

SUPPLEMENTAL SCC QUESTIONNAIRE
GAS TRANSMISSION OR LIQUID PIPELINE

1. Pipeline Safety Advisory Bulletin - ADB-03-05 - October 8, 2003
 - Review Bulletin with operator, if operator is not familiar with.
 - Reference also Baker Stress Corrosion Cracking Study at:
http://primis.phmsa.dot.gov/iim/pdfs/SCC_Report-Final_Report_with_Database.pdf

Comments:

2. Has the pipeline system ever experienced SCC (in service, out of service, leak, non-leak)?
 - Type of SCC (high pH or low/near neutral pH)?
 - What are the known risk indicators that may have contributed to the SCC?

Comments:

3. Does the operator have a written program in place to evaluate the pipeline system for the presence of SCC? If no, have operator explain. If operator has not considered SCC as a possible safety risk, go to #10.

Comments:

4. Has/does the operator evaluate the pipeline system for the presence of SCC risk indicators?

Comments:

5. Has the operator identified pipeline segments that are susceptible to SCC?

Comments:

6. If conditions for SCC are present, are written inspection, examination and evaluation procedures in place?

Comments:

7. Does the operator have written remediation measures in place for addressing SCC when discovered?

Comments:

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8. What preventive measures has the operator taken to prevent recurrence of SCC?
- Modeling?
 - Crack growth rate?
 - Comparing pipe/environ./cp data vs. established factors?
 - Other?
 - Hydrotest program?
 - Intelligent pigging program?
 - Pipe re-coating?
 - Operational changes?
 - Inspection program?
 - Other?

Comments:

9. Does the operator incorporate the risk assessment of SCC into a comprehensive risk management program?

Comments:

Continue below for those operators who have not considered SCC as a possible safety risk.

10. Does the operator know of pipeline and right of way conditions that would match the risk indicators for either classical or non-classical SCC? See typical risk indicators below.

Comments:

High pH (Classical) SCC Potential Risk Indicators

- Known SCC history (failure, non-failure, in service, and during testing)
- Pipeline and Coating Characteristics
- Steel grades X-52, X-60, X-65, X-70, and possibly X-42
 - Age \geq 10 years
- Operating stress $>$ 60% smys
 - Pipe temperature $>$ 100 deg. F (typically $<$ 20 miles d/s of compression)
 - Damaged pipe coating
- Soil Characteristics
- Soil pH range: 8.5 to 11
- Alkaline carbonate/bicarbonate solution in the soil
 - Elevated soil temperature contributing to elevated pipe temperature
- Polarized cathodic potential range: -600 to -750 mV, Cu/CuSO₄

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Low or Near-Neutral pH (non-Classical) SCC Potential Risk Indicators

- Known SCC history (failure, non-failure, in service, and during testing)
- Pipeline and Coating Characteristics
- Steel grades X-52, X-60, X-65, X-70, and possibly X-42
 - Age \geq 10 years
 - Frequently associated with metallurgical features, such as mechanical damage, longitudinal seams, etc.
 - Protective coatings that may be susceptible to dis-bondment
 - Any coating **other than** correctly applied fusion bonded epoxy, field applied epoxies, or coal tar urethane . . .
 - Coal tar
 - Asphalt enamels
 - Tapes
 - Others
- Soil Characteristics
- Soil pH range: 4 to 8
 - Dissolved CO₂ and carbonate chemicals present in soil
 - Organic decay
 - Soil leaching (in rice fields, for example)
- “Normal” cathodic protection readings (dis-bonded coating shields the pipe from cp current)