ISOLATION JOINT LIL : LOW INTERFACE LIQUID LEVEL LLL : LOW LIQUID LEVEL LLLL : LOW LOW LIQUID LEVEL MH : MANHOLE NIL : NORMAL INTERFACE LIQUID LEVEL NLL : NORMAL LIQUID LEVEL NNF : NORMALLY NO FLOW P : PRESSURE P & ID : PIPING & INSTRUMENTATION DIAGRAM PB : PUSH BUTTON PFD : PROCESS FLOW DIAGRAM PO : PUMP OUT PTC : PRESSURE TEST CONNECT PV : PROCESS VARIABLE RES : RESIDUE RG : REFRIGERANT GAS RL : REFRIGERANT LIQUID RS : REMOTE SETPOINT RTD : RESISTANCE TEMPERATURE DETECTOR RVP : REID VAPOR PRESSURE SC : SAMPLE CONNECTION SCL : SAMPLE COOLER SF : SOLUTION FOAM SG : SIGHT GLASS SP : SET POINT SP. GR.: RELATIVE MASS DENSITY (SPECIFIC GRAVITY) TL/TL : TANGENT TO TANGENT TW : THERMO-WELL TX : SKIN TEMPERATURE TXE : SKIN T/C ELEMENT UC : UTILITY CONNECTION UFD : UTILITY FLOW DIAGRAM U/G : UNDER GROUND IAS : INSTRUMENT AIR SUPPLY CC/CP : CORROSION PROB AND COUPON CT : CORROSION TRANSMITTER					<div>RF : RAISED FACE RS : REMOVABLE SPOOL RSP : RING SPACER RTJ : RING TYPE JOINT SB : SPECTACLE BLIND SO : SLIP ON SPB : SPADE BLIND SS : STAINLESS STEEL SW : SOCKET WELD VB : VAPOR BLIND WN : WELD NECK PRV : PRESSURE REGULATOR VALVE</div> <div>2.2.3 OTHERS A/G : ABOVE GROUND B.L : BATTERY LIMIT COF : CENTER OF FLOAT DP : DESIGN PRESSURE ELEV : ELEVATION EM : EMERGENCY VENT F : FURNISHED F&P : FURNISHED & PIPED HHLL : HIGH HIGH LIQUID LEVEL HIL : HIGH INTERFACE LIQUID LEVEL HLL : HIGH LIQUID LEVEL IJ : ISOLATION JOINT LIL : LOW INTERFACE LIQUID LEVEL LLL : LOW LIQUID LEVEL LLLL : LOW LOW LIQUID LEVEL MH : MANHOLE NIL : NORMAL INTERFACE LIQUID LEVEL NLL : NORMAL LIQUID LEVEL NNF : NORMALLY NO FLOW P : PRESSURE P & ID : PIPING & INSTRUMENTATION DIAGRAM PB : PUSH BUTTON PFD : PROCESS FLOW DIAGRAM PO : PUMP OUT PTC : PRESSURE TEST CONNECT PV : PROCESS VARIABLE RES : RESIDUE RG : REFRIGERANT GAS RL : REFRIGERANT LIQUID RS : REMOTE SETPOINT RTD : RESISTANCE TEMPERATURE DETECTOR RVP : REID VAPOR PRESSURE SC : SAMPLE CONNECTION SCL : SAMPLE COOLER SF : SOLUTION FOAM SG : SIGHT GLASS SP : SET POINT SP. GR.: RELATIVE MASS DENSITY (SPECIFIC GRAVITY) TL/TL : TANGENT TO TANGENT TW : THERMO-WELL TX : SKIN TEMPERATURE TXE : SKIN T/C ELEMENT UC : UTILITY CONNECTION UFD : UTILITY FLOW DIAGRAM U/G : UNDER GROUND IAS : INSTRUMENT AIR SUPPLY CC/CP : CORROSION PROB AND COUPON CT : CORROSION TRANSMITTER</div>									
					LEGEND																								

3. EQUIPMENT

4. PIPING

NOTES

3.1 EQUIPMENT NUMBERING

AA	BCDD	E
AA: EQUIPMENT CODE		CODE
EQUIPMENT		

CONTROL PANEL	LC(LCP)
DIESEL ENGINE	DL
ENGINE	EN
FILTER	F
OIL SKIMMER	OS
OUTDOOR HOSE REELS	OH(OHR)
PACKAGE UNIT	PK
PIG LAUNCHER	PL
PIG RECEIVER	PR
PUMP	P
SCALE, WEIGHING, MEASURING	SC
API SEPARATOR	S
STACK, CHIMNY	SE
STONE TRAP	ST
STRAINER	STR
SUMP	SU
XMAS TREE	XM
TANK, SILO, HOPPER	TK
DRAIN PIT	DP

B: PLANT NO

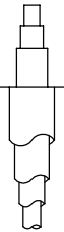
C: UNIT NO

DD: SEQUENTIAL NO (01 TO 09) IF MORE REQUIRED IT CAN BE IDENTIFIED WITH TWO DIGIT SUCH THAT THE FIRST DIGIT COMES FROM THE LAST DIGIT UNIT KEY.

