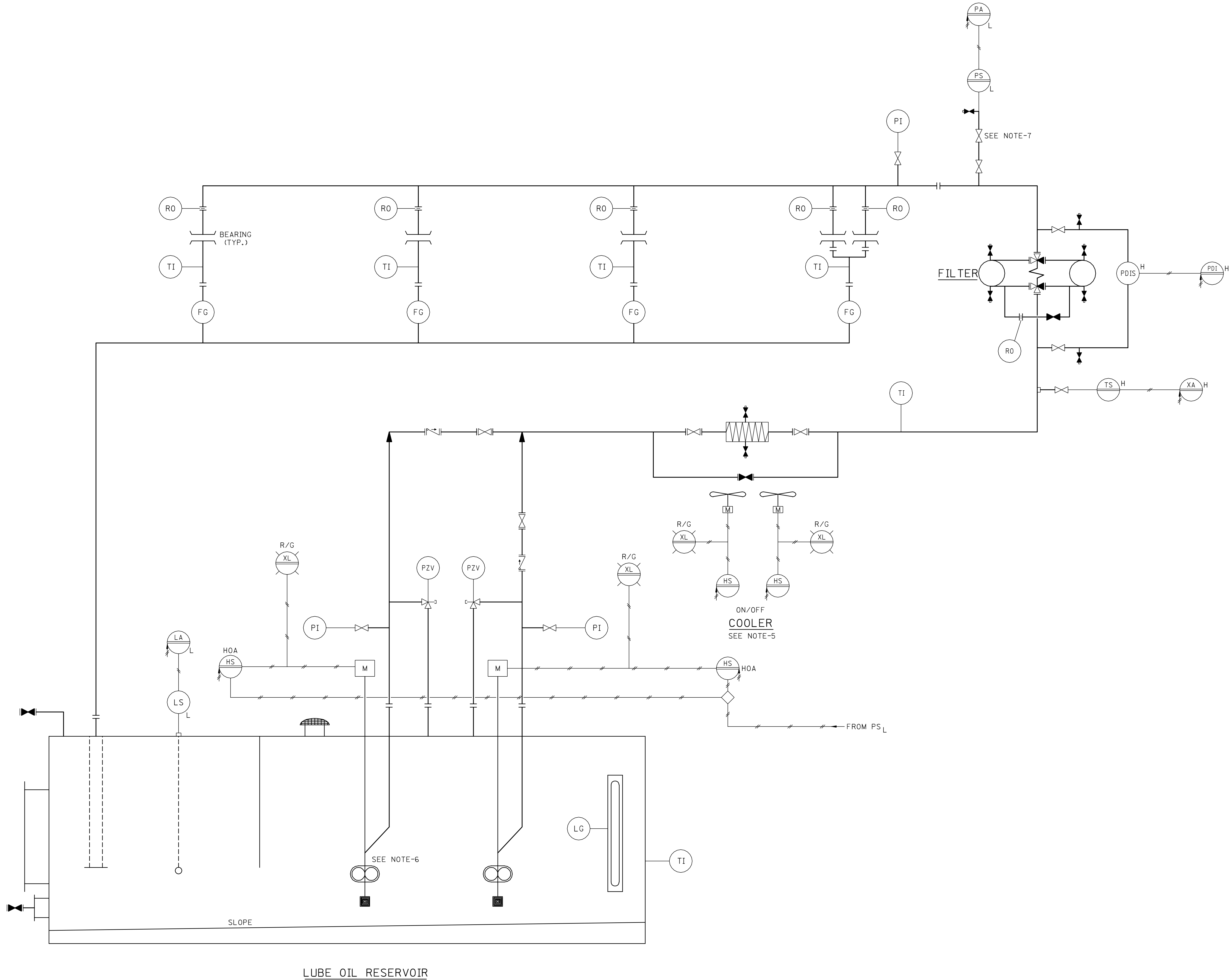


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- NOTES:
1. LINE SIZES TO BE DETERMINED BY VENDORS.
 2. ELECTRICAL REQUIREMENTS TO BE IN ACCORDANCE WITH 17-AMSS-015.
 3. INSTRUMENTS TO BE SELECTED IN ACCORDANCE WITH 34-AMSS-831.
 4. L.O. COOLER MAY BE MANUFACTURER STANDARD IF HEAT LOAD IS 8.8 KW (30,000 BTU) OR LESS.
 5. SHELL AND TUBE EXCHANGER IF SPECIFIED.
 6. POSITIVE DISPLACEMENT ROTARY PUMPS HORIZONTAL OR VERTICAL SUBMERGED.
 7. SECOND ISOLATION VALVE IS ONLY REQUIRED IF PS IS LOCATED FAR FROM PROCESS.

