



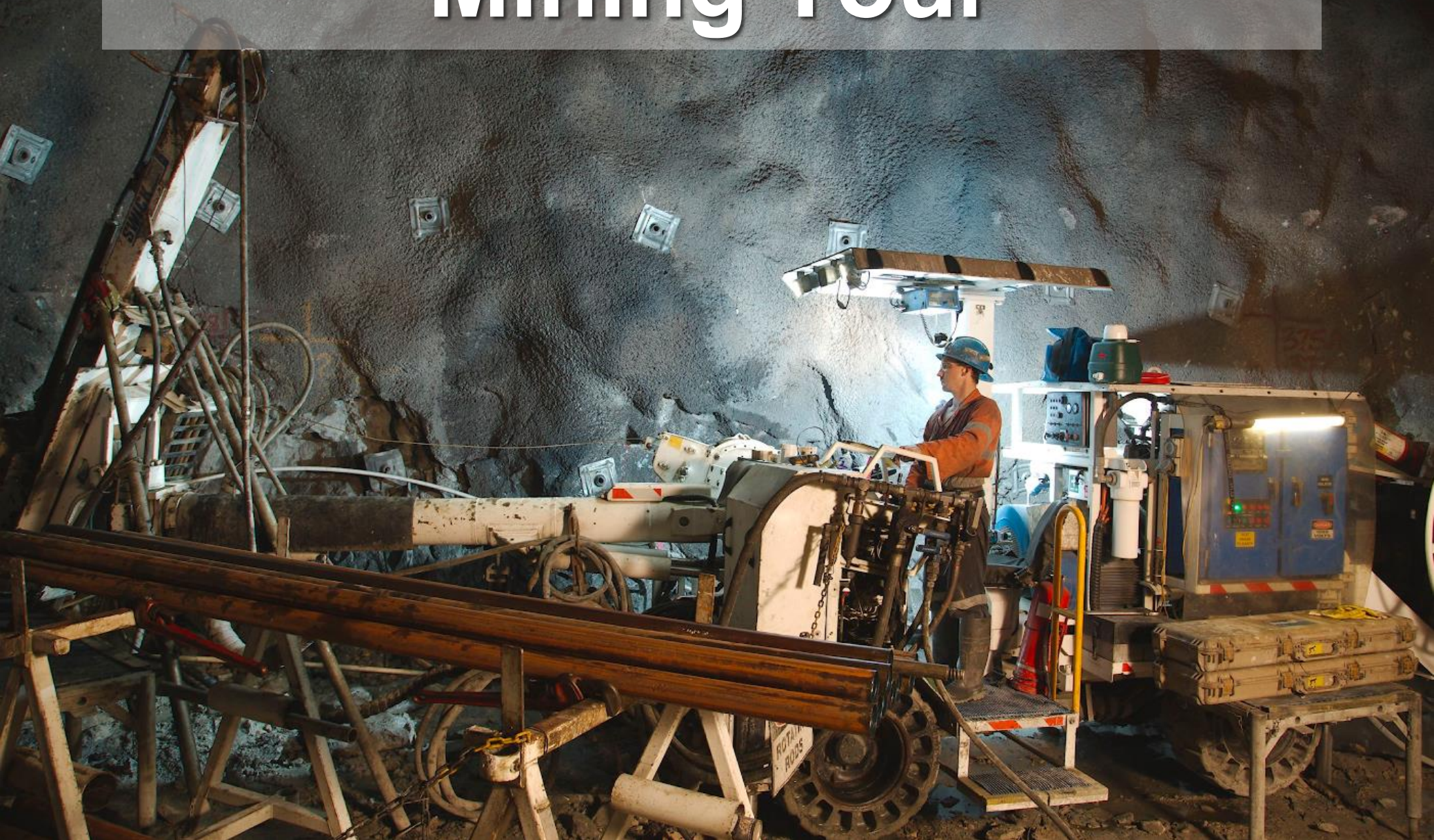
SANDFIRE RESOURCES NL

ASX Code: SFR

A Premier Australian Copper Producer

