


SPECIAL POINTS OF INTEREST:

- Darwin Expo
- Tech Talk

ISSUE 15

Utility Link

JUNE 2011

DARWIN INFRASTRUCTURE EXPO

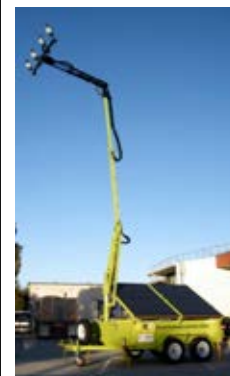
All Round Supplies is excited in sponsoring the inaugural Electrical Infrastructure Expo in Darwin on Friday July 29th 2011 at the Novotel Hotel.

The Expo will bring together for the first time in Darwin, and all at the same time, ten significant manufacturers and suppliers of Electrical Infrastructure materials in the Australian Market (refer to below for listing). The product range will include Cable, Conduit, Transformers, Lighting Poles & Outreaches, Solar Lighting, Poles, Pole Hardware, Cable hardware, and a wide range of electrical equipment and components up to 66kV. Not only will these companies have representatives present to talk to local utility staff, consultants, engineers, contractors and wholesalers, but a number of them have also expressed the desire to present technical papers on the day, on a wide range of topics. As well as technical papers there will demonstrations of both existing and new innovative products, including a new solar powered lighting tower.

Attendance is free and registration is not required. Therefore, if you are based in Darwin, or are coming in for the Darwin Cup, or would like to visit for the day, please come and visit, interact and learn from the industry specialists that will be there. Anyone is welcome to attend. If you require any further information simply contact expo@all-round-supplies.com.au.

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Fish Tales

I remember my first fishing rod. It was a Christmas present from my Mum & Dad way back in 1964. They bought me a Jarvis Walker "6' Boat haven" rod "coupled to a 4" Alvey Side Cast reel.

A wonderful combination at the time and something I have treasured and still have to this day although I must confess it's been a long time since its been used.

There is some real high tech gear in the market place these days with prices to match.

The trouble for many is staying away from those \$150 shops err!! I mean Tackle stores. I must confess I suffer from that Anglers Disease and can confirm that I have a personal collection over 35 rods and some 40 reels so I definitely qualify for the infectious disease award. My wife and I have an understanding when it comes to fishing "She does not know exactly how many rods I have and I have no idea how many pairs of shoes she has but I would suggest her collection may have rivalled Imelda Marcos in her heyday!

Well the fishing in Northern Territory has been brilliant of late.

Following a record Wet Season of over 3.2 metres of water which eclipsed the old record of 2.5 metres the fishing has been spectacular. At the time of writing this article the Barra Classic has already been completed and a record number of fish caught, with the Barra Nationals about to start. The number of 1 metre plus barramundi caught this year has been mind boggling. The Darwin Harbour is already full of Tuna, Mackerel, Salmon and the Sail Fish and Marlin are already present out wide.



Looks like a great year coming up and I am sure we will be inundated with southern anglers We locals call them **Mexicans** (as they all come from down south) looking to take advantage of these great conditions

Lots of people enjoy a spot of fishing but not everyone has the luxury of owning a boat Recently I invited my neighbour across the road out for a days fishing.

We went to the mouth of the Adelaide River at a place called Saltwater Arm for spot of crabbing and fishing.... Result "Camo" (The neighbour) caught his biggest catch to date, a 14Kg Jewfish and a great day on the water was had by all

Remember if you have a story and some pics you want to send me I will include them in future editions,

Tight Lines !!!!



Left: Earl & Bruce "pose" for the camera.

Right: Studying the "form"



Albury Gold Cup

Each year All Round Supplies joins forces with Olex to support one of our major customers in the south of the state, Enpower Solutions. Enpower, and parent ,GPE, are sponsors of the Albury Cup race meeting.

This year Earl Palfrey (GM) and Bruce Matthews (Manager Nowra) were in attendance. Bruce said that some had better luck than others in the wagering of hard earned \$. But the two days were a great success with a great turn up of NECA members and Enpower staff.

This event is greatly patronised by the local population of Albury and is a credit to the organisers. Rod Damm from Enpower told us he had some tips as a Horse that a number of the guys are part owners in was having its maiden run but unfortunately for us it was not his day. Didn't help the hip pocket either.

This is the 4 th year ARS has been involved in the sponsorship of this race meeting and we look forward to being involved in the years to come.



Safety, Reliability and availability in Transmission and Distribution Networks

We have come to rely on electrical energy so much that it is a fundamental and foundational part of our lives, interwoven into so many aspects of what we do, that without it, society is nearly crippled. Nowhere was this more evident than in the recent Japanese earthquake tragedy.

Modern electrical supply networks are safe, available and reliable, so much so that we take this performance for granted, without realising that the “invisible immune system” of the network is keeping it functioning in the face of all kinds of adverse events and conditions.

The Fukushima nuclear incident has given the nuclear power generation industry a huge reminder that redundancy does not necessarily ensure reliability. First, triplicated cooling systems designed to ensure cooling continuity were simultaneously disabled by a common factor that equipment diversity could not prevent – the tsunami. Second, backup power was knocked out, leaving only external transmission lines, which also went down. The result was a black power station with no cooling ability for a non fail safe process. The major lesson learned so far for the nuclear industry worldwide is that most stations do not have sufficient emergency power time to ride through an extended external outage, with potential major consequences if they do go black.

