STEM-Corrosion™

2022 November Edition: Newsletter 26

Science and Practicality

Soccer fans around the world will be glued to the TV and be in the stadium cheering for their favorite team in the FIFA world cup (November 20 - December 18, 2022). The unpredictability of who will win makes the game interesting. All teams will have two attributes: skill development before the game and applicability of them during the game.

Similarly localized pitting corrosion models should have two attributes: science and practicality, i.e., adaptability of science based on field operating conditions. Models may be developed based on laboratory tests under controlled conditions to understand science. Practicality of the model depends on how it is sensitive to the changes in the field operating conditions.

Localized pitting corrosion prediction software such as **iFILMS™** uses three factors to adapt science to practical situations:

- Time Factor (TF): How effective the surface layers are in decreasing corrosion
- Time Correction Factor (TCF): How quickly the surface layers can reform when disturbed
- Autocatalytic Factor (ACF): Under what conditions, pits will grow rapidly.

Because of the integration of science and practicality, **iFILMS™** has been successful in predicting internal pitting corrosion mechanisms and rate and is effective both for non-piggable and piggable [correlation of model prediction and inline inspection (ILI) finding] pipelines.

Raising Star of This Newsletter:

Abdullah Hammoud

My Story

I have started my career in corrosion control early 2008 immediately after graduation from college, I worked back then for an evolving company called "**Sogec**" which later became one of the biggest corrosion services providers in the middle east. I learned the corrosion alphabetic at Sogec and enrolled in NACE training program in 2010 when I earned my CP2 certificate, CP3 in 2012, and CP4 in 2014.

In 2013 I moved to Corrpro Companies branch in Saudi Arabia and led the engineering team at Al-Khobar office and served the middle east territory jointly with Dubai office. At Corrpro I have been heavily involved in Corrosion Control of steel reinforced concrete structures and completed more than 10 major projects for premium clients like SABIC, Royal Commission, Abu Dhabi SSC, and Exxon Mobil. In 2019 I led a pilot project to introduce Direct Assessment methodologies to Saudi Aramco, the project included ECDA, SCCDA, & ICDA for six pipeline sections, and establishing direct assessment standards for Saudi Aramco in specific.

In June 2020, I have rejoined Sogec again as an operations manager carrying with me the experience I earned in the previous seven years. At Sogec currently we're working to widen the spectrum of services to include internal corrosion and many other specific services. Recently I have coordinated a training program of **Expedition™** software provided by **CorrMagnet** to Saudi Aramco in Dammam, Saudi Aramco. This software correlates operational and environmental parameters of a pipeline to predict external corrosion and stress corrosion cracking.

My Style

The main objective of our whole business to make assets live longer and reduce maintenance and repair costs, I align my thinking with that. In every project my team and I work on, we keep this objective above every other aspect of the job, even if sometimes it costs more than what is budgeted, we strive to achieve the superordinate goal.

I am relatively considered young in the field, from this point on I exert lot of attention on newcomers to the domain and try to be a good example that encourages them to grow faster.

Things That Excite Me to Continue in the Industry

I came into the industry from an electronic and communication background, in the first year in corrosion domain I felt it’s not something I’ll continue in, until I started getting involved and seeing the depth and science behind it. Corrosion is not a popular topic in our societies, so I enjoyed telling people what we do. So the excitement lies in the fact of corrosion being such a specialized and distinguished business.

Changes I would Like to Make in the Industry

Technology is going faster than any time before, corrosion society should cope- up with the fourth industrial revolution including digitalization, machine learning, artificial intelligence, and robotics. Although there are plenty of perfect applications, I would do all I can to contribute to the merger of corrosion control systems with the aforementioned technologies.

Advice to Attract Youngsters to the Industry

New blood is always needed with new ideas from outside the box. To attract youngsters more focus shall be put in the academic side. Very little education programs are there at the master's level. Graduate students to be involved in workshops, seminars, conferences to get them connected to the corrosion society.