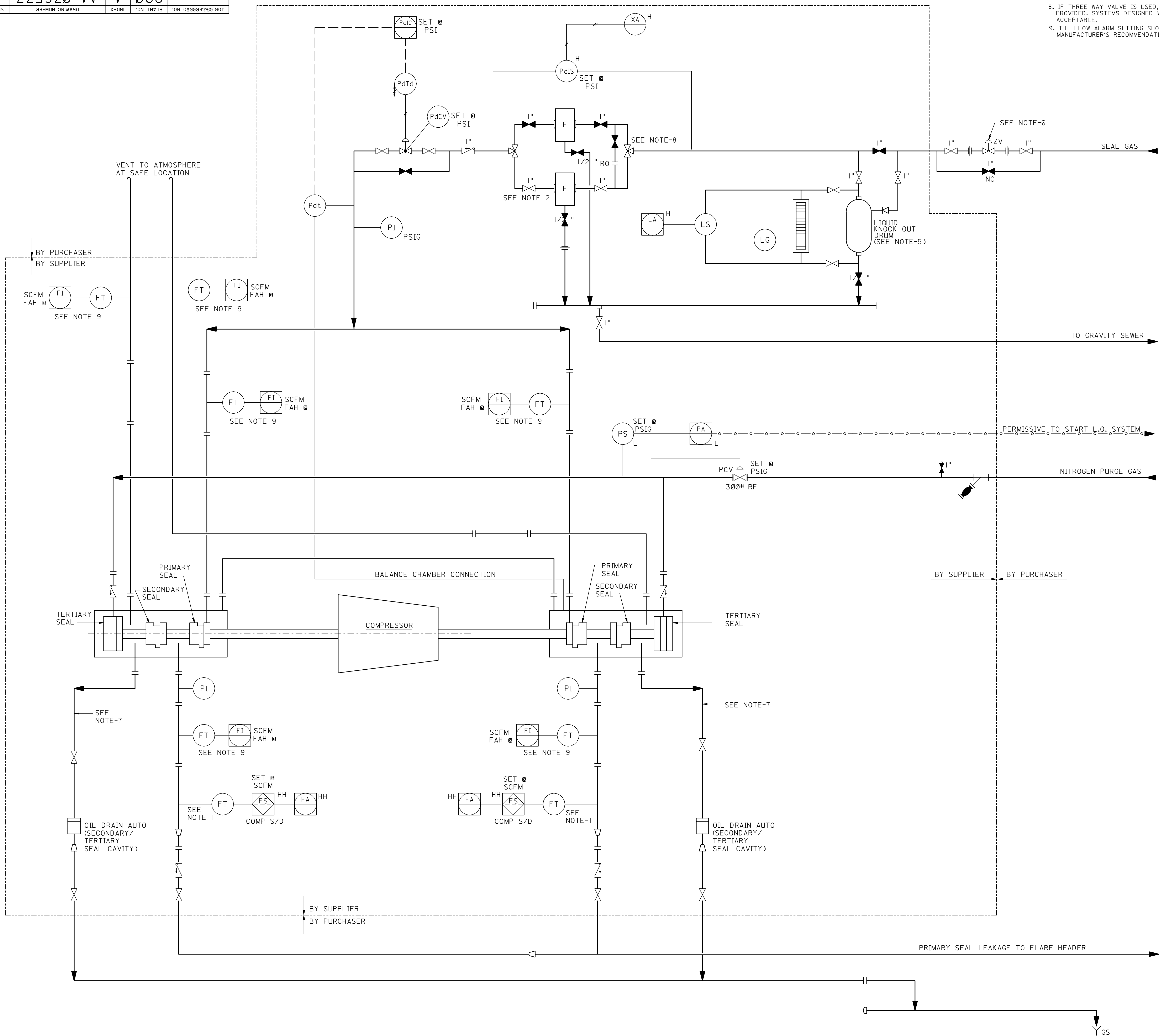




NOTES CONT'D.

8. IF THREE WAY VALVE IS USED, BLOCK VALVES MUST ALSO BE PROVIDED. SYSTEMS DESIGNED WITHOUT THREE WAY VALVES ARE ACCEPTABLE.

