REDACTOR Q4 2007

WELCOME to Q4 2007

There have been a few exciting additions to the PARASYN team over the last couple of months. *Robert* joins our Melbourne team as a Project Manager bringing his vast experience to the company. *Jeff* joins our Brisbane team as a software developer and finally *Daniel* joins our team in sales and marketing.

Contents:

Protecting the Environment in Gippsland.

Updates to environmental monitoring system for Loy Yang Power.

In early July we successfully completed a four month SCADA conversion and system rationalisation project with Loy Yang Power, one of Victoria's largest power generators. This challenging project centred around the replacement of an obsolete Actel SCADA system with a new streamlined solution built around Citect software with specially developed PARASYN enhancements.

Built in 1984 just south of Traralgon in Gippland's resource rich Latrobe Valley, Loy Yang power station and the adjacent open cut brown coal mine that feeds it with a massive 32 million tonnes of coal every year, are some of the largest of their type in Australia. The power station contributes over 2200 megawatts to the National Electricity Grid, which equates to over a third of Victoria's total electricity consumption.

Loy Yang became front page news in early September 2007 when during the Sydney APEC summit activists targeted the power plant as a means to highlight the effect of emissions on climate change, with protesters invading the site and temporarily restricting electricity generation. However contrary to the negative impression this portrayed, Loy Yang Power takes an environmentally responsible approach to all its operations, and the SCADA conversion project is a very good example of this.

Electricity generation necessarily uses large amounts of water, with Loy Yang swallowing over 2 million liters per gigawatt hour of power it generates. Consequently the power station is located on a major tributary of the Latrobe River. The SCADA system was designed specifically to help protect the fragile ecosystem of the Latrobe Valley by closely monitoring water quality and temperature in the catchment immediately surrounding the plant, as well as flow rates and water levels of the creeks that feed into the Latrobe River. Remote Terminal Units (RTUs) capture information from sensors and pass this to a central SCADA monitoring system within the plant's control centre.

The task was to seamlessly replace the aging Actel system with a new streamlined Citect based solution. To achieve this the PARASYN developed Kingfisher RTU extensions were deployed to improve the capture of data from remote monitoring sites, while special structures were written to store and collate information for inclusion in a monthly report sent directly to the Victorian EPA (Environmental Protection Agency).

While converting the system PARASYN took the opportunity to both rationalise the existing SCADA structure and improve its efficiency. This included removing old unused system 'tags' and updating screen designs to improve usability. In addition the system was modified to enable remote management.

The new system is expected to support the Loy Yang Power station for the remainder of its projected working life.

From Little Things Big Things Grow

PARASYN Develops SCADA System into MES Solution for Australian Pipeline Trust (APT).

PARASYN has successfully partnered with Australian Pipeline Trust Australian Pipeline Trust Asset Management Holdings (APT AM Holdings) to develop a Manufacturing Execution System (MES) to manage their extensive gas transmission and delivery network.

APT acquired Origin Energy's gas infrastructure assets in April 2007, forming a new administrative operation APT AM (Asset Management) Holdings. In Queensland its massive network stretches from Roma in the west across to Ipswich and Brisbane, and up the coast through Hervey Bay, Bundaberg and Gladstone all the way to Rockhampton, linking to various energy providers throughout its length.

APT AM Holdings explored ways of improving management of their combined assets by expanding existing SCADA monitoring and control systems to form a more comprehensive integrated MES system capable of managing the whole gas transmission and delivery network across Queensland. PARASYN, who had previously worked with Origin Energy (on production-well telemetry for the Spring Gully Coal Seam Gas field) assisted with system analysis for the expansion project and subsequently won the contract to develop the existing system into a full MES solution.

The main focus of the project was to capture customer consumption

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data for billing and management analysis. This required extensive extraction, processing and storage of the necessary data from flow meters distributed throughout the pipeline network. Our team specially developed a driver to interface with the Aegis 'Monita' remote asset monitoring unit. This was combined with another PARASYN developed product ActiveX Operator Log and Alarms (AXOLA), a versatile add-on to a standard Human Machine Interface (HMI) such as Citect SCADA. AXOLA can log a diverse range of valuable information including logging alarm and event information. Within the APT AM Holdings' MES solution AXOLA is used to flag missing or abnormal meter readings in which case the system automatically produces an estimated bill and requests the user to submit a manual reading.
The MES system uses an InSQL data historian for storage while the Application Engine required to provide the data mining, validation and report preparation was specifically developed by our engineers using the Wonderware Archestra architecture. In addition many of what have become our standard solution features were applied to the system to ensure ease of operability. These include split-screen design, easy to use graphical navigation, the ability to drill down to specific operational information and clear screen based alarms linked to SCADAlarm for enunciated warnings and 24 hour monitoring. Operators are able to interface with the MES system using a flexible web based interface and this can be used to generate standard and ad-hoc management reports for APT AM Holdings and its clients.

APT AM Holdings' MES system was developed in close collaboration with the customer and as a direct result the solution is both tailored to meet specific operational requirements and to accommodate long-term development plans. For example, the billing system has been designed to interface with The Victorian Energy Network Corporation's (Vencorp) billing system, while the overall MES solution has been designed with spare capacity to allow for future growth, with easy deployment to additional sites using the base type concept.
Speaking in early September Tony Poole, PARASYN's Managing Director, was delighted with the successful outcomes from the APT AM Holdings project. Underlining its significance he said, 'We are seeing a growing number of our SCADA solution customers wanting more from their systems, and increasingly we're being asked to develop solutions that extract management and planning information rather than purely operational data. The MES solution we've developed with APT AM Holdings is a perfect example of this, and provides a development and delivery model we can apply with other key partners.

