Performance Test Protocol for Guided Wave Inspection of Buried Piping  
Rev. 1 (11/6/17)

1 General

The Examinee shall be familiarized with this Protocol before arriving at Westhollow Technology Center.

The test includes system set-up, data collection, data analysis, and reporting. The test will be timed. Maximum of five hours is allowed for the Examinee to finish the test. The Examinee is advised to arrive at 8:00 am to get ready for the test, and the test run from 9:00 am to 12:00 pm, and after lunch, from 1:00 pm to 3:00 pm, unless specific arrangements with the Administrator have been agreed to in advance.

Prior to test, the Examinee shall present certification of training. The certification shall be equivalent to a GW Level-I or higher, provided by the equipment manufacturer, not the NDE service provider. The Examinee shall also present a procedure that is endorsed by the employer. These documents shall be made available to the Administrator one week prior to the test.

Safety: The test loop is located inside a chemical storage yard area. The Shell Administrator will arrange for the work permit to perform the test in the area. The examinees shall complete a JSA (Job Safety Analysis) using their employing company’s format that should be submitted to the Administrator to obtain the work permit. Mandatory PPE required are FRC clothing, safety boots, safety glasses and/or safety goggles. Examinees without the required PPE will not be allowed to take the qualification examination.

No form of data, electronic or otherwise, shall be retained by the Examinee after the test is completed.

2 Test loops

As shown in Figure 1, there are two loops in the test: Loops A and B. The Examinee is expected to inspection the portion of the loops that is buried in dirt, which is contained by a wooden box. The test loops are filled with water. The soil condition could be either web or dry, depending on the weather condition prior to the test.

Pictures of the loops are presented in Figure 2.

- Diameter: 8".
- Length: Loop A is about 72’ 10”; Loop B about 54’ 10”.
- Material: Carbon steel.
- Test loop shape: The test loops are in L shape, with two straight segments connected with a 1.5 D 90° elbow.
- Coating: Loop A: bitumen. Loop B: fusion-bonded epoxy.
All dimensions measured from end of flange to elbow weld. Bends are 1.5 D, 16.3” x 16.3”.
Transducer ring may be mounted at locations marked with □.

Figure 1 Test loops schematic viewed from top

Figure 2 Test loop photographs

3 Data Collection

The transducer ring may be installed on the cleaned areas on the pipe, as marked on Figure 1. Each loop has two locations for data collection. A Westhollow laptop computer shall be used for data collection for maintaining test security. The Examinee shall provide the software to be installed on the Westhollow computer for the duration of the test. All other equipments needed for data collection shall be furnished by the Examinee.

No prove-up inspections shall be allowed.

The Examinee shall follow the submitted procedure using Westhollow’s computer for data collection and analysis.

4 Data Analysis and Reporting

An office will be provided to the Examinee for data analysis and report.

The Examinee shall present a completed field report using the standard format provided by the software used. As a minimum, this report shall consist of a results graph.
(including the pipe diagram showing all discontinuities identified), a discontinuity list including the dead zone, and the test information. It is obvious the location of the transducer ring need to be reported if the location of discontinuities reported with reference to the ring.

The discontinuity list shall contain as a minimum: discontinuity identification number, location, whether the discontinuity contains wall loss, and if it contains wall loss, the width and depth of the wall loss.

As a convention, flaw length is measured along the pipe axis, flaw width the circumferential direction, and flaw depth radial direction.

The report shall also include the following information: Company name, test date, Examinee name, phone number, and E-mail address.

The Examinee shall turn in all field notes to the test Administrator at the end of the exam. The Examinee shall not share their knowledge of the test results in any form with any other individual/party.

5 Grading

The test results will be graded in the following four categories.

1) Probability of detection of wall loss
2) False call rate
3) False classification rate
4) Accuracy of wall loss sizing

A false call is reporting an indication on the pipe where there is no real discontinuity within 6” of the reported indication location. When a corrosion zone is reported, one zone is treated as one call. If the corrosion zone contains a defect-free length of 6” or longer, the call will be counted as a false call.

False classification is reporting wall loss as something other than wall loss, or reporting a discontinuity without wall loss as a wall loss indication.

A successful Examinee must pass Shell’s minimum requirements in all the four categories.

The test result of pass/fail will be reported to the Examinee within four weeks after the test is completed.

6 Re-testing

Any unsuccessful Examinee will be allowed to re-take the test 3 months after the previous test.