

Not Much has changed ...has it?

The moves have been made. SGRS is now operating from the office at Unit 5, 8 Grebe Street Peregian Beach. Somehow or other John & Claudia managed to extract work and home from Graceville and Corinda to The Beach. It didn't happen in nice convenient steps according to plan and by this time next year we plan that the boxes will all be unpacked, the files will be sorted, and the rock display cabinet will be in place. The Beach is a 70m walk from the office and 850m from home.

Still Busted?

NO. The SGRS spin is that the geotechnical community is now definitely in the post-busted era. The economic boom and global financial crisis of recent times are yesterdays' news. Another cycle of infrastructure investment, fixups, and debt-financing is well under way and the merging of mobile information technologies just keeps getting more interesting. Email-world continues to be exponentially time-wasting and content-deficient, while at the same time being a wonderful and essential means for connecting people and information. If there is an engineering crisis tomorrow it will probably originate from current shortcomings in design training and mentoring. If there is a challenge for new graduates it will most likely involve the struggle to develop understanding and judgement in the post-modern presentation-dominated world. Good luck guys! The True Grumps will be relaxing at a coffee shop near the SGRS office - call early to secure reservations.

Two Cautionary Lessons

Peer reviews are a crucial mechanism for reducing business risk and ensuring professional standards, particularly relevant in the geotechnical field where key decisions are based on judgements relying on both evidence and experience. Sometimes a fresh set of eyes is useful for assessing key risks. Peer reviews have respectability when both the information being assessed and alternative views are presented transparently so that outcomes can be verified and the basis for judgements can be assessed. Open two-way dialogue can resolve misunderstandings and avoid errors. Impartiality is essential and anonymity is unadvisable if the aim is to ensure the best solution and an accountable decision. Reliance on unreferenced or unverifiable information is simply opinion rather than review. Misrepresentation, without checking, is a real no-no. These are the principles to which SGRS is committed when writing reports or reviewing the work of others.

SGRS no longer works at a mine where peer-reviews were handled in a disappointing manner resulting in a loss of trust. Lesson one in the ways of the world that SGRS chooses where possible to avoid.

SGRS still works at another mine where peer-reviews are undertaken for key risks and where another consultant's peer review report had included a copy of an earlier SGRS figure, marked-up with fabricated details illustrating a misrepresentation of a key SGRS recommendation. Needless to say this "peer review" was highly critical of the SGRS report. What to do? The choices seemed to be to (1) withdraw in order to embark on an uncertain journey to remove stains and bad taste, or (2) stay engaged, point out the problem, and continue plugging away. SGRS stuck with option (2), which was uncomfortable due to constant concern about the impacts of an unannounced repeat of Lesson One. Lesson two in the choices required to define the world in which SGRS prefers to participate.

There are common factors to these two lessons of 2009, as well as much greater SGRS awareness of recurrent sporting principles of sledged misinformation being part of the game.

ACARP Project C15033 and Coppabella

How optimistic last years' status report seems with the benefit of hindsight. SGRS waited, then data got lost and found, then waited for months before receiving the interpretation report for the microseismic data. Then the SSR data got lost, then the plan for coring at the Coppabella test site almost got lost, and meanwhile SGRS basically lost the plot for a while during the office transition. Drilling at Coppabella will now happen in January 2010 with project reporting to be completed by May.

Most highwall failures are "sudden" and occur during coal mining. The project aim is to model and measure what actually happens to rock in an open pit coal mine highwall during mining with the intention of redefining what to look for as failure triggers. In the last year the field experiment data has confirmed that stress removal leads to brittle fracture initiation and propagation which are the keys to development of "sudden" composite failures. Progressive deformation to a shear-dominated collapse mode occurs when there are enough pre-existing and induced structures for a step-path mechanism to propagate. "Suddenness" relates to the fracture path and speed of propagation. The giveaway triggers are dilation movements of the most brittle parts of the rock mass. The location and extent of the brittle propagation process varies but is predictable with the use of certain tools and guidelines which are still being worked out.

Friends of the Tertiary

FOTT had a quieter than expected year courtesy of work priorities and in particular a considerable extension of the working life of Meandu Mine. On the wider-scale, exploration standards in the coal industry maintain their slow decline with continuing unfortunate

propagation of Tertiary as the label of choice for any crap found before real drilling starts.