9. THE FLOW ALARM SETTING SHOULD BE BASED ON THE SEAL MANUFACTURER'S RECOMMENDATION.

NOTES:

1. THE FLOW ALARM SETTING SHOULD BE BASED ON THE RECOMMENDED MAXIMUM ALLOWABLE LEAKAGE RATE BY THE MANUFACTURER, OR 4 SCFM WHICHEVER IS HIGHER. THE HH SETTING SHOULD BE AT LEAST 150% OF THE ALARM SETTING SETTING BUT LESS THAN 200%.
2. THREE MICRON GAS FILTRATION OR BETTER IS REQUIRED. IF SUPER HEATED GAS IS NOT AVAILABLE THEN COALESCING FILTERS ARE REQUIRED.
3. ALL INTERCONNECTING PIPING SHALL BE STAINLESS STEEL (304, 316, 316L)
4. ALL PIPING DOWNSTREAM OF THE FILTERS SHALL BE INSTALLED AND HEAT TRACED TO PREVENT CONDENSATION.
5. A LIQUID KNOCKOUT DRUM IS NOT REQUIRED IF SEAL GAS IS ALWAYS SUPERHEATED.
6. AUTOMATIC CLOSURE OF ZV IS TO BE SPECIFIED BY PLANT OPERATIONS ENGINEERING PERSONNEL.
7. DRAIN TO BE LOCATED ON THE BOTTOM OF THE HOUSING. THE "VENT TO ATMOSPHERE AT SAFE LOCATION" MAY BE CONNECTED TO THE DRAIN LINE UPSTREAM OF THE AUTO OIL DRAINER.

PIPING LEGEND		INSTRUMENT LEGEND	
PIPING MATERIAL SPECIFICATION AES-L-005		INSTRUMENT DEFINITION & SYMBOLS AES-S-004	
—	PROCESS LINE	AC/AFO	AIR TO CLOSE/F
---	INSTRUMENT AIR LINE	AC/AFS	AIR TO CLOSE/AIR FAILURE OPEN
—	INSTRUMENT ELECTRICAL LINE	AD/AFC	AIR TO OPEN/F
—	REDUCER	AD/AFS	AIR TO OPEN/AIR FAILURE STEADY
—	SPECTACLE PLATE-OPEN	AOV	AIR OPERATED VALVE
—	SPECTACLE PLATE-CLOSED	AT	ANALYZER TRANSMITTER
—	GATE VALVE	ESD	EMERGENCY SHUTDOWN SYSTEM
—	GLOBE VALVE	FCV	FLOW CONTROLLER
—	CHECK VALVE	FCV	FLOW CONTROL VALVE
—	PLUG VALVE	FE	FLOW ELEMENT
—	BALL VALVE	FG	FLOW SIGHT GLASS
—	DOUBLE DISC GATE VALVE	FHCT	FLOW MANUAL CONTROL VALVE
—	ANGLE VALVE	FHCT	FLOW MANUAL TRANSDUCER
—	RELIEF VALVE	FIC	FLOW INDICATOR CONTROLLER
—	MOTOR OPERATED VALVE	FM	FLOW METER
—	PISTON OPERATED VALVE	FMI	FLOW TOTALIZER
—	CONTROL VALVE	FR	FLOW RECORDER
—	BALL TYPE CONTROL VALVE WITH POSITIONER	FT	FLOW TRANSMITTER
—	SOLENOID VALVE	FZ	FLOW RELAY
—	VALVE NORMALLY CLOSED	HC	HAND INDICATOR CONTROLLER
		HS	HAND SWITCH
		LV	LEVEL ALARM
		LCV	LEVEL CONTROL VALVE
		LG	LEVEL GAUGE GLASS
		LIC	LEVEL INDICATOR CONTROLLER
		LI	LEVEL INDICATOR
		LR	LEVEL RECORDER
		LS	LEVEL SWITCH
		LT	LEVEL TRANSDUCER
		LTd	LEVEL TRANSDUCER
		MOV	MOTOR OPERATED VALVE
		PO	PUSHBUTTON
		PCV	PRESSURE CONTROLLER
		PCV	PRESS. CONTROL VALVE
		PCV	PRESS. DIFF. CONTROLLER
		Pdi	PRESS. DIFF. INDICATOR
		Pdi	PRESSURE DIFFERENTIAL INDICATOR CONTROLLER
		PdiS	PRESSURE DIFFERENTIAL INDICATOR SWITCH
		PT	PRESS. DIFF. TRANSMITTER
		PdT	PRESS. DIFF. TRANSDUCER
		PCV	PRESSURE GAGE
		PI	PRESSURE INDICATOR
		PCV	PRESSURE INDICATOR CONTROLLER
		PR	PRESSURE RECORDER
		PS	PRESSURE SWITCH
		PT	PRESSURE TRANSDUCER
		PV	PRESS. COMPUTATION MOD.
		PP	PRESSURE POINT
		PZV	PRESSURE RELIEF VALVE
		RO	RESTRICTION ORIFICE
		RTD	RESIST. TEMP. DETECTOR
		SI	SPEED INDICATOR
		SS	SPEED SWITCH
		TC	TEMP. CONTROLLER
		TCV	TEMP. CONTROL VALVE
		TE	TEMP. ELEMENT
		TM	TEMPERATURE
		THS	TEMP. HAND SWITCH
		TI	TEMP. INDICATOR
		TR	TEMP. RECORDER
		TS	TEMP. SWITCH
			DATA LOSSER POINT
			F-FLOW P-PRESS.
			L-LEVEL T-TEMP
			Y-MISC. A-ALARM
			LOCAL PANEL MOUNTED INSTR.
			BOARD MOUNTED INSTRUMENT
			R/S STATUS LIGHTS
			R=RED, G=GREEN
			LOCAL MOUNTED INSTRUMENT
			MOUNTED BEHIND LOCAL PANEL
			RACK MOUNTED (OR BACK OF PANEL)
			ELECTRICAL SUPPLY REQUIRED
			INSTRUMENT AIR SUPPLY REQUIRED
			H HIGH
			L LOW
			TWO PEN RECORDER
			DCS
			TRM
			SOFTWARE
			LINE

