CORROSION NEWS MATCOR

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More than 600 of MATCOR's disk anodes will protect the intake/outtake structures and the turbine inlet and outlet piping at the Sihwa Lake Turbine Power Plant from corroding.

TIDAL POWER PLANT USES MATCOR DISK ANODES FOR CATHODIC PROTECTION

Energy is the commodity that fuels economic growth and activity – and the need for low cost renewable energy is well recognized by countries around the world. South Korea seeks to harness the power of the ocean to produce electricity, thereby reducing its need to import oil and natural gas. With multiple tidal power plant projects either under construction or planned, South Korea will soon be the world leader in tidal power generation.

The first project to come on line will be the Sihwa Lake Tidal Power Plant. This will be the world's largest tidal power plant with a capacity of 254 megawatts, enough to power nearby Ansan, a city of 500,000. Sihwa Lake is a man-made structure formed in 1994 by building a 12.7 kilometer sea wall as a barrier between a bay and the open sea to create a 56 square kilometer (21 square mile) freshwater reservoir. The reservoir project was far from successful; in fact, the freshwater reservoir quickly became an environmental disaster as wastewater contamination and agricultural runoff drained into the stagnant lake.

But with failure comes opportunity and Korean engineers and scientists studying these problems have found an ingenious solution. By creating a sluice gate opening to the ocean, the tide will rush in twice a day, spinning turbines to create electricity and filling the lake with fresh seawater. Then the seawater can be released from the lake back into the sea through turbines to generate electricity during low tide periods. In addition to generating electricity, recycling stagnant water with fresh seawater will clean out the contaminated lake.

As the seawater rushes into the lake at high tide and is discharged out of the lake during low tides, MATCOR's disk anodes will protect the intake/outtake structures and the turbine inlet and outlet

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SPL™ - LINEAR ANODE PROVES IDEAL FOR RETROFIT PROJECT

Arkema is a world class producer of industrial chemicals, but its King of Prussia, Pennsylvania Research and Development facility looks more like a college campus building than your typical industrial facility. And yet, like any industrial facility, the site has buried utility piping that is subject to external corrosion. When the facility experienced steam piping failures, they called in MATCOR to evaluate their corrosion risk and make suitable recommendations to prevent future leaks.

After a preliminary engineering investigation, MATCOR recommended installing SPL™-FBR linear anode. The linear anode was ideally suited for this application because of limited site accessibility, the presence of nearby grounding, poor piping isolation, the mix of coated piping with bare steam piping, and the need for uniform current distribution along the high temperature bare steam piping. The linear anode was installed in stages as Arkema had to excavate the steam piping in multiple locations for inspection and repairs.

MATCOR's SPL™-Anode is an ideal solution for many plant environment retrofit applications. When placed parallel to plant piping, it can be installed with minimal excavation while assuring even current distribution along the entire piping route. Unlike many point anode ground bed systems, the linear anode operates at relatively low current densities and is placed in close proximity to the piping to be protected. This reduces potential losses to nearby grounding systems and eliminates the need for isolation of plant piping. This makes the linear anode a great solution for many plant piping applications such as compressor stations, power plants, petrochemical facilities, and even campus facilities such as the Arkema's King of Prussia R& D facility.

Excavation of Arkema's utility piping was done in stages to reduce disruption. MATCOR installed SPL™-FBR Linear Anode.

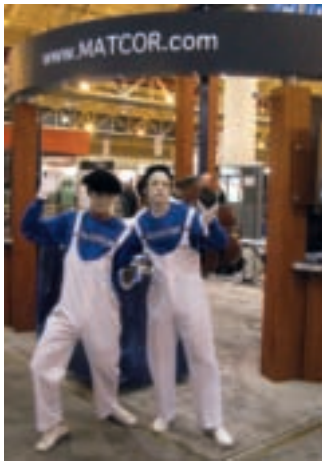
MATCOR SPL™-Anode is placed close to the piping to be protected, and operates at low current levels, reducing potential loss to nearby grounding systems.

1000 DAYS OF SAFETY

MATCOR's Pennsylvania headquarters and manufacturing facility celebrated 1000 days of no lost time accidents in February 2008. The Doylestown staff now proudly wear MATCOR jackets with a "1000 Days of Safety" logo on them. When it comes to safety, the standards cannot be high enough – we demand and our clients will accept nothing less than a perfectly safe work environment.

MATCOR AT CORROSION 2008

MATCOR, one of NACE's platinum members, showed in style at Corrosion 2008 held March 16-19 in New Orleans. Mimes, musicians, and movies all came together at MATCOR's exhibit booth, and MATCOR engineers played a significant role in technical sessions and seminars, helping to lead the organization through education and participation in planning committees.



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piping from corrosion. The disk anodes are engineered to provide in excess of 30 years of operating life. The 640 MATCOR disk anodes utilize titanium disks with mixed metal oxide coating as the active anode element. The disks' output configurations vary depending on their location within the turbines.

"MATCOR is pleased to be part of a project that produces energy without pollution," said Glenn Shreffler, executive vice president of engineering. "In fact, the Tidal Power Plant project is helping to clean up highly polluted Sihwa Lake by circulating 150 million tons of water into and out of the lake daily."

More tidal power plants are planned in Korea and other nations in coming years, taking advantage of a natural, reliable energy source that has no fuel costs and zero carbon emissions.

Corrosion Protection Engineering

Research & Innovation

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