Jerry Bauman, P. Eng.

- 30+ years experience in corrosion industry covering all disciplines
- 3 years - Corrosion/Materials Engineer/Head of Inspection for Qatar Liquefied Natural Gas Company
- Currently Manager, System Integrity at CIMARRON Engineering Ltd.
- NACE Corrosion Specialist
- NACE Materials Selection Design Specialist

Cathodic Protection

Jerry Bauman, P.Eng.
Manager, Systems Integrity
CIMMARON Engineering Ltd.

CP – Items of Interest

- Address numerous aspects, as they apply to SE Alberta and Alberta as a whole.
- High resistivity soils, significant additions to pipeline systems, MIF connections, protection criteria, types/applications of external coatings, and AIT training – CP companies vs. operators

High Resistivity Soils

- SE Alberta has challenges with high resistivity/dry soil conditions.
- Historical, simplistic approach is to install lots of horizontal anodes c/w irrigation at low current discharge per anode.
- Should have reams of experience with performance of existing systems.
- Alternatives include: higher voltage rectifiers, irrigating at a known frequency, semi-deep vertical beds or deep well beds.

Exponentially Expanding Systems

- Continuing tremendous growth in the pipelines being installed in SE Alberta.
- Continual expansion/additions to existing systems to get them to "reach" to the new extremities.
- Increasing rectifier sizes substantially is not usually detrimental.
- High "On" potentials are meaningless, i.e., seems to be a fear that such potentials are detrimental to coatings, steel, etc.
- Sometimes need to step back and start over with system design.

MIF Connections

- MIF connections causing electrical discontinuity within a given pipeline due to excessive "glue" applied at each joint.
- While possible, not a common issue
- Painful solution is to bond across each affected joint – usually numerous such joints, if any
- Key is to limit amount of glue – more is not better

Protection Criteria for Steel/Cast Iron

- Four basic criteria accepted by RP0169-2002
- -850 millivolts vs. Cu/CuSO4 (IR compensated)
- -100 millivolts polarization shift
- Net current flow to structure
- Inspection verifies that no corrosion is occurring

External Coatings

- Technology has not changed dramatically over past 25 years
- Handling and construction practices have changed dramatically
- Shrink sleeves – the devil's invention?
- Coating repairs – necessary?

Rectifier Electrical Training

- Created as a result of one incident resulting in a fatality
- Five-day course developed by Corrpro with assistance from electrical engineers
- What do Operators need for monthly checks/adjustments?

Summary

- CP may be a more easily understood, straightforward corrosion mitigation technology than others, but that does not mean it is dead easy.
- There are ways to achieve your goals outside of "That's how we've always done it."
- Before accepting that the situation is either dire or perfect in every way – THINK!
- Get justifications for recommendations