REFERENCE DRAWINGS	
LETTER IDENTIFICATION OF LINES	AE-036204
PIPING SYMBOLS	AB-036227
EQUIPMENT SYMBOLS	AB-036305
INSTRUMENT SYMBOLS	AC-036950
PIPING LAYOUT INDEX	
PILOT PLAN	
PROCESS FLOW DIAGRAM	
HYDROSTATIC TEST DIAGRAM	
DRAWING CONTROL JOB ORDER NO.	
INSTRUMENT INSTALLATION SCHEDULES	

DRAWING RESPONSIBILITY:
ROTATING EQUIPMENT STANDARDS COMMITTEE

REV. NO.	DATE	JO/EWO	DESCRIPTION	ENGG.	CERT.	PMT	OPRNS.
THIS REVISION IS NOT TO BE USED FOR CONSTRUCTION UNTIL CERTIFIED AND DATED.				DESIGN CERTIFICATION		REVIEW FOR KEY DRAWINGS	

DESIGN CERTIFICATION	
DRAWN BY <u>MHJ</u>	CHECKED BY <u>MNL</u>
DATE STARTED <u>12-04-96</u>	DATE COMPLETED <u>07-26-99</u>
DISCIPLINE ENGINEER <u>B. CARNEY</u>	
PROJECT ENGINEER _____	

THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNTIL CERTIFIED AND DATED.	CERTIFIED BY: <u>R. N. SEALY</u>
	(NAME) SIGNATURE _____ DATE _____

SAUDI ARABIAN OIL COMPANY		
REVIEW FOR KEY DRAWINGS	REQUIRED ☐	NOT REQUIRED ☐
CONSTRUCTION AGENCY _____		
OPERATIONS _____		
OTHER _____		

PIPING & INSTRUMENT DIAGRAM	DRAWING TYPE PID
DRY GAS SEAL PIPING SYSTEM	

STD. DWG		SAUDI ARABIA		
PLANT NO.	INDEX	DRAWING NUMBER	SHT. NO.	REV. NO.
990	A	AA-036537	001	00