
PRESS RELEASE

Horizontal Directional Drilling Project under Milford Haven breaks European Records

- The longest HDD to have been completed in Europe
- Arguably the World's longest HDD in rock
- Project completes ahead of schedule
- *Pure-Bore*® based drilling fluid system approved for use by the Environment Agency

28th February 2011. The recent installation of a 457mm diameter, 3000m long gas pipeline under Milford Haven, South Wales has completed ahead of schedule, with minimal environmental impact.

The trial drill commenced in May 2007 and Clear Solutions worked closely with the drilling contractor, LMR Drilling UK Ltd, to test the viability of the crossing. Clear Solutions environmentally friendly, water-based *Pure-Bore*® drilling fluids system was approved for use by The Environment Agency and this - together with the expertise of the Clear Solutions drilling fluids engineers - contributed to ensuring the outstanding success of the project.

The rock under the Haven primarily comprises the steeply dipping Devonian Old Red Sandstone Formation. The drill line also passed through the Ritic Fault - a major regional fault plane. The strength and abrasivity of the rock over this crossing length presented a considerable challenge for the HDD, and the downhole tooling and drilling fluids regime had to be chosen carefully to mitigate risk wherever possible. All drilling fluids engineering was performed by Clear Solutions, who ensured constant monitoring of the drillings fluid rheology. Clear Solutions ensured that the large formation cuttings remained in suspension and were transported effectively for the unprecedented distance from cutting face back to surface.

Clear Solutions identified a series of critical drilling fluids properties for the project which were achieved and maintained using the company's own proprietary products. The outcome was a highly inhibitive fluid providing outstanding hole cleaning, borehole stability, effective clay inhibition, lubricity and a slick gauge borehole. The results were outstanding, with construction of the HDD crossing commencing in October 2009 and completion just 7 months later in May 2010. *Ends*

Notes:

*Clear Solutions International Limited is an independent drilling fluids specialist, employing a team of geotechnical specialists and drilling fluids engineers across Europe. The company has developed a range of revolutionary water-based drilling fluids, including *Pure-Bore*®, and continues to lead the field with its products. The company has worked extensively on high-performance drilling and underground construction projects, and prides itself on providing an environmentally friendly world-class service.*

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