

Q2-2006

IN THIS ISSUE:

- THE BRAZIL PHENOMENON
- SPOTLIGHT ON: LEE DEWING
- THE ITALIAN COMMITMENT
- CSL AIDS IN EARTHQUAKE RELIEF
- GATEWAY TO INDIA
- NEW ADDITIONS AT CSL

The Brazil Phenomenon

In Brazil, the land of the Rio Carnivale, beads and dancing are not just domains of the party-goers. Remarkably, Si-COAT High Voltage Insulator Coating (HVIC) contributes beads and dancing to the Brazilian landscape, too – year round! Specifically, observation and inspection of five year old Si-COAT in the world's largest HVDC substation has revealed beads of water that dance on the coating's surface as if repelled by some magical energy.

Furnas is Brazil's largest electric company and is the main distributor of power from the world's largest power plant, the Itaipu hydroelectric station. Itaipu straddles the majestic Paraná River, which forms part of the border between Brazil and Paraguay. The project was a joint undertaking between the Brazilian and Paraguayan governments and is a heartwarming symbol



of the type of grand achievement that can be realized when international neighbours cooperate. The station's original design was for 12,600 MW and has since been expanded with two new generators for an effective capacity in 2006 of 14,000 MW.

Although the Three Gorges Dam in China is set to have an installed capacity of 18,200 MW, it will not be able to match Itaipu's actual production of energy. Thanks to the geological, hydrological and topographical conditions surrounding Itaipu, it will ultimately produce 100 million MWh. The Yang-Tse River on which the Three Gorges Dam will sit, doesn't offer such satisfactory conditions and Three Gorges will therefore be limited to a maximum output of only 84 million MWh.

Of the total 18 generating units at Itaipu, nine units supply power to Paraguay at 50 Hz (the frequency utilized in that country) while the other nine supply power to Brazil at 60 Hz. Paraguay, a much smaller country than Brazil, cannot utilize all the power it receives from Itaipu and therefore sells a significant portion of its energy receipts to Brazil. Because this power arrives in Brazil at 50 Hz, it requires conversion to 60 Hz through the ± 600 kV DC converter station in which Si-COAT was installed very early in 2001.

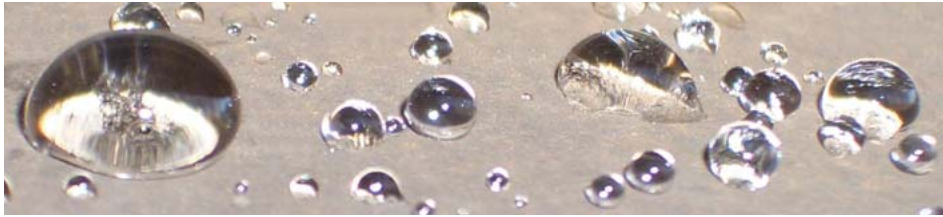
DC power systems are notorious for attracting environmental pollution to the insulators. This attractive force was contaminating the insulators at the Itaipu HVDC station to the point that flashovers and outages were taking place. Si-COAT was introduced and deemed by Furnas the best solution to the issue and a significant improvement over the annual greasing of insulators, which didn't solve the initial problem anyway.

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A ± 600 kV HVDC post insulator at Itaipu, Brazil, heavily contaminated 5 years after Si-COAT application.

The Brazil Phenomenon *(continued)*...



On the advice of CSL, Furnas did nothing to maintain the Si-COAT coating during its more than five years of service.

During the recent inspection in April 2006 with executives and engineers from Furnas and Itaipu, the customer was convinced that the coating should be washed after all these years. However, a few sprinkles of simulated rainfall quickly convinced them to leave Si-COAT untouched; droplets gleamed like crystal beads on the coating's surface.

The inspection in April confirmed what CSL has long theorized: when left undisturbed, and in absence of forces majeures,

Si-COAT's hydrophobic performance *improves over time.*

This is what had happened: since it hadn't been water washed, the coating had become so contaminated that its original colour was now masked under blackish grime. Because of Si-COAT's rich low molecular weight silicone (LMWS) content and surface characteristics specifically engineered into the patented formulation, microscopic peaks formed as contaminants settled, which increased the contact angle of water droplets to greater than 150 degrees. Because of the very high contact angle forced by Si-COAT, the falling droplets literally "danced" off the

surface in tiny beads, leaving the coating essentially dry. Remaining drops clearly showed a rating of hydrophobicity much higher than that of a freshly applied coating.

