



APPROVAL IN PRINCIPLE **STATEMENT**

QUALIFICATION OF ITP LNG SUBSEA PIPE-IN-PIPE PIPELINE CONCEPT

Presented to
ITP –InTerPipe

**Prepared by ABS Offshore Engineering Department – London
Rev. 0 Dated 9 June 2004**



Qualification of ITP LNG Subsea Pipe-in-Pipe Pipeline Concept Approval in Principle Statement

3. AIP Statement

ABS has performed a concept engineering review, a concept level risk assessment and a review of the results of Full Scale Testing/Finite Element Analysis (FEA) in a Joint Industry Project (JIP) of ITP LNG Subsea Pipe-in-Pipe pipeline concept in accordance with ABS Guidance Notes on Review and Approval of Novel Concepts. The documents submitted for review are as listed in Attachment 1. The report on the concept level risk assessment is included in Attachment 2.

The LNG subsea pipeline concept incorporates design features that are considered novel to standard subsea pipeline designs or deviate from existing codes and standard practice of today, such as:

- Triple wall Pipe-in-Pipe pipeline
- The use of INVAR (36% Ni steel) for inner process/carrier pipe to eliminate expansion joints or bellows in the pipeline system
- The use of IZOFLEX micro-porous material as insulation medium at cryogenic temperature in the marine environment

We advise that insofar as our requirements are concerned, the Concept Engineering Evaluation and the Concept Level Risk Assessment have not identified any technological showstoppers, excessively onerous failure modes or abnormal hazards of the ITP LNG Subsea Pipe-in-Pipe pipeline concept. The concept is therefore deemed suitable for use in the marine or offshore environment and it is hereby “Approved in Principle”.

This statement is a representation that the design is achievable/feasible and suitable for purpose and meets the safety levels established in Rules, Guides and Statutory requirements in all phases of operation, in-transit, installation, commissioning and operation of an offshore application.