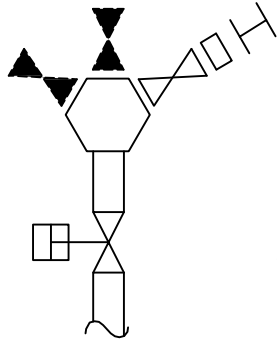
E: ALPHABETICAL LETTER (FOR MULTIPLE IDENTICAL EQ. AND SPARE)

3.2 SYMBOL

SYMBOL DESCRIPTION



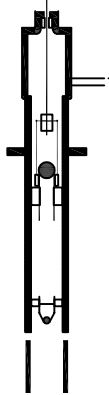
WELLHEAD



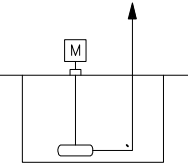
X-MAS TREE

3.2 SYMBOL

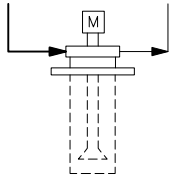
SYMBOL DESCRIPTION



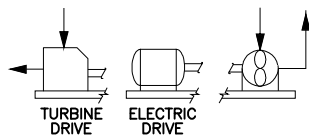
IPR PUMP



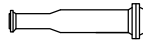
SUMP PUMP



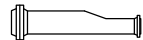
VERTICAL PUMP



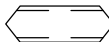
ROTARY PUMP
(GEAR PUMP)



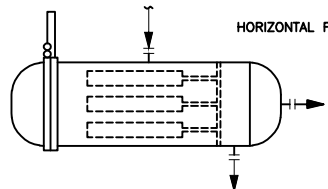
PIG RECEIVING TRAP



PIG LUNCHING TRAP



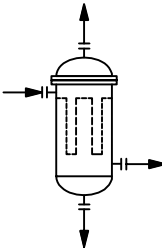
STONE TRAP



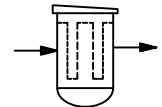
HORIZONTAL FILTER

SYMBOL

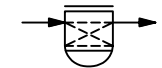
DESCRIPTION



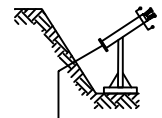
VERTICAL FILTER
(DRUM)



FILTER (GENERAL)



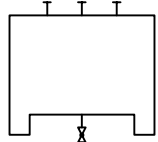
BASKET FILTER/
CARTRIDGE FILTER



CLUSTER BURN PIT



CONCRETE SUMP



CHEMICAL
INJECTION DRUM

4.1 LINE NUMBERING

AAA	XXX	YYY	ZZZZ	D"	CC(*)
(1)	(2)	(3)	(4)	(5)	(6)

(1) FLUID IDENTIFICATION CODE

CODE DESCRIPTION

A. AIR SYSTEM

ISA INSTRUMENT AIR

B. DRAIN (SEWER) SYSTEM

AY	AMINE DRAIN FUNNEL
CDB	CONCRETE DRAIN BOX
CDH	CLOSED DRAIN HEADER
CSW	CHEMICAL SEWER
CY	CHEMICAL DRAIN PIT
DRP	DRAIN PIT
NSW	NON OILY WATER SEWER
OPD	OPEN DRAIN
OSW	OILY WATER SEWER
SSW	SANITARY WATER SEWER
TY	TOXIC DRAIN FUNNEL
Y	DRAIN FUNNEL (GENERAL)

C. FULES

FLG	FUEL GAS / PURGE GAS
FLO	FUEL OIL
NG	NATURAL GAS
DO	DIESEL OIL

D. SPECIAL CHEMICAL AND SOLVENT SYSTEM

AMIN	AMINE
CHM	CHEMICALS
FOH	FOAM
FS	FLUSHING SOLVENT
HM	HEAT MEDIUM
MEL	METHANOL

E. OIL UTILITY SYSTEM

LBO LUBRICATING OIL

F. WATER SYSTEM

CODE DESCRIPTION

OWA	OILY WATER
PRW	PROCESS WATER
PTW	POTABLE WATER
PWA	PLANT WATER
RWA	RAW WATER

G. PROCESS SERVICE

GAS	GAS
GSO	GAS OIL
HCB	HYDROCARBON
PRO	PROCESS FLUID
SLP	SLOP
CRD	CRUDE OIL

(3) PIPING SERIAL NUMBER

(4) PIPING CLASS CODE

PIPING CLASS ACCORDING IPS-E-PI-221. EACH PIPING MATERIAL CLASS IS IDENTIFIED BY A FOUR-DIGIT ALPHANUMERIC CODE. THE FIRST ALPHA CHARACTER IDENTIFIES THE PRESSURE RATING AS FOLLOWS:

A ASME B 16.5 RATING CLASS 150
C ASME B 16.5 RATING CLASS 300
F ASME B 16.5 RATING CLASS 600
G ASME B 16.5 RATING CLASS 900
H ASME B 16.5 RATING CLASS 1500

K API 6A RATING CLASS 2000
L API 6A RATING CLASS 3000
M API 6A RATING CLASS 5000
N API 6A RATING CLASS 10000
THE SECOND ALPHA CHARACTER INDICATES THE MATERIAL GROUP AS FOLLOWS:

N CARBON STEEL
P LOW AND INTERMEDIATE ALLOY STEEL
S STAINLESS STEEL
T ALUMINUM AND ALUMINUM BASED ALLOYS
V COPPER AND COPPER ALLOYS
W NON-METALLIC MATERIAL
Z CARBON STEEL WITH LINING

THE THIRD DIGIT INDICATE ASME DESIGN CODE (B 31.3,B 31.4 AND B 31.8)THE FORTH DIGIT INDICATES CORROSION ALLOWANCE AND NACE REQUIREMENT.FOR DETAIL REFER TO PIPING MATERIAL SPECIFICATION.

