

Rail Horizons

December 2004



From the Chair

Why RTSA?

When I took on the position of National Chair in June 2004, it was clearly my desire to build on the good work done by John Watsford. The new National Committee has untiringly supported both myself and the ideals of the Railway Technical Society of Australasia (RTSA). From a personal point of view, I could not have hoped for better committee and acknowledge their ongoing support, without which the job of National Chair would be impossible to effectively fulfil.

Since CORE2004⁽¹⁾, time has marched on quickly. At a National level the RTSA provides ongoing support for the industry at a political, educational and professional level and continues to deliver the best value for money "Railway Conference" in Australia. I look forward to seeing you all at CORE 2006 in Melbourne, Vic and CORE 2008 in Perth, WA.

Once again, as Christmas and the New Year rapidly approach, there is probably no better time to reflect on the successes of the year just gone and to re-examine the reason and purpose for the RTSA.

Over the last 25 years or so, the rail industry has been through a period of continual upheaval and ongoing change. During this time, many professional bodies and organisations such as the RTSA, the Australasian Railways Association (ARA), Rail Track Association of Australasia (RTAA), etc, have also had to re-assess their function and purpose to meet the ever-changing needs of industry.

Today, in our world of economic rationalism, I often find that I must debate the reason and purpose of the RTSA, with respect to our ongoing call on industry to support our biennial railway conference⁽¹⁾ and how this impacts on relationships with organisations such as the ARA, RTAA and others.

So lets take stock and reflect!

Throughout the world, engineering has made a huge difference on civilisation, as we know it. It would be fair to say, that there is no other profession that has had such a significant influence on the way we live. Engineering will continue to provide solutions for communities and will literally shape the future and give form to ideas that make life better.

Like most professions it is essential to ensure that the people that practice within the profession are appropriately educated, qualified, competent and skilled to undertake the role and function that society demands. Engineers Australia, formerly the Institution of Engineers Australia was established in 1919. Today, it provides a national focus for the development of all aspects of the engineering profession as well as representing the interests of engineers and the communities they serve.

Engineers Australia is the country's largest and most diverse engineering association. It supports some 70,000 members to achieve their personal and professional goals by providing an enormous range of benefits, facilities and services covering a diverse range of activities including:

- ❖ conferences and seminars.
- ❖ publications and newsletters.
- ❖ continuous professional development (CPD) programs and associated validation of CPD.
- ❖ award programs for students/industry recognition.
- ❖ mutual recognition agreements with international engineering bodies.
- ❖ national and state engineering registers.
- ❖ procedures to uphold ethical standards.

The Railway Technical Society of Australasia (RTSA) is a society of Engineers Australia, It is a non-profit

organisation established for promoting the co-operation of academic, industrial, commercial and governmental organisations in relation to the practice and advancement of Railway Engineering in Australasia.

There are currently five Chapters established under the RTSA umbrella. These include NSW, Queensland, South Australian (including NT), Victorian (including Tasmania), and Western Australia. All of these chapters have regular seminars and programs that facilitate CPD. The programs address topical railway issues and provide the opportunity for networking and joint meetings with other similar groups in the industry.

Funding for the RTSA newsletter, seminars and awards programs comes from a very conservative annual membership fee supplemented by funds raised through a biennial railway conference⁽¹⁾. In addition to these programs, the RTSA offers the industry and railway practitioners the most affordable value for money multi-disciplinary conference in Australia. Costs are kept to the bare minimum so that students, members and retirees can all continue to build on their necessary knowledge and thereby make them better railway practitioners.

In summary, the RTSA provides a multidisciplinary program for its members, comprising regular newsletters, seminars, study tours, award programs and a biennial conference that is affordable and facilitates "Continuous Professional Development" by those members who wish to take advantage of the services provided. Whilst sitting under the umbrella of "Engineers Australia", the RTSA can provide a level of professionalism that reflects the requirements of the National/International community and reflects the highest of industry demands. No other professional body provides a similar service and this service can only continue if the RTSA supplements its funding through CORE⁽¹⁾.

On a final and very important issue, the National and State Committees wish you and your families an enjoyable, safe, Merry Christmas and Happy New Year.

George Erdos
RTSA National Chair

Note: (1) The biennial railway conference run by the RTSA is called "Conference on Railway Engineering", abbreviated CORE.



The Railway Technical Society of Australasia

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POINT OF VIEW Max Michell

Every so often some small item will turn up in a magazine that has a message of some significance out of all proportion to the column inches it occupies. One such recently was a quarter page item in *Progressive Railroading*, Nov. 2004, with a story about Wisconsin and Southern Railroad Co. This short line is noted as being 550 miles (890 km) long so it has a reasonable territory to operate over, but is still a short line as determined by its size and activity.

The story centred on a visit by a DoT official, but that visit was engendered by the multiplication (quadrupling) of car loadings (the usual American measure of traffic) over the last 15 years with a further growth of nearly 50% expected by 2010. It is not so much the growth as the underlying development that is of interest. The item notes "... that 12

businesses plan to locate plants along the line, joining 16 other companies that have opened facilities on or near the line during the last five years.”

So it would seem that traffic growth is not just a matter of trying to eat into the existing market share, but is a proactive process to get industry relocating to make use of the railroad – actively expanding the market. Despite its length this is just a short line in American parlance, so it presumably serves the local communities rather than key centres.

Despite this they have encouraged 28 companies to locate on their property over the last five years no doubt contributing substantially to the current average 150 car loads a day that they haul.

Think about our situation here.

There are a few new rail located industries, Balco at Bowmans SA for instance, but they are being more than offset by the industries that have departed from direct dealings with rail.



Increasingly we are evolving rail as a third party inter-modal haulier and a bulk haulier and completely leaving out the intermediate opportunities.

Inter-modal, by definition, involves more than one mode, and in many respects this is its weakness – there are pick up and delivery costs in generally congested areas to add to a moderately efficient line haul on rail, the end result of which is neither top end service nor outstanding cost advantages.

A variation on the inter-modal theme is SCT’s van load business which is closer to a direct siding to siding operation with the freighter acting as consolidator and warehouse. But this is still one removed from the freight owner – the manufacturer, producer or consumer.

When major facilities such as Woolworths warehouse complex at Monarto South are built within sight of rail but never even contemplate connecting to rail, it becomes apparent that we, the rail industry and particularly our sales

and marketing people, have somehow become subservient to a bucket load of conventional folklore.

