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07/08/2015

Dear Jane,

Weld Quality Project – Proposal for UKOPA

Introduction

UKOPA intends to carry out a programme of work to inspect and test pipe girth weld samples taken by operators from pipelines constructed in the 1970s and earlier. The pipe pup samples containing a girth weld with a minimum of 300 mm and up to 600mm of material either side of the girth weld will be supplied. The girth weld in each sample is to be inspected to confirm quality against a workmanship quality standard appropriate to the commissioning date and current workmanship standards. Following inspection, destructive testing of samples in accordance with the UKOPA specification PIWG/15/001 is required.

The Pipeline Maintenance Centre (PMC), Ambergate has been requested to provide a proposal to undertake the work programme

Scope of work

The scope of work and relevant references are given in the UKOPA Weld Quality Project – Request for Proposal, which is included in Appendix 1.

In summary the required scope of work is:

1 Receive, log and hold pipe/weld specimens.

2 Inspect girth weld in each sample, to include full radiography, external MPI, internal MPI where possible, ultrasonic inspection as required (to be identified by PMC).

3 Sentence weld quality in accordance with agreed workmanship quality standards.

4 Carry out mechanical tests on weld samples.

5 Retain pipe/weld samples until the results of the destructive testing is complete, maximum 12 months.

6 Project management of the work programme, including 2 meetings with the UKOPA work group.

Cost Estimate

The cost estimate for completion of the scope of work is based on the following assumptions:

- All the samples are to be received on or around the same time so as to allow for samples to be tested together.

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- The samples received will have been previously grit blasted and be clean with clear identification marks.
- The samples relate to 26 girth welds as identified in table 2 of the UKOPA Weld Quality Project – Request for Proposal (see Appendix 1).
- The budget costs are based on undertaking the tests on curved samples. Additional costs will be incurred should the samples need to be straightened.
- The test house is a UKAS Lab, witnessing of the tests at the test house is not required.
- Weld inspections will be assessed in accordance with P2 (1981).

A summary of number of tensile and Charpy tests and the sample locations recommended by PMC to meet UKOPA's requirements is given in Appendix 2.

The cost estimate is £36,000.00 ex-VAT

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Appendix 1

UKOPA Weld Quality Project – Request for Proposal

Introduction

UKOPA intends to carry out a programme of work to inspect and test pipe girth weld samples taken by operators from pipelines constructed in the 1970s and earlier. The pipe pup samples containing a girth weld with a minimum of 300-600mm (to be confirmed) of material either side of the girth weld will be supplied. The girth weld in each sample is to be inspected to confirm quality against a workmanship quality standard appropriate to the commissioning date [1] and current workmanship standards [2, 3]. Following inspection, destructive testing of samples in accordance with the UKOPA specification PIWG/15/001 [4] is required.

The Pipeline Maintenance Centre (PMC), Ambergate, is to provide a proposal to undertake the work programme outlined below.

Scope of work

The pipe samples to be supplied for this work programme are detailed in Tables 1 and 2.

Table 1 Operator Pipe Samples for Weld Quality Project

Operator	Contact	Sample details	Number of Samples
UKD	Dave Perry	1 x 36", 1x10", 1x 12", 3 x 10"	6
SGN	Walter Gaffney	1 x 12" possible 3 samples	4
NGN	Barry Dalus	Inspection and test data for 3 x 12"	
WWU	Grant Rogers	3 x 18", 1 x 18" pipe-bend weld	4
BPA	Richard Price	3 x 10", 3 x 12"	6
SABIC	Graeme Pailor	3 x 8", 3 x 10"	3 min, 6 max
OPA	Stephen Humphrey	3 x 8", possible 6", 10" and 12" samples	3 min

Table 2 Diameter and Number of Samples for Inspection and Testing

Diameter	Number
36"	1
18"	4
12"	8
10"	7
8"	6
Total	**26**

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The samples will be delivered to PMC by the operators cleaned of product and with identification marks. The samples will be obtained during pipeline work carried out during the summer of 2015, allowing the work programme to commence in the autumn.

The scope of work required is summarised as follows:

1 Receive, log and hold pipe/weld specimens.

2 Inspect girth weld in each sample, to include full radiography, external MPI, internal MPI where possible, ultrasonic inspection as required (to be identified by PMC)

3 Sentence weld quality in accordance with agreed workmanship quality standards [1, 2, 3]

4 Carry out mechanical tests on weld samples:

Diameter	Minimum Number		Maximum Number	
	Tensile and Hardness	Charpy	Tensile and Hardness	Charpy
36"	1	3	1	3
18"	1	3	4	12
12"	2	6	8	24
10"	2	6	7	21
8"	1	3	6	18
Total	**7**	**21**	**26**	**78**

Notes: i) Tensile tests to be carried out in accordance with [5] and charpy tests in accordance with [6].

ii) The number of tensile and charpy specimens is to be confirmed following girth weld inspection. Charpy Tests to be conducted at 0°C

5 Retain pipe/weld samples until the results of the destructive testing is complete, maximum 12 months.

6 Project management of the work programme, including 2 meetings with the UKOPA work group.

References

1 P2 Specification for Welding of Land Pipelines and Installations Designed to Operate at Pressures Greater than 7 Bar (Supplementary to BS 4515-1:2004) 1981. (To be supplied).

