

FAQs for Low Strength Pipe
Revision Date: November 24, 2009

1. **Section 1.b** - I understand that the expected "...procedure(s) to review and compare deformation tool results with other pipe joint diameters to ensure an entire pipe joint is not expanded..." will include comparison of any pipe joint that was determined to have a Nominal OD Variation greater than 0.60% to other joints immediately upstream and downstream of that same joint that was identified as having a Nominal OD Variation greater than 0.60%. The number of joints for comparison should be three upstream joints and three downstream joints where feasible. The comparison is based on the deformation tool results. Please confirm that this understanding meets with PHMSA's intention.

Yes. Operator may use three upstream and three downstream joints for comparison. PHMSA has found that internal diameter variation is unlikely to extend this far. Operator should review pipe diagrams of the expanded and comparison pipe joints. The diagrams should include "expansion markers or lines" showing the: pipe nominal internal diameter, API 5L pipe tolerance – nominal diameter plus 0.25-inches or 0.60% of nominal diameter for 42-inch pipe, 1.0% expansion line, and 1.5% expansion line. These expansion markers on the diagram will a good review of pipe expansion.

Original: 10/01/09

2. **Section 2.b** - It is not clear what PHMSA expects if the results of the "properties test" in 2.b.i. are mixed (i.e. some of the results meet special permit requirements and some do not meet the special permit requirements). Please clarify what PHMSA expects the next step to include.

Section 2.b covers additional testing of expanded pipe when initial testing in 2.a does not meet requirements. Mixed results in 2.b for two pipe joints expanded beyond 1% require the fitness for service justification indicated in 2.b.ii or further material testing to establish statistical confidence. PHMSA observations indicate that mixed results for expanded pipe segment tests may reflect testing errors. (Mixed results with minor variances from requirements may indicate the border between pipe meeting requirements and pipe not meeting requirements.) PHMSA recognizes there may be minor differences in properties test results. Should there be properties test result variances (a few properties test results that are slightly below requirements) that do not meet API 5L or alternative MAOP Special Permit standards, these results would need to be handled in accordance with one of these methods: a) reviewed with PHMSA, b) Operator may elect to remediate these pipe joints by removal from the pipeline, or c) PHMSA would let Operator take one additional set of test samples in a similar area of the pipe joint and retest to verify pipe properties. A situation could occur where the Operator finds that the pipe properties test results meet standards, but there is wall thinning over the API 5L and 49 CFR Part 192 requirements due to lower original wall thickness and/or test pressures.

Original: 10/01/09

3. **Other** - If an operator has only one or a small number of joints that have nominal OD variations of 1.5% or greater and elects to simply remove all joints with Nominal OD Variations greater than 1.0%, does this satisfy PHMSA's requirements without the need for all

the additional testing or analysis? If not, what additional testing or analysis would be required (presumably it would be significantly less than what is currently in the interim guidelines)? Finally, if additional analysis and testing is required could it be performed and submitted after authorization to go into service at the .8 design?

Follow 2.a for testing joints above 1.5% and 2.b if tests in 2.a do not meet requirements. If 2.b indicates low property issues, then Operator must address mitigative measures in a fitness for service plan as indicated in 2.b.ii. Operator must also excavate, inspect and remediate for wall thinning as referenced in 2.c of the "Interim Guidelines for Confirming Pipe Strength in Pipe Susceptible to Low Yield Strength" dated September 10, 2009.

Original: 10/01/09

- 4. Section 1.a - Do the multi-finger sensors on the deformation tool have to be directly touching the pipe wall, or can the fingers reside in a urethane cup and have indirect contact with the pipe wall through the urethane of the cup which would allow for wear from the steel pipe wall?**

The design and operation of the deformation tool (including the sensors) must assure that tool performance meets all specifications and achieves an accuracy of +/- 1% or less to identify expanded pipe and dents. PHMSA's understanding of the usage of urethane cups between the sensors and pipe wall is that the accuracy of the tool may be compromised.

Original: 11/24/09

- 5. Section 1.a - If the multi-finger sensors on the deformation tool cannot be within a urethane cup, then does this mean there can be no urethane or other material between the finger sensor and the pipe wall (i.e. would metal-on-metal contact be required)? In order to obtain an accurate measurement, a significant amount of pressure must be applied to the sensor fingers, particularly if metal-on-metal contact is required. Must the operator account for wear and metal loss in the finger sensors? If so, how?**

The design and operation of the deformation tool (including the sensors) must assure that tool performance meets all specifications and achieves an accuracy of +/- 1% or less to identify expanded pipe and dents. Excessive wear in the sensors could adversely affect tool performance to achieve the required accuracy and should be accounted for by the ILI vendor's tool design and/or ILI procedures.

Original: 11/24/09

- 6. Section 1.a - If the deformation tool design requires metal-on-metal contact between the sensor and pipe wall, internal coatings might be damaged (in cases where the pipe is internally coated) potentially leading to internal corrosion? If so, how should this issue be addressed?**

Internal coatings such as flow efficiency coatings should not be damaged by a deformation tool. Where internal coatings are present, deformation tools that will not damage the coating should be used by the operator.

Original: 11/24/09

7. Other - Does the Interim Advisory affect only natural gas pipelines under 49 CFR Part 192, or does it also apply to liquid hazardous pipelines under 49 CFR Part 195?

The interim guidelines and advisory bulletin apply to any pipe susceptible to having an actual yield strength less than the specified minimum yield strength (SMYS) whether in natural gas pipelines under 49 CFR Part 192 or hazardous liquid pipelines under 49 CFR Part 195.

Original: 11/24/09