If we were to be more creative, have a better understanding of the thinking of the customers (although they can be just as constrained by convention) and allow ourselves to be much more proactive we might start to get some direct load industry on line. Rather than ‘satisfying the customer’ we should be trying to ‘delight the customer’.

Direct load business has the potential to bring in bigger returns since there is no longer the immediate add on costs, and this, if properly thought through, can more than compensate for the cost of servicing the siding with s.h.u.n.t.i.n.g. (there, I have used that word).

No doubt in Wisconsin there are other factors that might encourage re-location onto rail.

Maybe they are prepared to subsidise the cost of the infrastructure needed, or maybe there is just plain good old policy that encourages rational behaviour in the marketplace for transport. Maybe the states and Federal authorities in America are less inclined to confrontation and just get on with their job. But it is still possible that the railroad is also very good at creating demand for its services rather than just taking the low road and allowing outside events to run the agenda.

In all the issues surrounding AusLink and various other recent developments there has been very little that suggests that overall planning (rather than transport) policy has changed or that there is a broader agenda that will encourage business development to jointly satisfy all sorts of desirable objectives – transport, social, regional, land use, resource utilisation and so on.

Maybe we should expand our agenda to actively raise the profile of some of these fundamentals. It can only do us good.

Government Relations Committee

The **Productivity Commission** is holding two inquiries of interest to the rail industry. One is on Energy Efficiency and the other is on National Competition Policy (NCP). RTSA submissions to both inquiries may be viewed at pc.gov.au as well as rtsa.com.au.

The Committee represented by Andrew Honan and myself with the support of Sydney Chapter chair Bill Laidlaw met with the Commission at two separate public hearings during November in Sydney to discuss our submissions.

In regard to National Competition Policy, RTSA has given its support the Draft Proposals of the Productivity

Commission Policy that CoAG should drive reform in both freight and passenger transport, and that action is needed to improve road pricing for heavy trucks.

The RTSA has also take the opportunity to commend to the Productivity Commission a vision of rebuilding from 100 to 200 km of rail deviations on the NSW Main South Line. The benefits to train operators, track owner and the wider community (including less trucks on the Hume Highway) are significant, and the proposed investment should be seen in the context of:

- Brisbane - Townsville: the construction of over 160 km of new track to modern engineering standards since 1987. It is expected that Caboolture - Landsborough duplications with deviations will follow.
- Maitland - Brisbane: Here the AusLink White Paper notes that 121 km of rail deviations in 14 locations will be constructed
- Over \$5 billion, in today's terms, being invested over the last 30 years to rebuild over 85 per cent of the Hume Highway to dual carriage standards with four or more lanes.

RTSA wishes everyone involved in the **Brisbane-Cairns tilt train derailment** on 16 November a speedy recovery as soon as possible, and hopes that the inquiry will lead to recommendations that will ensure that this type of accident never happens again. In response to numerous media calls, the points made included the following:

- QR carries over one million Traveltrain passengers per year and over 45 million CityTrain passengers per year and has never lost a life from collision or derailment for more than 12 years now (cf over 300 deaths per year from road crashes in Queensland);
- Rail accidents are estimated to cost about \$133m per year which is less than one per cent of the \$15 billion plus per year from road crashes;
- QR Brisbane Townsville track generally good, albeit some further upgrading needed; and
- The narrow gauge is not a problem to safe rail operations. This was despite prominence given by some media (The Australian, and ABC Radio) to narrow gauge is a problem.

The **Queensland Infrastructure Report Card** was released on 8 November. It gave the urban rail system a C rating only (page 44 due to inadequate funding (compared with roads) and poor planning (highlighted by "the lack of a long-term strategic plan for CityTrain services"). Overall, rail in Queensland was rated at C+.

As per reports of AusRail 2004, the issue of **road pricing**

is getting more attention. This is evident from the *Australian Financial Review* of 15 Nov 'Plan to let trucks haul bigger loads for a fee' citing ARA's Bryan Nye, PN Chief Stephen O'Donnell and RACV's Ken Ogden who thought it might have benefits if there were fewer, albeit heavier, trucks on the road.

At the Productivity Commission NCP hearing in Sydney on 30 November, Robert Jeremy of Pacific National with supporting consultants strongly argued that more attention urgently needed to be given to road pricing for heavy trucks.

The National Transport Commission (NTC) is undertaking a 'third determination' of annual registration fees for heavy vehicles. They have proposed some form of mass - distance pricing for six axle artic trucks operating above the current 42.5 tonnes GVM limit. RTSA has recently been granted representation by the NTC on its Road Pricing Reference Group.

RTSA submissions to date have indicated a preference for mass and distance differentiation in the charges for six axle articulated trucks operating above the former standard limit of 38 tonnes operating in the populous zone (with similar type of mass- distance differentiation charges for the heavier B-Doubles operating in the populous zone). RTSA also supports that aggregate road cost recovery from all articulated trucks be increased, and some start was made to recover some of the external costs.

However, the conventional wisdom appears to be that the aggregate road cost recovery from all articulated trucks appears to be about right (with some questionable assumptions to reach this view). This stands in contrast to the 1988 Bureau of Transport Economics report *Review of Road Cost Recovery* finding under-recovery at over \$1.2 billion per year. In addition, it appears that externalities are not for the third determination.

A brief submission "High hopes and low expectations' has been made to the **NSW Metro Strategy** with particular reference to the need to improve and extend CityRail operations. My thanks are due to Andrew Honan for his valued input to this and other recent submissions.

The need to maintain and improve NSW intercity trains and the tracks they use is also addressed in a recently released NSW Local Government Association booklet 'A future for regional passenger trains in New South Wales' by Prof Ian Gray of Charles Sturt University.

Visiting **Japan** for a High Level High Speed Rail Conference on 9 November 2004, to celebrate the 40th anniversary of the successful and safe operation of the Tokaido Shinkansen, was a reminder of what can be achieved by fast passenger trains. An account of this conference will appear in the next issue of Track and

Signal. To me, the main outcomes of the conference were the need to continually improve train services to meet growing competition (this needs research and development as well as marketing) and, the need for the rail industry to assist Governments in transport policy reform.



I wish all RTSA members and readers of Rail Horizons a relaxing and safe holiday season with a good year in 2005.