It's a bit different for real Tertiary in real mining conditions, where separated strength and groundwater conditions within the Tertiary sequences is now gaining acceptance. Some places are now (reluctantly and after great procrastination, it seems to the frustrated stare of SGRS) measuring groundwater profiles properly using multipoint piezometer tips in boreholes. Some places are even recognising the need to separately identify the deep Tertiary weathering of Permian rocks and the unfortunately almost identical-looking deeply weathered Tertiary rocks themselves – all in the name of characterising a rock mass for stability assessment purposes. Tryhards out there will now seek and recognise low-angle fissures as a sign of past shrink-swell behaviour under confined conditions and a signal of potential amazingly unstable slopes.

So, a calm but satisfying year for the core members of FOTT capped off by a no-holds-barred TEC expedition to Tertiary and perhaps not-so-Tertiary outcrops of the Tarong Basin in October. More Tertiary problems to define and solve in 2010!!

The Numbers Don't Stack Up

On 8 October in Brisbane a meeting of open cut coal geomechanics people was held to review some trends and developments and also to brainstorm eligibility criteria for signoff of geotechnical designs and recommendations. Representatives of RTCA, BMAC, Anglo Coal, Xstrata, Thiess, Peabody Energy, Golder, and Coffey mixed it with independent consultants. SGRS organised the agenda and venue while Paul Maconochie organised the excellent catering.

Given the accountabilities for risk management assigned to geotechnical specialists in coal mining, the existing skills shortage and training opportunity shortfalls pose some profound questions. One goal of the meeting was to expose recent graduates to these issues. The meeting helped foster a sense of common purpose and set some directions for positive changes that we will celebrate at the next meeting of the numbers. When? After 2006 there was 2009, so we enter 2010 in Class A prediction country.

Earthquake Engineering in Australia

The AEES is a pathway for keeping in touch with earthquake-related geotech things. It organises a yearly conference but also an interchange of information and ideas via an email circulation list to which Col Lynam and Bill Boyce are regular Qld contributors. During 2009 John made two AEES trips: to Melbourne in April to hear about displacement-based structural design, and to Adelaide in September for a one-day workshop which provoked much thinking about engineering for earthquake geotechnical risk in a pretty quiet place like Qld. It is sobering that so much of current design is based on simplified concepts and/or rules of thumb. Right now we have a challenge to seek better ways based on up-to-date knowledge and the fruits of current research.

The SGRS Buffet

SGRS continues to enjoy working with a wide range of issues and for a wide range of clients.

Many abrupt changes and timing clashes arose during 2009 so that "enjoy" often felt more like "endure". The perseverance award went to certification for the first stage of Tarong ash storage in a mined-out void at Meandu Mine. Detailed design, documentation, and construction activities will continue in 2010. The extreme geology award went to a pit wall design for Drayton, with the known unknowns award being a double-header involving Ian Clark, 3DFIac, and Mt Owen. SGRS is involved in tailings capping projects at three sites.

Significantly deeper open-cut coal mining is an in-vogue topic which raises questions about extremely high waste dumps where strength uncertainties lead to concerns about reliability of stability assessments. SGRS has extended the existing BMA Coal strength framework based on limited testing and some lateral thinking, and these ideas are now under evaluation. Most project work was for open cut coal mines, with highwall portal issues arising at several sites. Rockfall modelling was going ok until real wall profile and calibration data arrived. Pavements were pretty quiet and there were a couple of forays into legal work.

Ultimately it is people that make work worthwhile. John continued to enjoy working with Paul Maconochie and consulting with Joe Gough and Kevin Rosengren. Sue Henderson, Ian Clark, and Paul Lambert were welcome in the 2009 mix, while Andrew Johnstone left for hard rock in WA. SGRS has worked closely with Ian Kelso and Leonie Bradfield in a review and advisory role, including a challenging cutback, widening, or deepening (whatever sounds best).

Vale and Good Riddance to Traveston Dam

A ghastly large-dam proposal for "solving" water supply problems in Southeast Qld has been set aside on environmental grounds. Ever since its public announcement in 2006 it had been the focus of technical investigation and reporting activity as well as a massive land acquisition program with associated spin. A local community is now fractured and the wider community is no wiser as to how best to meet the challenge of future water demand. Rumbblings of misrepresentation and hype continue but wiser heads and sustainability arguments have prevailed and it is now time to re-engineer how we think about water valuation, supply, use, and demand. This applies equally to groundwater management, where the people of the driest continent on earth are still struggling to adopt principles and practices that are well understood and established elsewhere. SGRS acknowledges the passing of Lance Endersbee who tried to heighten awareness of the squandering of groundwater from the Great Artesian Basin. Our humblest request for 2010 and beyond is that you commit to learning more about groundwater and its sustainable management.

Gotta go – surf's up. Heart-felt best wishes for 2010 from John Simmons and mob.