

PIPELINE SAFETY AND INTEGRITY

PROTECTING AND SUSTAINING YOUR VALUABLE ASSETS



Extend the service life of valuable infrastructure assets and reduce the risk of costly and dangerous failures. Battelle is pioneering new materials, technologies and methods to help you assess and improve the integrity of critical pipeline and infrastructure components.

CORROSION TECHNOLOGIES

Don't let corrosion erode your bottom line. Battelle is working to expand the understanding of corrosion processes and develop new technologies and materials that resist degradation in even the harshest environments.

- Biocorrosion
- Aqueous corrosion
- Atmospheric corrosion
- Smart coatings and inhibitors

IN-LINE INSPECTION

Find and mitigate potential problems in your pipeline before a corrosion or fatigue-related failure occurs.

- Winch-pull testing, 2-8 mph speeds and 40,000 lb pull force
- Hydrostatic pressure tests
- Spike pressure tests

STRUCTURAL INTEGRITY TESTING

Understand and predict how your pipeline components will perform in their operating environment. We give you accurate, objective data so you can make confident decisions about infrastructure investments.

- Low- and high-cycle fatigue testing
- Stress Corrosion Cracking (SCC) diagnostics
- Verity® Structural Stress software tools and analysis

MICROBIAL CORROSION ANALYSIS

Carbon steel biocorrosion causes billions of dollars of damage for oil and gas companies each year. Battelle is applying second generation metagenomics analysis to improve the understanding of biocorrosion processes, as well as identifying and validating new techniques for monitoring and mitigation.

Battelle offers expertise in:

- Corrosion Technologies
- In-line Inspection
- Structural Integrity Testing
- Microbial Corrosion Analysis
- Smart Coatings
- Subtropical Marine & Atmospheric Corrosion Studies
- Accelerated Life Testing & Service Life Prediction



SMART COATINGS

Smart coatings for corrosion control not only provide a protective barrier from the environment, but actually prevent, detect and control corrosion. Battelle has developed “self healing” coatings that are able to detect localized corrosion as it starts, and release active materials that stop corrosion processes before they can spread.

SUBTROPICAL MARINE AND ATMOSPHERIC CORROSION STUDIES

Battelle’s Florida Materials Research Facility specializes in the evaluation of materials in a subtropical marine environment, including natural weathering, marine immersion, corrosion and dynamic testing. The oceanfront atmospheric testing facility can accommodate a wide range of samples, including pad-mounted equipment and vehicles. A natural seawater recirculation system feeds three concrete tanks used primarily for corrosion pools and dynamic testing of ship hull coatings and materials.

ACCELERATED LIFE TESTING AND SERVICE LIFE PREDICTION

Battelle provides quantitative measures of component and material performance via full-scale and reduced-scale tests and multi-physics analysis that incorporate the various environmental and mechanical service conditions that occur during the intended life of pipeline infrastructure. We accelerate material degradation and aging using several techniques including increasing the magnitude of the applied stresses and temperature in a controlled manner that allows us to determine the relationship between performance, stress and time to accurately predict life expectancy under a variety of conditions.

Verity® is Battelle’s finite element-based Structural Stress Method for assessing the structural integrity of welded structures. It is mesh size and type insensitive and therefore is more accurate and requires considerably less “engineering judgment” than traditional methods to obtain accurate fatigue life predictions. In addition, it is accepted by ASME, API and BV. For more information, visit www.sdas.battelle.org/verity/.

CUSTOMER TESTIMONIAL: GAS TRANSMISSION SYSTEMS, INC.

“Working with a utility client, our project team was in need of a neutral third-party firm to conduct pull-testing of ILI tools developed as part of an R&D program for traditional and non-traditional ILI tools. We called on Battelle to assist in the testing of ILI tools designed to inspect large diameter gas transmission pipelines for specific manufacturing defects. The pull-rig at Battelle’s West Jefferson location provided the facility we required to test the tools in a controlled environment, prior to deployment in an active pipeline. The project included coordination with a multi-state project team and two international tool vendors, installation of our custom test spools into Battelle’s pull-rig, and the installation of a load cell to acquire additional project data as required by the utility client. In addition, Battelle provided the work space and shop facilities requested by the ILI Vendors to store and maintain their tools during the test period. Planning and execution of the project was conducted aptly, professionally, and safely by the Battelle team. The success of the project and the experience revealed the significant benefit of utilizing the Battelle facility to test newly developed ILI tools in a controlled environment. Battelle is an exceptional organization with which I would not hesitate to engage again on future projects.”

– Rob Liddicoat
Project Manager
www.gtsinc.us

Every day, the people of Battelle apply science and technology to solving what matters most. At major technology centers and national laboratories around the world, Battelle conducts research and development, designs and manufactures products, and delivers critical services for government and commercial customers. Headquartered in Columbus, Ohio since its founding in 1929, Battelle serves the national security, health and life sciences, and energy and environmental industries. For more information, visit www.battelle.org.

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