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NEWS

► ARTC traffic volumes continue record climb

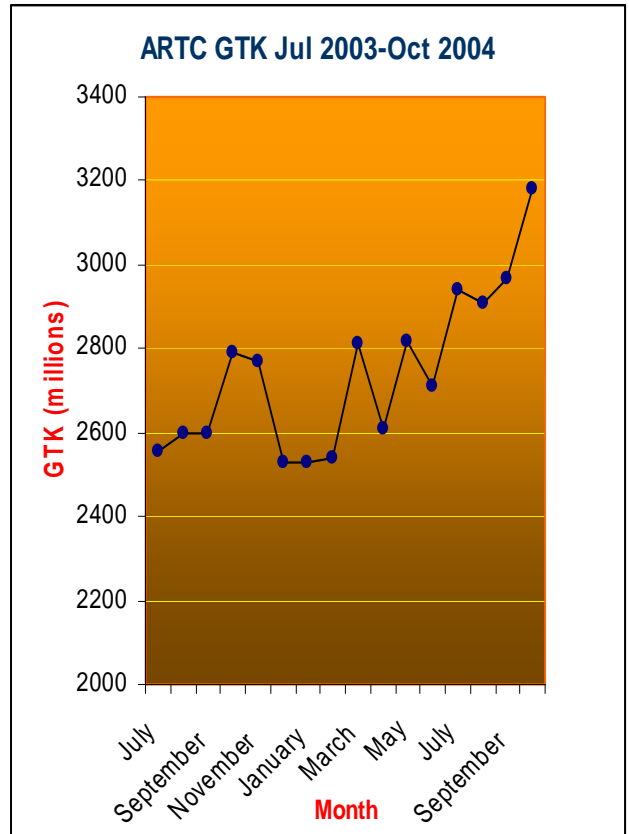
The strong growth in traffic carried over the pre-NSW lease part of the ARTC network has continued through to November with the high growth reported in the last edition of *Rail Horizons* being sustained.



In October, the highest monthly level was recorded to date, when tonnages carried increased to 3.195 billion gross tonne kilometres, a 14.5 % increase over October 2003.

In November, preliminary figures also show increases to record levels of 3.081 billion GTK, the second highest on record and 10.7% higher than the same month last year.

For the first five months of the 2004/05 financial year, traffic volumes carried over the existing ARTC network have surged by an unprecedented margin of 13.2% when compared to the same period for 2003/04.



Some of this additional traffic could be put down to the usual pre-Christmas rush which occurs around this time every year and peaks in November, but no one seems to know exactly why the current boom is so marked. Anecdotally there are suggestions that China's economic boom and consequent demand for shipping has led to a reduction in the number of SVPs (single voyage permits) being issued. Previously SVPs had impacted on rail volumes, principally between Sydney and Perth, and to a lesser extent between Melbourne and Perth.

It is also likely that the sustained high price of diesel is finally starting to have a noticeable impact on road transport costs, thereby improving rail's cost competitiveness - fuel making up a much lower proportion of rail's total operating costs. The consolidation of Toll and Patrick's freight operations through the establishment of Pacific National is also possibly starting to deliver the promised shift from road to rail.

► Rail scoops Engineering Excellence Awards

Rail projects picked up two of the regional Australian Engineering Excellence Awards this year.

The Adelaide to Darwin railway and its construction partners (KBR, Barclay Mowlem, John Holland, Macmahon) picked up the Northern Region award. The construction of the new railway demonstrated how engineering companies can take a leading role in initiating and completing major infrastructure developments. The project achieved quality and safety standards significantly above the industry norm, exceeded all environmental targets and maximised local industry participation. The rate of construction – one culvert group a day and one bridge per week – was a landmark achievement.



The Western Australia award went to Flour Australia Pty Ltd for the Fast Track Iron Ore Area C Railroad. BHP Billiton's Area C railroad crosses 39 km of WA's toughest country providing access to more than one billion tonnes of untapped Pilbara iron ore reserves. This project set new records in almost every aspect of design and construction. This includes the highest and longest bridge spans, as well as the largest earthworks yet to be built in the Pilbara. There was no time lost due to injuries or industrial dispute during the more than one million man-hours it took to construct the railway and the project was completed three months ahead of schedule.

► Trailerrail on the way out

Hailed as the 'next big thing' when it debuted a little over a decade ago, Pacific National's Trailerrail services, based on the US roadtrailer concept, are to be phased out over the next 12 months.

After rocky start following their introduction in the early 90s by Australian National, services grew under National Rail's stewardship. Currently there are two return services per week between both Melbourne and Perth and Sydney and Perth. Traffic has grown to point where all the available assets are in regular use and some services run at up to 60 trailers in length.

It is thought that the lifespan of the specialised trailers required for the service is less than half of that of a conventional container flat wagon and container and therefore the major asset renewal and expansion needed to maintain the service does not justify continuing with the technology.

PN is purchasing low profile container flat wagons from China and purchasing additional skel trailers and containers to replace the Trailerrail units. During the last few months, Sydney to Perth services have been progressively converted to more conventional intermodal operation with Melbourne to follow. A limited number of Trailerrail units will remain in use between Adelaide and Perth.



The concept of an express business service using dedicated premium train paths will continue.

The Tilt Train Crash – A Personal Account

by David Jehan

My family and I were passengers on the ill fated Cairns Tilt Train (CTT) that departed Roma Street station on the 15th of November. As part of the process of recovery from this accident the trauma counsellor at Hervey Bay Hospital where we were treated suggested I write down the experience. Once I had written this, I decided to email it to some of my colleagues as I thought they may benefit from my first hand account.

The email created great interest and many suggested I publish it. After much consideration I have chosen to release it through a professional body such as RTSA in

order to avoid the sensationalism and distortion that characterizes the media at large. The following is a record of our ordeal, no attempt is made to analyse the cause of the accident as this is a matter for the investigation team :-

We were seated in Car D seats 4, 5, 7 and 8. (The seating on the CTT is all business class and is a 2 by 1 configuration.)

I had just finished watching a movie when I turned off the entertainment system and curled up in an effort to get some sleep. The next thing I remember was being jolted back to consciousness with a 'bang' as the bogie under me left the rails and the jack hammer like vibration of the wheels riding along the sleepers beneath me. I gripped the arms of my seat and thought – No, No, this can't happen...No, No, this can't be real.....!!!!

Then Cars C and D jack knifed and smashed together side on with horrific force.....this was real all right !

I was thrown from my seat and landed some two to three metres down the aisle upside down, having bashed my left shoulder and leg against the seat bases. The lights went out and then silence. No sound, no light, just nothing....it was absolutely terrifying.

We all lay there in a daze for what seemed to be an eternity. I can remember thinking where am I ? Is this a dream ? Have I died ? Then suddenly I remembered where I was, but I didn't know where my wife and children were!

