

LINES	PIPING SYMBOLS			NOTES:- GENERAL
<p><b>LINES IDENTIFICATION</b></p> <p>— PROCESS/UTILITY LINE</p> <p>- - - ELECTRICAL LINE</p> <p>- - - INSTRUMENT GAS/ PNEUMATIC LINE</p> <p>- - - ELECTRICAL TRACED LINE</p> <p>--- CAPILLARY LINE</p> <p>- - - VENDOR LIMIT LINE</p> <p>- - - CENTER LINE</p> <p>- - - HYDRAULIC LINE</p> <p>- - - FUTURE</p> <p>--- SS TUBING (PROCESS)</p> <p>⊕ SCOPE OF WORK/LINE RATING CHANGE (WITH PIPING SPEC. DESIGNATION)</p>	<p>⊘ GATE VALVE</p> <p>⊘ GLOBE VALVE</p> <p>⊘ CHECK VALVE</p> <p>⊘ BUTTERFLY VALVE</p> <p>⊘ PLUG VALVE</p> <p>⊘ BALL VALVE</p> <p>⊘ NEEDLE VALVE</p> <p>⊘ SPRING LOADED VALVE</p> <p>⊘ DIAPHRAGM VALVE</p> <p>⊘ CONTROL VALVE</p> <p>⊘ CONTROL VALVE WITH HAND WHEEL</p> <p>⊘ SELF ACTUATED PCV (DOWN STREAM)</p> <p>⊘ SELF ACTUATED PCV (UP STREAM)</p> <p>⊘ HAND OPERATED VALVE</p> <p>⊘ PISTON OPERATED VALVE</p> <p>⊘ MOTOR OPERATED VALVE</p> <p>⊘ SHUT DOWN VALVE</p> <p>⊘ BALL CONTROL VALVE</p> <p>⊘ BUTTERFLY CONTROL VALVE</p> <p>⊘ PILOT VALVE (XPV)</p> <p>⊘ SLOPE(DOWN WARD)</p> <p>⊘ HAMMER BLIND</p> <p>⊘ SPECTACLE BLIND</p> <p>⊘ FLANGE</p> <p>⊘ REDUCER/EXPANDER</p> <p>⊘ NITROGRN CARTRIDGE</p> <p>⊘ SENIOR ORIFICE</p>	<p>Ⓟ BURIED</p> <p>ⓈT STEAM TRAP</p> <p>⊘ UNION</p> <p>⊘ INSULATION JOINT</p> <p>⊘ ADAPTER (TUBING PIPE)</p> <p>⊘ FLOW ELEMENT ORIFICE/ RESTRICTION ORIFICE</p> <p>⊘ TURBINE METER</p> <p>⊘ POSITIVE DISPLACEMENT METER</p> <p>⊘ ROTAMETER</p> <p>⊘ SONIC METER</p> <p>⊘ ELECTRIC MOTOR</p> <p>⊘ PILOT TUBE</p> <p>⊘ VENTURI METER</p> <p>⊘ DRAIN PLUGGED</p> <p>⊘ DRAIN FLANGED</p> <p>⊘ STRAIGHTENING VANE (FLANGED)</p> <p>⊘ ANALYSER</p> <p>⊘ FILTER</p> <p>⊘ CAP (THREADED)</p> <p>⊘ BLIND FLANGE</p> <p>⊘ CAP (WELDED)</p> <p>⊘ HOSE CONNECTION</p> <p>⊘ OFF/ON SKID OR SHOP FABRICATED</p> <p>⊘ T-TYPE STRAINER</p> <p>⊘ Y-TYPE STRAINER</p> <p>⊘ FUSIBLE PLUG</p> <p>⊘ TS TEMPORARY STRAINER</p>	<p>⊘ BASKET STRAINER</p> <p>⊘ FLAME ARRESTOR</p> <p>⊘ ANGLE VALVE</p> <p>⊘ ANGLE BALL VALVE</p> <p>⊘ ANGLE CHOKE VALVE</p> <p>⊘ ANGLE CONTROL VALVE</p> <p>⊘ THREE WAY VALVE</p> <p>⊘ THREE WAY CONTROL VALVE</p> <p>⊘ CONTINUOUS DRAIN</p> <p>⊘ VANES