PIPING LEGEND	INSTRUMENT LEGEND
PIPING MATERIAL SPECIFICATION AES-L-005 --- PROCESS LINE --- AIR LINE --- INSTRUMENT --- ELECTRICAL LINE REDUCER SPECTACLE PLATE-OPEN SPECTACLE PLATE-CLOSED GATE VALVE GLOBE VALVE CHECK VALVE PLUG VALVE BALL VALVE DOUBLE DISC GATE VALVE ANGLE VALVE RELIEF VALVE VALVE OPERATED VALVE PISTON OPERATED VALVE CONTROL VALVE BALL TYPE CONTROL VALVE WITH POSITIONER SOLENOID VALVE VALVE NORMALLY CLOSED TSO -TIGHT SHUT OFF S.C. -SAMPLE CONN. S -DRAIN TO PRESSURE OWS -OILY WATER SEWER D -DRAIN V -VENT	INSTRUMENT DEFINITION & SYMBOLS AES-J-004 AC/AFO -AIR TO CLOSE/ AC/AFS -AIR TO CLOSE/AIR AO/AFS -AIR TO OPEN/ AO/AFS -AIR TO OPEN/AIR AOV -AIR OPERATED VALVE AT -ANALYZER TRANSMITTER ESD -EMERGENCY SHUTDOWN SYSTEM FC -FLOW CONTROLLER FCV -FLOW CONTROL VALVE FE -FLOW ELEMENT FG -FLOW GAGE FHCV -FLOW MANUAL CONTROL VALVE FHTd -FLOW MANUAL TRANSDUCER FIC -FLOW INDICATOR CONTROLLER FM -FLOW METER FOI -FLOW TOTALIZER INDICATOR FR -FLOW RECORDER FT -FLOW TRANSMITTER FY -FLOW RELAY HIC -HAND INDICATOR HS -HAND SWITCH LA -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 TRANSMITTER LTD -LEVEL TRANSDUCER MOV -MOTOR OPERATED VALVE PB -PUSHBUTTON PC -PRESSURE CONTROLLER PCV -PRESS. CONTROL VALVE PDC -PRESS. DIFF. CONTROLLER PDI -PRESS. DIFF. INDICATOR PDIc -PRESSURE DIFFERENTIAL INDICATOR CONTROLLER PDIIS -PRESSURE DIFFERENTIAL INDICATOR SWITCH Pdt -PRESS. DIFF. TRANSMITTER PdtG -PRESS. DIFF. TRANSDUCER PG -PRESSURE GAGE PI -PRESSURE INDICATOR PIC -PRESSURE INDICATOR CONTROLLER PR -PRESSURE RECORDER PS -PRESSURE SWITCH PT -PRESSURE TRANSMITTER PV -PRESS. COMPUTATION MOD. PX -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 TG -THERMOMETER THS -TEMP. HAND SWITCH TI -TEMP. INDICATOR TR -TEMP. RECORDER TS -TEMP. SWITCH TT -TEMP. TRANSMITTER TTO -TEMP. TRANSDUCER TW -THERMOWELL VZV -VACUUM RELIEF VALVE XA -ANNUNCIATOR XL -PILOT LIGHT XLS -LIMIT SWITCH XVS -VIBRATION ELEMENT XVS -VIBRATION SWITCH ZV -SAFETY SHUTDOWN VALVE DATA LOGGER POINT F-FLOW P-PRESS. L-LEVEL T-TEMP. X-MISC. A-ALARM LOCAL PANEL MOUNTED INSTR. BOARD MOUNTED INSTRUMENT R/G 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

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

REV. NO.	DATE	JO/EWO	DESCRIPTION	ENGG. CERT.	FMT	OPRNS.
01	09/02		DWG. REVISED, CHANGED SIZE AND ADDED RESPONSIBILITY & NOTES			
THIS REVISION IS NOT TO BE USED FOR CONSTRUCTION UNTIL CERTIFIED AND DATED.				DESIGN CERTIFICATION	REVIEW FOR CERTIFICATION	KEY DRAWINGS

DESIGN CERTIFICATION	CHECKED BY
DRAWN BY	DATE COMPLETED
DATE STARTED	
DISCIPLINE ENGINEER	
PROJECT ENGINEER	

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

SAUDI ARABIAN OIL COMPANY

CONSTRUCTION AGENCY	REQUIRED	NOT REQUIRED
OPERATIONS		
OTHER		

LUBE OIL CIRCULATION SYSTEM
PIPING & INSTRUMENT DIAGRAM

STD. DWG.		SAUDI ARABIA	
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