CLASS	RATING	MATERIAL	SERVICE
AN01	150#/RF	CARBON STEEL	DIESEL OIL
AN04	150#/RF	CARBON STEEL	PLANT AIR , FIRE WATER
AN05	150#/RF	CARBON STEEL	CRUDE OIL , CLOSED DRAIN
AX01	150#	HDPE	FIRE WATER(UG),POTABLE WATER(UG)
AZ00	150#/RF	CARBON STEEL+GALV	INSTRUMENT AIR<4",POTABLE WATER
FN05	600#/RF	CARBON STEEL	CRUDE OIL
LN12	API3000	CARBON STEEL	CRUDE OIL
LN15	API3000	CARBON STEEL	CRUDE OIL
LN17	API3000	CARBON STEEL	CRUDE OIL
MN17	API5000	CARBON STEEL	CRUDE OIL

(5) NOMINAL PIPE SIZE

(6) CODE OF INSULATION OR HEATH TRACING:

CODE	DESCRIPTION
ET (*)	ELECTRICALLY TRACED & INSULATED
ETT (*)	ELECTRICALLY TRACED WITH HEAT TRANSFER CEMENT
IC	INSULATION COLD
IH	INSULATION HOT
IS	INSULATION FOR PERSONNEL PROTECTION

TB	TRACE BODY AND INSULATE
TBB	TRACE BODY AND BONNET AND INSULATE
PT	PAINTING
NP	NO PAINTING, NO INSULATION
UW	UNDERGROUND WRAPPING

* H : HEAT CONSERVATION, W : WINTERIZATION

(2) UNIT SERIAL NUMBER

WELLHEAD & MANIFOLD & UTILITY NUMBER : 110

LEGEND

REFERENCE DRAWING

DRG. No.

KEY PLAN

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4. PIPING				5. INSTRUMENT				NOTES			
4.2 SYMBOLS				5.1 INSTRUMENT NUMBERING				1- REFFR TO INSTRUMENT HOOKUP DRAWING/PIPING ASSEMBLY DRAWING FOR INSTRUMENT CONNECTION SIZE/TYPE.			
4.2.1 LINE				5.2 SYMBOLS							
				5.2.1 LINE / SIGNAL							
				5.2.2 CONTROL VALVE & ACTUATOR							

5. INSTRUMENT(CONTINUED)

5.2.3 SELF ACTUATED REGULATOR

SYMBOL	DESCRIPTION
	PRESSURE-REDUCING REGULATOR
	BACK-PRESSURE REGULATOR
	SELF CONTAINED REGULATOR

5.2.4 FAILURE ACTION OF CONTROL VALVE

SYMBOL	DESCRIPTION
	FAIL OPEN
	FAIL CLOSE
	FAIL LOCKED
	FAIL LOCKED OPEN
	FAIL LOCKED CLOSE
	THREE WAY VALVE FAIL OPEN TO PATH A-C

5.2.5 PRIMARY ELEMENT

SYMBOL	DESCRIPTION
	ORIFICE TYPE FLOW METER
	POSITIVE DISPLACEMENT TYPE FLOW METER
	ROTAMETER
	VENTURI TYPE FLOW METER
	FLOW NOZZLE
	TURBINE TYPE FLOW METER
	PILOT TUBE TYPE FLOW METER
	ULTRA SONIC FLOW METER
	VORTEX FLOW METER
	DISPLACEMENT TYPE LEVEL TRANSMITTER
	DIFFERENTIAL PRESSURE TYPE LEVEL TRANSMITTER
	ULTRASONIC TYPE LEVEL TRANSMITTER
	RADAR TYPE LEVEL TRANSMITTER
	LEVEL GAUGE

PG PRESSURE GAUGE

PT PRESSURE TRANSMITTER

TG TEMPERATURE GAUGE

TT TEMPERATURE TRANSMITTER

FT FLOW TRANSMITTER

* = METER TYPE
C CORIOLIS MASS FLOW METER
M MAGNETIC FLOW METER
MPF MULTI PHASE FLOW METER
TM THERMAL MASS FLOW METER

5.2.6 INTERLOCK LOGIC SYMBOL

SYMBOL	DESCRIPTION
	OUTPUT EXIST IF ONE OR MORE INPUT EXIST
	OUTPUT EXIST IF AND ONLY IF ALL THE INPUTS EXISTS
	NO OUTPUT EXIST IF ONE AND ONLY ONE INPUT EXISTS
	TIME DELAY-OUTPUT EXISTS AFTER PRESET TIME
	OUTPUT EXISTS IF ONE AND ONLY ONE INPUT EXISTS
	SEQUENTIAL LOGIC CONTROL CONNECTION

5.2.8 DISTRIBUTED CONTROL/SHARED DISPLAY SYMBOL

SYMBOL	DESCRIPTION
	FIELD MOUNTED INSTRUMENT (NOT NORMALLY ACCESSIBLE) TO OPERATOR
	BEHIND THE PANEL DEVICES OR FUNCTIONS IN CONTROL ROOM NORMALLY INACCESSIBLE
	INDICATOR/CONTROLLER/ALARM (NORMALLY ACCESSIBLE TO OPERATOR)
	SOFTWARE ALARMS WITH SHARED DISPLAY DEVICE (* IS MEASURED VARIABLE)
	CRITICAL SOFTWARE ALARM (* IS MEASURED VARIABLE)
	DATA RECORDING FUNCTION ACCESSIBLE TO OPERATOR
	I (UNDEFINED INTERLOCK) (XX: INDICATE INTERLOCK SERIAL NO.)

