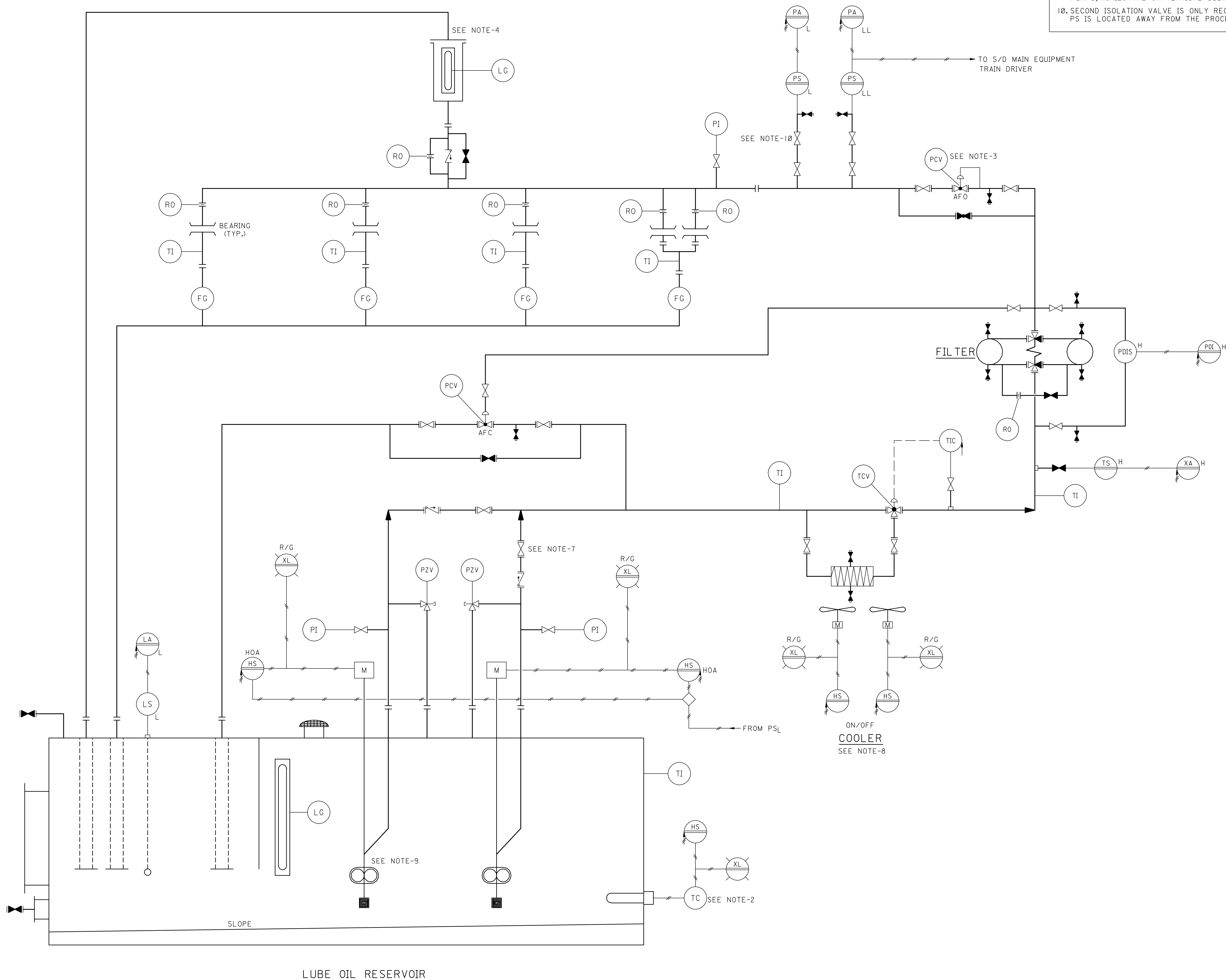


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7. ALL GATE VALVES OTHER THAN RESERVOIR DRAIN VALVE TO BE LOCKED IN THE OPEN POSITION.
8. SHELL & TUBE EXCHANGER IF SPECIFIED.
9. PUMPS TO BE POSITIVE DISPLACEMENT ROTARY PUMPS, HORIZONTAL OR VERTICAL SUBMERGED.
10. SECOND ISOLATION VALVE IS ONLY REQUIRED IF PS IS LOCATED AWAY FROM THE PROCESS.

NOTES:

1. LINE SIZES TO BE DETERMINED BY VENDORS.
2. HEATER IS OPTIONAL; TO BE DETERMINED BY DRIVER OR DRIVEN EQUIPMENT MANUFACTURER.
3. SELF REGULATING PCV ONLY REQUIRED FOR LUBE OIL SYSTEM WITH WATER COOLED HEAT EXCHANGER TO MAINTAIN AN OIL PRESSURE IN THE COOLER HIGHER THAN THE WATER PRESSURE.
4. OVERHEAD TANK AS SHOWN OR ADDITIONAL EMERGENCY OIL PUMP (DC MOTOR, AIR MOTOR DRIVEN) AS DEEMED NECESSARY BY MAIN EQUIPMENT VENDOR.
5. INSTRUMENTS TO BE SELECTED IN ACCORDANCE WITH 34-AMSS-831.
6. ELECTRICAL REQUIREMENTS TO BE IN ACCORDANCE WITH 17-AMSS-015.

