

**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/gasimp/docs/SCC\\_Report-Final\\_Report\\_with\\_Database.pdf](http://primis.phmsa.dot.gov/gasimp/docs/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?
    - Classical - high pH
    - Non-classical – low or near neutral pH
  - What are the known risk indicators that may have contributed to the SCC?

Comments: McChord has not found evidence of SCC, they check any time the pipe is exposed

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: Yes, McChord does not consider SCC as a risk. They have found no evidence of SCC and do not meet all the operating conditions which would make them susceptible to SCC

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:

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

Comments:

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: Yes

**High pH 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

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- 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/CuSO<sub>4</sub>

**Low or Near-Neutral pH 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 disbondment
    - 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 CO<sub>2</sub> and carbonate chemicals present in soil
  - Organic decay
  - Soil leaching (in rice fields, for example)
- “Normal” cathodic protection readings (disbonded coating shields the pipe from cp current)