5.2.10 PROGRAMMABLE LOGIC CONTROLLER (PLC)

SYMBOL	DESCRIPTION
	MOUNTED BEHIND THE CONTROL BOARD NOT NORMALLY ACCESSIBLE TO OPERATOR
	MOUNTED BEHIND THE CONTROL BOARD NORMALLY ACCESSIBLE TO OPERATOR
	CONTROL BOARD MOUNTED AUXILIARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR
	BEHIND OF CONTROL BOARD AUXILIARY LOCATION NOT NORMALLY ACCESSIBLE TO OPERATOR
	AUXILIARY OPERATOR'S INTERFACE DEVICES (ON UCP)
	INTERLOCK IN UCP XX: INTERLOCK SERIAL NO.
	ESD COMMENT X: ESD LEVEL
	UNIT SHUTDOWN COMMENT

5.2.7 GENERAL INSTRUMENT SYMBOL

SYMBOL	DESCRIPTION
	FIELD MOUNTED INSTRUMENT
	INSTRUMENT MOUNTED BEHIND CONTROL PANEL IN CONTROL ROOM
	PANEL MOUNTED INSTRUMENT AUXILIARY CONSOLE
	LOCAL PANEL MOUNTED INSTRUMENT
	INSTRUMENT SHARING COMMON HOUSING WITH TWO FUNCTION
	ELECTRICAL TRACED INSTRUMENT
	LIGHT (COLOR : R=RED, G=GREEN)
	VALVE POSITION INDICATING LAMPS
	CRITICAL SOFTWARE ALARM(* IS MEASURED VARIABLE)
	CRITICAL SOFTWARE ALARM(* IS MEASURED VARIABLE)
	CRITICAL SHUTDOWN ALARM

5.2.9 COMPUTER (DATA STORAGE) FUNCTION SYMBOL

SYMBOL	DESCRIPTION
	FIELD MOUNTED INSTRUMENT NOT NORMALLY ACCESSIBLE TO OPERATOR
	INSTRUMENT MOUNTED BEHIND CONTROL PANEL IN CONTROL ROOM
	PANEL MOUNTED INSTRUMENT NORMALLY ACCESSIBLE TO OPERATOR
	LOCAL PANEL MOUNTED INSTRUMENT NORMALLY ACCESSIBLE TO OPERATOR

5.2.11 FUNCTION IDENTIFICATION

SYMBOL	DESCRIPTION
	SUMMING
	AVARAGING
	DIFFERENCE
	PROPORTIONAL
	REVERSE PROPORTIONAL
	INTEGRAL
	DERIVATIVE
	MULTIPLYING
	DIVIDING
	SQUARE ROOT
	EXPONENTIAL
	NONLINEAR OR UNSPECIFIED
	TIME FUNCTION
	HIGH SELECTING
	LOW SELECTING
	HIGH LIMITING
	LOW LIMITING
	VELOCITY LIMITER
	BIAS
	ALARM LOW SIGNAL MONITOR
	ALARM HIGH SIGNAL MONITOR
	ALARM HIGH LOW SIGNAL MONITOR
	REVERSE ACTION
	ON/OFF
	CONVERT (INPUT/OUTPUT) OF THE FOLLOWING

*DESIGNATION

A D E F I H O P R mV

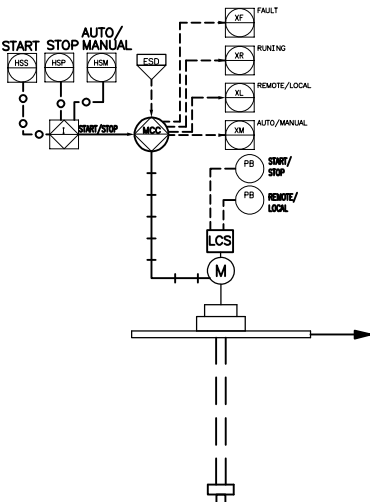
SIGNAL

ANALOG
DIGITAL
VOLTAGE
FIELD BUS
CURRENT
HYDRAULIC
ELECTROMAGNETIC
PNEUMATIC
RESISTANCE
MILIVOLTS

5.2.12 MCC IDENTIFICATION

	PLANT MOTOR CONTROL CENTER
	UNIT MOTOR CONTROL CENTER

5.2.12 MOTOR INTERFACE SIGNAL SAMPLE



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5. INSTRUMENT (CONTINUED)

