HV ELECTRICAL CONTRACTORS

NEWS

PBA News Issue 2 July 2010

CONTENTS

Page 1
PBA's First Trainee

Page 1
PBA a member of ESITO

Page 2
Bells Pond Substation

Page 2
SFRA Testing

Page 4
MAV Consultant

Page 4
Environmental Certification

Page 4
So what can we do for you?

Wellington Office
53A Kenepuru Drive
Porirua, Wellington
PO Box 54191
Mana, Wellington 5247
Phone: 04 237 7297
Fax: 04 237 7163

Christchurch Office
Unit C, 33 Foremans Road
Hornby, Christchurch
Phone: 03 344 2972
Fax: 03 344 2973

PBA's First Trainee

With a fresh start to the 2010 year, PBA have implemented one of its founding policies to "Train and Retain in New Zealand".

Although PBA as a company has only been trading for 12 months, it was felt that the ground work had been laid to bring on the first of the trainee's for the year. Thomas has worked as an assistant specialist for the last 4 months with PBA and proved that the high voltage industry was his vocation and future. As a company, PBA wants to ensure that the high voltage industry has many quality specialists, to combat the high attrition rate in the industry. Thomas will be provided with all the basic skills while working within the PBA environment that has some of the industry's best specialists to learn from. Working with PBA's skilled and experienced staff will ensure Thomas will become another specialist who is competent, compliant and has sound understanding of industry.

PBA Operations Manager Vern Beleski (right) congratulates Thomas on being PBA's first Electrical Apprentice Trainee.

PBA a member of ESITO

PBA has become a member of ESITO, the Electricity Supply Industry Training Organisation.

The ESITO sets national standards and qualifications for the industry, and develops learning resources. In participation with the industry, the ESITO has developed a comprehensive range of qualifications to cover the skills required to work within the electricity supply industry. Joining ESITO is part of PBA's mission to bring new trainees into the High Voltage Electrical industry.

Learning POWER
ESITO

PROUDLY 100% KIWI OWNED

Bells Pond Substation

PBA have been involved in the installation and pre-commissioning for Alpine Energy's newest substation located at Bells Pond in the Waitaki Valley. This substation was required for the increased load due to dairy growth in the area. PBA's work involved the installation of the 110kV switchgear as well as pre-commissioning tests of the 11kV CT's and VT's. Pre-commissioning tests were also carried out on the various models of SEL protection installed and the LTAC automated changeover and DC systems were also commissioned by PBA.

Bells Pond has a single 20 MVA transformer and a number of 11kV feeders from it. There is provision for 33kV supplies in the future.

