

# Mitigation & Repair Sections (i) & (j)

PROPOSED RULES ON PIPELINE  
INTEGRITY MANAGEMENT IN  
HIGH CONSEQUENCE AREAS (Gas  
Transmission Pipelines)

## **Section (i) What Actions must be taken to address integrity issues?**

The proposed rule requires that an operator must take prompt action to address all anomalous conditions that the operator discovers through the integrity assessment or information analysis.

The operator must be able to:

- Demonstrate that the remediation of the condition will ensure that the condition is unlikely to pose a threat to the long-term integrity of the pipeline.

## Section (i) What Actions must be taken to address integrity issues?

- If an operator is unable to respond within the time limits for certain conditions, operating pressure of the pipeline must be temporarily reduced.
- Temporary reduction in operating pressure for dents and gouges using section 851.41 of ASME/ANSI B31.8; and for corrosion using ASME/ANSI B31G, RSTRENG or equivalent, or by reducing the operating pressure to level not exceeding 80% of the level at the time the integrity assessment results were received.

## Section (i) What Actions must be taken to address integrity issues – continued...

- ◆ A reduction in operating pressure cannot exceed 365 days without an operator taking further remedial action on anomalies that could reduce a pipeline's integrity.
- ◆ An operator must comply with Section 7 of B31.8S when defining the time frame for making a repair. Section 7 defines conditions for which the required response is as follows:

## Section (i) What Actions must be taken to address integrity issues – continued...

- ◆ Immediate Response – means that upon discovery of the condition the operator will immediately either:
  1. Shut the line down or,
  2. Reduce pressure to 80% of its previous level or less if necessary to achieve a safe condition and maintain that lower pressure until the defect is mitigated.
- ◆ Conditions for which the ratio of the predicted failure pressure to the MAOP is determined to be less than or equal to 1.1, require immediate response.
- ◆ Immediate conditions are defined for threats including corrosion, stress corrosion cracking and third party damage.

## Section (i) What Actions must be taken to address integrity issues – continued...

- ◆ Scheduled Response – means that the indications must be reviewed within six months of the discovery and response plans developed consistent with the severity of the defect.
  - Figure 4 of ASME/ANSI B31.8S presents criteria for remediation time as a function of the stress level of the pipe and the severity of the defect (the ratio of the predicted failure pressure to the MAOP).
- ◆ Monitored Defects – means defects for which the response time for mitigation is greater than the reassessment interval, and, therefore, the indications will be reexamined as part of the reassessment process.

## Section (i) What Actions must be taken to address integrity issues – continued...

- ◆ Discovery of condition – discovery of a condition occurs when an operator has adequate information about the condition to determine that the condition presents a potential threat to the integrity of the pipeline.
  1. An operator must promptly, but no later than 180 days after an integrity assessment, obtain sufficient information about a condition to make a determination.
  2. If the operator cannot make the necessary determination within the 180 day period, the operator must notify RSPA/OPS of the reasons for the delay.

## Section (i) What Actions must be taken to address integrity issues – continued...

### *Special conditions for scheduled remediation*

#### Immediate Repair Conditions:

1. Calculation of the remaining strength of the pipe shows a predicted failure pressure less than 1.1 times the established maximum operating pressure at the location of the anomaly.
2. A dent that has any indication of metal loss, cracking or a stress riser.



## Section (i) What Actions must be taken to address integrity issues – continued...

180 Day Evaluations – Except for conditions listed in “Immediate Repair” an operator must complete evaluation and schedule remediation of the following within 180 days of discovery of the condition:

- Calculation of the remaining strength of the pipe shows a predicted failure pressure between 1.1 times the established maximum operating pressure at the location of the anomaly, and the ratio of the predicted failure pressure to the MAOP shown in Figure 4 of ASME B31.8S to be appropriate for the stress level of the pipe and the reassessment interval.

## Section (i) What Actions must be taken to address integrity issues – continued...

180 Day Remediation – The following conditions must be remediated within 180 days of discovery of the condition:

- A dent with a depth greater than 6% of the pipeline diameter (greater than 0.50 inches in depth for a pipeline diameter less than Nominal Pipe Size [NPS] 12).
- A dent with a depth greater than 2% of the pipeline diameter (0.250 inches in depth for a pipeline diameter less than NPS 12) that affects pipe curvature at a girth weld or a longitudinal seam weld.
- A potential crack indication that when excavated is determined to be a crack.
- Corrosion of or along a longitudinal seam weld.
- A gouge or groove greater than 12.5% of nominal wall.

## **Section (i) What Actions must be taken to address integrity issues – continued...**

Scheduled Remediation – The ASME/ANSI B31.8S Standard includes provisions for scheduled repairs over a period exceeding 180 days.

## **Section (j) What additional Preventive and Mitigative Measures Must an Operator Take to Protect the HCA?**

The Proposed rule includes the following general requirements:

- ◆ An operator must take measures to prevent and mitigate the consequences of a pipeline failure that could affect a high consequence area in accordance with ASME/ANSI B31.8S, Table 4.
- ◆ Operators must conduct risk analysis of their pipeline segments to identify additional actions to enhance public safety. Such actions include but are not limited to
  - Installing Automatic Shut-off valves and Remote Control valves,
  - Computerized monitoring & Leak detection,
  - Extensive inspection and maintenance programs and
  - Heavier wall thickness.

## References & Standards Pertinent to Sections (i) and (j)

- ◆ ASME B31 G – Manual for Determining the Remaining Strength of Corroded Pipelines
- ◆ GRI 00/0193 – Natural Gas Transmission Pipelines: Pipeline Integrity – Detection, Prevention and Repair Practices
- ◆ GRI 01/0085 – Schedule of Responses to Corrosion-Caused Metal Loss Revealed by Integrity-Assessment Results (Bases for B31.8S, Figure 4)
- ◆ Pipeline Research Council International PR-3-805 – A Modified Criterion for Evaluating the Remaining Strength of Corroded Pipe (RSTRENG)