

## PRECISION IN-SITU MACHINING

### DESIGN & MANUFACTURE OF SPECIALISED PIPE MACHINING EQUIPMENT FOR ON-SITE CONTRACT FOR DEEP PANUKE DEVELOPMENT, NOVA SCOTIA

**M & A Engineering Ltd won the contract to design, manufacture and utilise specialised pipe machining equipment for the 'Deep Panuke Development', Nova Scotia.**

The contract was to machine, on site in Italy, pipe required for the Deep Panuke gas field near Halifax, Nova Scotia.

The field is located beneath Canada's first offshore development in carbonate reef, deep under the sea and required its own pipeline for transmission of up to 400 million cf/d of natural gas to shore, where it will connect with the main line at Goldboro. The 1,051km pipeline crosses the Canada/US border in New Brunswick and terminates in Dracut, Massachusetts.

The contractor, Riva Group, turned to M&A Engineering as the ends of some 204 'Buckle Arrestor Pipes' had to be machined over a length of 250mm from a nominal diameter of 565.4mm down to 559.0mm with a high degree of accuracy.

The main criterion of the task however was to maintain the wall thickness tolerance. With an eccentric pipe contour - each pipe could be up to 5mm out-of-round - the machines had to be designed to follow the profile of each individual pipe.

**"Not only did M&A make the machines and complete the job to our complete satisfaction, they achieved this ahead of schedule"**



**Trials Underway at M & A's Workshops**



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**Checking the Ultrasonic Calibration & Wall Thickness**



**The Task Ahead**



**Grinding In Progress**

**Checking The Profile**

The external weld bead had to be ground flush prior to machining. Great care was required to ensure the pipe wall thickness was not undercut.

Each pipe had both ends worked on simultaneously. This ensured a quick turn-around for moving the pipes onto the shot blast and coating processes carried out by the customer.



**Three Machines Seen Working Simultaneously**





**Machining In Progress**

**Typical Example of a Finished Machined End**

Production targets were critical as the pipes were required in Nova Scotia before the weather closed in towards the end of the year.

M & A successfully surpassed production expectations and the project was completed ahead of schedule and to the complete satisfaction of the customer.



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