National Energy Board

Hearing Order OH-1-2007

Undertaking U-9

Response

to

Undertaking given by Dr. Murray to Mr. King during Engineering Technical Conference, June 18, 2007, Paragraph 1159 with respect to Capability of the BJ Tool Detecting Dents and Gouges.

Undertaking:

Keystone understands the undertaking to be to provide the capabilities of the BJ tool to measure dents, corrosion effects, gouges and cracks in a pipeline.

Response:

The BJ VECTRA MFL tool specification for corrosion and gouging defect measurement is shown in Table 1 below.

Table 1: Defect Measurement

Defect Measurement[2,3]		
General Corrosion (size > 3A x 3A)		
Detection Threshold	0.1t	
Sizing Corrosion Threshold	0.1t	
Corrosion Depth Accuracy	± 0.1t	
Corrosion Sizing Accuracy	± 0.394 in	± 10 mm
Pitting Corrosion (A x A ≤ size ≤ 3A x 3A)		
Detection Threshold	0.1t	
Sizing Threshold	0.15t	
Pit Depth Accuracy	± 0.1t	
Pitting Size Accuracy	± 0.394 in	± 10 mm
Gouging (width > 3A)		
Detection Threshold	0.1t	
Sizing Threshold	0.1t	
Gouge Depth Accuracy	± 0.1t	
Gouge Size Accuracy	± 0.394 in	± 10 mm

External/Internal Discrimination	Yes

Inertial Mapping & Defect Location		
Mapping Survey Accuracy	1:2000	
Feature Orientation Accuracy	± 2 ° arc	
Location Accuracy (x, y, z co-ordinates)[4]	± 3.2 ft	± 1m
Odometer Resolution	0.12 in	3 mm

Product Measurement Accuracy		
Temperature	± 1.8 °F	± 1°C
Pressure	± 1 psi	± 6.9 kPa

The specification for dent sizing with the BJ VECTRA tool is +/- 1%, 99% of the time and +/- 0.5%, 80% of the time.