

# PBA NEWS

PBA News Issue 10 July 2015

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## PBA's Dedicated Transformer Workshop

In January 2015 PBA opened its sixth base of operation - a dedicated transformer workshop in Te Aroha at the base of the Kaimai Ranges in the Waikato Region.

The building was purpose-built for the old Thames Valley Power Board for the refurbishment of transformers and to double as an electrical workshop. Backed by our expertise in the installation, testing, commissioning and fault finding of transformers, Powerco invited PBA to take the lease of the facility as their incumbent maintenance contractors decided that this type of work was no longer part of its core business. This was an excellent opportunity to expand the business in this field and gives PBA a base of operation in the Central North Island.

The workshop has a 40 tonne main overhead gantry crane and has a roof height of over three stories providing plenty of room to

move equipment around. To enable invasive transformer works, the workshop has a purpose-built oil storage system capable of handling up to 25,000 litres of oil and with a streamliner on-site it enables oil to be stored and treated in a controlled environment. The facility is equipped with 2 large ovens capable of temperatures up to 80°C allowing efficient and effective winding dry outs. For testing purposes, an 11kV test bay and load bank is available to test transformers pre and post refurbishment to ensure quality results.

The Te Aroha transformer workshop is fully kitted out and geared towards the repair and refurbishment of small - medium transformers.



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# Helping in the Orion network

**PBA were recently engaged by one of Orion's HV Electrical Contractors to provide technical support at Larcomb and Weedons substations near Rolleston which form part of the Orion network. The work involved pre-commissioning and commissioning of transformer, line, bus zone and feeder protection systems using GE Multilin relays for 11kV and 66kV equipment.**

The GE Multilin relays make use of the IEC61850 protocol which replaces traditional copper wiring with a fibre optic connection from the relay to the equipment. This also results in a simpler installation by reducing the need for traditional long cable runs as the same current, voltage, output and indication signals can be used in multiple protection relays.

PBA's Hayden Burrows was tasked with becoming familiar with the relays and standards, a challenge he revelled in. These protection relays are relatively new in NZ and incorporate complex relay logic, requiring detailed test plans to ensure tripping of in-service equipment does not occur. A major advantage of IEC61850 based relays is that the entire protection system could be tested in a controlled environment prior to installation on-site. Hayden worked alongside our client's techs with relay acceptance testing including investigation and correction of software issues, reducing the time spent on-site.

Due to the required completion date looming up faster than expected, PBA's Josh Wade was called upon to provide additional electrical fitter support to ensure the commissioning deadlines would not be compromised. With the additional PBA staff member, the testing schedule was completed successfully in a compressed time frame which allowed commissioning dates to be met.

Our client's Project Manager, Soo Jern Lim, passed on a note of thanks "I have really appreciated PBA's help, Hayden and Josh have done really well".



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## Haywards C9/T9 & C10/T10 Upgrade Project

In September 2014 PBA Technical Specialists began work on the upgrade of Synchronous Condensers 9 and 10 and their associated Transformers at Haywards substation. The project was completed with the commissioning of SC10 eight months later in April 2015.

The project involved several contractors per condenser. Northpower were the electrical installation contractor for the project. This included installing CT's, VT's, 11kV cables, protection panels, junction boxes and a whole lot of control cables. PBA were subcontracted by Northpower for testing, commissioning and technical services. This included testing and commissioning new CT's, VT's, 11kV cables, SCADA signals and 4 new protection panels. PBA were tasked with correcting design and installation anomalies. PBA also assisted ABB with power factor testing for both SC9 and 10 using a Doble M3100 and resonator.

As there were 36 ring CT's to test, PBA sourced an Omicron CT analyser which made short work of the acceptance testing. The project also required a total of 10 relays to be tested. This included several relays normally found in generation systems which proved interesting to test.

PBA also worked closely with Transpower, ABB and Siemens during condenser pre-commissioning tests and final commissioning. Overall both condensers were commissioned ahead of time and synchronised to the grid first time without any issues – a major achievement.

# Safety Summit 2015



The 17th of April saw the fourth annual PBA Safety Summit which was held at the Copthorne Commodore Hotel in Christchurch which was attended by all but 4 PBA staff. Due to the importance of the Safety Summit, 4 of PBA's directors attended the gathering. Presentations were made by a variety of staff on topics related to health and safety issues which arose during the previous year; there were also 2 presentations on PBA's systems and processes. The Summit presents an additional method for all staff to raise and

discuss health and safety issues with management and to ask any questions they might have. Congratulations to Jacob Lyons who won a gift voucher in the draw from last year's submitted hazard observations. The Summit concluded with the presentation of the PBA Darwin Awards made by the 6 Business Unit Managers to staff who have made an exemplary difference to each specialist area.

