

# GEMS Uncut

## GEMS a Catalyst in Mine Survey Solutions

- by Oliver Glockner

Groundbreaking developments in survey practices and techniques that makes a Mine Surveyors's job easier and more efficient, are underway with the help of GEMS ...

As well as underground resections, auto stake-out of centerlines, gradelines, and ring mark ups are now a reality for Trimble S6 total stations.

Right now the finishing touches are being applied to the Trimble's new equipment controlling software called the "Mines Module".

GEMS showcased the trial version at the recent Mining Australia 2009 Expo in Perth Western Australia.

We were frustrated by the issue that equipment suppliers were not providing systems that were suited to the way Mine Surveyors in Australia carried out their work. You either had to adapt your work routines to suit the equipment, or wait until a 3<sup>rd</sup> party had developed a patch, or add on software to work the way you wanted to.

Even the 3<sup>rd</sup> party solutions can become an issue, as when a major brand changes its base software in new models, the system that was used may no longer work! And whom do you contact when it doesn't work? Which part is not working?

We have a Trimble S6 of our own, and had developed a custom XML style

sheet to allow the instrument to work in conjunction with Gemcom's Surpac software. This was launched at the recent Australasian Mine Surveyors Convention, and in my opinion at the time made the S6 on par to its equivalent, the Leica 1200 series.

Via our close relationship with the WA distributor – HL Solutions, we put a business case together to Trimble, for us to work with them and develop a better Trimble solution. The requirement being a program in the Survey Controller software for the S6 which would allow automated markout/stakeout of centrelines, grade lines, rings and laser lines for underground surveying.

It was a pleasant surprise, and a tribute to the new vision of Trimble management that they not only took us up on the offer, but have progressed it so fast.

I believe the big sensation in this is the working together of a consultancy, distributor, and supplier in such an effective manner.

Is this now part of a new trend where suppliers are providing complete system solutions to suit Australia Mine Surveyors?

I'd like to be able to say yes, but I think it will still be very much reliant of how the business case is presented.

For those interested in the Trimble S6 "Surpac" styles sheet, see the team login

section of the web site.

GEMS also has other unique solutions documented on this web site.

For example: the Reconciliation Calculator Software. This is a spreadsheet calculator that balances out, or reconciles/adjusts mining stockpile, loading, trucking, and milling figures. The adjustment is a weighted one, based on the precision of the input data. This using the same concept of least squares adjustment of survey control.

To the big international equipment suppliers, it seems that the Australian Mine Survey market may not be considered to be of significance in their global market value sense.

But we're a pretty innovative bunch, always pushing the envelope on how we get things are done.

With innovation being one of the keys to success, I'm sure they'll soon take more notice of us!

So as we close out the year of 2009, I thank the team and celebrate the advances made in this year.

And a toast to 2010:

It will be a brighter future underground with Trimble's "Mine Module" and their new attitude to customer requirements.

Cheers!



### Special points of interest:

- BRAD STONE HAS JOINED THE TEAM.
- GEMS A CATALYST IN MINE SURVEY SOLUTIONS
- AUTO STAKEOUT UNDERGROUND WITH THE TRIMBLE S6
- RESECTIONS UNDERGROUND WITH THE TRIMBLE S6.
- THE LAST NINE MONTHS.
- UPDATES TO OUR ONLINE STORE
- GEMS WITH A WORLD DEBUT AT THE PERTH MINING AUSTRALIA EXPO 2009.
- GEMS ON YOU-TUBE

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# GEMS Newsletter - Volume 5

## The Last Nine Months

- by Oliver Glockner

We missed what would have been an issue or two, time flies when you're keeping busy, and low and behold nine months have past!



As a team we've been preparing our marketing displays, primarily for our stands at both the Perth Mine Surveyors Convention, and then the Perth Mining Australia Expo.

In preparation for these we also upgraded our web site and set up a promo video.

Our web site now has a 'virtual online spokesperson' to guide though the site and explain it to you.

My many thanks again to the VISONline team for doing such a great job with this.



### Brad Stone

Brad joined us and has been helping out in manning the expo stands, doing the environmental survey works we have around Perth, and filling in at Crosslands Jack Hills Project, and at Cockatoo island.

As you'll see from the promo video, he also played a starring role in its production.



### Kye Chambers

Kye's still at Cockatoo Island. He's been the mainstay on the project that's been through some tough times. Well done Kye for sticking through it.



### Tristan Mander

Since the last newsletter, Tristan has finished at Southern Cross. He set up a prism monitoring system at Woodie Woodie, and then basically hid from us and work by having the holiday of a life-time in Europe.