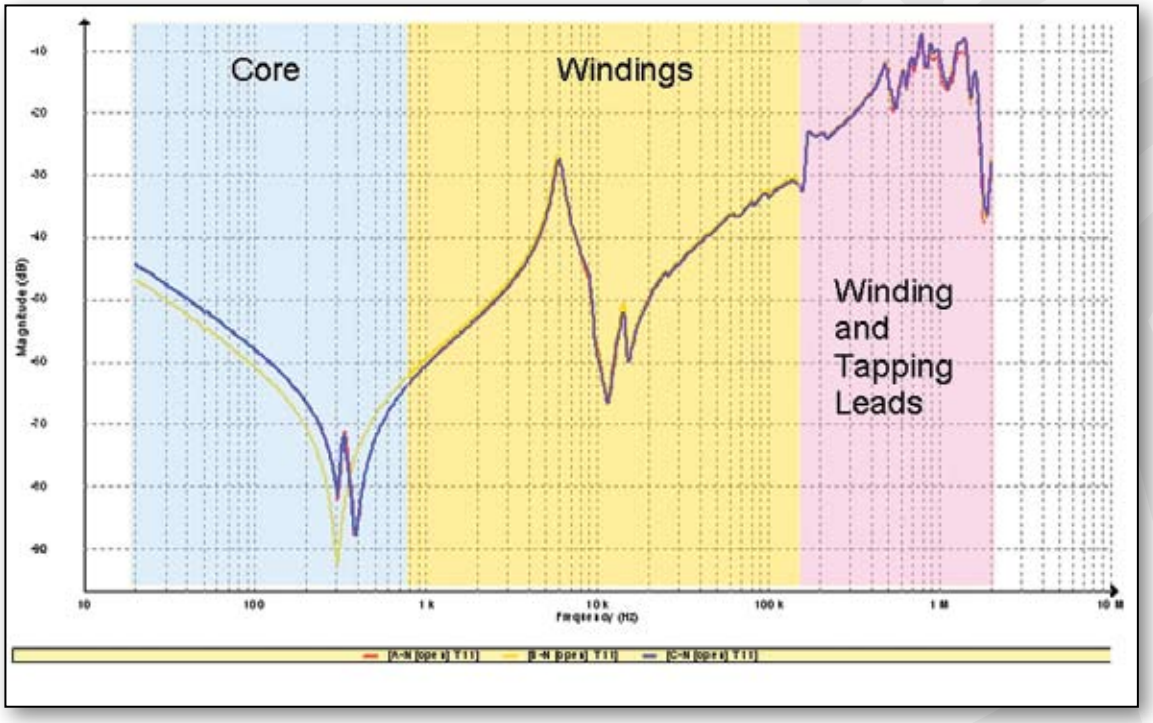
SFRA Testing

PBA have begun providing SFRA diagnostic testing services to the New Zealand Electricity Industry. This test is another useful tool in the asset owners toolbox to assist in making the often critical decision on whether to return a transformer to service or not after a fault.

So what is an SFRA test? SFRA stands for Sweep Frequency Response Analysis. The instrument injects a variable frequency signal into one terminal of the transformer and measures the response at another. As the frequency of the injected signal is varied, the response varies based on the electrical and geometric construction of the transformer. In other words, the transformer has a resistance, reactance and capacitance which is determined by the construction of the transformer. These three electrical quantities form a filter circuit with parameters unique to each transformer, the response of which is measured. By comparing traces tested over time or with a sister unit it can be determined if winding movement or electrical changes in the transformer have occurred. The method can be compared to taking a fingerprint or signature of a transformer, where any differences between the two traces being compared indicate changes have occurred within the transformer.

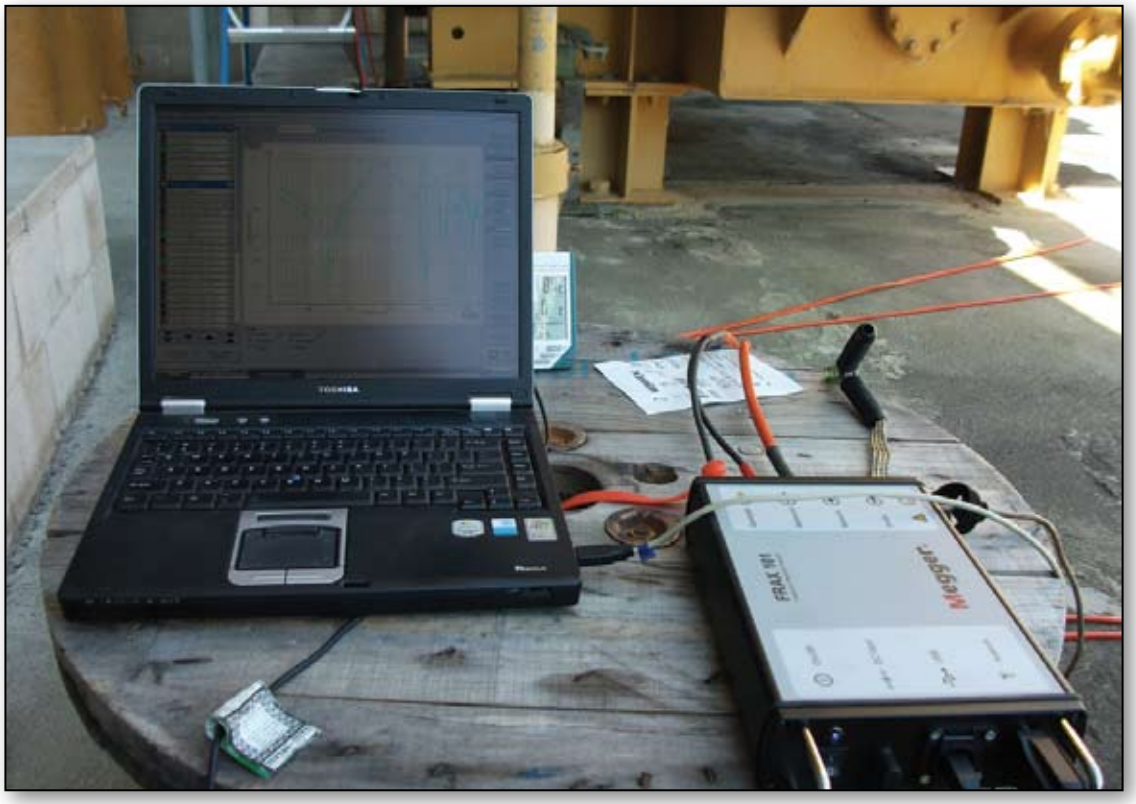
Typically a footprint test is completed on a transformer when it is in a known good condition or when the transformer is built in the factory. This curve is then a baseline to which future comparisons can be made. It is also possible to test a healthy sister unit and compare the traces obtained on that unit to the unit under suspicion, however no transformer is identical and small differences will show up which could potentially mask a fault.

