



Beyond Pipelines: Direct Assessment for Terminals and Facilities

With ECDA's presence as an accepted methodology for non-piggable pipelines (either liquid or gas), operators are searching for the right approach to properly implement this process where necessary. A solid Integrity Management program is not limited to just pipelines, but also must extend to terminals and other such facilities. The MATCOR Direct Assessment standard is to look at an entire pipeline infrastructure to determine the best course of action.

Performing ECDA in facilities has its own unique challenges. While a range of integrity management methods can be applied, MATCOR engineers use their

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Pioneer Orders 700 Mini-Deep™ Anode Systems For 2006 Installation



Recent Installation of a Mini-Deep™ System in Dallas

Pioneer Natural Resources recently ordered 700 MATCOR Mini-Deep™ Anode systems for their 2006 well casing CP project. Slated for delivery between May and October, the Pioneer order represents the largest single order of the proprietary MATCOR Mini-Deep™ continuous wire anode deep well ground bed system in the MATCOR's history.

Pioneer operates thousands of production wells and has found that cathodic protection systems significantly reduce the threat of well casing failures resulting from corrosion. Their internal studies have validated the cost savings that properly applied cathodic protection systems provide by extending well life and minimizing casing failures. Pioneer has been systematically applying CP on existing wells while requiring CP for all newly drilled wells in fields with a known history of corrosion failures.

Designated one of the most significant developments in cathodic protection during the last 20 years, Mini-Deep™ Anode Systems are available with either mixed metal oxide (MMO) or platinum/niobium active anode elements. MATCOR's Mini-Deep™ Anode Systems offer several key advantages and design enhancements over conventional groundbed anode systems that

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Matcor Heading up Phase 1 Study in Santiago, Chile

In March of 2006, MATCOR visited a major pipeline operator in Santiago, Chile to discuss ECDA services. The day of the visit MATCOR was asked to evaluate some troublesome pitting found on an exposed transmission pipe at a nearby site dig. That same day the ECDA project quickly transformed into a different type of engineering study for MATCOR. The MATCOR engineering team found clear evidence of a dynamic DC Stray Current problem.



Joe Pikas (far right) meets with pipeline operator engineers in Santiago

The pipeline operator is currently one of the largest publicly traded natural gas companies, in terms of customers served, in North and South America. The pipeline under examination near Santiago rings around the city and in many places runs parallel to a busy, nearby metro system. The pipeline was originally installed in 1993 and is constructed of a carbon steel pipe with a factory applied fusion-bonded epoxy (FBE) coating.

During a random dig to replace a test station the DC dynamic stray current problem was detected when engineers from the pipeline operator and MATCOR inspected the pitted piping system. MATCOR's experienced engineers quickly identified the distinctive pitting morphology that is indicative of accelerated pipeline corrosion resulting from DC interference. Confirmatory testing quickly validated this diagnosis. A nearby metro system that runs parallel to the pipeline seemed a logical source.

After discovering that a problem existed, MATCOR recommended a phased approach with a Phase 1 Engineering

Study to determine the full extent and magnitude of the problem to be followed by a Phase II program to mitigate the situation. Phase 1 is currently underway. Along the primary ring of the impacted pipeline at critical points monitoring instruments are being located to record the stray DC current flow. The instruments will monitor these flows allowing MATCOR engineers to assess the pickup and discharge locations and recommend solutions.

MATCOR's local Chilean representatives are managing the day-to-day data collection and working closely with MATCOR to support this project. MATCOR VP Joe Pikas, one of the leads of the Houston-based MATCOR project team, is overseeing the data collection. Pikas has already met with rail authorities who manage the nearby metro system to alert them of the problem. The completion of data collection and its subsequent analysis will allow MATCOR to determine the full extent of the problem and to design appropriate mitigation efforts. ●

Cathodic Protection System Selected by Beachfront Condominium as Long-term Repair Solution

The beachfront Seagull Beach Club located in Cocoa Beach, Florida is a three-story time-share condominium. In 1996, the concrete balconies (located on the north side) and walkways (located on the south side) showed signs of cracking, delamination, and spalling. The reinforcing steel required replacement in part, and in some areas was completely corroded away. Some of the balconies and walkways also had to be resloped to facilitate the drainage of rainwater.

Costly periodic repairs prior to 1997 failed on a consistent basis. Looking to provide a long-term repair solution, MATCOR's impressed current conductive coating system was selected by the Seagull Beach Club after a careful evaluation and review of the available technologies for extending the life of their concrete structures.

Subsequent to the installation and commissioning of the system, annual testing and periodic monitoring from 1997 has revealed no corrosion or concrete deterioration in areas protected by the impressed current cathodic protection (ICCP) system. The stairways, however, which were excluded from the ICCP system, are now showing signs of deterioration.



The addition of MATCOR's conductive coating ICCP system has proved to be a great investment for the owners. Given the age of the building and the design life of the conductive coating ICCP, it is unlikely that any further concrete repairs will ever be needed. This project received the 2005 Merit Award for longevity in the International Concrete Repair Institute (ICRI) awards program.

Pioneer Orders 700 Mini-Deep™ Anode Systems

are commonly used in cathodic protection applications. Typically MATCOR's Mini-Deep™ systems are designed for 30-50 years of continuous operation at maximum rated output with little or no additional cost impact over conventional anode systems rated for 15-20 years design life. The longer design life was significant in Pioneer's decision to specify the Mini-Deep™ Anode System.

