

# DNV press release

2 May 2007

## **Fitness for service certificate to LNG pipeline revolution**

**Houston:** ITP InTerPipe's (ITP) highly insulated pipe-in-pipe technology for subsea, oil and gas flowlines has gone through eight years of development to be able to transport LNG. A formal technology review process has culminated in DNV issuing a Certificate of Fitness for Service to ITP's pipe system, proving it is now fit for deployment in LNG projects.

The transportation of LNG through the subsea ITP triple pipe-in-pipe system may revolutionise the siting, safety, security and economics of LNG import and export terminals. By transporting LNG through subsea or buried pipelines a project can:

- Eliminate the trestle, thus dramatically reducing costs
- Increase security as the pipeline is buried and thus not visible
- Increase siting options by allowing loading or offloading further offshore or transporting LNG onshore
- Decrease the environmental and visible impact
- Decrease or eliminate the need for dredging.

The technology consists of a triple-pipe system and was developed and qualified by ITP in co-operation with various industry partners through joint industry projects and engineering studies starting in 1998. The technology development has complied with the DNV Technology Qualification Process as defined in DNV RP-A203, Qualification Procedures for New Technology.

Says Afzal Hussain, senior engineer in DNV Energy; "In 2006, a FEED (Front End Engineering Design) study was carried out to obtain the DNV Certificate of Fitness for Service. This was a necessary criterion for the project to consider the subsea LNG pipe as a technologically viable alternative. Through this study, ITP completed the formal DNV technology qualification process, which culminated in DNV issuing a Certificate of Fitness for Service to ITP."

The Certificate of Fitness for Service is a document issued by DNV affirming that, at the time of assessment, the new technology is considered fit for service. This means that the failure modes that have been identified through the systematic process outlined in the DNV offshore service specification, DNV-OSS-401, have been properly addressed, and the supporting evidence substantiates that the technology fulfils all the stated functional requirements and meets the stated reliability target.

Hussain explains that to date, one receiving terminal has selected the ITP LNG pipe as its base case design and several other projects are considering the technology, for both the import and export of LNG.

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### The key features are:

1. A 36% NiFe inner pipe, which minimises the expansion and contraction at LNG operating temperatures.
2. ITP's patented Izoflex, microporous insulation which has been used in subsea pipelines since 1998.
3. An intermediate pipe designed for collapse.
4. A carbon steel outer pipe designed for collapse and to prevent buckle propagation, and featuring anti-corrosion coating.
5. The triple wall pipe provides two layers of protection against accidental damage in subsea application.
6. Bulkheads connecting the inner and intermediate pipes and the intermediate and outer pipes. These robust bulkheads form a sealed inner and outer annulus.
7. Field joints which are straightforward butt welds for all pipes.