The repeatability of measurements is of critical importance since traces recorded after a fault are compared to a sister unit or a previous measurement taken when the transformer was in a known good condition. As such, PBA strongly recommend the same contractor who completed the footprint tests repeat the same tests after a fault. PBA's reports include a section detailing how the test leads were connected the first time to ensure maximum repeatability.



This graph shows a typical trace for a Star-Delta transformer with the LV open circuited. The highlighted regions indicate the parts of the transformer predominantly affecting the different frequency ranges

PBA have performed these tests on several transformers around New Zealand and have found the results to be very promising. SFRA tests were completed on a transformer which had recently experienced a fault and accurate comparisons were made between this unit and it's sister unit. This reaffirmed the diagnosis of the other tests and confirmed the transformer was undamaged. The test equipment is easily transported on planes and PBA have the expertise and equipment required to ensure accurate, repeatable and reliable results everytime.



Test gear set up at a client's site

MAV Consultant

Lennart Enström, a MAV (Mercury Arc Valve) consultant with PBA has been in New Zealand recently to review the performance of the Transpower Benmore/Haywards HVDC MAV Link. Transpower received an independent review which included MAV performance, maintenance training and specialist advice on the handling of Hg (Mercury).

Lennart has now made several trips to New Zealand since 1991 and has an in-depth knowledge of the staff and MAV Link operation. Although half of Pole 1 has been decommissioned at both terminal stations, Lennart's job is to oversee the remaining half pole to ensure that it is transmitting to peak operational performance until it is decommissioned and all MAV staff have the knowledge and training to complete this.

Having been here so often, Lennart regards New Zealand as his second home and is always well received at both terminal ends by the contractors.

Lennart was born in Sweden close to the ASEA Factory where he started in 1961 as a Mercury Arc Valve Engineer. He was stationed in Denmark for 2 and half years installing the HVDC Konti-Skan Link MAVs. After that Lennart was sent to Vancouver Island for three years for installation of the MAV HVDC link between Vancouver and Vancouver Island. He has been involved in all aspects of ASEA and HVDC MAV installations including Sweden, Denmark, Canada, Italy, Japan and Pacific Intertie (USA).

Although retiring in 2008 after 46 years in the industry, Lennart is still regarded as the top MAV specialist in the world. While based in Denmark his consulting still brings him to New Zealand and other countries where his expertise is requested on a regular basis.

Environmental Certification

PBA has developed a fully integrated Environmental Management System imbedded within our existing ISO 9001 certified Quality Management System. Telarc auditors were engaged from February through to April to carry out preliminary Stage 1 and Stage 2 audits. Following these successful audits Telarc recommended PBA for ISO 14001 certification. Feedback from the auditors was very positive with acknowledgement that not many contracting companies obtain ISO 9001 and 14001 certification in the space of 12 months. The certification of our business systems marks a milestone in PBA's life cycle.

TELARC REGISTERED ™
Environment
ISO 14001

So what can we do for you?

PBA's experienced staff can take care of a number of tasks for you. We can cover the following…

- Transformer installation, service and testing
- Circuit Breaker installation, testing and overhaul
- SF6 Gas handling and testing
- HV cable installation, testing and terminations
- HVDC control and protection systems
- Protection installation and testing
- SCADA systems installation and testing
- Project management and site supervision

PROUDLY 100% KIWI OWNED