5.3 FUNCTIONAL IDENTIFICATION LETTERS

SIGNAL TYPES		FIRST-LETTER		SUCCEEDING-LETTER		
		MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
BZIO	BLOW DOWN VALVE OPEN FEEDBACK ON HMI	A ANALYSES				
EZCS	EMERGENCY VALVE CLOSE FEEDBACK	B BURNER, COMBUSTION				
EZSO	EMERGENCY VALVE OPEN FEEDBACK	C			CONTROL	
EZIC	EMERGENCY VALVE CLOSE FEEDBACK ON HMI	D	DIFFERENTIAL			
EZIO	EMERGENCY VALVE OPEN FEEDBACK ON HMI	E VOLTAGE		SENSOR (PRIMARY ELEMENT)		
HSM	HAND SWITCH MANUAL/AUTO	F FLOW RATE	RATIO (FRACTION)			
HSP	HAND SWITCH STOP	G		GLASS, VIEWING DEVICE		
HSS	HAND SWITCH START	H HAND				HIGH/OPEN/START
HSL	HAND SWITCH LOCAL/REMOTE	I CURRENT (ELEC.)		INDICATE, INPUT		
XR	RUNNING FEEDBACK	J POWER	SCAN			
XL	LOCAL/REMOTE FEEDBACK	K TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
XF	FAULT FEEDBACK	L LEVEL		LIGHT		LOW/CLOSE/STOP
HSC/O	HAND SWITCH CLOSE/OPEN	M MOISTURE/HUMIDITY	MOMENTARY			MIDDLE, INTERMEDIATE
XZSO	ON/OFF VALVE OPEN FEEDBACK	N				
XZSC	ON/OFF VALVE CLOSE FEEDBACK	O PRESSURE/VACUUM		ORIFICE, RESTRICTION	OUTPUT	
XZIO	ON/OFF VALVE OPEN FEEDBACK ON HMI	P PRESSURE/VACUUM		POINT (TEST) CONNECTION		
XZIC	ON/OFF VALVE CLOSE FEEDBACK ON HMI	Q QUANTITY, NUMBER	INTEGRATE, TOTALIZE			
ESOV	EMERGENCY SOLENOID VALVE	R RADIATION		RECORD		
PSOV	PROCESS SOLENOID VALVE	S SPEED, FREQUENCY	SAFETY		SWITCH	
XSP	PERMISSION TO START	T TEMPERATURE			TRANSMIT	
XA	GENERAL ALARM	U MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
HSD	HAND SWITCH DUTY/STANDBY	V VIBRATION, MECHANICAL ANALYSIS			VALVE,DAMPER,LOUVER	
		W WEIGHT, FORCE		WELL		
		X SPECIFIC GRAVITY	X-Axis	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
		Y EVENT, STATE OR PRESENCE	Y-Axis		RELAY, COMPUTE CONVERT	
		Z POSITION, DIMENSION	Z-Axis		DRIVER,ACTUATOR UNCLASSIFIED FINAL CONTROL ELEMENT	

TYPICAL LETTER COMBINATIONS																								
PROCESS VARIABLE		PRIMARY ELEMENT	TRANSMITTER	INDICATING TRANSMITTER	SCAN	INDICATOR	RECORDER	BLIND CONTROLLER	INDICATING CONTROLLER	RECORDING CONTROLLER	SWITCH				ALARM				GLASS,VIEWING DEVICE	WELL(W) CONNECTION(P)	SELF-ACTUATED REGULATOR VALVE	SOLENOID VALVE RELAY	CONVERTER	FINAL ELEMENT
											ABNORMAL PROCESS FIRST STATE		ABNORMAL PROCESS SECOND STATE		ABNORMAL PROCESS FIRST STATE		ABNORMAL PROCESS SECOND STATE							
A	ANALYSIS	AE	AT	AIT	AJ	AI	AR	AC	AIC	ARC	ASH	ASL	ASHH	ASLL	AAH	AAL	AAHH	AALL	-	-	-	-	AY	AV
B	BURNER	BE	BT	BIT	BJ	BI	BR	BC	BIC	BRC	BSH	BSL	BSHH	BSLL	BAH	BAL	BAHH	BALL	BG	-	-	-	BY	BZ
C	-																							
D	-																							
E	VOLTAGE	EE	ET	EIT	EJ	EI	ER	EC	EIC	ERC	ESH	ESL	ESHH	ESLL	EAH	EAL	EAHH	EALL	-	-	-	-	EY	EV
F	FLOW	FE*	FT	FIT	FJ	FI	FR	FC	FIC	FRC	FSH	FSL	FSHH	FSLL	FAH	FAL	FAHH	FALL	FG	-	-	-	FY	FV
FF	-																							
G	FLOW QUANTITY	FQE	FQT	FQIT	FQJ	FQI	FQR	FQC	FQIC	FQRC	FQSH	FQSL	FQSHH	FQSLL	FQAH	FQAL	FQAAHH	FQALL	-	-	-	-	FQY	FQV
G	-																							
H	HAND	-	-	-	-	-	HC	HIC	-	HSH	HSL	-	-	-	-	-	-	-	-	-	-	-	HY	HV
I	CURRENT	IE	IT	-	II	IR	IC	IIC	IRC	ISH	ISL	ISHH	ISLL	IAH	IAL	IAHH	IALL	-	-	-	-	IY	IZ	
J	POWER	JE	JT		JJ	JI	JR	JC	JIC	JRC	JSH	JSL	JSHH	JSL	JAH	JAL	JAHH	JALL	-	-	-	-	JY	JV
K	TIME	KE	KT		KJ	KI	KR	KC	KIC	KRC	KSH	KSL	KSHH	KSL	KAH	KAL	KAHH	KALL	-	-	-	-	KY	KV
L	LEVEL	LE	LT	LIT	LJ	LI	LR	LC	LIC	LRC	LSH	LSL	LSHH	LSLL	LAH	LAL	LAHH	LALL	LG	-	LCV	LY	LV	
M	-																							
N	-																							
PD	PRESSURE DIFFERENTIAL	PDE	PDT	PDIT	PDJ	PDI	PDR	PDC	PDIC	PDR	PDSH	PDSL	PDSHH	PDSLL	PDH	PDAL	PDAAH	PDALL	-	-	-	-	PDY	PDV
P	PRESSURE/VACUUM	PE	PT	PIT	PJ	PI	PR	PC	PIC	PRC	PSH	PSL	PSHH	PSLL	PAH	PAL	PAHH	PALL	-	-	PCV**	PY	PV	
Q	QUANTITY	QE	QT	QIT	QJ	QI	QR	QC	QIC	QRC	QSH	QSL	QSHH	QSL	QAH	QAL	QAAH	QALL	-	-	-	-	QY	QZ
R	RADIATION	RE	RT	RIT	RJ	RI	RR	RC	RIC	RR	RSH	RSL	RSHH	RSL	RAH	RAL	RAHH	RALL	-	-	-	-	RY	RZ
S	SPEED/FREQUENCY	SE	ST	SIT	-	SI	SR	SC	SIC	SRC	SSH	SSL	SSHH	SSL	SAH	SAL	SAHH	SALL	-	-	-	-	SY	SV
T	TEMPERATURE	TE	TT	TIT	TJ	TI	TR	TC	TIC	TRC	TSH	TSL	TSHH	TSL	TAH	TAL	TAHH	TALL	-	-	-	-	TY	TV
U	MULTIVARIABLE	-	-		UJ	UI	UR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	UY	UV
V	VIBRATION	VE	VT	VIT	VJ	VI	VR	VC	-	-	VSH	VSL	VSHH	VSL	VAH	VAL	VAHH	VALL	-	-	-	-	VY	VZ
W	WEIGHT	WE	WT	WIT	-	WI	WR	WC	WIC	WRC	WSH	WSL	WSHH	WSL	WAH	WAL	WAHH	WALL	-	-	-	-	WY	WZ
X	SPECIFIC GRAVITY	XT	XIT																					
Y	STATE	YE	YT		YJ	YI	YR	YC	YIC	YRC	YSH	YSL	YSHH	YSL	YAH	YAL	YAAH	YALL	-	-	-	-	YY	YZ
Z	POSITION	ZE	ZT	ZIT	ZJ	ZI	ZR	ZC	ZIC	ZRC	ZSH	ZSL	ZSHH	ZSL	ZLO	ZLC	ZAAH	ZALL	-	-	-	-	ZY	ZV
*RO : RESTRICTION ORIFICE ** PSV : PRESSURE RELIEF OR SAFETY VALVE PSE : PRESSURE RUPTURE DISC																								

