

**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: Both of these documents were considered in the development of the USPL SCC program. The PHMSA document points toward ASME B31.8S for guidance. USPL has considered this document in the development of its SCC program.

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: SCC has never been found on any of the line segments included in this inspection.

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, USPL has a written program in place. This was evaluated during the PHMSA Integrated Inspection conducted at the Warrenville office in 2010.

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

Comments: Each of the pipeline segments have been evaluated using their SCC susceptibility assessment which evaluates risk indicators (Operating stress, coating type, etc.)

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

Comments: All of the segments being inspected have been susceptibility rating of “Low” which is the lowest rating in their system. (Ratings are High-High, High, Medium, and Low.)

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

Comments: These procedures are included in the SCC program document, STP 32-200, and STP 32-199.

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

Comments: It is in OMER 195.422.

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: Since all of the pipeline segments being inspected have a susceptibility rating of “Low”, they are evaluated by “Opportunistic” evaluation. When other inspections are being conducted on these lines, the opportunity is taken to complete a Magnetic Particle Inspection (MPI) to look for the presence of SCC.

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

Comments: Yes, this is part of their overall IMP plan.

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

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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:
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**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
  - 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)

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- “Normal” cathodic protection readings (disbonded coating shields the pipe from cp current)