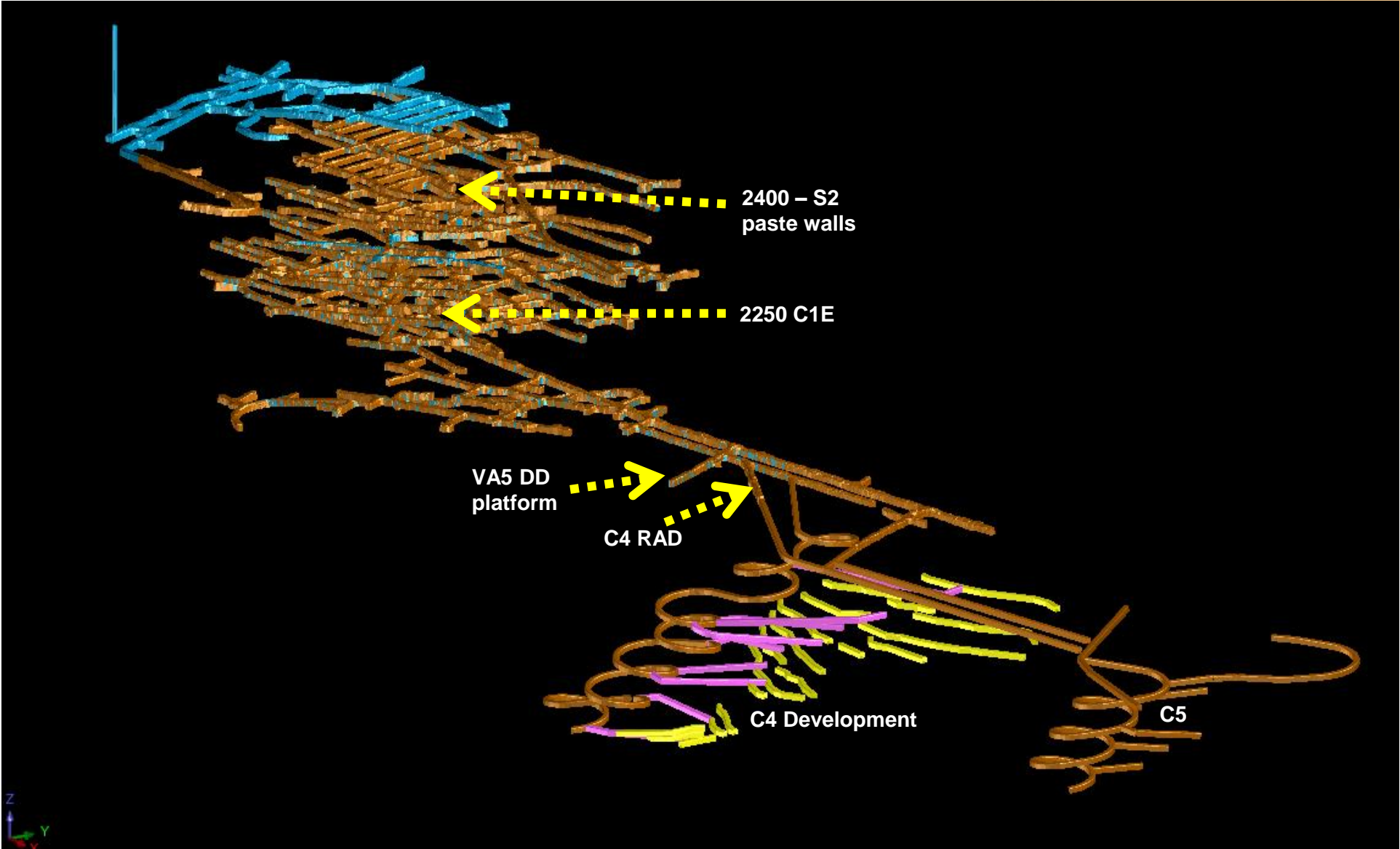
DeGrussa Copper Mine – Broker and Investor Site Visit – 7 March 2014

