

Zerust® - Advanced Cathodic Protection

CORROSION MANAGEMENT FOR THE OIL & GAS INDUSTRY

SERVICE OVERVIEW

Northern Technologies International Corporation (NTIC) provides a full range of Cathodic Protection (CP) solutions, combating corrosion problems of metallic structures exposed to bulk electrolytes - in soil, concrete, sea water and other aqueous solutions.

NTIC provides corrosion management solution design and implementation services in over fifty countries around the world. Every project is under the direct supervision of National Association of Corrosion Engineers (NACE) International certified Level 4 Cathodic Protection Specialists. Our team of engineers has hands-on experience in the application of Cathodic Protection solutions for almost every type of structure.

NTIC'S SOLUTIONS

In addition to traditional end-to-end CP solutions, NTIC brings several new and patented CP techniques to the market that combine innovations in the use of proprietary Zerust® inhibitors, engineering design and traditional CP applications to deliver truly unique and "advanced" CP solutions. NTIC's advanced CP solutions include:

- Combination of CP and Zerust® inhibitors to protect AST bottoms from soil side and product side corrosion
- Use of patented systems with sensors in traditional CP implementations allow for continuous or frequent monitoring of the corrosion potentials of the structure being protected, thereby allowing for dynamic adjustment of the protection characteristics.
- Use of electro-osmotic techniques in combination with Zerust® inhibitors and/or CP to protect steel reinforcements in concrete structures
- Use CP in combination with aluminum coating to protect steel reinforcements in concrete, steel structures (bridges, platforms, etc.) under asphalt, coating and concrete, pipelines in soil and water, etc.



THE NTIC ADVANTAGE

NTIC's CP solutions significantly increase the service life of metallic structures while providing the following additional benefits:

- Minimize the requirement for corrosion allowances during design
- Reduce ongoing operational/maintenance costs
- Decrease downtime due to corrosion failures
- Mitigate the environmental impact of leakage due to corrosion and the attendant cleanup costs
- Insure against adverse publicity caused by leaks
- Guard against economic losses due to corrosion failures
- Diminish the risk of explosion or fire resulting from leakage of product



NTIC'S OIL & GAS CLIENTS

Over 17 years of providing various solutions to Oil & Gas clients that include:

- Petrobras, Brazil
- Emirates Petroleum Products Company (EPPCO), UAE
- Conoco-Philips, USA
- Shell, Malaysia
- Shell, Philippines
- Exxon-Mobil, USA
- Baker-Hughes, USA
- Halliburton, USA

CREDENTIALS

- 30+ years of experience in corrosion prevention
- Client support in 50+ countries
- Member of API
- Chair key task group at NACE International



SUITE OF SERVICES

Our range of services is all-encompassing and is delivered by NACE certified professionals experienced at adapting to the sometimes intricate variations encountered in field applications of CP. NTIC provides the following CP services, including:

- Pre-design surveys
- Complete design preparation based on field data gathered in the performance of the pre-design surveys
- Procurement of CP materials tailored to fit the design requirements
- Turnkey installation of the tailored system
- Startup and commissioning of the newly installed system
- Preparation of the formal commissioning report containing data gathered during the performance of the commissioning survey complete with 'as-built' drawings and recommendations for maintenance procedures during the design life of the system
- Operating manuals
- Training of maintenance personnel
- Annual evaluations of existing systems along with troubleshooting, repair and re-commissioning of failed systems
- Direct Current Voltage Gradient (DCVG) and Close Interval Potential (CIP) surveys
- AC Interface surveys
- Interface surveys (including data logging)
- Pipe and cable location services
- Third party inspection services of newly installed systems



MATERIAL AND TEST AND EQUIPMENT SUPPLY

NTIC offers a full spectrum of specialized CP materials and test equipment, which enable us to provide a tailored solution to fulfill any customer's needs:

Materials:

- Transformer Rectifier Power Supplies
- Impressed Current Anodes
- Sacrificial Anodes
- Reference Electrodes
- Zerust® Dynamic System Management Sensors
- Inhibitors
- Junction Boxes
- Terminal Boxes
- Test Stations
- Cable Splicing Solutions
- Thermit Welding Kits

Test Equipment:

- Pipe & Cable Locators
- Holiday Detectors
- Digital Electronic Multi-Meters
- Reference Electrodes (Portable & Permanent)
- Insulating Flange Testers