He's back again and working at Cockatoo island and Jack Hills over the festive season.



### Greg Valli

Greg's still doing work for St Barbara, both as an Engineer and Surveyor, at both

Southern Cross and Leonora operations.

In addition to manning the expo stands, he's been the key player in developing the Trimble Surpac resectioning styles sheet, and working closely with Trimble programmers to develop the underground 'Mines' module for the S6.



### Oliver Glockner

I can now list being a movie producer to my credits! Yes, been busy getting various preparation done for the expos.

The new house build, which incorporates the GEMS office also took up a fair bit of my time.

I have been up at Woodie Woodie, going through their product stocks reconciliation issues. The answers being provided by our reconciliation calculator spreadsheet.

At the moment, I'm working as part of the planning team for the BHP Billiton Olympic Dam Clark Shaft recovery.

For those unaware of the scope of the issue, here is a brief as listed on the BHP Billiton web site;

*On the evening of 6 October, an incident at Olympic Dam underground mine significantly damaged operating equipment at the Clark Shaft haulage system, which is responsible for around 75% of the mine's ore production.*



### We're on the Tube!



It is a promotional video designed to showcase the functionality of our website.

Follow the link below to see (HD version may be slow to stream through – depending on broadband speed) Full screen with sound seems ok though.

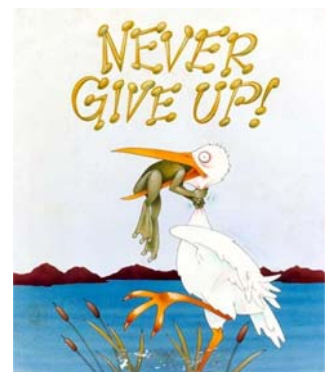
<http://www.youtube.com/watch?v=FF0e4cgHiE>

When a puzzle seems unsolvable;

**NEVER GIVE UP!**

This may not provide an answer any quicker or easier;

But rather its maintains an opportunity for them.



## Resections Underground with the Trimble S6/8

- by Greg Valli

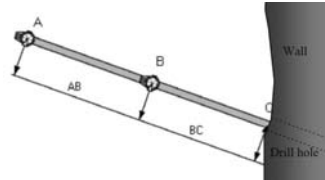


The Trimble S6/8 Underground Surveying Style Sheet and its procedure are available as a free download from the team login section of our web site.

The procedure details how to use the Trimble S6/S8 total station to complete routine underground surveying tasks including;

- standard station setup,
- resection,

- forward/wall station establishment,
- feature surveys, and
- extended rod drillhole surveys.



The field procedure utilises the GEMS\_UGv2.1.xsl style sheet to export data from the TCU to allow straightforward processing in Gemcom Surpac software using its Geodat 600 data recorder function.



If you're after more information regarding its use, please don't hesitate to call me.

Ask for Greg on  
1300 76 30 50

## Our Online Store

- by Oliver Glockner

GEMS Online Store web link has been amended to better showcase any items we may currently be selling.

The store as the name suggests is an eBay Store

As firewalls on many mine sites prohibit access to eBay, a link to a pdf catalogue download is provided, which displays what we currently have on sale.

## EBAY STORE

You can then contact us directly regarding any purchase, without having to purchase using eBay.

The eBay auction listings do however, allow you pick up some great bargains via the eBay system.

Click on our [PDF Catalogue](#) link for our latest Catalogue of items on sale.

[The Store on eBay](#) is a direct link to our listings on ebay.



## Welcome to the team: BRAD STONE

- by Oliver Glockner

Brad Stone joined the team recently ... and finally... Woo Hoo!

Quite a few of us have worked with Brad, on several sites, over the past six or so years.

So it's a great achievement for us to have circumstances play out in a way that has enabled him to join us.



Brad's working on various fill in roles for us, including

being the main star of our promo video.

Brad has a WA Grade 2 Mine Surveyors certification, and brings to the team a vast range of experiences, survey knowledge, and all packaged with the right aptitude and attitude.

Welcome aboard Brad.



## Video and Animation Production Specialists

Using state of the art audio and video recording equipment this enthusiastic team of young professionals produces videos of the highest quality.

With their custom editing suits they are able to create your Video Internet Spokesperson as a borderless video that can be seamlessly integrated into your current web site. All with a quality of service that is second to none.

See them at;  
<http://www.visonline.com.au/>

To catch a fish using a line;  
one must use the right bait for lure.

