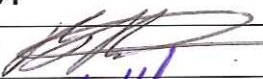
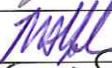



Bayu Undan / Darwin LNG Facilities

Technical Delivery Terms

Material Description: Flexible Hoses	
Doc No: TDT 04	Rev: 4
Prepared By: B.Rankine 	Date: 16/ July / 2009
Checked By: M. Hopkins 	DOC CON Ref: ALL/CMP/SPE/004
Approved By: P. Rogers  (P.P)	

1 SCOPE

This document outlines the general technical requirements for the supply of flexible hoses required for the ConocoPhillips (COP) Bayu-Undan and Darwin LNG Facilities.

Specifically, the following codes and standards shall apply to all flexible hoses purchased for these facilities:

AS 1180	Methods of Test for Hoses made from Elastomeric Materials.
AS/NZ 2554	Hose and Hose Assemblies for Airs – Ring Joint, Spiral Wound and Jacketed.
ASME B16.5	Pipe Flanges and Flanged Fittings.
EN 10204	Metallic Products – Types of inspection documents.
ISO 10380	Pipework for Corrugated Metallic Hoses and Hoses Assemblies
ASME IX	Boiler and Pressure Vessel Code – Welding and Brazing Qualifications
ASME B31.3	Process Piping

Full descriptions of the hose types, diameters, lengths, end fittings (inclusive of material grades), operating conditions (temperature and pressure) and the intended service shall be provided by the Purchaser on any order for flexible hoses. All hoses shall be manufactured in accordance with a COP engineering approved data sheet.

All welding of end fittings shall be performed and supported by documentary evidence of a qualified Welding Procedure Specifications in accordance with CoP Specifications for Welding and Inspection of Piping Systems Doc. No H8-GEN-00-020-S01-0003.

2 TESTING REQUIREMENTS

All hose assemblies shall be subjected to a hydrostatic proof pressure test at 2 times the specified design working pressure (unless otherwise specified for the hose) in accordance with the requirements of AS 1180.5 – 1999. Air hoses shall comply with the requirements of AS/NNZ 2554 Class B including pressure testing at 2 times the specified working pressure. All pressure testing shall be conducted by a NATA accredited testing facility. NATA endorsed test reports shall be provided for all hoses tested.

3 CERTIFICATION REQUIREMENTS

For all flexible hose assemblies, material certification shall be provided in accordance with the requirements of EN 10204 as follows:

- Condensate hose – batch test certificates to 2.2.
- Hydraulic hose – batch test certificates to 2.2.
- Nitrogen hose – batch test certificates to 2.2.
- Air/Water/Oxygen/Acetylene hoses – certificates of compliance to 2.1.
- 316 Stainless Steel end fittings – material certificates to 3.1. Where applicable for any welding they shall be accompanied by a qualified welding procedure specifications, welder qualification records, postweld heat treatment records, non-destructive testing reports and load testing of lifting lug welds
- Bronze end fittings – certificates of compliance to 2.1.
- For low hazard (Hazard Level E, in accordance with AS 4343) rated Flexible Hose Assemblies, Stainless steel fittings shall only require a 2.2 certificate as a minimum.

The certificates shall be in the English language or in other languages if they are accompanied by an endorsed and dated English translation of the contents. All certificates shall be originals or certified copies of the originals.

The Supplier shall retain on file (and make available on request by the Purchaser) certification including evidence of relevant type tests performed on the specific hose assemblies. These type tests shall include proof pressure tests and burst tests as specified in AS 1180.5, or an approved equivalent standard.

4 IDENTIFICATION

All hoses shall bear the Hose Manufacturers identification and design markings. The completed hose assembly shall be fitted with a tag (stainless steel preferred) indicating the date of manufacture, design working pressure, proof test pressure and where applicable the Hose Tag number. Also where applicable the hose end fitting shall be painted with the relevant colour code

5 PRESERVATION AND SHIPPING REQUIREMENTS

Crating and packages shall be suitable for opening and resealing without difficulty or damage. Preservation shall be such that if the packaging is disturbed, then negligible degradation is permitted for a minimum period of 12 months from dispatch from the vendor's works. Crating and packages shall be marked with clear handling, storage and warning instructions to protect against damage to the preservation applied.