NOTES
1- FOR MORE DETAILS REFER TO INSTRUMENT HOOK UP DIAGRAM AND PIPING ASSEMBLY DRAWING FOR EACH ITEM.

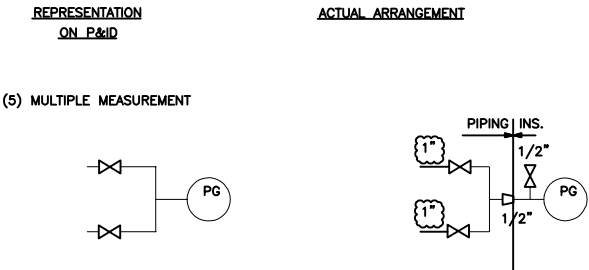
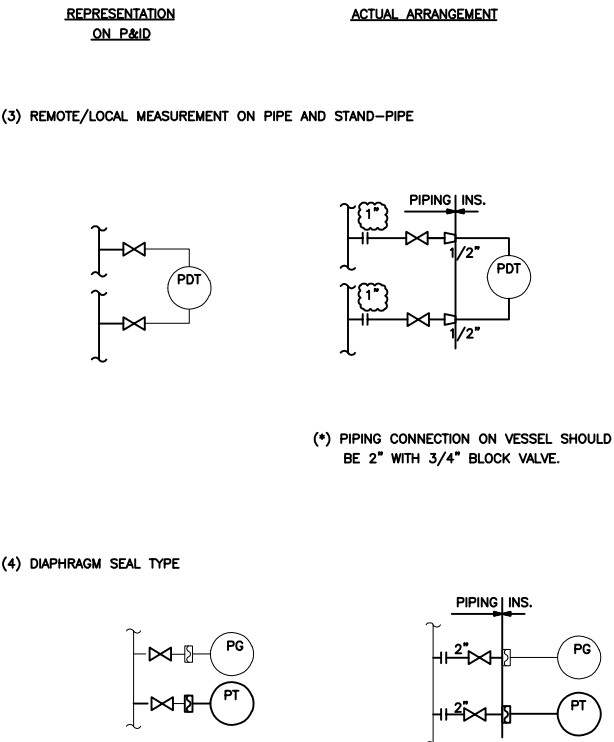
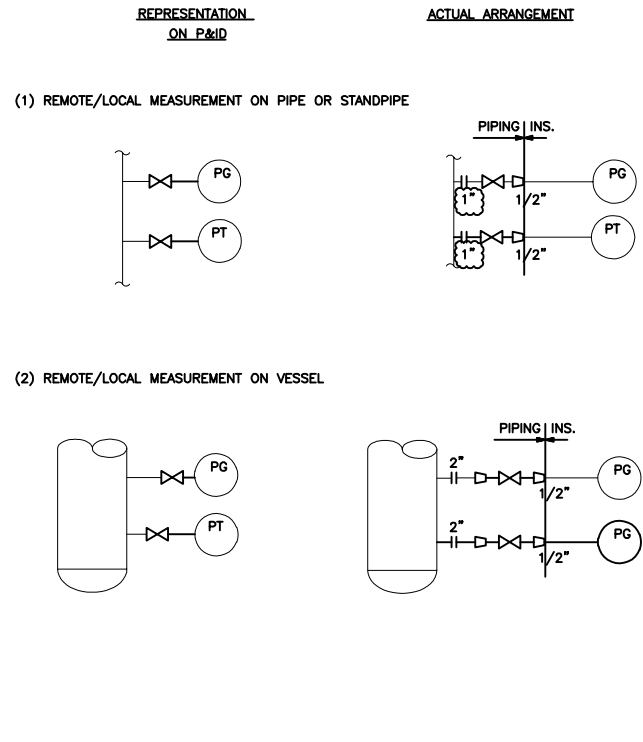
LEGEND




REFERENCE DRAWING

DRG. No.