Another factor appealing to Pioneer was the multiple feed dual loop design of the system that provides redundancy and improves performance. The use of an internal header cable with connection every ten feet to the anode



The MATCOR Mini-Deep™ Delivery Team.

assembly combined with dual feed from the top and bottom of the continuous anode segment creates multiple system redundancies and greatly reduces IR drop assuring an even discharge of current over the entire length of the continuous anode. This is in stark contrast to individual anode assemblies which have no built in redundancy and are prone to significant variations in current discharge from one anode to the next.

The simple, pre-fabricated design also facilitates installation and reduces risk for Pioneer. The one-step installation is quick while eliminating opportunities for one anode to damage the lead of another already installed anode as it is being lowered down the hole. One of the important factors Pioneer cited during the procurement process was the importance of a no hassle iron clad warranty. MATCOR provided a 5 year no questions asked replacement warranty – an action that is unheard of in the Cathodic Protection industry.

Pioneer's positive experiences in the prior years were also a major factor in specifying



The first 100 get ready to ship.

the Mini-Deep™ Anode system. In 2004, Pioneer placed its first order for 36 MATCOR Mini-Deep™ Anode systems while installing approximately 250 conventional groundbeds. In 2005, Pioneer increased its Mini-Deep™ Anode System order to 85 systems before finally specifying the system for all of its 2006 installations. This success story is not simply the result of having a great product, but reflects the hard work and professionalism that Pioneer has experienced from everyone at MATCOR involved in these projects from the technicians in the field to the shipping department to the production floor. ●

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extensive experience with multiple applications such as oil pipelines, gas pipelines, storage tanks and even water lines to ask key questions early in the process. The approach centers on whether a specific tool or process is applicable to assessing the specific threats of interest.

Pre-assessment is just the first step. Throughout the scope of the assessment, MATCOR has experience with the challenges of working in a facility versus a pipeline application. Issues to examine include operational concerns such as staff and plant schedules, construction aspects, understanding previous instances of leaks, determining the types of materials involved with the infrastructure and evaluating historical records (such as they are) for the facility. MATCOR will look at all of these factors to determine the appropriate tools to assess the system. The goal is to collect accurate information while minimizing the need for tools or methods that might result in a major interruption of service.

With terminal and facility specialization it's often about finding the best fit in terms of schedule and time. Learning about work shifts, system volume, major activity periods as well as discovering local plant engineer knowledge is a key part of selecting the right tool and project approach.

Having clear experience on what works in multiple applications in facilities over time is what enables MATCOR to apply its expertise beyond everyday industry protocols within the field. This is important as all operators find that procedures written for pipelines may not fit for work within a facility. A gas application versus a water application means looking at all of the endpoint issues and factors influencing direction and change in flow rather than just one determinant such as the impacted population or just where a pipe leak will tend to occur.

Each day in the field and in industry network groups, MATCOR continues to work with other major providers to ensure standards continue to evolve. With compliance mandates for industry inspection standards approaching, MATCOR can help companies look beyond pipelines and use its expertise to ensure integrity includes coverage of the entire pipeline infrastructure. This approach is why MATCOR continues to help customers have a comprehensive integrity program.

A PROFILE ON LEADERSHIP

Meet Thomas McCormick



Mr. Thomas McCormick, a current Vice President of MATCOR, Inc. is a member of the Executive Management team. His technical knowledge of cathodic protection products and services are well known throughout the industry. Tom began his sales career at Procter Silex as the National Sales Coordinator. He started at MATCOR in 1978 as the Operations Manager. Mr. McCormick went on to become V.P. of Operations with a wide range of responsibilities including manufacturing operations, product development, vendor relations, sales and customer service. Currently Tom's focus continues to be on discovering and expanding sales opportunities with a focus on developing international markets for MATCOR products and services.

Mr. McCormick has over 28 years of corrosion expertise and experience. Tom has been a key driver of MATCOR's success beginning with its early start and continuing through today. He attended the University of Pennsylvania and also is a veteran of the elite U.S. Army 1st Air Cavalry Division. Mr. McCormick lives in Sellersville, PA with his wife and daughter.

MATCOR CONTINUES TO GROW

MATCOR recently added several new team members to their growing organization.

Several new additions have joined the Doylestown location. **Rich D'Amato** recently joined MATCOR as the Purchasing Manager. A graduate of East Stroudsburg University, Rich is currently pursuing his Masters degree and has a diversified background including experience in purchasing and operations in a small manufacturing environment and a large national service business. **Sally Nixon** also joined MATCOR in late February as a Cost Accountant. Originally from the Midwest, Sally has held several roles at General Electric and the University of Chicago as well as worked for several Doylestown-area establishments while raising her family. She has an Accounting Degree from the University of Georgia. **Jennifer Tiefenthaler** joined MATCOR as the Sales and Marketing Administrator. Jennifer has a BA in English and Communication from Rutgers University and a background that includes communication experience from several financial service and real estate companies.

Lora Nottingham is the newest addition to the MATCOR Houston-Gulf Coast team and joined MATCOR as the Project and Office Administrator. Lora holds an AA in paralegal studies from Owensboro Junior College of Business and an AA in Office Administrative Technology from Ivy Tech State College. She joins MATCOR with legal, real estate, and asset management experience.

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