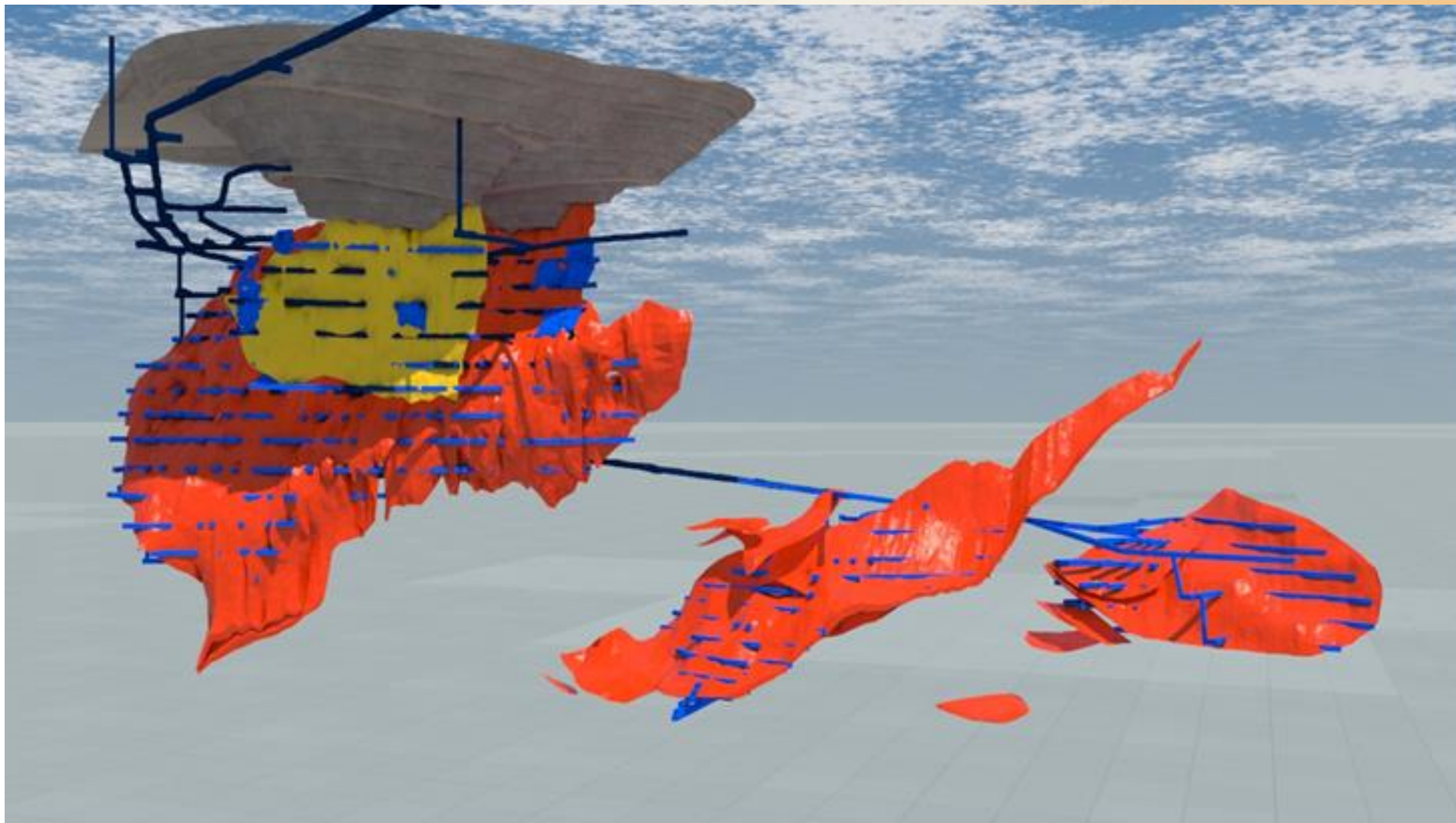
Mining Tour





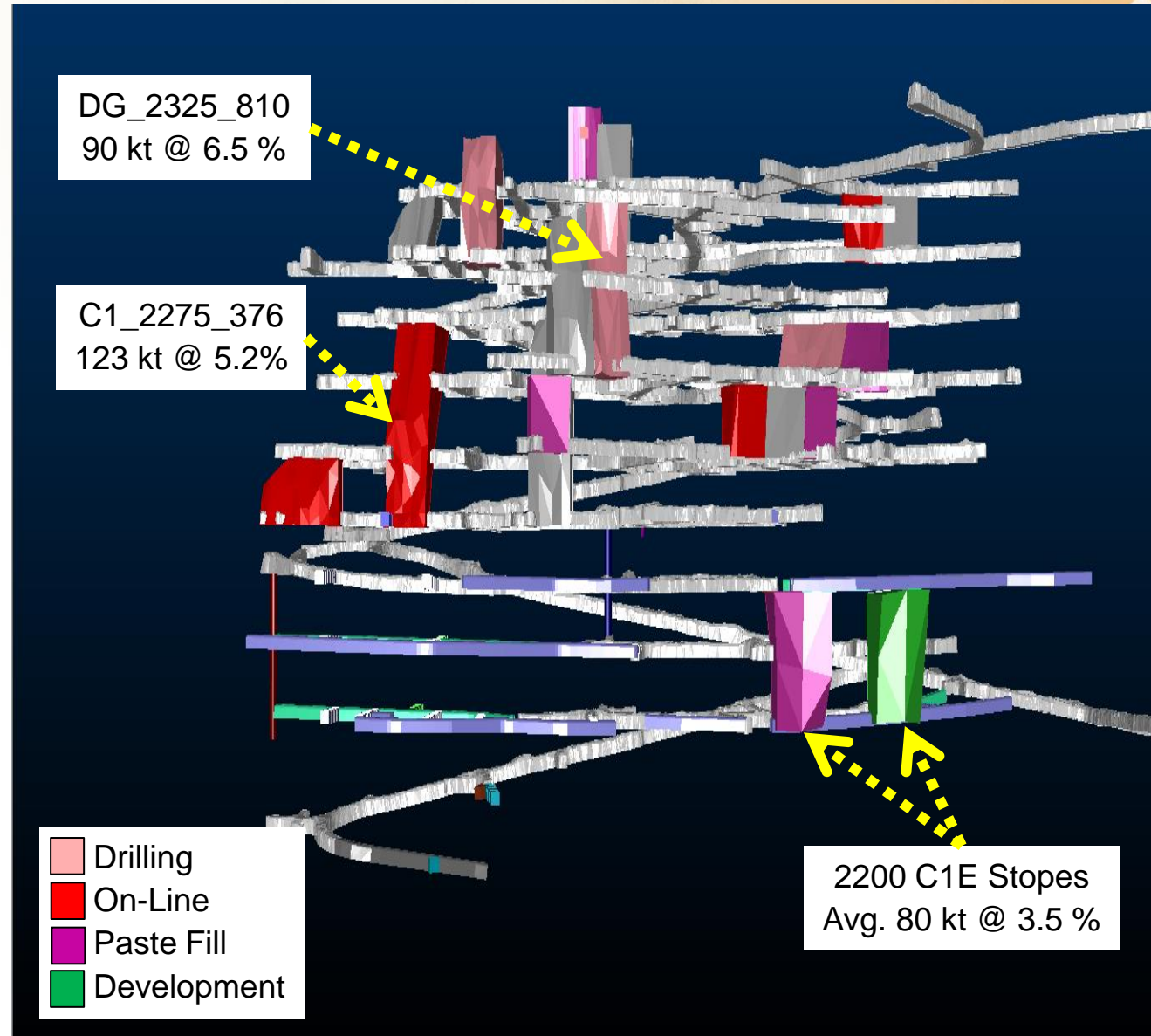
Underground Visit





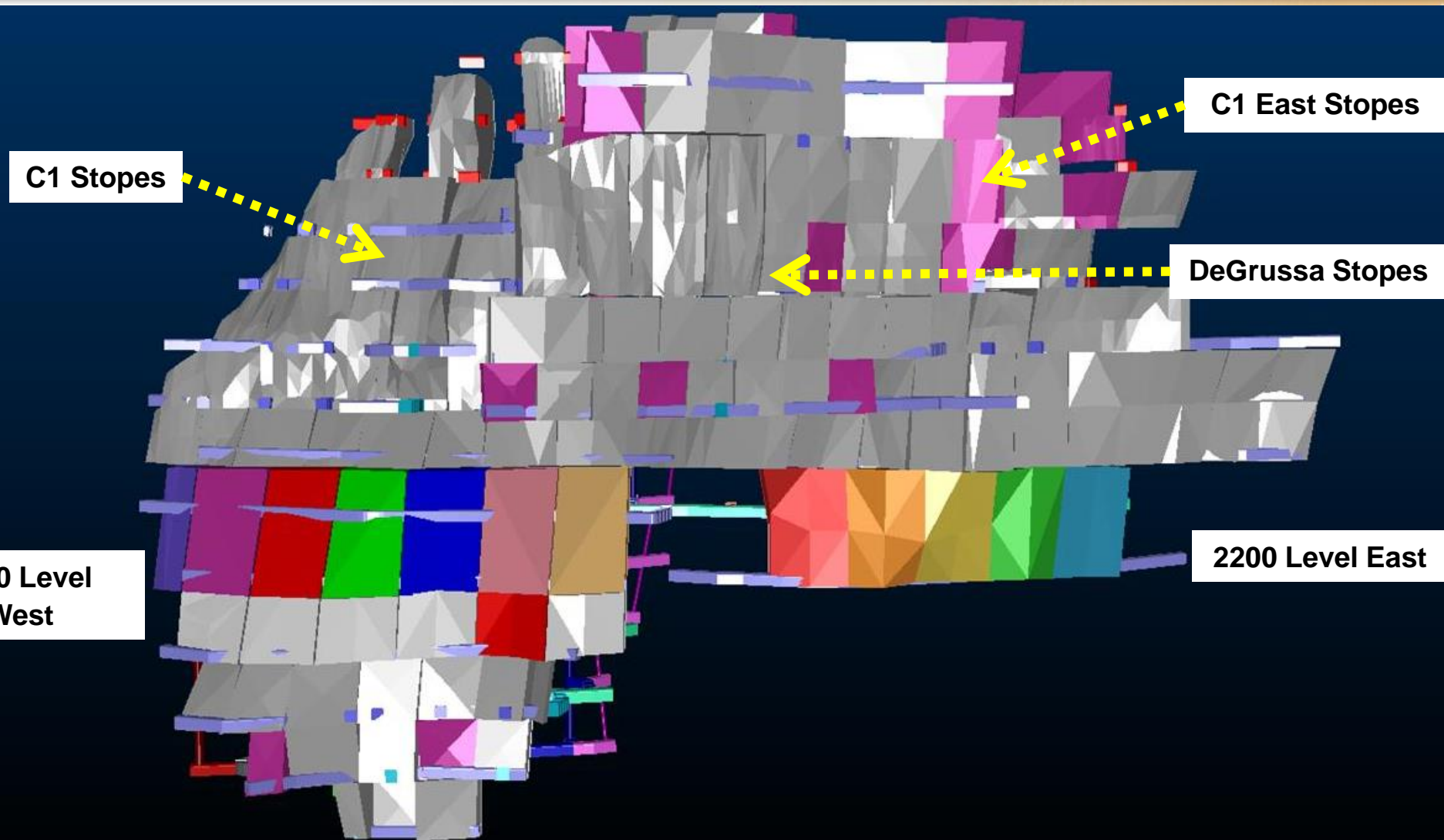
Current Mining & Stopping Activities

- Two stopes now on-line with four large stopes to commence in March – April 2014
- Paste plant performance stabilised with above target performance achieved under gravity flow conditions
- Progressed development of C1 Decline to 2150 level without any significant issues
- Mine delivering around the 1.5Mtpa rate and in 'balance' with development and back-fill performance
- External geotechnical review completed in December 2013 – confirms stoping and ground support strategies



