

Settlement Tools



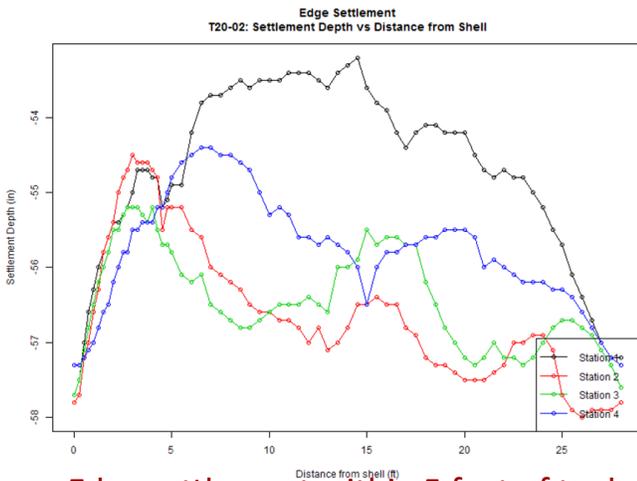
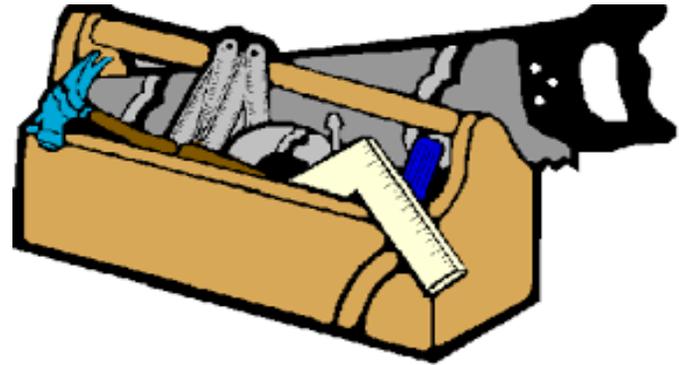
A: This tank is significantly out of compliance with API 653

Many engineers will offer to do an advanced Finite Element Analysis (FEA) using API 579 Fitness For Service criteria. But an FEA cannot tell you about the future of the settlement. It is only a snapshot of the present. It is also time consuming and expensive and it is indeed warranted when circumstances require it. But for this tank, we used a Bayesian Network. This took about ¼ the time, considered future settlement, and took risk into account – something that an FEA does not do.

Here is how we solved the problem...

PEMY utilizes a wide variety of tool so that the most effective and lowest cost solutions are available to you.

- API 653
- API 579 and finite element stress analysis
- Lowess and Multimodal Analysis
- Bayesian Networks

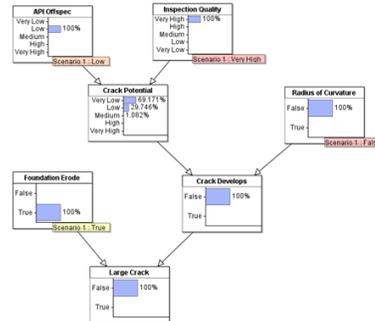
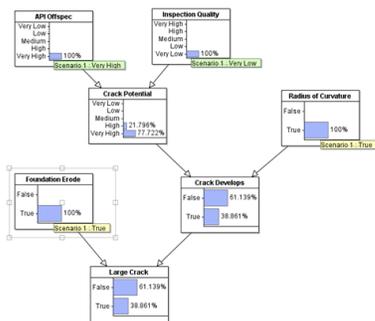


Edge settlement within 5 feet of tank shell

First, we plotted and analyzed the data. We fed the data and other variable information into the model considering :

- How far out of compliance the settlement was
- The inspection quality
- The radii of curvature which influences the tendency for weld cracking
- Future foundation erosion

We looked at the probabilities under the worst conditions and the best conditions. There was a large difference as would be expected.



In the case of this tank, the probability of a large crack developing dropped from about 39% to less than 1%. This was deemed acceptable risk by the tank owner and they put into place controls that would ensure the risk was significantly reduced. The tank operates safely today as expected.