



## Tenaris already compliant with Directive 10 regulations

*The December 22nd revision of Directive 10 allows operators to use casing that does not comply with Appendix B in certain “non-critical” sour wells, provided that it was “purchased or manufactured prior to September 22, 2008” and the well’s design factors are above certain minimum levels outlined in detail in section 1.3.1 of the D-10 document.*

*Please note at present, Directive 10 is enforced in Alberta only, so any wells drilled in British Columbia, Manitoba or Saskatchewan are not affected. As a result, stockpoints in Ft. St. John, Estevan and Swift Current will not be affected.*

*Tenaris technical assistance engineers are available to support our clients with whatever questions or design concerns they may have.*

As of December 22, 2009, the ERCB issued a revised and updated version of Guide 10, which from this point forward will be referred to as “Directive 10.” Directive 10 classifies each individual well as sweet, sour or critical sour and also defines material specifications for all casing material that will be installed in wells considered sour. With the new regulations, the number of wells classified as sour will increase.

To address these new requirements, all new casing produced by Tenaris for the Canadian market by all Tenaris mills, both seamless and ERW, will be “Appendix B – Sour” compliant for grades H40, J55, K55, L80, C90 and T95.

Tenaris has segregated all inventory in Alberta into “sweet” or “sour” products, based on the material’s compliance with Directive 10 Appendix B specifications.

The criteria used to define the sour classification are:

- An H<sub>2</sub>S partial pressure greater than 0.34 kPa
- The H<sub>2</sub>S does not need to be found in the target formation, it can be in any formation the well will penetrate
- Designers must consider the entire life cycle of the well, not just the drilling phase, which brings into the equation the numerous oil and gas reservoirs that become sour over their production life, often caused by sulphate reducing bacteria (SRB)
- Surface casing must also be ‘sour’ material if the operator intends to drill into the sour zone before setting an additional (intermediate) casing string

API grades H40, J55, K55, L80, C90 and T95 are the only grades included in the ‘Appendix B’ sour specification.

The new technical requirements cover four main areas:

1. Chemical Composition (all grades) with wider coverage and tighter tolerances than API requirements
2. Tempering Temperature (for Quench and Tempered Grades Only – L80, C90 & T95)
3. Hardness (for Quench and Tempered Grades Only – L80, C90 & T95)
4. Impact Toughness [Charpy V-Notch] (All grades)

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