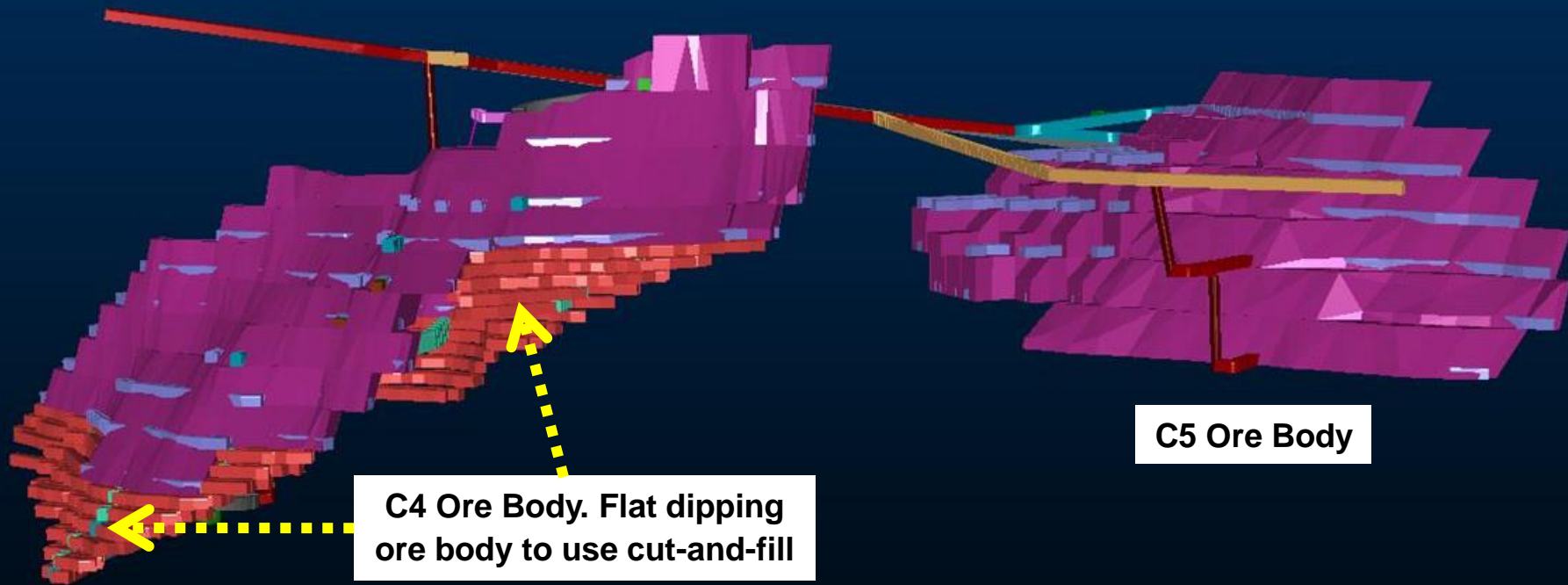


Life-of-Mine Stopes – C1, C1E and DG Ore Bodies





Life-of-Mine Stopes – C4 and C5 Ore Bodies



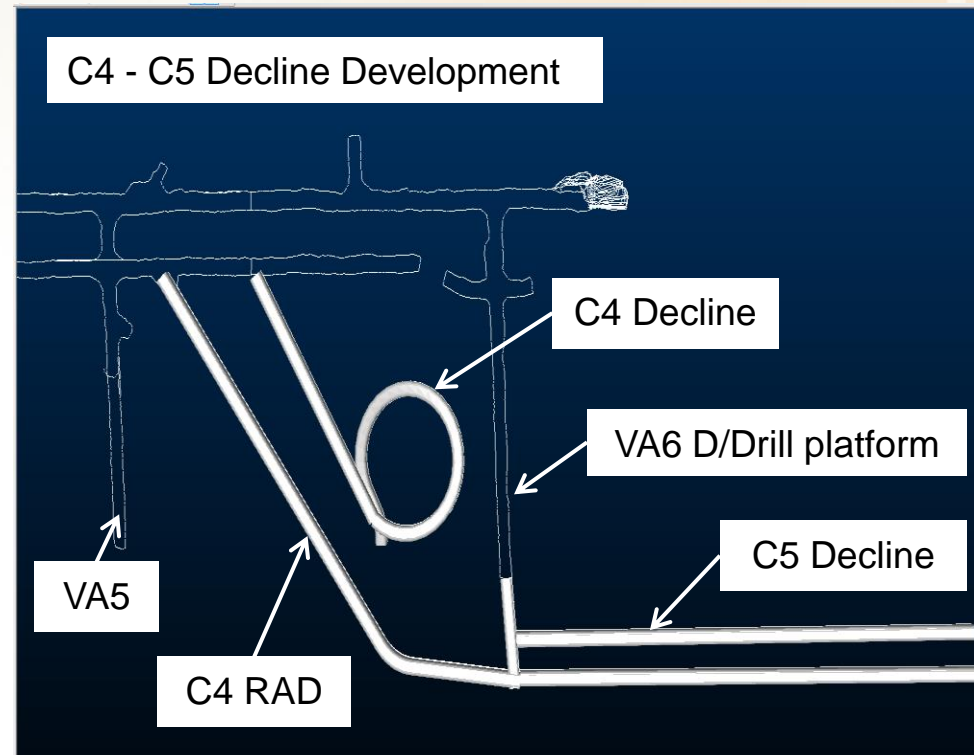
C4 Ore Body. Flat dipping
ore body to use cut-and-fill