2 P2 Specification for Welding of Land Pipelines and Installations Designed to Operate at Pressures Greater than 7 Bar (Supplementary to BS 4515-1:2004) Current Edition (To be supplied)

3 P18 Specification for Working on Pipelines Containing Defective Girth Welds or Girth Welds of Unknown Quality. Current Edition. (To be supplied).

4 Recommendations for Destructive Testing of Pipeline Samples to Establish Material and Weld Quality, UKOPA PIWG/15/001 (supplied)

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5 BS EN ISO 6892-1: 2009 Metallic materials – Tensile testing Part 1 : Method of test at ambient temperature, British Standards Institution, London, UK, September 2009.

6 BS EN ISO 148-1 :2010 Metallic materials – Charpy pendulum impact test Part 1 : Test method, British Standards Institution, London, UK, 2010.

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Appendix 2

Recommended Tensile and Charpy Tests for Seamed and Seamless Pipe Specimens

UKOPA PIWG/15/001

United Kingdom Onshore Pipeline Operators' Association

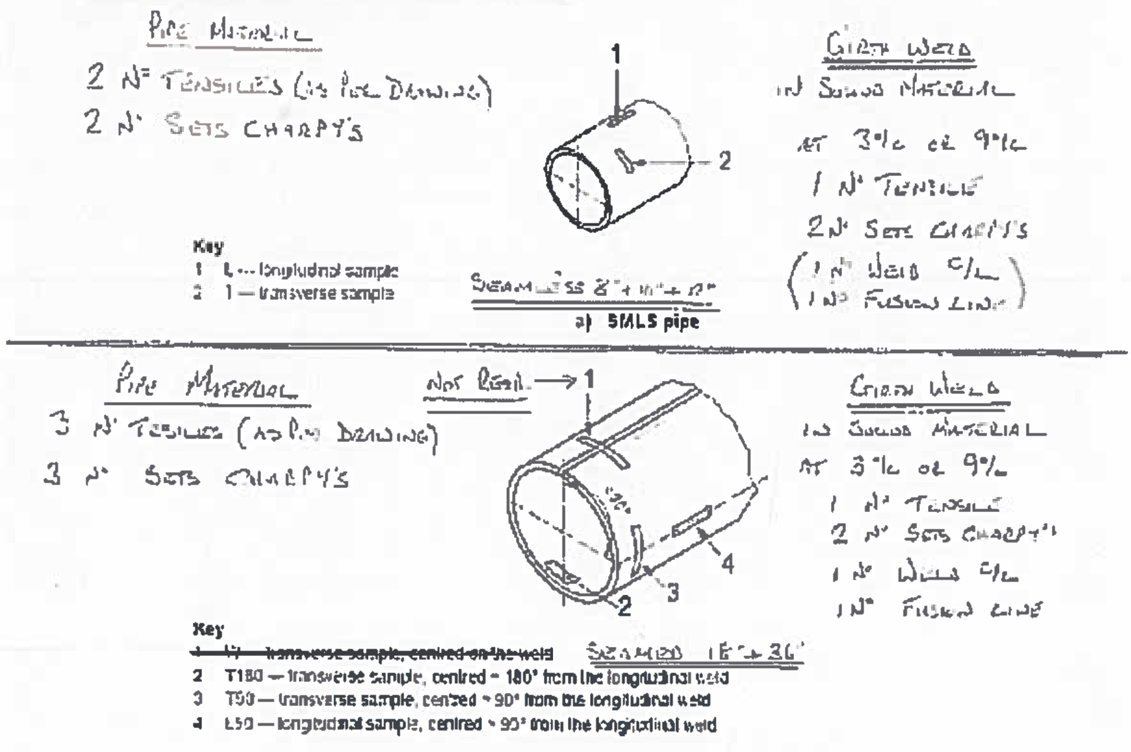

Figure 1 Sample Test Piece Orientations and Locations

Test specimens may be prepared from an oversize flame cut section, machined parallel test section to be a minimum of 15mm from any flame cut edge. The dimensions of the flame cut sample should be no less than 80mm wide x 440mm long. Test specimens should be flattened at ambient temperature. The length of each specimen shall not deviate from flatness by more than 3mm at any point.

Machining dimensions of the test specimen are shown in Figure 2.

	Per Butt		No		
18 + 36	4 Ten 5 Charp	x	5	=	20 T 25 C
8 + 10 + 12	3 Ten 4 Charp	x 21			63 T 84 C

Total 83 Tensile
109 Charpy's Sets

(P3)

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Yours sincerely,

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