PIPING LEGEND		INSTRUMENT LEGEND	
PIPEWORK MATERIAL SPECIFICATION AES-L-005		INSTRUMENT IDENTIFICATION & SYMBOLS AES-J-004	
	PROCESS LINE	AC/AFO - AIR TO / OFF	TT - TEMP. TRANSMITTER
	INSTRUMENT AIR LINE	AIR FAILURE OPEN	TD - TEMP. TRANSDUCER
	ELECTRICAL LINE	AD/AFS - AIR TO / OFF AIR FAILURE STEADY	TW - THERMOWELL
	REDUCER	AD/AFC - AIR TO / OFF AIR FAILURE CLOSE	VZV - VACUUM RELIEF VALVE
	SPECTACLE PLATE-OPEN	AD/AFS - AIR TO / OFF AIR FAILURE STEADY	XA - ANNUNCIATOR
	SPECTACLE PLATE-CLOSED	AOV - AIR OPERATED VALVE	XL - PILOT LIGHT
	GATE VALVE	AMT - ANALYZER TRANSMITTER	XLS - LIMIT SWITCH
	GLOBE VALVE	ESD - EMERGENCY SHUTDOWN SIGNAL	XVE - VIBRATION ELEMENT
	CHECK VALVE	FCV - FLOW CONTROLLER	XVS - VIBRATION SWITCH
	PLUG VALVE	FCC - FLOW CONTROL VALVE	ZV - SAFETY SHUTDOWN VALVE
	BALL VALVE	FE - FLOW ELEMENT	
	DOUBLE DISC GATE VALVE	FG - FLOW SIGHT GLASS	
	ANGLE VALVE	FHCD - FLOW MANUAL CONTROL VALVE	
	RELIEF VALVE	FHCT - FLOW MANUAL TRANSDUCER	
	MOTOR OPERATED VALVE	FIC - FLOW INDICATOR CONTROLLER	DATA LOGGER POINT F-FLOW P-PRESS. L-LEVEL T-TEMP. X-MISC. A-ALARM
	PISTON OPERATED VALVE	FM - FLOW METER	LOCAL PANEL MOUNTED INSTR.
	CONTROL VALVE	FOT - FLOW TOPIZER INDICATOR	BOARD MOUNTED INSTRUMENT
	BALL TYPE CONTROL VALVE WITH POSITIONER	FR - FLOW RECORDER	R/S STATUS LIGHTS R=RED, G=GREEN
	SOLENOID VALVE	FT - FLOW TRANSMITTER	H=HIGH
	VALVE NORMALLY CLOSED	FL - FLOW RELAY	MOUNTED BEHIND LOCAL PANEL
		HIC - HAND INDICATOR CONTROLLER	RACK MOUNTED (OR BACK OF PANEL)
		HS - HAND SWITCH	ELECTRICAL SUPPLY REQUIRED
		LVL - LEVEL ALARM	INSTRUMENT AIR SUPPLY REQUIRED
		LCV - LEVEL CONTROL VALVE	HIGH
		LG - LEVEL GAUGE GLASS	LOW
		LIC - LEVEL INDICATOR CONTROLLER	TWO PEN RECORDER
		LI - LEVEL INDICATOR	
		LR - LEVEL RECORDER	
		LS - LEVEL SWITCH	
		LT - LEVEL TRANSMITTER	
		LTD - LEVEL TRANSDUCER	
		MOM - MOTOR OPERATED VALVE	
		PB - PUSHBUTTON	
		PC - PRESSURE CONTROLLER	
		PCV - PRESS. CONTROL VALVE	
		PCP - PRESS.DIFF. CONTROLLER	
		PDI - PRESS.DIFF. INDICATOR	
		PDI - PRESSURE DIFFERENTIAL INDICATOR CONTROLLER	
		PdTs - PRESSURE DIFFERENTIAL INDICATOR SWITCH	
		PdTS - PRESS.DIFF. TRANSMITTER	
		PdTG - PRESS.DIFF. TRANSDUCER	
		PG - PRESSURE GAGE	
		PI - PRESSURE INDICATOR	
		PI - PRESSURE INDICATOR CONTROLLER	
		PR - PRESSURE RECORDER	
		PS - PRESSURE SWITCH	
		PT - PRESSURE TRANSMITTER	
		PV - PRESS.COMPUTATION MOD.	
		PP - PRESSURE POINT	
		RTO - PRESSURE RELIEF DEVICE	
		RD - RESTRICTION ORIFICE	
		RTD - RESIST. TEMP. DETECTOR	
		SI - SPEED INDICATOR	
		SS - SPEED SWITCH	
		TC - TEMP. CONTROLLER	
		TCV - TEMP. CONTROL VALVE	
		TE - TEMP. ELEMENT	
		TO - THERMOMETER	
		THS - TEMP.HAND SWITCH	
		TI - TEMP. INDICATOR	
		TR - TEMP. RECORDER	
		TS - TEMP. SWITCH	
TSO	-TIGHT SHUT OFF		
S.C.	-SAMPLE CONN.		
N	-DOWN TO PRESS. LOWER		
OWS	-DRILY WATER SEWER		
O	-ONLY WATER		
V	-VENT		

REFERENCE DRAWINGS

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

DWG. RESPONSIBILITY:
ROTATING EQUIPMENT STANDARDS COMMITTEE

03	10/02		DWG. REVISED AND REINSTATED AS STANDARD DWG.				
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 _____ CHECKED BY _____
DATE STARTED _____ DATE COMPLETED _____
DISCIPLINE ENGINEER _____
PROJECT ENGINEER _____

THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNTIL CERTIFIED AND DATED.	CERTIFIED BY: _____
	SIGNATURE _____ DATE _____

SAUDI ARABIAN OIL COMPANY

REVIEW FOR KEY DRAWINGS REQUIRED ☐ NOT REQUIRED ☐

CONSTRUCTION AGENCY _____

OPERATIONS _____

OTHER _____

FORCED FEED LUBRICATION SYSTEM	DR
PIPING & INSTRUMENT DIAGRAM	

STD. DWG.		SAUDI ARABIA		
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