



Barossa Offshore Project



Package No:	AIP-SOF-003																									
Package Name:	Shutdown Valves Package																									
Scope of Work	<p>Shut Down Valves (SDVs) will be installed on the Turret Mooring structure of an FPSO for gas production and service risers. Valves will be located in a marine, topside environment. Relative humidity will be 100% and salt laden. Ambient air temperature ranges from 21°C to 35°C. Valves will be subjected to salt spray, rainwater, and exposure to sun light (UV rays).</p> <p>Valves to be designed and tested to full ASME class rated pressure. All valves to be certified to an internationally recognized design, materials and testing standard (API 6D / ISO 5208, API 6FA, 6FB / API 607 / ISO 10497, Prequalified to ISO 15848-1 (Sour Service), ISO 15156/NACE MR 0175, ASME B16.10, ASME B16.34, BS EN 10204, BS EN 10204, BS EN ISO 17292).</p> <p>The high-level requirements for shutdown valves are as follows:</p> <ul style="list-style-type: none"> • Trunnion mounted ball valve with metal seat, self-energized and self-relieving • For valve end connections Supplier should propose two (2) options: <ul style="list-style-type: none"> ❖ Option 1: Hubs and Clamps (Grayloc /Techlok) ❖ Option 2: Compact Flanges to NORSOK L-005 • Supplier to propose compact valve as an option. <p>Design Pressure and Temperature for Shutdown Valves:</p> <table border="1"> <thead> <tr> <th>Service</th> <th>Design Pressure / Temperature</th> <th>ASME Pressure Class</th> </tr> </thead> <tbody> <tr> <td>Gas Production</td> <td>330 barg / -20 to 120°C</td> <td>Class 2500</td> </tr> <tr> <td>Service</td> <td>430 barg / -46 to 120°C</td> <td>Class 2500</td> </tr> </tbody> </table> <p>Shutdown Valves Size, Description, Quantity and Function:</p> <table border="1"> <thead> <tr> <th>Nominal Size (Inches)</th> <th>Valve Description</th> <th>QTY</th> <th>Valve Function</th> </tr> </thead> <tbody> <tr> <td>14"</td> <td>Ball Valve, Class 2500, Duplex SS (see Note 1), Full Port with pneumatic actuator as per requirements listed below</td> <td>5</td> <td>SDV for Gas Production Risers</td> </tr> <tr> <td>16"</td> <td>Ball Valve, Class 2500, Duplex SS (see Note 1), Full Port with pneumatic actuator as per requirements listed below</td> <td>1</td> <td>SDV for Service Risers</td> </tr> <tr> <td>6"</td> <td>Ball Valve, Class 2500, Duplex SS, Full Port with pneumatic actuator as per requirements listed below</td> <td>5</td> <td>SDV for Service Risers</td> </tr> </tbody> </table> <p>Note 1: For large size Duplex SS valves (14" and 16") carbon steel body with full weld overlay of Inconel 625 (minimum 3mm thickness after machining) on all wetted parts including flange faces and /or RTJ grooves is an acceptable substitution in lieu of Duplex SS valve body material.</p>	Service	Design Pressure / Temperature	ASME Pressure Class	Gas Production	330 barg / -20 to 120°C	Class 2500	Service	430 barg / -46 to 120°C	Class 2500	Nominal Size (Inches)	Valve Description	QTY	Valve Function	14"	Ball Valve, Class 2500, Duplex SS (see Note 1), Full Port with pneumatic actuator as per requirements listed below	5	SDV for Gas Production Risers	16"	Ball Valve, Class 2500, Duplex SS (see Note 1), Full Port with pneumatic actuator as per requirements listed below	1	SDV for Service Risers	6"	Ball Valve, Class 2500, Duplex SS, Full Port with pneumatic actuator as per requirements listed below	5	SDV for Service Risers
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Pneumatic actuators should be helical slot, rotary compact type. The actuator size and design shall be based on the following:

- Valve torque for metal seated valve to be considered;
- 1.5 SF (safety factor) for output torque;
- The maximum torque that can be developed by the actuator shall not exceed 95% of the valve stem shear torque;
- Valve is required to open against maximum differential/design pressure;
- Single acting, quarter turn. Fail Closed, spring return on instrument air failure;
- Minimum instrument air supply pressure: 5.5 barg;
- Minimum actuator design pressure: 11.50 barg;
- Valve closing time: maximum 1 time nominal valve size;
- Valve open time: maximum 1.5 times nominal valve size;
- Certified for IEC Zone 1, Gas Gr. IIA, T3, SIL 2 or better and shall conform to relevant sections of IEC 60079-14;
- Valve stem position indicator shall be provided:
 - ❖ 2 x SPDT magnetic proximity limit switches wired to 316L SS junction box;
 - ❖ Partial stroke test (PST) device with position transmitter;
 - ❖ Local open/close indicator.
- The actuator shall be supplied complete with solenoid valves, speed col valve, filter regulator (complete with inlet and outlet gauges and drainage), pressure safety valve with an isolation ball valve. Actuator should not be vented to atmosphere and should be positively pressurized by instrument air pressure, required accessories e.g. check valve shall be provided.
- All pneumatic components are to be mounted on a 316L SS panel and tubed on the valve/actuator. Tube material to be Seamless ASTM A269 Gr. UNS S31254. Tubing fittings and valves to be Swagelok or Parker UNS S31254.
- Valve/Actuator/Accessories assembly shall be suitable for installation in any orientation, i.e. in vertical or horizontal piping run.
- Instrument air volume tank to be provided to enable the 14" SDV valve to be stroked at least three (3) times on loss of air.
- Actuator manufacturer to confirm Lambda (Fail to Danger) value for SIL verification purposes and respective value to be based on field proven service based on similar application.

The full package scope and services provided by the Supplier shall include:

- Valve, Actuator and Accessories assembly with interconnecting tubing and electrical connections;
- Classification Society (ABS) Certification;
- Hydrostatic Pressure Test;
- Factory Acceptance/Functional Test;
- Charpy Impact and Hardness Tests;
- Test and calibration of limit switches and position transmitter;
- Hazardous Area (IECEX) certification for electrical components (solenoid valves, limit switches, PST/position transmitters, etc.) in accordance with the requirements of the IEC 60079 Series;
- Valve/Actuator/Accessories assembly shall be coated per project painting and corrosion protection specification;
- Quality Documentation (Traceability/Serialization Records, Material Test Reports, Weld/PWHT Reports, Inspection/NDT/Test Records, Test/Calibration Reports, Positive Materials Identification for SS and allow).

Anticipated project schedule: Contract Award Q2 2020; Delivery Q2 2021.

Project Registration

ConocoPhillips is committed to ensuring Australian Industry full, fair and reasonable opportunity to participate in the Barossa Offshore Project. Expressions of Interest are invited from contractors and suppliers with the relevant capability and capacity to undertake the scope of work.

This is a request for specific expressions of interest. Contractors and suppliers will be considered for prequalification and tender if suitably qualified against this package.

Note that an important part of the project registration process is to register an Expression of Interest at the correct Scope level.

Scope level definition:

Full scope: Able to produce / supply the entire package.

Partial scope: Able to produce / supply one or more of the sub-packages.

All registrations are to be completed via ICN Gateway BarossaOffshore.icn.org.au. Please contact the ICNNT if registration assistance is required. Contact details: (08) 8922 9422 or admin@icnnt.org.au.

Project Website: ConocoPhillips Australia