I tried to get to my feet, but quickly realized that I now had limited use of my left arm and the floor was no longer horizontal, in fact Car D was tilting by at least 45 degrees, probably more like 60. Despite these difficulties, I managed to crawl along the aisle and found my son huddled in a ball, he was in shock, but apparently uninjured. I called out to my wife who soon responded that she was OK and had our daughter Sarah with her.

After a while people started asking around to see if anyone was seriously injured and several passengers were frantically trying to locate their hand luggage to find their mobile phone. However this was in vein as there was no reception in the area.

One of the passengers produced a small pocket torch, which although inadequate, was to be our only light for the next two hours. In the dim light the full extent of what had happened became evident. My son had landed down the aisle at my feet, my daughter had been thrown from her window seat and landed on top of the woman opposite who thankfully had her arm rest up otherwise Sarah would have been severely injured. My wife Pam ended up on the floor with her back into the seat opposite. The woman in seat No.1 behind my daughter had been catapulted across the car and through the window taking the pane of glass

out of its frame and landing outside face up with the pane underneath her. At the same time the woman who was sitting next to the window also ended up outside in the dirt. The husband in seat No. 2, landed across the car and was wedged under seat No 3 across the aisle.

Most of those sitting in the single seats, which had now become the floor of the car had been awoken by having their faces bashed against the window, many were suffering from cuts and abrasions from the impact. The steel coverings along the centre of the aisle were all dislodged and these had hit some of the passengers. One woman had a cut above the eye from one of these sheets. Some of the people at the front of the car had also been thrown into the aisle receiving deep cuts and abrasions. Our main concern was the woman outside who was in great pain, and there were numerous times during the next two hours when we thought she had died.

The passage ways at both ends of the car were blocked so some of the passengers who were relatively uninjured used the hammers supplied to smash the glass and kicked out the centre windows on either side of the car in order to provide a possible escape route. However, escape from this position was not possible as we were too high from the ground on one side and a deep depression was on the lower side. After we had confirmed that no one was seriously injured and no one with any medical training was in the car everything once again fell silence. A time like this was no place for small talk. However we passed the torch every so often from one end of the car to the other to check on people's injuries, especially the woman lying outside.

Then one of the passengers asked if anyone would object if he prayed. With unanimous agreement he prayed the most heart felt prayer of thanks to God that we were all alive and that help would soon arrive. I have heard many sermons, but nothing has moved me as this did. There by the grace of God go we !

Finally we could hear the distant sounds of sirens, this was the sweetest sound we've ever heard! However, it was to be some time before anyone came to our car. The first person to arrive was an ambulance officer who yelled into the car to see if anyone was injured. He climbed along under Car C which was next to us to check the injured woman outside and then climbed in through the broken window near us and quickly assessed what injuries needed urgent attention inside the car before disappearing again. Once again we were left with the pocket torch and silence. We could not hear any sounds outside except for more sirens.

Eventually a local policeman climbed into our car and he was to stay with us for the next 2 hours or more until we were able to get out of the car. He had 2 torches with him,

one he used himself in the middle of the car and another he left with my wife to use at our end. Firemen then arrived to try to clear an escape route through the toilet end of the car which seemed to be the best option at the time. However they couldn't smash through the cleaning cupboard door which was jammed open in the ceiling panel across the aisle.

As the doors at the other end of the car were also jammed, the firemen smashed one of the front windows of the car which was close to the ground and those that could walk were led to this window by walking along the arm rests of the single seats and we climbed out of this window with the aid of a stretcher board and 6-8 firemen.

We were led to an area in front of the train, past the fire brigade who were busy hosing the fuel tank of the power car with foam and onto some large canvas sheets where we waited for everyone to be brought out from our car.

When we were finally led around the embankment and out onto the road we were surprised to be greeted by a sea of faces which were passengers from the other cars. We were the last car to be evacuated and we had heard nothing outside to alert us to the frantic activity that had been going on. We were all tagged ready to be transported to hospital for assessment. The seriously injured were taken to Bundaberg Hospital, however to share the load passengers were taken to others centres. Cars C and D were taken to Hervey Bay Hospital, others were taken to Gladstone.

At Hervey Bay we were initially assessed, then examined by doctors and given treatment as necessary. I had my shoulder X-rayed to check for fractures and the others in my family were lucky to only have cuts and bruising. We were then interviewed by the police who recorded our

statements on tape. QR staff talked to us all with a view to arranging how we could complete our journeys. In our case that meant a bus ride back to Brisbane, overnight in Brisbane and finally a flight to Cairns. As the injuries we had were not serious, we decided to complete our holiday.

The emergency workers on site were well organised, the hospital staff coped with the sudden dramatic load very well and the QR staff involved went out of their way to meet our needs. Special thanks to the Hervey Bay Hospital staff and the QR staff.

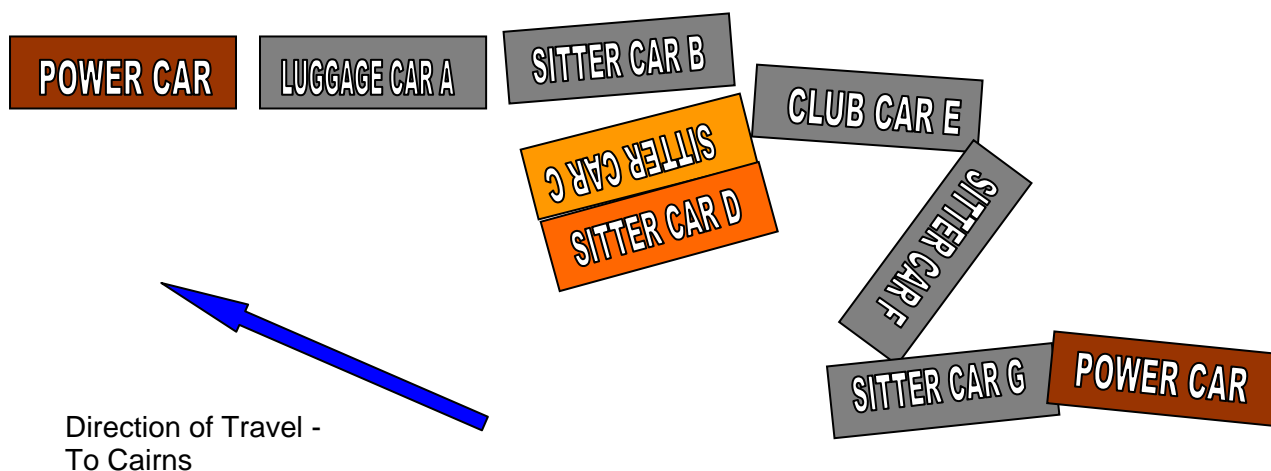
In closing as a professional engineer, I feel compelled to make the following remarks. As I stood in the holding area, looking back at the wreck, which by then was floodlit, the full weight of this horrific accident became apparent. However, it occurred to me that the power car, although on its side, was still intact. The passenger cars were thrown around like those on a small child's train set, but again, they were intact. No car had been ripped open throwing bodies outside with the resulting bloodshed and loss of life. The train had basically survived.