CONTROL VALVE</p> <p>⊘ HAND OPER. VANES VALVE</p> <p>⊘ EXPANSION JOINT</p> <p>⊘ SILENCER</p> <p>⊘ OPEN DECK DRAIN (WITH LIQUID SEAL)</p> <p>⊘ SAMPLE POINT</p> <p>⊘ DIAPHRAGM SEAL</p> <p>⊘ RTU REMOTE TERMINAL UNIT</p> <p>⊘ RUPTURE DISC</p> <p>⊘ SCRAPPER TEE/SPHERE REE</p> <p>⊘ SPECIALITY ITEM</p> <p>⊘ FLEXIBLE HOSE</p> <p>⊘ RAIN CAP</p> <p>⊘ SHUT DOWN</p>	<p>1. HIGH POINT VENT AND LOW POINT DRAIN NOT SHOWN ON P&amp;ID SHALL BE SHOWN ON PIPING ISOMETRIC / GENERAL ARRANGEMENT DRAWINGS .</p> <p>2. ALL SAFETY VALVES DISCHARGE &amp; EQUIPMENT DEPRESSURIZING LINES SHALL BE FREE DRAINING TO VENT HEADER AND HAVE NO POCKETS UPTO AND INCLUDING HEADERS.</p> <p>3. ALL ISOLATION VALVES IN TAPPINGS OF INSTRUMENTS (SUCH AS PRESSURE, LEVEL AND FLOW SWITCHES) CAUSING SHUTDOWN SHALL BE LOCKED OPEN.</p> <p>4. LINE NUMBERS SHALL BE INDICATED AS PER LINE LEGEND.</p> <p>5. ALL INSTRUMENTS SHALL BE PROVIDED WITH ISOLATION VALVES FOR MAINTENANCE PURPOSE. IT SHOULD BE ENSURED THAT THESE VALVES SHALL BE EASILY ACCESSIBLE.</p> <p>6. DRAINS OF LEVEL INSTRUMENTS (NON-SOUR SERVICES) SHALL BE PIPED TO NEAREST DECK DRAIN FUNNEL WITH 1/2" TUBE PIPE.</p> <p>7. FOR PUMPS HANDLING SWEET LIQUID, CASING VENTS, DRAINS AND BASE PLATE DRAINS SHALL BE PIPED WITH VALVE TO NEAREST DECK DRAIN FUNNEL. CASING DRAINS AND VENT FOR PUMPS IN SOUR SERVICE SHALL BE PIPED TO CLOSED DRAIN HEADER RESPECTIVELY.</p> <p>8. PROTECTION AGAINST GALVANIC CORROSION TO BE PROVIDED WHEREVER REQUIRED BETWEEN DISSIMILAR MATERIALS.</p> <p>9. ALL VENT GAS PIPING SHALL BE FREE DRAINING WITH NO POCKETS.</p> <p>10. ALL LIQUID SAMPLE POINTS EXCEPT FOR WELL FLUID SAMPLES SHALL BE TAKEN FROM CENTER OF THE PIPE. WELL FLUID SAMPLES SHALL BE TAKEN FROM VERTICAL PORTION OF THE PIPE. ALL GAS SAMPLES SHALL BE TAKEN FROM TOP OF THE PIPE.</p> <p>11. INSTRUMENT ISOLATION VALVES SHALL BE AS PER DETAILS GIVEN BELOW. ALL VALVES SHALL BE AS PER APPROPRIATE PIPING/INST. SPECS. DIAPHRAGM SEAL ALSO AS PER SPECS. ALL TAKE OFF CONNECTIONS SHALL BE SW (SOCKET WELD) UNLESS OTHERWISE SPECIFIED.</p>
