Operational Benefits of Using 3D Laser Scanning for Pipeline Facilities

ABSTRACT

High definition 3D laser scanning is fast becoming a valuable tool for pipeline, processing, and storage tank operators as an engineering and design tool and to train new employees, plan work more efficiently, and develop contingency plans for incidents. Today's technology is capable of capturing 2 million data points per second, with 360-degree views and the ability to embed smart data (geo tags) into the scans. As the speed and resolution of scanners increase, the size and accuracy of the data set (point cloud) improves, while also bringing down the cost of field scanning to a competitive level with conventional field measurement techniques. In using 3D laser scanning, the total time to produce a conventional drawing package, including a 3D model, plans, elevations, details, isometrics and BOMs can be reduced by 10-20 percent, and those operators who do not adopt the new technology will be at a cost disadvantage. For smaller pipeline facilities, the point cloud information could be considered as an "as-built" without the need to produce drawings.

PRESENTERS

William M. Treybig
Vice President – Engineering, G2 Integrated Solutions

Mr. Treybig has nearly 40 years of experience in gas processing, pipeline and LNG operations, engineering design and construction. He has installed over 70,000 BHp of compression and over 200 miles of various diameter pipelines. He has worked in most of the United States oil producing regions and has extensive experience in rebuilding offshore processing facilities. As head of the Engineering Department at G2-IS, he has overseen improvements in MAOP/MOP and traceable, verifiable and complete (TVC) determination in accordance with Federal and State regulatory codes. He is a registered professional engineer in Texas.

Jay C. Dinklage
Director – Engineering, G2 Integrated Solutions

Mr. Dinklage has nearly 30 years of experience in pipelines and facilities as well as upstream oil and gas operations and downstream lubricant formulation. He has used LiDAR in the design of modifications to compressor stations and gate valve settings to reverse the flow direction on existing gas pipeline systems that had MAOP changes between and within the existing mainlines. He has managed oil and gas production teams and provided formulation, technical support and field troubleshooting on a variety of medium speed diesel and natural gas engines and compressors. He has a BSME and MSME from Iowa State University.