To the design team that created the Cairns Tilt Train.....your design has proven to be structurally sound.

To the production staff that built the Cairns Tilt Train.....your workmanship has passed the ultimate test.

167 people, including the four members of the Jehan family, are still alive today essentially because you got it right.....for this I offer you my most sincere thanks.

David Jehan
RTSA, NSW Chapter Committee Member



Disposition of Tilt Train cars after the derailment

Maintaining Track Quality

In August this year, the editor had the opportunity to ride on the AK test car from West Kalgoorlie to Spencer Junction (Port Augusta). The following is a brief (non technical) article resulting from that trip.

To maintain proper husbandry of its asset and ensure safe operation over its network Australian Rail Track Corporation (ARTC) budgeted \$1.05 million during 2003/04 to record track geometry and for ultrasonic rail testing. The data collected is then used to assist ARTC engineers in planning ongoing maintenance programmes and to ensure that there is no significant deterioration in track quality

Track geometry is measured through a condition monitoring programme based on data collected by a state of the art track inspection car. The car passes over the entire ARTC network on quarterly basis from Albury to Adelaide via Melbourne, Broken Hill to Port Augusta, Adelaide to Kalgoorlie and Port Augusta to Whyalla.

A profile of the rail is generated by underslung lasers mounted close to track level which feed back the rail profile to onboard computers which then analyse the two rails in real time based on key condition indicators such as top, twist and gauge. Other data, such as the rail profile itself, is collected and stored for later analysis by ARTC engineering staff. The system has recently been upgraded to include GPS mapping which allows for greater accuracy in recording distance and landmarks on the network.

The data is used to identify track faults requiring attention, which are graded according to their severity and urgency for rectification. A composite reading is also generated from the data to reflect the overall condition of track, which is referred to as the Track Quality Index (TQI).

The AK test car is used to record the standard gauge interstate mainline track between all mainland capitals as well as branch lines in New South Wales, South Australia and Western Australia. A typical run conducted for Rail Infrastructure Corporation, ARTC, WestNet Rail, BJB Joint Venture (Darwin) and Works Infrastructure (Leigh Creek) can cover up to 15,000 kilometres in 26 days, with the cars averaging 650 kilometres per day (allowing for rest days) and travelling approximately 100,000 kilometres per annum.

As part of its Track Condition Monitoring, ARTC also undertakes annual ultrasonic testing of the rail itself is undertaken using the Speno ultrasonic test vehicle, which checks the actual rail itself for any defects or hidden flaws.

While recording track quality has always been a function of any efficient railway operation, following the move to private ownership of much of the rail industry and maintenance practices that have a high degree of reliance on improved technology, the need for regular and more sophisticated track condition monitoring has gained in importance.

Mark Carter



Chapter Reports

Victoria & Tasmania

The Victoria and Tasmania Chapter has enjoyed increasing support with several new members in recent months. Our programme over recent and coming months is summarised below:

On Wednesday, 15th September, a Presentation by Doug Aikins of Silverton Rail was enjoyed by all present. Our October site visit to Bombardier's Dandenong Works to view Victoria's new "Velocity" DMU Rail Cars was very well attended, and our sincere thanks go to our hosts on that occasion. The rail cars are now in an advanced stage of production and the first cars are undergoing trials.

Our annual Christmas event will be held at IEAust Victoria HQ at 21 Bedford Street, and this year we thank Bovis Lend Lease for their generous sponsorship.

The proposed program (subject to confirmation) for 2005 is as follows:

Wednesday 16th February, 2005	Site Visit being arranged (subject to confirmation).
Wednesday 16th March, 2005	Site Visit being arranged (subject to confirmation).
Wednesday 13th April, 2005	Presentation and update on Victorian Infrastructure projects (Details to be circulated).
Friday 6th May, 2005	Annual Dinner Meeting (firm date) at Savoy Plaza Hotel. Guest Speaker will be the Hon. Tim Holding, Victorian Minister for Minister for Manufacturing and Export, Minister for Financial Services Industry.
Wednesday 20th July, 2005	Technical Presentation (Details to be circulated).
Wednesday 17th August, 2005	Annual General Meeting
Wednesday 14th September, 2005	Presentation on Safeworking developments in Victoria
Wednesday 19th October, 2005	Presentation on R&D developments and progress (Rail CRC update)
Wednesday 16th November, 2005	Site visit to the Spencer Street Station construction site (approaching completion)
Wednesday 8th December, 2005	Christmas function

More details of all of the above events will be circulated in advance, and will be available on the RSTA website.

Arrangements for CORE 2006 (to be held in Melbourne) continue to make good progress. We have held frequent meetings, and a website has been established. Watch for more details.

Your Chapter Chair and Committee wish to thank all members for their strong support, and wish you a very Happy Christmas and a Happy New Year.

David Ferris, Chapter Chair

Western Australia

Over the past three months the WA Chapter has conducted three key events resulting in good attendances and a high level of interest.

Thursday 9th September

- Area C Mine to Yandi Railway (CORE 2004 project winner) – Mr David Swifte, Project Manager MPD JV

In the spirit of CORE 2004 the September meeting was devoted to the "Area C Mine to Yandi Railway" presented by Mr David Swifte, Project Manager, (Area C Expansion) Fluor Australia. This project was the winner of the RTSA Biennial Industry Award and was subsequently judged a joint winner in the WA Engineers Australia 2004 Engineering Excellence Award in the Infrastructure and Building category. The presentation was well received by the good attendance of over 40.

14th October, 2004

The final formal technical presentation for the year was a view of the "New Perth Urban Electric Railcars" provided by Mr Elwyn Gearon, Manager Rollingstock, New MetroRail. Again the meeting was well supported by an attendance of 45 who were given an insight into the technical details pertinent to the new railcars.

