Guided Wave Analysis LLC
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2-Day Course: Ultrasonic Guided Wave Testing of Pipelines

Pipeline is the primary structural component in processing plants such as refineries, petrochemical and chemical plants, and electric power plants. Maintaining the structural integrity of the many miles of piping is an important issue for safe operation of a plant. One of the emerging technology for piping inspection and monitoring is long-range guided-wave technology. This technology is in commercial use and provides new options for assessing pipeline. This technology can be used to inspect and monitor long sections of pipeline and to detect quickly and economically cross-sectional defects when properly applied.

The ultrasonic guided wave travels along the pipe providing 100% coverage of the pipe wall and rapid survey of a long length of pipeline from a single test location. Corrosion wall loss and cracks in aboveground, insulated, and buried pipe can be detected, and the locations and sizes of these defects can be estimated by analyzing the data with user-friendly software. Guided waves are useful for inspecting and monitoring areas that are difficult to access, such as those at high elevations, behind walls, or under insulation, from a remote accessible location. This saves time and money that would otherwise be used for scaffolding, insulation removal, or excavation.

Three guided wave systems for surveying pipeline are currently in commercial use for piping inspection: magnetostrictive sensor (MsS) system, GUL Wavemaker, and Teletest. For generating and receiving guided waves in pipe, MsS system is based on the magnetostrictive sensor (MsS) developed by Southwest Research Institute® (SwRI®) in USA; the other two systems are based on an array of piezoelectrice sensors developed by the Imperial College in United Kingdom. During this training course, the characteristics of these three systems are compared. The operation of the MsS system is explained in detail including generation and detection principles of guided waves. Also, probe fabrication and various applications are discussed.

This two-day course is designed for maintenance management personnel, inspectors, or operators responsible for pipeline integrity in oil or gas companies, refineries, chemical and petrochemical plants, and offshore pipelines Participants will gain an understanding of ultrasonic guided wave technology for inspection and monitoring of pipelines.

The course will provide a discussion on the physical principles of guided waves, commercialized systems for long-range guided-wave inspection and monitoring, probe installation and guided- wave system operation, data acquisition, mistakes of inspectors, data analysis software and making inspection report, examples of field test inspection report, guided wave monitoring, and application examples of guided wave technology. Emphasis will be placed on the application areas and what guided waves can and cannot do.

Where: GWA Training Room (7139 Callaghan Rd, San Antonio, Texas, USA)

Training cost: $1,200.00 per person (minimum 4 people required for course to make)

Instructor: Sang Kim of Guided Wave Analysis LLC. He has been very active in conducting research and development in the guided wave technology for the last 13 years, as well as training inspectors and operators from inspection companies, and consulting with companies using MsS guided wave systems.

Registration: Registration form can be obtained through an email. It should be requested to hk@gwanalysis.com. The registration will be accepted until five business days prior to the training.

Cancellation: Guided Wave Analysis LLC makes the decision to offer each course based on advanced registration. We reserve the right to cancel a course if there is insufficient enrollment.

Refunds: Guided Wave Analysis LLC will refund the course fee for the cancelled course.

Contact Information: If you need any help in attending the course, email Heui Kim at hk@gwanalysis.com or call 210-842-5819.

2-DAY TRAINING COUSE SCHEDULE

COURSE OF DAY1

8:00am	Introductory Remarks and Course
	Handouts -- Presentation materials
	Course overview of guided wave testing
9:00am	Technical Background on GuidedWaves
	Physical background on guided waves
	Direction control of guided wave
	Comparisons of guided wave testing systems
12:00pm	Lunch
1:00 pm	Demonstration of guided wave testing with sample pipe
	Probe installation on pipe
	Data acquisition
2:30pm	Guided-wave data analysis software and reading inspection report
	Frequency analysis of signal
	Calibration of distance
	Amplitude calibration with weld signals
	Threshold level of defect findings
	Reading inspection reports and verifying indications
5:00pm	Adjourn

COURSE OF DAY2

8:00am	Guidedwave fieldtestingatSouthwestResearchInstitute
	Data acquisition of 4.5-inch-OD pipe and defect verification with signals
	Bitumen-coated pipeline inspection
	Testing of pipelines selected by trainees
	Learn about sensitivity and inspection range of guided wave testing
12:00pm	Lunch
1:00pm	Field applications of guided wave testing
	Capability and limitation
	Geometric feature effects
	Effects of Soil, coating, and pipe content
	Inspection range of guided wave testing
	Defect sizes, threshold level, and pipe size
4:00pm	Questions and answers about guided wave testing
5:00pm	Adjourn

Notice: The above agenda may be changed depending on weather conditions or trainee's