A tiger is not enticed from the security of the jungle by peanuts;  
but rather by a tethered goat.  
To use peanuts would result in the attraction of monkeys.



## Trimble 'Mines' Module World Debut

Congratulations all round with the Trimble "Mines" Module going through successful trials and demonstrations.

This world debut photo taken at GEMS stand at the Perth Mining Australia Expo, October 2009. In the photo are (left to right); Brad Stone — GEMS  
Brad Gray — HL Solutions  
Greg Valli — GEMS  
Oliver Glockner — GEMS

## Auto Stakeout Underground with the Trimble S6

- by Greg Valli



With the imminent full release of the Trimble 'Mines' module in 2010,

I thought I'd take this opportunity to explain the setout coding or nomenclature, seeing as how I compiled it for Trimble.

I'll also outline in brief how the system works;

### Uploading data

The module has been written to allow complete customisation of point identification nomenclature via settings which enable prefixes and suffixes to be defined.

An example point identification nomenclature for ring mark-ups is as follows:

Centreline or Reference Line – R1 ([R] for Ring then followed by the [Ring Number]);

Laser lines – LL1 ([L] for Laserline then [L or R] for left or right wall then the [Ring Number]);

Blast Holes – A1C – ([A-Z] hole id then [Ring number] then [C or T] Collar or Toe);

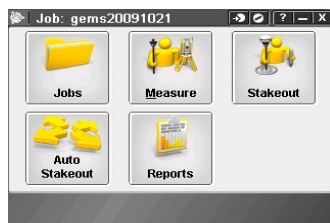
Pivot Points – P1R1 – ([P] then [Pivot Point Number] then [R] for Ring then the [Ring Number])

### Enter Mines module

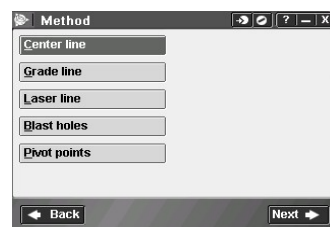


From this Menu all of the usual functionality is present with options for point meas-

urement, job management, stakeout and reporting. The Mines module flagship is the Auto Stakeout function.



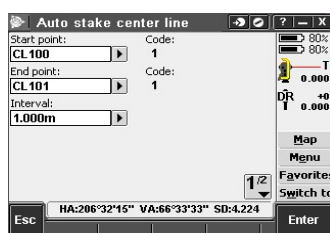
The surveyor is given five method options under the Auto Stakeout menu.



Centre line

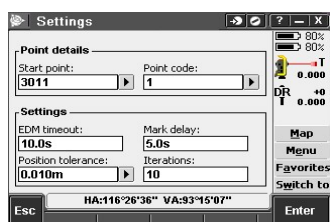
Grade line

Two points define the centerline or grade line and a point interval is entered for distance between staked points. Horizontal and Vertical offsets can also be set.



User settings such as delay between marked points and position tolerance can then set.

Tap Enter and begin staking out points!



Laser lines

This option pairs points as uploaded to create lines for stake out.

Start point	End point	Azimuth	Distance
LL1	LR1	270°15'11"	3.398m
LL2	LR2	270°10'05"	3.421m
LL3	LR3	270°17'01"	3.434m
LL4	LR4	270°17'01"	3.433m
LL5	LR5	270°15'58"	3.445m

Blast holes

Collars and toes of holes are paired to create lines for staking out blast hole collars

Pivot points

Stakes out Pivot points on the backs even if uploaded close to the floor.

The combination of these options available in the Auto Stakeout function caters for all production drilling and development mark up requirements.

There is even an option to record the "as staked" positions of all auto-staked information.

This provides extra data which can be added to as-built information for example grade lines as wall feature strings and provide a QA/QC check on completed mark outs.

This is a simple download as the "as staked" positions are real coordinates not deltas relative to the calculated stake positions.

For more information please don't hesitate to call me on 1300 76 30 50

- Greg Valli



Merry Christmas from the GEMS team.

Frohe Weihnachten

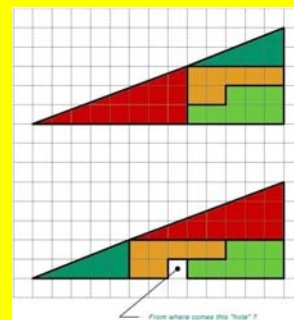
Sooksun Wan Christmas

Buone Feste Natalizie

Joyeux Noel

Nollaig Shona Dhuit

The four portions below are moved around;



Portions are the same size, but where does the hole come from?



Best Wishes from the

GEMS Team:

Have a Safe and

Happy New Year