In addition to the regular program the WA Chapter co hosted a presentation on 16th September with the Transport Panel. This subject dealt with the proposed expansion of the Fremantle Harbour to accommodate a deep water container berth with the associated rail and road linkages.

Thursday 25th November

- Site Visit, Beckenham to Thornley Railway construction

A group of 20 ventured to the site of the new four kilometre branch line construction 12 kilometres south of Perth to inspect the works in progress. The project

comprises a tunnel under the main road and the existing standard gauge freight line, a bridge over the Canning River and the new station at Thornlie. Assisted by managers from New MetroRail the tour was well conducted and presented many new and innovative features of modern railway and bridging construction.

General

Overall the WA Chapter has seen a general increase in attendances over the past three formal technical meetings. Attendances of over 40 to each gives encouragement for future events and for the coming year. The scheduling of the meetings at midday has been maintained and this seems to be gaining acceptance amongst the railway technical group.

There has been reduction in WA members from 77 in June to the current level of 72 but this is due to adjustments in the membership register

It is planned to conduct the Annual General Meeting in February 2005 and already interest is being sought for members to nominate for committee members and key positions with the view of forming a strong core of personnel for the CORE 2008 planning.

Any members willing to contribute to the organizing should register interest with Chairman John Syers (08) 9387 1946 (Email rail@ca.com.au).

John Syers
WA Chapter Chair

Queensland

Chairman's Comments

"The Tilt train's derailed!" says my wife as she watches the early morning TV news.

"What?" that being the only intelligent thing I could think to say in response, so early in the morning. "I wonder if the Rocky Tilt has popped off another set of points", I think to myself a little later.

Tuesday morning 6.30am – already some six and half hours since the incident first occurred.

The news footage was by now already showing a horrific scene of a Cairns-bound Diesel Tilt Train, strewn around the site like a child's toy, and many passengers and staff coming off the train with wide ranges of severe injuries. These images simply helped to add to the gut wrenching reactions that I was feeling, and that any railway person feels when they hear those dreaded words "train derailment".

I am sure that I join with all Queensland Chapter members in giving thanks that none of the passengers and staff on

board were killed, and we would wish all of those people who suffered injuries and trauma, a speedy recover.



Despite some negative comments made in the media post-incident, I feel that this newsletter is the appropriate place to make positive mention of the efforts of the hundreds of EDIRail Maryborough and QR technical and trade staff who, I know for sure, did their very best to specify, design, manufacture and commission the safest possible Cairns tilt trains within their given scope. Good on you for your efforts! To quote David Jehan of EDI Rail and RTSA who, with his family, was a passenger on that fateful trip: "...the design was proven to be structurally sound, ... (and the)workmanship has passed the ultimate test".

RTSA in the Public Eye

On the 6th October 2004, I was privileged to represent RTSA at the ARA's Queensland Members dinner at the Stamford Plaza. Those who attended were able to listen to a talk given by the Hon. Paul Lucas, Queensland Minister for Transport as he told of his vision for rail within Queensland and the wider marketplace.

Recent Meetings

22 September

37 people came along to this year's half-day seminar to hear from a range of experts talk on the subject of "Human Factors and the Railway System". We were pleased to hear

- Barbara Klampferer from the NSW Independent rail safety regulator's office
- Brett Garrigan from QR
- Alison McDonald from QR
- Michael Michalaides from QR
- Les Brearley from Union Switch and Signal

Special thanks to Mark Wishart of Interfleet Technology for organising this event.

27 October

Professor Dudley Roach, CEO of the Rail CRC provided us with a status report on his involvement in a UIC-

promoted project, utilising some very experienced researchers from Massachusetts Institute of Technology. The purpose of the project is to perform a world-wide scan of all emerging sciences and technologies, to identify any possibilities for application to improving rail technology. Whilst it seems the project may have gotten off to a slow start, under Professor Roach's new leadership and direction, the potential results of this project will be no doubt exciting. *Attendance 16.*

24 November

Nathan White, Mechanical Engineer, CSIRO Fire. Fire development and behaviour is an emerging science. Whilst there is some understanding of fire development and behaviour in relation to materials and static structures, there is little such understanding in passenger rail passenger vehicles. The presentation covered some background and the current state-of-the-art in relation to fires, leading to the peculiarities of fires on passenger rail vehicles. The conclusion was that conventional thinking does not really apply and that far more research, largely through practical testing, is required for understanding of the issues so as to lead to the development of appropriate models to enable the evaluation of the fire performance of new passenger vehicle designs. There was an open request for rail passenger vehicles for testing purposes. *Attendance 24.*

Upcoming Events

The Queensland Chapter organising committee have been busy over the last six months making preparations for the 2005 event calendar. Whilst every attempt has been made to bring members a widely varied range of topics, we would welcome any other suggestions from members for interesting topics.

23 February 2005

Still to be confirmed. Planned bus tour around the Port of Brisbane has been abandoned. We are hopeful of getting a local ATSB rail incident investigator to give a talk about investigation results of a runaway train in Victoria.

23 March 2005

Mike Walsh, General Manager iQR, talking about iQR 12 months on and emerging rail technologies in Hong Kong.

27 April 2005

The achievements of the Rail CRC, particularly as the next bidding round for the next CRC's approaches.

25 May 2005

An Introduction to Railway Vehicle Gauging, Ian Goldney, Interfleet Technology

22 June 2005

Andy Taylor, Group General Manager Rollingstock and Component Services, QR. A new name or a new direction for QR's previously known Workshops Group.

Did You Know?

Thanks to George Nikandros for reminding me of this very noteworthy date, within the history of railways in Queensland. 17 November 1979 – just over 25 years ago – when the first 25kV ac electric suburban service commenced in Brisbane between Darra and Ferny Grove.

Final Words

I would like to reiterate the call that I made in the last Rail Horizons newsletter, to all those members of the Rollingstock fraternity to consider becoming involved in the content development of the rail CRC's project for providing a Continuing Professional development suite of courses for Rollingstock Engineers. Please consider helping this worthwhile project, as it attempts to capture decades of experience and knowledge, and subsequently impart it on to those new engineers who are coming into the industry. Contact Chris Venn-Brown of RTSA if you are interested.

*Cameron Smart,
Queensland Chapter Chair*

New South Wales

Two meetings were held during November to bring a successful year to a close.