<p>○ LOCALLY MOUNTED</p> <p>○ LOCAL PURGED</p> <p>○ PANEL MOUNTED / CENTRAL CONTROL PANEL</p> <p>○ LOCAL,PANEL MOUNTED</p> <p>○ BACK PANEL MOUNTED</p> <p>○ BACK LOCAL PANEL</p> <p>○ COMPUTER FUNCTION</p> <p>○ COMPUTER LOCAL PANEL</p> <p>○ DCS/DIDC</p> <p>○ FUNCTION BLOCK</p> <p>○ INTERLOCK</p> <p>○ RUNNING LIGHT,LOCAL</p> <p>○ RUNNING LIGHT,PANEL</p> <p>○ RUNNING LIGHT,LOCAL PANEL</p> <p>○ SOLENOID VALVE(2 WAY)</p> <p>○ SOLENOID VALVE(3 WAY)</p> <p>○ POSITIVE CHOKE</p> <p>○ ADJUSTABLE CHOKE</p> <p>○ CONTROL VALVE W/POSITIONER</p> <p>○ FOUR WAY VALVE</p> <p>○ QUICK EXHAUST VALVE</p> <p>○ VORTEX FLOW METER</p>	<p>⊘ CONTROL VALVE WITH HAND WHEEL</p> <p>⊘ SELF ACTUATED PCV (UP STREAM)</p> <p>⊘ HAND OPERATED VALVE</p> <p>⊘ PISTON OPERATED VALVE</p> <p>⊘ MOTOR OPERATED VALVE</p> <p>⊘ SHUT DOWN VALVE</p> <p>⊘ BALL CONTROL VALVE</p> <p>⊘ BUTTERFLY CONTROL VALVE</p> <p>⊘ PILOT VALVE (XPV)</p> <p>⊘ SLOPE(DOWN WARD)</p> <p>⊘ HAMMER BLIND</p> <p>⊘ SPECTACLE BLIND</p> <p>⊘ FLANGE</p> <p>⊘ REDUCER/EXPANDER</p> <p>⊘ NITROGRN CARTRIDGE</p> <p>⊘ SENIOR ORIFICE</p>	<p>⊘ PILOT TUBE</p> <p>⊘ VENTURI METER</p> <p>⊘ DRAIN PLUGGED</p> <p>⊘ DRAIN FLANGED</p> <p>⊘ STRAIGHTENING VANE (FLANGED)</p> <p>⊘ ANALYSER</p> <p>⊘ FILTER</p> <p>⊘ CAP (THREADED)</p> <p>⊘ BLIND FLANGE</p> <p>⊘ CAP (WELDED)</p> <p>⊘ HOSE CONNECTION</p> <p>⊘ OFF/ON SKID OR SHOP FABRICATED</p> <p>⊘ T-TYPE STRAINER</p> <p>⊘ Y-TYPE STRAINER</p> <p>⊘ FUSIBLE PLUG</p> <p>⊘ TS TEMPORARY STRAINER</p>	<p>⊘ EXPANSION JOINT</p> <p>⊘ SILENCER</p> <p>⊘ OPEN DECK DRAIN (WITH LIQUID SEAL)</p> <p>⊘ SAMPLE POINT</p> <p>⊘ DIAPHRAGM SEAL</p> <p>⊘ RTU REMOTE TERMINAL UNIT</p> <p>⊘ RUPTURE DISC</p> <p>⊘ SCRAPPER TEE/SPHERE REE</p> <p>⊘ SPECIALITY ITEM</p> <p>⊘ FLEXIBLE HOSE</p> <p>⊘ RAIN CAP</p> <p>⊘ SHUT DOWN</p>	<p>11.1</p> <p>11.2</p> <p>11.3</p>

0	28.02.06	ISSUED FOR BID	RVG	SG	
NO.	DATE	ISSUE	BY	CHD	APPR.
<p>OIL AND NATURAL GAS CORPORATION LTD. OFFSHORE DESIGN SECTION, E &amp; C DIVISION MR, MUMBAI</p>					
<p>PIPING &amp; INSTRUMENTATION DIAGRAM (P&amp;ID) FLOW SHEET &amp; INSTRUMENT LEGEND</p>					
<p>DEVELOPMENT OF C-SERIES STRUCTURE</p>					
DRAWING NO.-			7045-OD-1002		REV. 0