Having observed this phenomenon, Furnas and Itaipu are now negotiating the use of Si-COAT for much larger projects and are recommending to transmission line companies that CSL be considered the key supplier of insulator coatings in Brazil.

For a technical brief on how water washing is eliminated with Si-COAT HVIC, please contact CSL Silicones Inc.



Spotlight on: Lee Dewing

How does one go from overseeing Quality Assurance to spearheading Business Excellence? By demonstrating operational insight, effectiveness as an agent of change, and strong leadership qualities, Lee DEWING, CSL's Plant Manager, did just that.

Being an agent of change is nothing new for Lee. In 1977, fresh out of the University of Guelph with a degree in Chemistry, she joined the General Foods Company as a Food Technologist. She worked on technology and product improvements that gave her an early taste for continuous improvement.

Three years later Lee moved to Imperial Tobacco, which was later rolled into the folds of the British American Tobacco Group. Initially employed as a Quality

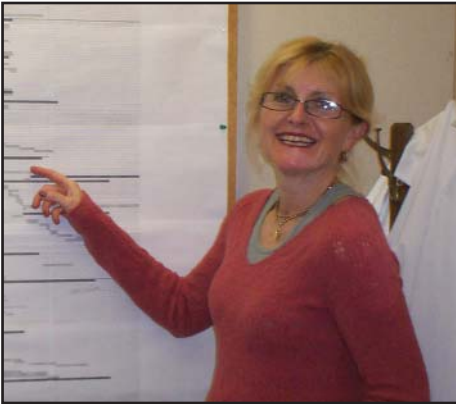
Supervisor, Lee was promoted to Production Manager responsible for 400 employees. In the later years of her 23-year career at Imperial Tobacco, she was the Senior Manager of Strategic Planning.

When CSL came upon Lee with her depth and breadth of experience, it was obvious she had the specific skill set CSL needed to really push forward the Mission the company had set for itself. Lee joined CSL in the initial capacity of Quality Assurance Manager in September 2005. "After I was oriented to the plant, I saw a lot of things that could be improved, and had a lot of ideas, which I openly discussed with Faisal [General Manager]. So then I got involved in the notion of improving the business to the extent of taking the corporate Vision, Mission and Values and turning them into something more tangible."

To allow Lee to act on her effectiveness as a leader of change, she was promoted to the role of Plant Manager in early 2006. The organization is able to look back on the recent few months and the changes already accomplished are both significant and revitalizing.

Lee notes, "In my research, I came across the Conference Board of Canada's own investigation on 'What Makes a Business Excellent'. In that was embedded a discussion on what kind of process should be executed to turn a business into what it really should be. Hence, the adapted process flow that we now call the Achieving Business Excellence process. Faisal understood that the Vision, Mission and Values needed to be further woven into CSL's fabric, and I had been in business so long and had the practical side of knowing how to achieve this."

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Lee DEWING, Plant Manager

Through the process of Achieving Business Excellence, CSL's managers were able to look at its customers and their needs with fresh eyes. What ensued was a list of initiatives and projects spanning across a four foot long Gantt chart, which now forms the dynamic core of CSL's Master Plan.

Being in charge of the plant on a daily basis, as well as creating and maintaining a momentum of organizational change and positive change, can be trying at times. "I have to remind myself I've only been here a few months and there has been rapid change and growth during that time. Ultimately, CSL should be a forum where people learn to grow. Also, if we want to attract the right talent to CSL, we have to first make ourselves attractive to them, in terms of our corporate image. Corporate image is incredibly important."

Besides forging change in CSL's corporate culture, Lee has an additional ongoing challenge. As she puts it, it is "basically making sure the business is fully prepared to handle the implications of the Vision down the line in terms of greatly increased volumes; the systems all need to be in place before that can happen."

In closing, Lee notes, "To be promoted to Plant Manager so soon shows a great deal of faith in me, and a certain amount of risk-taking. But I'm very motivated and want to work hard, and at the end of the day, I want to add value. I'm here for the love of it."

The Italian Commitment

As a culmination of nearly ten years of effort, CSL has secured a three-year commitment to supply Si-COAT HVIC to the Italian glass insulator manufacturer SEVES.

The road to success is rarely a simple, straight path. The Italian utility, Gruppo Enel became interested after hearing of Si-COAT product achievements in North America and the Far East. It started with testing Si-COAT products at CESI, Gruppo Enel's laboratory division. Through repeated and extreme testing, Gruppo Enel found Si-COAT technology to be the best of its kind. Terna, the operating arm of Gruppo Enel, was then given a strong recommendation to use Si-COAT.

