

## **CNG Mobility Transporting White Rose Gas**

Husky Energy hopes to have final studies on developing natural gas reserves associated with its White Rose oil project completed by the end of January 2005. In August, Husky sent Request for Proposals to nine companies who had responded to their EOI, asking for more detailed plans. All submissions were in as of September 15, and a company spokesperson said Husky intends to award contracts come the end of October.

Back in May, over 40 groups responded to an Expression of Interest from Husky assessing cost, technical and regulatory issues as a first step to producing gas from White Rose within a decade. In addition to the project's estimated 200-250 million barrels of oil reserves, White Rose also contains 2.3 trillion cubic feet of gas. Husky said a review showed that a transportation system moving compressed natural gas and/or pressurized natural gas by ship has potential.

Four different compressed natural gas (CNG) marine transportation technologies—EnerSea Canada, Williams Energy, Trans Ocean Gas and TransCanada Pipeline Group—all expressed interest in carrying White Rose gas, but have not confirmed their receiving the Husky RFP.

EnerSea's Volume Optimized Transport and Storage (VOTRANS) uses a series of API carbon-steel pipes that can be stacked either horizontally or vertically, depending on the size of the vessel. The system is applicable in ice-prone areas and in water depths from 500 - 3,000 metres.

Stephen Henley, managing director of EnerSea Canada, pointed out that CNG doesn't compete with liquefied natural gas (LNG) or pipelines as CNG is a regional solution for bringing stranded gas to market. Stranded reserves lie undeveloped because they are either too remote or too small to justify production.

William Energy's Cosselle CNG System uses 10 miles of six-inch line pipe coiled around a carousel, with 4 million cubic feet of capacity per cosselle and 100- to 145 cosselles per vessel. "The line pipe is low-cost and it's a safe CNG containment system," said Greg Horne, director of global gas origination with Williams.

Fibre-reinforced plastic (FRP) is at the heart of Trans Ocean Gas's CNG technology. Plastic bottles wrapped in carbon fibre would be transported using a modular, cassette storage system. "It's safe, reliable and cost effective," says Steve Campbell, president of St. John's-based Trans Ocean Gas. "And, not only is it lighter than steel, non-fragmenting and corrosion resistant, the cassette storage system maximizes vessel space."

Trans Ocean, who have signed a MOU with EADS Composite Atlantic of Lunenburg to manufacture FRP bottles, is hoping to be the hometown favourite in the Husky gas study.

Calgary-based Trans Canada Pipeline's Gas Transport Module (GTM) uses composite reinforced pressure vessel technology, over-wrapping or lining a steel hull with a glass fibre laminate. Greg Cano, director of GTM with Trans Canada, said fibre-wrapped containment is very common and pointed to two examples - firemen's breathing tanks and mountain climber's oxygen tanks.

As there are no CNG marine transportation systems in operation, all four companies anticipate a regulatory time frame of two to three years and expect to be able to provide services to offshore reserve owners within five years.