6. TYPICAL PIPING ARRANGEMENT

6.1 PRESSURE INSTRUMENT (NOTE 1)

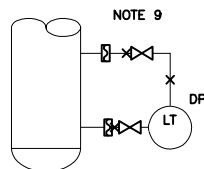


DO2	SEP.2022	IFA	M.ARYAFAR	M.PAKHARIAN	M.MEHRSHAD	** **	***	*****	** **	*** ****	** **	*** ****
DO1	FEB.2022	IFA	M.ARYAFAR	M.PAKHARIAN	M.MEHRSHAD	** **	REV.	DESCRIPTION	BY	DATE	BY	DATE
DO0	OCT.2021	IPC	M.ARYAFAR	M.PAKHARIAN	M.MEHRSHAD	** **				CHECKED		REV. APPR.
REV.	DATE	P.O.I.S	PREP.	CHEK.	APP.	AUT.	اصل و کلیه نسخ این نقشه و حق اقباض متعلق به شرکت ملی مناطق نفت خیز جنوب میباشد.					
PROJECT NAME: BINAK OILFIELD DEVELOPMENT/SUB-SURFACE WORK PACKAGES GENERAL												
PROJECT NO.: 971020												
EPC CONTRACTOR:			EPC CONTRACTOR (GC):									
 HIRGAN ENERGY - DESIGN & INSPECTION COMPANIES						 PEDCO			PETROIRAN DEVELOPMENT COMPANY			
BINAK OILFIELD DEVELOPMENT SUB-SURFACE WORK PACKAGES GENERAL												
DATE			SCALE		DRAWING BY		CHECKED BY		PROJECT ENG.			
DRAWING TITLE: Symbol & Legend For PFD and P&ID												
NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED												
APPROVED FOR CONSTRUCTION									BY:		DATE:	
SCALE	SIZE	DRAWING NO.			SHEET NO.	REV.	BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET REVISION
NS	A3	BK-BSGRL-PEDCO-110-PR-P1-0001			5 OF 7	DO2	P2A-707349	F	2	A	707349	5 OF 7 DO2

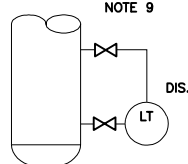
6.3 DRAIN FOR FILTER AT PUMP SUCTION

(NOTE 1)

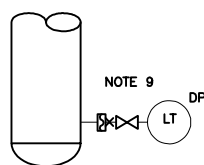
DIFFERENTIAL PRESSURE TYPE



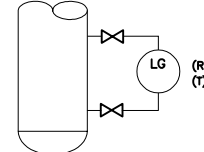
NOTE 9



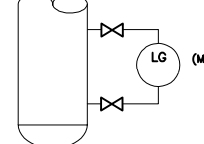
NOTE 9



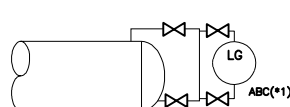
NOTE :



NOTE

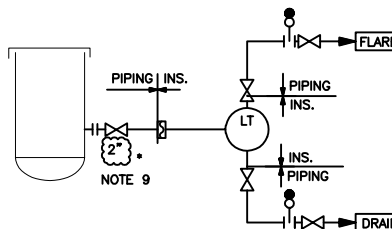
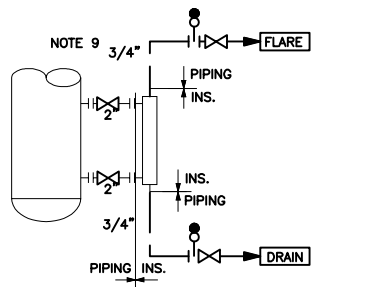
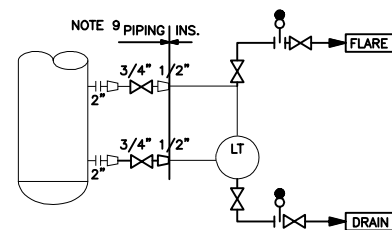


NOTE

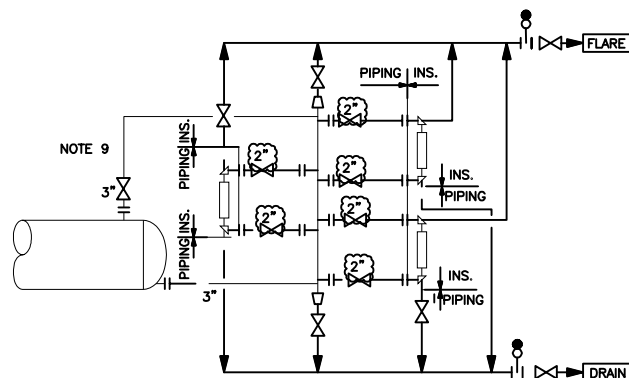
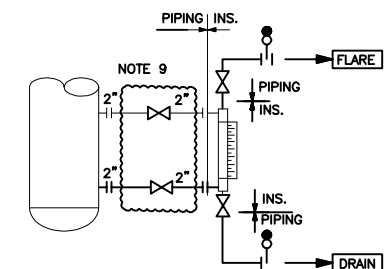
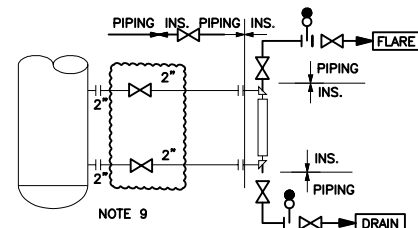


*1. ABC" DENOTES NUMBER OF LEVEL GAUGES.

