



CERTIFICATE OF APPROVAL

This is to certify that the following product has been reviewed & approved by an NS-1™ Technical Review Committee.

Date of Approval: 01/10/2011

Cert/NS-1™ Approval Number: 0043/11-2

Valid Until: 30/09/2013

Reviewed Against: AA.03.30.00.1110 Rev. 09

Review Number: FP FZE 489

NS-1™ Quality and Inspection Requirements for New and Refurbished Drilling and Well Completion Equipment, Edition 2 – January 2006

Product: BoTn 3000 Hard Banding

Candidate: Shanghai BoTeng Welding Consumables Co Ltd. No. 1825 Luodong Road, Baoshan Industrial Zone, Shanghai, 200940. China

NS-1™ LEVEL 2 PRODUCT APPROVAL
(BoTn 3000 New Application for Tool Joints Only)

Scope:

The procedure followed has been to compare the specific requirements of the relevant NS-1™ documentation with the submitted information, and to comment on the conformance or otherwise of the submitted information.

The evaluation of the application procedures for BoTn 3000 HB on drill pipe has been performed in compliance with the general requirements and recommendations as stipulated in NS-1™ Supplementary Requirements, AA.03.30.00.1110 (Rev. 09) Section 5.0, and Sub-Specification 90.1, 90.3 and 160.

The following data was supplied and tests performed by Shanghai BoTeng to Fearnley Procter FZE, for this approval.

1. Casing Wear Analysis Data, 2. Hard-banding Adhesion Test Results, 3. Welding Procedures/Guidelines, 4. Inspection Guidelines, 5. Acceptance/Rejection Criteria, 6. Hardness Test Results.

Reference Documents: Specification for new application of BoTn 3000 Hard Banding for Tool Joints, Heavy Weight Drill Pipe, Drill Collar. Third Edition, May 2010 Rev. 1.2

As a result of the review the BoTn 3000 HB Hard-banding has been granted approval and is listed as an NS-1™ Level 2 approved product and deemed suitable for service when applied as per the processes and procedures reviewed and the requirements of NS-1™.

Approved By:

A handwritten signature in black ink, appearing to read 'Kevin Fearnley', is written over a dotted line.

Kevin Fearnley

(Chairman NS-1™ Technical Review Committee)