C5 Ore Body

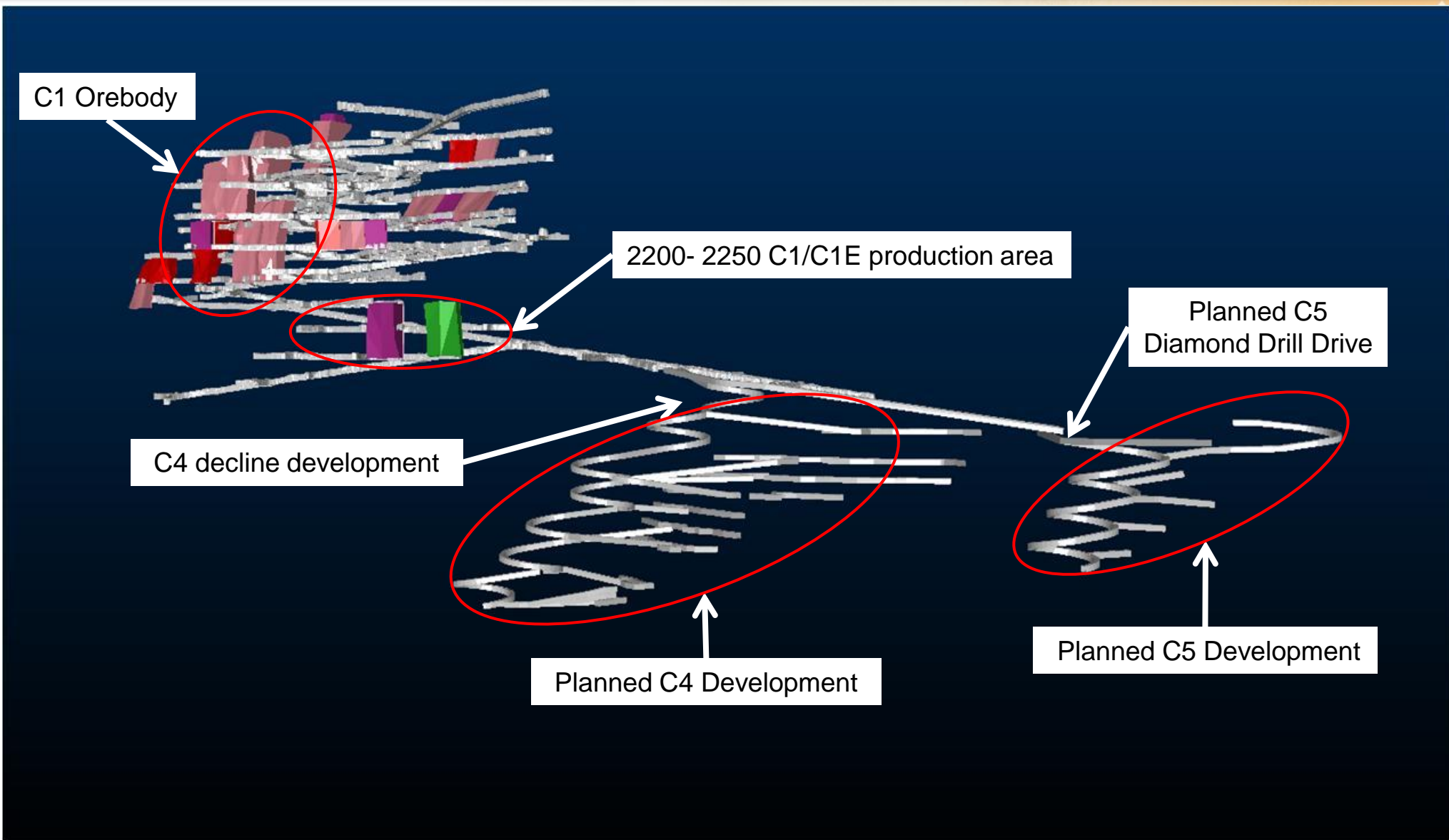


C4 and C5 Decline Development

- Redesign of C4 and C5 Decline completed to keep the decline within the siltstone and dolerite rock units – good ground conditions
- Detailed geotechnical review and drilling completed to confirm new decline path
- Additional pumping capacity being installed to manage water in-flows
- Redesign allows for the least possible interference to the C4 diamond drilling program
- C4 Decline development re-commenced mid February with the first cut in the C4 RAD
- New decline path will have no impact on previously announced development timelines and budgeted capital expenditure