9 November 2004 – John McArthur, General Manager, Silverton Rail

John spoke of the history of Silverton based in Broken Hill to serve the mining industry and the link between NSW and South Australia. John expanded to cover the growth of Silverton to that of a main line operator traveling far from the base in Broken Hill. The expansion of the locomotive fleet was discussed and the hopes for the future in a very competitive market place. During question time the fleet of former NSW electric locomotives stored at Broken Hill far from any wires was raised, some will be returned to service under a contract during the Bondi junction turnback construction.

The "Rail for a better future" series of meetings and public forums in which the Sydney Chapter combined with the Centre for Engineering Leadership, the Transport Panel and the Civil Panel of Engineers Australia under the leadership of Sydney Chapter Chair of EA, Professor Vernon Ireland was concluded with "What can Engineers do?" on 16 November 2004.

Professor Vernon Ireland chaired the Forum with 65 in attendance to hear the presenters respond to the users perceived needs as outlined at the August meeting during Engineers Week.

Professor Ireland commenced with an outline of the proceedings to date and introduced the presenters. Graeme Cameron of Maunsell spoke of some the technology-based solutions from his viewpoint as a rail specialist at Maunsell working on Hong Kong, Singapore and the UK rail networks and is currently working on the Chatswood to Epping underground line.

The presentation covered Systems, Rolling Stock & General Application of Technology trends and their possible application to the Sydney Network. The public's perception that reliability, Safety, Competitive pricing and the Environment were of concern. Overseas trends of using Light rail for around 20,000 commuters per hour in the peak were compared with Medium rail at 20,000 to 40,000 commuters per hour in the peak and Heavy rail at over 60,000 commuters per hour in the peak. Examples were given using the New York Airport Light Rail, The Ma On Shan Medium Rail Line in Hong Kong and the MTRC and The British Rail Systems for Heavy Rail. High speed lines such as the Maglev, TGV etc were noted for distances further than suburban metropolitan use.

Graeme expanded to look at stations, rolling stock, the rail environment and a customer focus and their application to the Sydney network with its unique topography and existing infrastructure. Integration of the many current systems and potential systems were discussed and the ultimate decision of who will be the instigator for an integrated system and who would fund in the future, the Government, the private sector or a combination of private and government?

Chris Skinner of DISplay Pty Ltd then spoke of the benefits for urban rail of using integrated electronic ticketing. Chris commenced with a retrospective view of the current ticketing systems, the business issues and opportunities and ticketing in other Australian states and overseas trends. Intermodality, pre-purchasing options and other uses of smart cards were outlined along with the information gathering aspects of these cards to plan and change timetables as trends change.

Piers Brogan of Bishop Austrans outlined one possible solution using the new Austrans modular units on their own alignments or sharing an alignment with other modes delivering people to transport exchanges where they would transfer to heavier modes of transport. This was demonstrated by PC simulation and video of the current test track at Chullora.

The evening concluded with a panel discussion fielding question from the floor, this lasted over 30 minutes.

During 2005, the Sydney Chapter meetings will be held on the first Thursday of the month, January & December excepted. February will be the Annual Meeting where the office bearers will be re-elected, a booking form has already been forwarded to chapter members.

The 2005 program is still in draft form, as some speakers have not confirmed the suggested dates and topics.

January	NO MEETING
Thursday 3 February	AGM plus presentation "RACK RAILWAYS" by David Jehan
Thursday 3 March	V/Locity DMUs Bombardier
April	Joint Meeting with IRSE
May	Site Visit to Winding Houses Katoomba Scenic Railway
Thursday 5 May	Track Recording Trains RIC
Thursday 2 June	ARTC New South Wales Operations ARTC
Thursday 7 July	CityRail Outer Suburban Cars (OSCARS) United Goninan
July (provisional)	Site Visit - OSCAR/Hunter Railcar plant United Goninan, Newcastle
August	JOINT MEETING WITH PWI
1 September	150th Anniversary Heritage Topic David Hill
Possible October	Epping – Chatswood Tunnel Inspection Site Visit TIDC
Thursday 6 October	Great Southern Railway Operations GSR
Thursday 3 November	Pacific National Queensland PNQ
December	NO MEETING
Meetings and Events are subject to confirmation.	First Thursday of the month meetings are held at Harricks Auditorium, Ground Floor, Engineers Australia, 118 Alfred Street Milsons Point, NSW 2061

Bill Laidlaw, Chapter Chair
Basil Hancock, Secretary

South Australia

The local committee has put a lot of effort into providing an informative and rewarding range of speakers for the SA monthly technical meetings. In addition the highlight of the SA calendar year was the holding of CORE2004 in Darwin.

Now that we can put that to bed the committee is looking forward to next year to ensure that a wide range of speakers and topics will continue to bring the members up to date with what is happening in SA and around the country.

The local committee is undergoing some major changes this year with both **Roger Wyatt** and **Max Michell** unable to continue with their respective roles as Secretary and SA Newsletter Editor.

I would like to thank them for their valuable contributions on behalf of the committee. Roger will continue on as a committee member but Max has deserted us and moved to Sydney; SA's loss is NSW's gain. I am sure Max will continue to provide us all with interesting articles on the state of play in Australia's Rail Industry in future Rail Horizons newsletter.

The program for next year is already taking shape, so ensure you note the following dates in your diaries:

3rd February 2005

Re-tendering for TransAdelaide's Railcar Maintenance;

3rd March 2005

Port River Bridge development;

7th April 2005

ARTC extension into NSW; and

5th May 2005

John Holland's new RG9 48 stone Rail Grinder.

So make time and come and support your local RTSA committee and take part in discussing what is happening in the Rail Industry. The SA committee would also like to take this opportunity to wish you all a merry Christmas and a safe, happy and prosperous new year.

PS. The above technical meetings count as CPD (Continuing Professional Development) points for those with Chartered Status.

Rob Schweiger, Chapter Chair

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CRC Theme 63

The steering committee for CRC Theme 63, which is responsible for overseeing the development of a post graduate course in the engineering of railway rolling stock, is seeking contributors to the course content. The individuals involved will be experienced railway engineers who would be in a position to author teaching modules (for which they will be compensated) to be used in distance education mode under the umbrella of a university (yet to be determined).

The RTSA is involved in the development of the course, a number of the steering committee members being also RTSA members. The steering committee is currently finalising the course content specifications under the following module titles:

Introduction to the Railway and Rolling stock Environment

Locomotives

Passenger Rolling stock

Freight Wagons

Rolling stock Interfaces

Rolling stock Dynamics

Train Brakes

Rolling stock Bogies

Philosophies of Railway Safety

Rolling stock Construction

Rolling stock Maintenance

It is the view of the steering committee that many existing experienced rolling stock engineers will be retiring in the not too distant future, and if no action is taken, there will be a severe shortage of rolling stock engineering expertise. The development of this course is seen as a means of passing some of that expertise on to the next generation.