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## The PBA Quality, Safety and Environmental Management System

PBA's renowned service and delivery is backed by a stringent Quality, Safety and Environmental Management System. The QSEM is continuously evolving to ensure not only compliance with regulatory and client specifications, but provision of a superior product.

Telarc SAI have been formally assessing our systems since 2009 to confirm we are meeting ISO and ASNZS standards, in particular ISO 9001, 14001 and ASNZS 4801. PBA underwent another reassessment in April and passed with no non-conformances and only a handful of opportunities for improvement. Below is a direct excerpt from the reports we have received:

*"Past Performance (including a review of the results of previous Telarc Assessments). The company originally achieved its registration to 9001 in June 2009. Over the years, the company has added registrations to 14001 and 4801 in 2010 and 2011 respectively. A review of eleven OI's raised for quality issues since 2012, shows no ongoing areas for strengthening. Indeed, the company has maintained, and continues to maintain, a very rigorous approach to developing, and strengthening its systems, and that process hinges on the direct participation of the General Manager and the energy of staff."*

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## PBA's Cable Jointers in the Hawkes Bay

Leading up to the end of the financial year, PBA's Cable Jointers were engaged by Unison Contracting Services to assist with achieving their project goals prior to financial year end. Over a 2 month period PBA worked on a plethora of underground jobs throughout the Hawkes Bay.

A stand out project was Unison's 33kV City feeder cable upgrade where PBA undertook termination aspects at the Windsor substation end of the project. At Windsor, PBA's multi skilled jointing/fitting team decommissioned the old 33kV 3 phase pitch filled pot heads and structure, terminated a new 800mm<sup>2</sup> circuit from Hastings substation and jointed onto the existing 33kV 3 core

paper lead feeder cable from Whakatu GXP with new 500mm<sup>2</sup> XLPE cable. PBA and UCSL worked together to overcome some structural issues and build a new outdoor 33kV structure and bus system to achieve the desired outcome within the limited space available and all in time to meet commissioning deadlines.

The 30°C Hawkes Bay sun was out in force as usual for the majority of February and March and with PBA now moving into its fourth year of an ongoing relationship with UCSL and UNL, the staff are well acclimatised to this by now.

# PBA Staff Celebrate 5 years

2015 sees PBA enter its 7th year of operation and with it, our numbers continue to grow. During the 2015 Safety Summit, the following staff were awarded with chalices by the Board of Directors, represented by Robyn Armstrong to formally acknowledge 5 years with PBA.



Chris Bessant



Ken Broom



Michael Mackenzie



Suzanne Murphy



Tom Wech

PBA wish to thank not only those mentioned above, but also their families for their ongoing commitment and support.

## PBA Welcomes Graham Ward

With the opening of the Te Aroha transformer workshop, PBA's geographical expansion continues.

Graham Ward joined the PBA team in January 2015 and was immediately into the swing of things at the Te Aroha workshop, starting with our first distribution transformer through the doors for Powerco.

Graham, an electrical fitter by trade has several years' experience building substations, installing switchgear, cable jointing, fault work and transformer refurbishment. His background with transformer refurbishment is extensive and has completed full strip downs, re-gasketing, rebuilding tap changers (including Ferranti, ATL Fuller; brush and ABB), tightening the core and installing



single point earthing as well as testing of the completed work. Naturally, Graham was a sound choice for the Te Aroha workshop.

PBA are proud to welcome Graham to the team and are excited by the opportunities his knowledge and abilities in the Waikato region represents to the business.

## PBA's Biggest Loser Competition

After the last round of PBA's annual health surveys at the end of 2014, a group of PBA's finest decided to take their health into their own hands with the aim to shed a few kilos. It was decided to add a bit of competition into the mix to fuel the weight loss, so the PBA Biggest Loser was born. To make it fairer to compare weight loss, it was decided to use % loss rather than total kg lost. Over 13 weeks a noticeable change in diet and eating habits at

the smoko tables was clear to see, no longer were pastry crumbs strewn across tables.

Ken took out the overall title, managing to lose a total of 9.65% and combined, the participants lost a total of 45.5kgs throughout the 13 weeks.

## Scan this QR code to check out the latest PBA video

Our Transformer installation video was a real hit with our clients, so we've decided to make some more! For the latest video, scan this QR code...