In 2001 Terna used Si-COAT on a coastal substation subject to IEC Class III levels of contamination. Through observation and thermal imaging, a tremendous difference in performance was noted between coated and uncoated insulators. The difference was the near-zero evolution of leakage current on the coated insulators, versus roughly 18 mA of leakage current evolution on uncoated insulators. This difference was observed during dawn and twilight hours when condensing fog was heavy. The development was an exciting one for Terna and its senior engineer, Mr. Romeo RENDINA. Shortly thereafter, Terna expanded its use of Si-COAT through an application on a transmission line near Bari, Italy. The project yielded a documented and definite improvement in the operating efficiency of the line, and as a testament to the

success, Mr. RENDINA has kept a few excess coated insulators as *objets d'art* for display in his office.

It was at this point of technological merit that Sediver (now SEVES) also became interested. SEVES, the second largest insulator supplier in the world and the largest in glass insulators, had tested Si-COAT products in the early 90's as well. While the results were flawless and exceeded expectations, SEVES' tests were limited to the laboratory. Along with other cases around the world, Enel's proof of Si-COAT's success in the field was, therefore, a strong contributing factor to SEVES' decision to begin supplying pre-coated insulators; a newer and more improved composite of toughened glass and Si-COAT RTV High Voltage Insulator Coating.

Initial demand for Si-COAT for the pre-coating of insulators by SEVES is 80 metric tons per year over a three year period. This demand is slated for use on nearly 6,000 km of Italian transmission lines. Demand looks set to increase in the future.

Mr. Rene TABOURET, Vice-President of SEVES, has been the prime mover for the concept of pre-coated insulators at his company. The future of this new composite technology looks exceptionally bright. SEVES' introduction of pre-coated product at the IEEE Transmission & Distribution Conference and Exposition from 21- to 26-May-06 in Dallas, Texas, USA was met with significant interest.



CSL Aids in Earthquake Relief

On May 27 of this year, an earthquake hit Indonesia with a magnitude of 6.3. As the death toll reached approximately 5,000 people, CSL quickly recognized the strong financial need felt by this heavily devastated area.

At CSL, we feel we have a commitment to help the global community in which we live and work. In concert with this commitment, CSL has donated \$500 to both WorldVision and Unicef to aid these organizations in their relief efforts.

Gateway to India

Sometimes it's just a matter of being in the right place at the right time! That was definitely the case when CSL got the go-ahead on a project with TATA Power, India's largest private sector power utility.

CSL had been working on securing TATA as a customer back in 1990, but TATA was then more conservative in their approach when dealing with potential suppliers to their company. As Seraj HUDA noted, "Unless somebody else used the product first, they weren't going to move."

It so happened that TATA Power's General Manager, Mr. Umesh BAPAT, was in attendance at the 2005 INMR World Congress in Hong Kong, where CSL sponsored the one-day session on coating technology. He had listened to the presentations by the CSL delegation and others in support of Si-COAT, and was impressed with what the Si-COAT technology could offer.

TATA invited CSL to visit their offices in Mumbai, India after the conference and during a time when TATA needed a solution to insulator contamination issues at one of its major switchyards. During

the visit, TATA was shown CSL's Si-COAT installation at the Sabarmati power plant in Ahmedabad. This installation is CSL's oldest and most successful project in India so far. The Sabarmati plant had only rave reviews for Si-COAT and, in fact, bluntly told TATA that among other competitive products they've used, Si-COAT was the only product that stood the test of time, six years after the initial application.

It appears this initial project with TATA is only the gateway to even more substantial collaborations with the South Asian power giant.

New Additions at CSL

On April 3, 2006, CSL welcomed three new individuals to its team of professionals. Each of these individuals is bringing a set of skills and knowledge that will assist CSL in reaching its Vision through its Mission and Core Values. Alan KLUSACEK is an experienced electrician who, in his short time at CSL, has helped tremendously in the maintenance department and in setting up the IT and security systems. As the Junior Accounting Clerk/Receptionist, Bonnie CUMMINGS is a very capable customer service professional and has a strong background in accounts payable and receivable. Lindsay SPROULE, as the Human Resources Manager, dove head first into her role, and is in the process of formalizing company policies and guidelines. Each of these new employees has entered challenging positions and CSL is pleased to see that they are already making significant contributions.



From left to right: Bonnie CUMMINGS, Alan KLUSACEK and Lindsay SPROULE



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SUGGESTIONS:

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