The steering committee is also interested in determining the number of people who may be interested in undertaking this course, which it is hoped will be presented for the first time in 2006. Successful completion of the course will result in a post graduate degree.

Initial registrations of interest in either assisting with preparation of the course or potential participants should be e-mailed to: chrisvb@midcoast.com.au

Chris Venn-Brown, Chair of RTSA Railway Education Sub-Committee.

STANDARDS WATCH

Meeting Venue: One Steel Whyalla Steelworks

Meeting Date: Wednesday 24th and Thursday 25th November 2004

Meeting Time: 11:00am 24th November 2004

Duration: 2 days

Chair: Richard Brown

Secretary: Patee Cordato

1 AS 1085.20: Welding of steel rails

1.1 Summary of Comments on DR 04304

The main committee began reviewing the summaries of comments with final comments to be reported to the working group which will be held in Sydney on Wednesday the 16th February 2005.

2 AS 1081.1: Steel rails

2.1 Summary of Comments on DR 04420

The committee agreed to adopt the revised profiles for the 50kg and 60kg profiles. One-Steel to report back to the committee on results over the next year on tolerances.

NOTE: OneSteel are now rolling rail to the new profiles as proposed for the standard.

2.2 General Comments to AS 1085.1

The committee further discussed the current standard and noted that:

- Users of the 68kg rail profile to comment on the current standard. These comments will be considered when a full revision of the standard is commenced.
- Clause 9.3.1 "Recurrent or extensive discontinuities in Zone A", the word EXTENSIVE to be reviewed.

3 General Business

3.1 Prestressed Concrete Sleepers – WG10

3.1.1 AS 1085.14 review

A meeting will be held on Tuesday the 15th February 2005 by the WG to review the draft and discuss specific issues.

3.2 Points and crossing structures – WG9

A draft document has been prepared and to be sent to members of the working group.

3.3 Resilient Rail Pads –WG6

A draft Standard has been prepared and will be reviewed by the working group.

3.4 Dogscrew – WG ##

The committee has suggested that a new standard may be necessary to specify the Dogscrew. A Working Group is to be established to determine an appropriate title for Standard and develop a draft. (Dogscrew is a proprietary name and cannot be used in the Standard)

4 Next meeting of CE2

Next meeting will be held in Sydney 17th and 18th May 2005.

4 Current Standards:

CE-002—RAILWAY TRACK MATERIAL

Standard No.	Title	Type	Committee Action
AS 1085.1—2002	Steel rails	P	Amendments to be actioned.
AS 1085.1 Sup 1	Supplement to Part 1: Steel rails—History	G	In preparation
AS 1085.2—2002	Fishplates	Pres.	Revision pending when resources allow
AS 1085.3—2002	Sleeper plates	P	--
AS 1085.4—2002	Fishbolts and nuts	P	--
AS 1085.7—2003	Spring washers	P	--
AS 1085.8—2002	Dogspikes	Pres.	Revision pending when resources allow
AS 1085.10—2002	Rail anchors	Pres.	Revision pending when resources allow
AS 1085.12—2002	Insulated joint assemblies	P	--
AS 1085.13—2002	Spring fastening spikes for sleeper plates	P	--
AS 1085.14—2003	Prestressed concrete sleepers	P	Revision well under way
AS 1085.15—1995	Aluminothermic rail welding	P	See new welding standard-Part 20
AS 1085.17—2003	Steel sleepers	P	--
AS 1085.18—2003	Screw spikes and threaded inserts	P	--
AS 1085.19—2003	Resilient fastening assemblies	P	--
AS 1085.20	Welding of steel rails	Proc.	Reviewing Public Comment.
AS 1085.21	Points and Crossings	P	In preparation
AS 1085.22	Resilient Rail Pads	P	In preparation
AS 1085.23	Dogscrews	P	Being considered
Related Standards			
AS 2758.7—1996	Aggregates and rock for engineering purposes, Part 7: Railway ballast	P	Prepared by CE-012
AS 3818.2—1998	Timber—Heavy structural products—Visually graded, Part 2: Railway track timbers	Pres.	Prepared by TM-003. Revision to be published soon to include a grade for river redgum timber sleepers.
AS 4799—2000	Installation of underground utility services and pipelines within railway boundaries	Pres.	Prepared by CE-23

G = guide

P = performance based product Standard

Pres. = prescriptive product Standard

Proc. = procedural Standard

RTSA Railway Engineering Awards

In 2005, the RTSA will offer three awards. They are; the Railway Engineering Student Thesis Award, the Young Railway Engineer's Award and the Annual Individual Award.

Student Thesis Award - To the author of an outstanding final year project on a railway engineering subject that has been completed by a student in his or her final year of an undergraduate engineering course at an Australian or New Zealand University.

Young Railway Engineer's Award - For young professional engineers, technologists or associates in Australia & New Zealand.

Annual Individual Award - Recognizes the outstanding achievement of an individual within the railway industry.

Nomination Forms can be found at www.rtsa.com.au

Applications will close on Friday 25 February 2005



Conference on Railway Engineering

“Rail Achieving Growth”

30 April – 03 May 2006

Melbourne Australia



Photo courtesy of Pilbara Iron.

The Railway Technical Society of Australasia (RTSA) is pleased to announce that its next International Conference on Railway Engineering, **CORE2006**, will be held at Grand Hyatt Melbourne, Victoria, Australia from **Sunday 30 April 2006** to **Wednesday 03 May 2006**. CORE2006 will build on previous successful CORE conferences, with the futuristic theme of “**Rail Achieving Growth**”.

Following tradition, CORE2006 will provide an ideal setting for establishing and consolidating fellowship amongst professionals associated with the rail industry. The technical program, informative technical tours and expansive trade show will also provide delegates with valuable networking opportunities on which to build effective business relationships. There will be a program for partners to assist them to enjoy a fulfilling visit to Melbourne.

In the Melbourne area there is a range of transport facilities and current developments that will be of interest to delegates. The technical tours will include opportunities to sample these transportation systems.

All potential delegates, exhibitors and sponsors are invited now to submit their expressions of interest through the conference website at www.core2006.org

For further details please contact Ms Annette McClellan at ASN Events on am@asnevents.net.au or telephone 03 5983 2400.