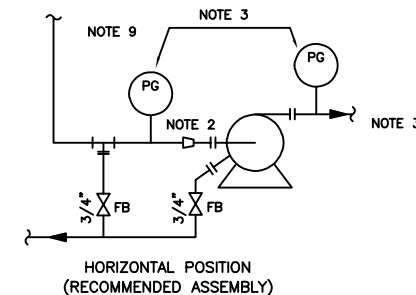
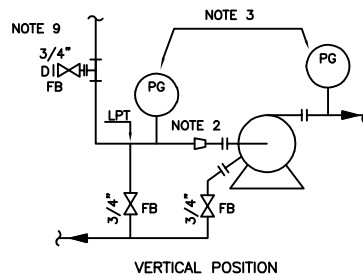
NOTE 9 PIPING LINS



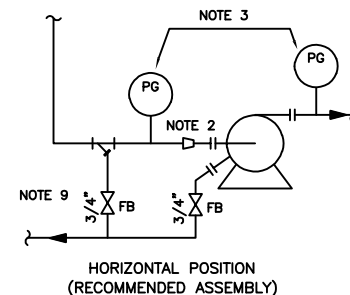
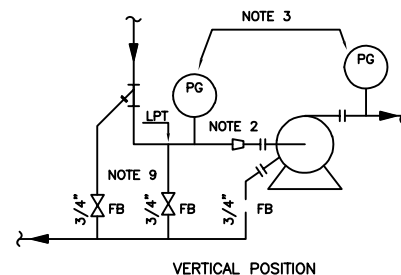
(*) FOR LP TAP 2" SHOULD BE CONSIDERED



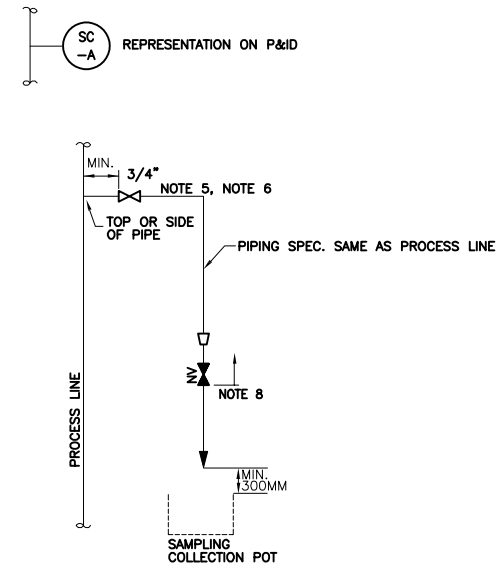
TO BE USED FOR LINE $\phi > 2"$



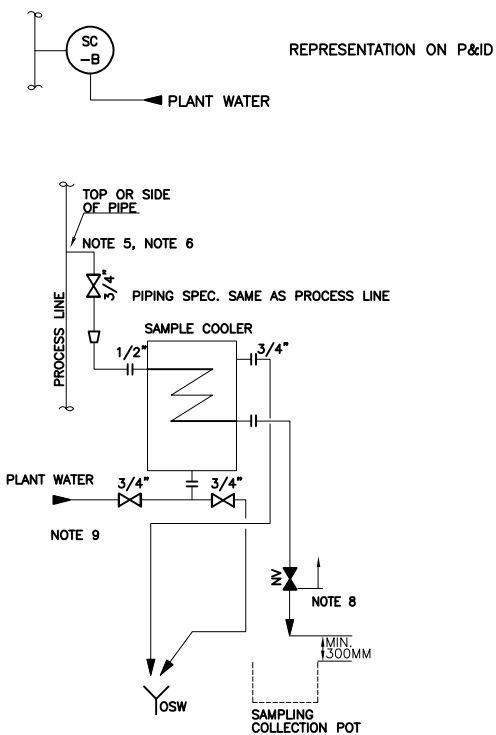
TO BE USED FOR LINE $\phi \leq 2"$



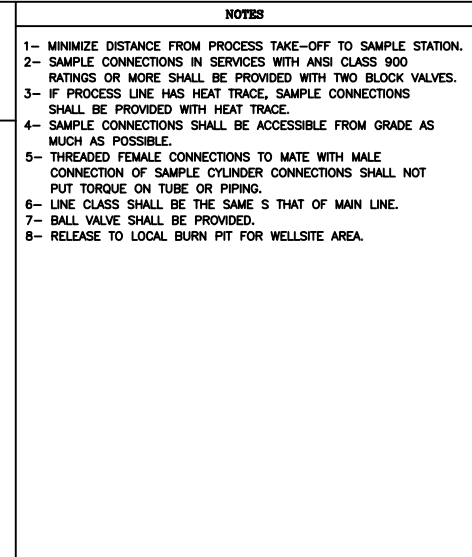
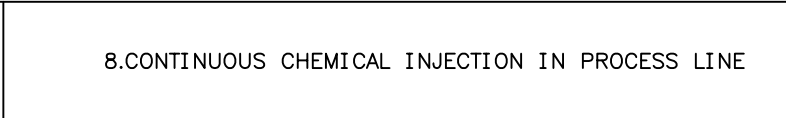
7.1 TYPE-A : FOR NON-HAZARDOUS LIQUID AND VAPOR WHOSE TEMPERATURE IS LOWER THAN 65°C. (NOTE 7)



7.2 TYPE-B : FOR NON-HAZARDOUS LIQUID AND VAPOR WHOSE TEMPERATURE IS LOWER THAN 65°C. (NOTE 7)

[illegible]

7. SAMPLE CONNECTION DETAILS



LEGEND

REFERENCE DRAWING	DEG. No.
*****	*****

KEY PLAN

(VENDOR TITLE BLOCK)*