FUTURE PIPE INDUSTRIES B.V.
Glassfiber Reinforced Pipe Systems

TengizChevroil KTL 2/3 Expansion Project Kazakhstan

Location
Atyrau, Oblast, Kazakhstan

Date
1997 / 1998

End User
TengizChevroil Refinery
Atyrau, Oblast, Kazakhstan

Contractor
Bechtel International Ltd.
England

Description
Fire fighting systems DN100 / DN300
Design pressure 20 bar. (Test pressure 30 bar)
Total amount installed ca. USD 0.6 mlj.

Scope
Our scope included:

- Engineering and system design
- Fabrication
- Prefab of spools
- Installation training & supervision

Pipe System
Wavistrong Glassfiber Reinforced Epoxy System, based on partly adhesive bonded connections (CB/CS) and Rubber Seal Lock connections (RSLJ). The system is fully tensile resistant and does not require any trust or concrete anchor blocks. The GRE pipe system has been delivered in pre-fabricated spools, which reduce installation time, even under severe conditions (rainy or cold).

Advantages
The dominant position of carbon steel as pipeline material is due to an unmatched combination of low material cost and excellent material properties in non corrosive environments. Even at this moment carbon steel is used for more than 95% of all new pipeline installations.
In corrosive environments however, the useful service life of carbon steel can be limited.
The cost benefit of using GRE materials is that their life-cycle costs, over for example a 50 year design life, are significantly lower, compared to equivalent steel systems. Material cost of these systems are greater than for carbon steel but due to easy installation the installed cost are generally lower. Operating costs are significantly lower since no painting and inhibition is required. Also the insurance costs can be limited since insurance companies experienced, that GRE systems are very reliable in the long term. When designed and correctly installed, experience shows that GRE systems are maintenance free during their entire design life (min. 50 years) and live up their promise of life cycle costs.