Protecting Infrastructure Investment in New South Wales

Streamlining New South Wales Gas Pipeline SCADA System

In late July PARASYN completed an overhaul of the SCADA system used to monitor the Cathodic Protection of the 1200km long Moomba to Wilton Gas Transmission Pipeline. The pipeline, maintained and operated by Agility Management Pty Ltd a subsidiary of the Australian Gas Light Company, carries natural gas from Moomba in the resource rich Cooper Basin of central Australia all the way to Wilton just south of Sydney where it is distributed to gas customers throughout New South Wales.
The pipeline was built in 1976 to carry natural gas in its liquid form and for much of its length the pipe remains buried. To maintain the integrity of its metallic structure it is protected by a 'Cathodic' anti-corrosion system. This is a common method of prolonging the life of pipeline infrastructure by connecting anodes made of expendable metal to the fabric of the pipeline. A small electrical current is then passed between the pipeline and the anode, effectively making the pipeline the cathode in an electric cell. As a result the metallic elements of the pipeline are kept free from corrosion at the expense of the metal anode which deteriorates over time, but which can be easily replaced at relatively little cost.
Cathodic Protection needs careful monitoring and Agility employ a SCADA system along the length of the Moomba to Wilton pipeline, capturing vital information about current, voltage and pipe temperature. Establishing the SCADA system required a major investment unfortunately the finished system proved unwieldy to operate and failed to provide all the information needed to effectively manage the pipelines Cathodic Protection.

PARASYN had worked on other major projects with Agility including the SCADA System used to monitor production from the Camden Coal Seam Gas (CSG) field in New South Wales and were called in to conduct an audit of the Moomba to Wilton pipeline's SCADA system prior to the implementation of a new control centre being established in Young. The audit identified a number of improvements that could be made to streamline the system and release its full potential while preserving the existing investment in hardware, communications equipment and IT infrastructure. PARASYN were retained to undertake the necessary remedial work.
Firstly improvements were made to the existing process data to allow for time stamped data logging while the PARASYN developed Kingfisher Remote Terminal Unit (RTU) driver extension for Citect SCADA was deployed to recover this data from the RTU network. These modifications facilitate backfilling of vital information that under the old system would have been lost and provides Agility with previously unavailable operational trend analysis. To enable more efficient

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communication between the existing Leeds and Northrupp 2026 SCADA host and the field systems, it was necessary to implement a DNP3 gateway, something that had not been achieved before with that particular host. In Addition to improve useability the operator interface of the Citect SCADA system was re-engineered to provide a 'process focus' to the screen navigation, making it easier to move around the system and view, investigate and rectify alarm situations.
The system upgrades provided by PARASYN are now being fully deployed at existing sites along the length of the Moomba to Wilton pipeline and along its subsidiary gas distribution pipe network. They offer a marked improvement in the capabilities of the operations existing SCADA system, while maintaining its core functionality and preserving Agility's capital investment. Most importantly, Agility is now able to extract maximum value from their assets and prolong the life of the costly pipeline infrastructure.

PARASYN helps rural New South Wales Beat the Big Dry

Major System Overhaul and Expansion Completed for Murrumbidgee Irrigation

PARASYN recently completed the major update and expansion of the Master RTU and Citect interface used by Murrumbidgee Irrigation (MI), one of Australia's largest private irrigation service companies located in south-western NSW. The Murrumbidgee River is a major tributary of the Murray-Darling River system and one of NSW's longest rivers, flowing some 900 kilometres westward from the edge of the Great Dividing Range in the Kosciusko National Park to its junction with the Murray and Lachlan Rivers. Its water originates from Blowering and Burrinjuck Dams located in the Snowy Mountains.

Picture courtesy of New South Wales ' Department of Primary Industries

Throughout its length the river's precious water acts as the lifeblood of the communities it meanders through. River water is widely used for town water supplies, industry and irrigation, all vital to the rural economy.

Murrumbidgee Irrigation (MI) is one of the rivers major users, managing the distribution of the river's flow-allocated supply to users who irrigate approximately 3,600 square kilometres of NSW within the highly fertile plains of the Riverina region. To monitor and control the flow of water through the extensive irrigation channel and pipeline network it manages, Murrumbidgee Irrigation has for a number of years employed a SCADA system to assist its operations. Our team had previously supplied MI with Remote Terminal Units (RTUs) for its growing SCADA operation and more recently conducted a comprehensive audit of the Company's system in preparation for a planned expansion.
The audit highlighted a number of areas which required attention to accommodate the expansion and our team was subsequently engaged to undertake the redevelopment of the Master RTU and Citect interface. This included rewriting the Master RTU program to enable more efficient sequential polling from two master RTUs. In addition PARASYN improved the Human Machine Interface (HMI) to make it easier to manage the process and the infrastructure.

These modifications allowed MI to implement a major expansion of the system with the addition of over 100 remote control and monitoring sites, more than three times as many as had previously been employed across the operation. The modified system has also been designed with significant head-room to accommodate future expansion. Significantly it will allow MI to monitor the site communication statistics over time, crucial to the efficient management of the SCADA system.

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