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### Quarterly Report – Public Page

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Contract Number: DTPH56-07-T-000006

Prepared for: United States Department of Transportation  
Pipeline and Hazardous Materials Safety Administration  
Office of Pipeline Safety

Project Title: “Validation of Assessment Methods for Production Scale Girth Welding of High Strength Pipelines with Multiple Pipe Sources, #275”

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### **Project Summary**

This project address gaps in the understanding of girth welding of X100 grade high strength steel pipelines. The objectives of the project are:

1. To test a large set of girth welds produced under realistic conditions by a state of the art high productivity GMAW system;
2. To demonstrate the effect of material variability between pipes, between heats and between pipe manufacturers; and
3. To validate current and proposed new weld defect assessment methods against the performance of a large set of welds made under field production conditions.

The project will test girth welds made during the construction of the BP X100 Operational Trial to determine their properties and defect tolerance. The activities will include: a) Review of construction records and selection of welds for examination; b) Test program design; c) Weld testing and examination; d) Evaluation of defect tolerance of welds using fitness for purpose assessment criteria; and e) Reporting and dissemination of results.

### **Technical Status**

Pressure cycling of the Operational Trial has continued and the pressurization plant and controller have generally performed satisfactorily. In order to recover from the earlier delays the rate of pressure cycling was increased, initially using only one pump. Subsequently the system was re-configured to use the standby pump in addition, giving a further increase in cycling rate. Approximately 1280 cycles were accumulated by 14 December 2007. An intermittent problem with a control valve is being investigated in conjunction with the vendor.

The strain gauge data logging system developed further hardware and software faults during the quarter, causing delays to the pressure cycling whilst the problems were investigated. The issues appear to have finally been resolved by the vendor and the system performance has improved. Performance of the system is being monitored to ensure that any further problems are minimized.

The Operation Trial began in 2006 (see Figures 1 and 2 below) and is scheduled to be completed in Q4 of 2008. Following the completion of the Trial, the team will begin conducting the inspection, testing, and analysis of the welds.

### **Plans for Future Activity**

Continue pressure cycling of Operational Trial and other activity as per project plan.

Advantica will begin the review of records associated with the Operational Field Trial to identify welds of interest for the project.