Examples of Redundant Systems

Other examples of redundant systems being crippled by common failure mode susceptibility abound – dual O ring failure in the Space Shuttle Challenger disaster and exploding engine components slicing through triplicated wiring and hydraulics in common ducts of the A380 in the QANTAS engine explosion, to name just two. Two or three is not always better!

Common failure mode susceptibility can be environmental, mechanical, electronic, logical (usually software), human or part of a toxic cocktail of cascading contributory factors, which is usually the case in an air crash

Redundancy is only effective if a latent failure in a system is detected and repaired before failure of other functioning redundant systems. Put another way, single system MTTR (Mean Time to Repair) should be << System MTBF (Mean Time Between Failures).

Fail Safety

To put it simply, any product design should have two important aspects – What it must do and what it must not do! For instance, the “What Not” component of software is typically 80% + of the program. Transmission substation switching, most especially remote, must be effectively interlocked to prevent any chance of switching induced faults and outages. The AEM automated transmission disconnector family is provided with two levels of interlocking – mechanical and electrical, as well as remote position signalling. So, an earth switch cannot be closed onto an energised line, and a disconnector cannot be closed while one side is earthed. This form of cross interlock is common to prevent major safety incidents like two simultaneous sets of green traffic lights at an intersection or two trains in opposite directions on a single line.

“for Want of a nail the shoe was lost”

So begins the proverbial rhyme describing the cascading events leading to the death of Richard III at the battle of Bosworth. Numerous disasters, military, civilian, systems and equipment often begin with seemingly insignificant component failure. In T&D systems that must function reliably and maintenance free for decades, material selection and component design is critical for reliability. Fast or slow failures of small items like split pins, O rings and washers can have large consequences, especially when part of a product that can cause system failure. Therefore, robust and reliable components are very important. As an example the AEM overhead airbreak switch family for MV distribution systems is designed with the majority of components in 316 stainless steel, long life low torque bearings and high fault level contact sets exceeding class E3 switch rating.

Standards and Outliers

Well considered standards are an important foundation for reliable equipment and system functions, and just like the equipment they regulate, properly address the “Whats” and “What Nots”. Outlier events that can be anticipated are also addressed, such as lightning strikes, wind ratings, copper theft and vandalism. An example of this is the use of Surge Voltage Limiters (SVL's) in AEM's underground power cable cross bonding link boxes. The primary function of the link box is to transpose earth sheath phases in order to eliminate circulating current energy loss. The SVL's do not function in normal use. However, if faults, wrong connections or a backhoe event occurs, the SVL's are intended to clamp consequent sheath transients.

Self Healing Systems

The T&D industry has been using protective devices since the beginning of electrical supply, starting with fuses. Protection is there to guard, protect and hopefully recover from faults and all the nasty events mentioned above. Traditional protection schemes monitor (mainly) voltage and current and interrupt supply based on fault magnitude, time and rate of change tolerance curves. Distribution network protection, especially in remote rural areas, is still fairly basic, in contrast to the higher levels of SCADA monitoring and supervision common for transmission networks. This kind of protection can experience problems with reliable detection of sensitive earth faults and open conductors, both of which may indicate a bushfire and / or a safety incident. An autonomous self healing protection scheme, such as offered with the AEM - Shinsung range of reclosers and sectionalisers, detects, locates, isolates and restores supply without needing slower centralised SCADA intervention. This represents a significant safety and availability improvement.

Summary

Reliable electric power supply, a necessity of modern civilisation, is only possible with reliable equipment and systems. Reliability and availability is only possible with well engineered standards, designs, materials, software and systems. A reliable system is made thus by the “iceberg principle” – most of the engineering effort in a simple, effective and robust system is “below the water” and invisible to the user, but is nonetheless present and necessary.

POWER PRODUCTS DIVISION

All Round Supplies has recently launched it's Power Products Division. The function of the Power Products Division is to provide in-house manufacturing and component assembly of products for the power industry. The All Round Supplies Power Products Division is developing products for both the utility and the industrial sectors of the power industry. We have already received a number of product approvals from power utilities which is very exciting. The Power Products Division staff will continue to work closely with customers and power utilities to develop more power products for our industry.

Approved Products

All Round Supplies has received approval from Energy Australia (now Ausgrid) for their 125mm x 610mm distribution link panel for streetlighting stockcode 150797.

B0029 Distribution Link Panel

Also approved are standard street light column switch packs and a slip base column connection kit for the Power & Water Corporation (NT). Switch packs are approved in single, double and triple circuit breaker configurations.

B0031 Switch pack – Single CB

B0032 Switch pack – Double CB

B0033 Switch pack – Triple CB

B0030 Slip base column connection kit

Additionally PPD will be the manufacturer of our new range of POWARSAVER energy saving lighting controls.

B0031, B0032, B0033
PWC Street light Switch
Packs



Powarsaver range of energy saving
lighting controls



B0029
Distribution Link
Panel



B0030 Slip Base
Column
Connection Kit.



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