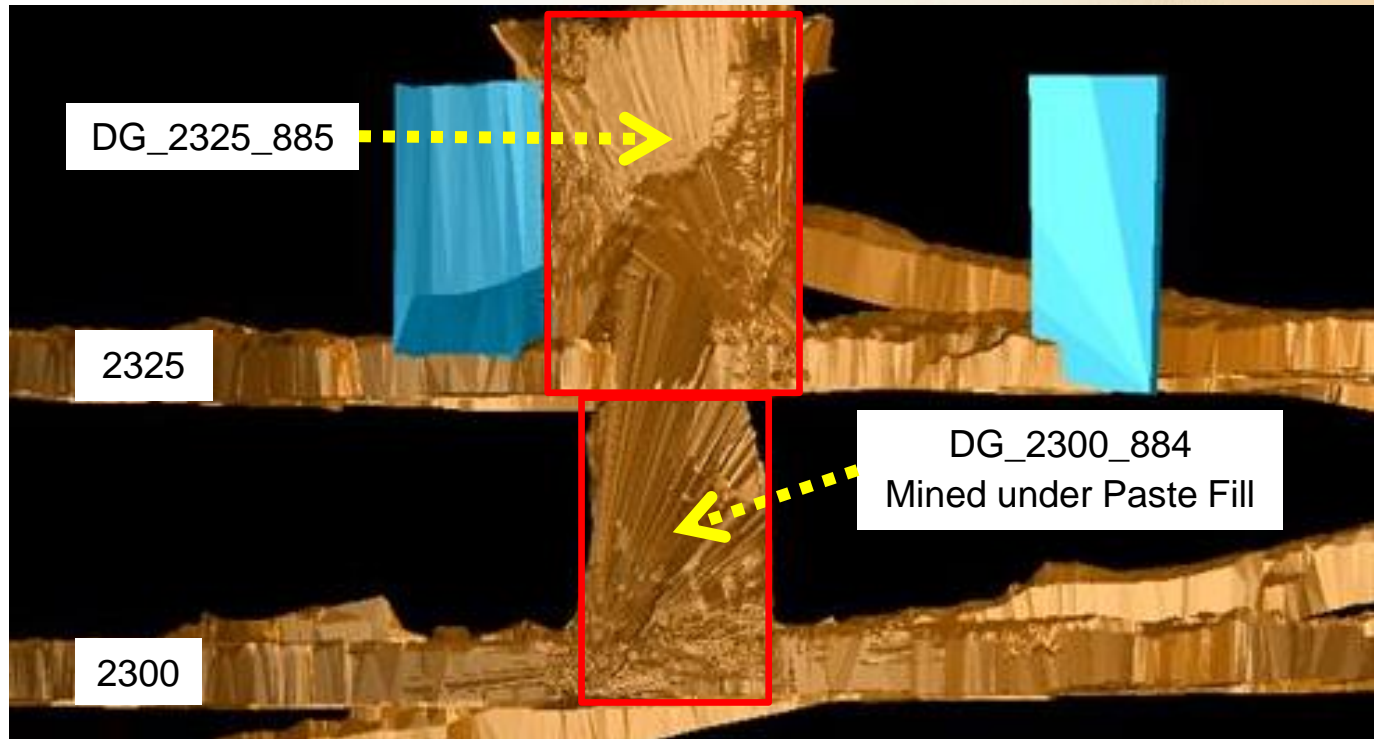


C4 and C5 Underground Development





DG_2300_884 – First stope mined under Paste Fill

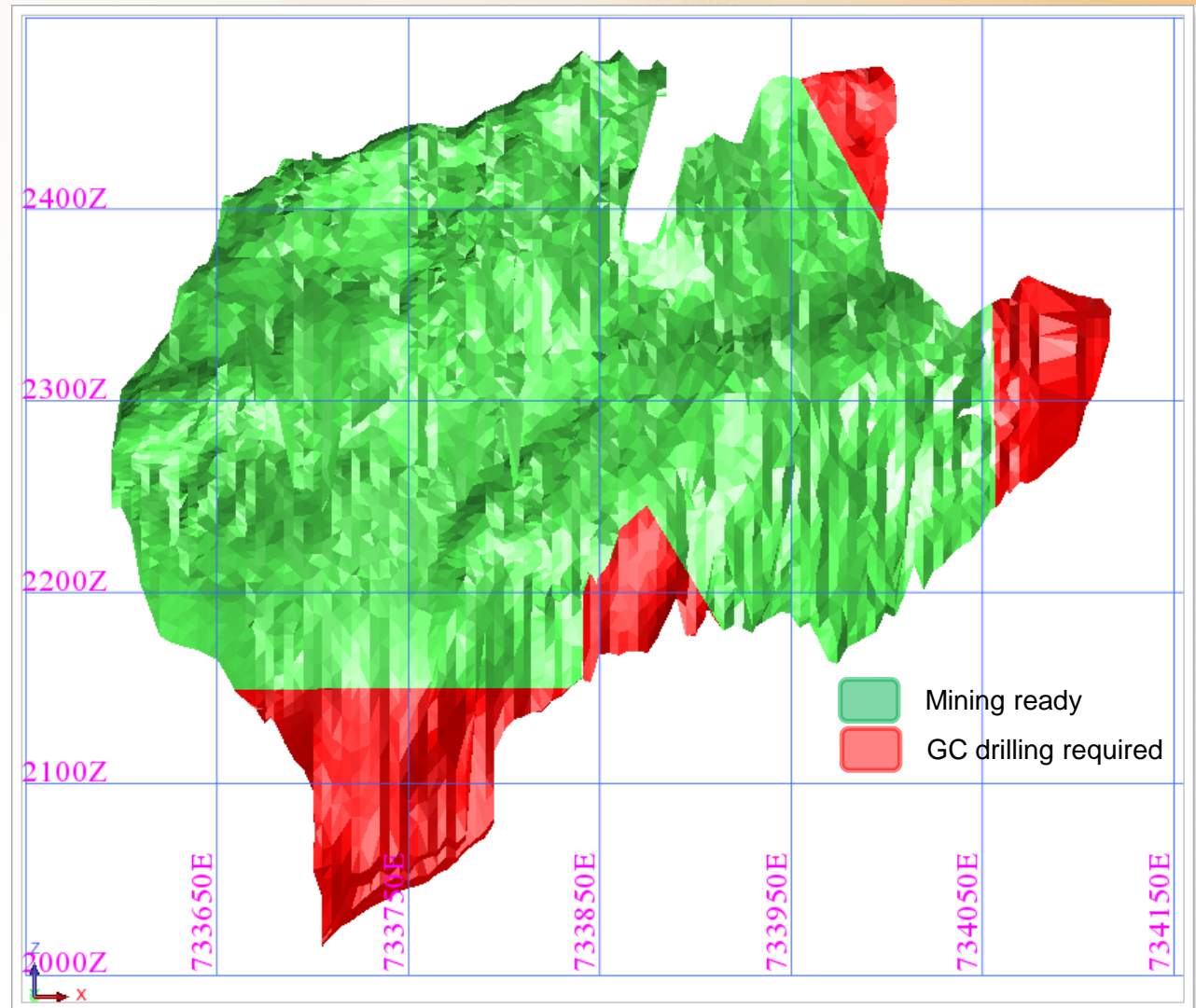


- DG_2300_884 was the first stope to be mined under paste. Full extraction was achieved without paste dilution from the DG_2325_885 stope above.
- DG_2325_790 was paste filled in February using a trial binder with potential to increase long term strength; 7 day and 14 day strength test show positive results.



C1 Drilling

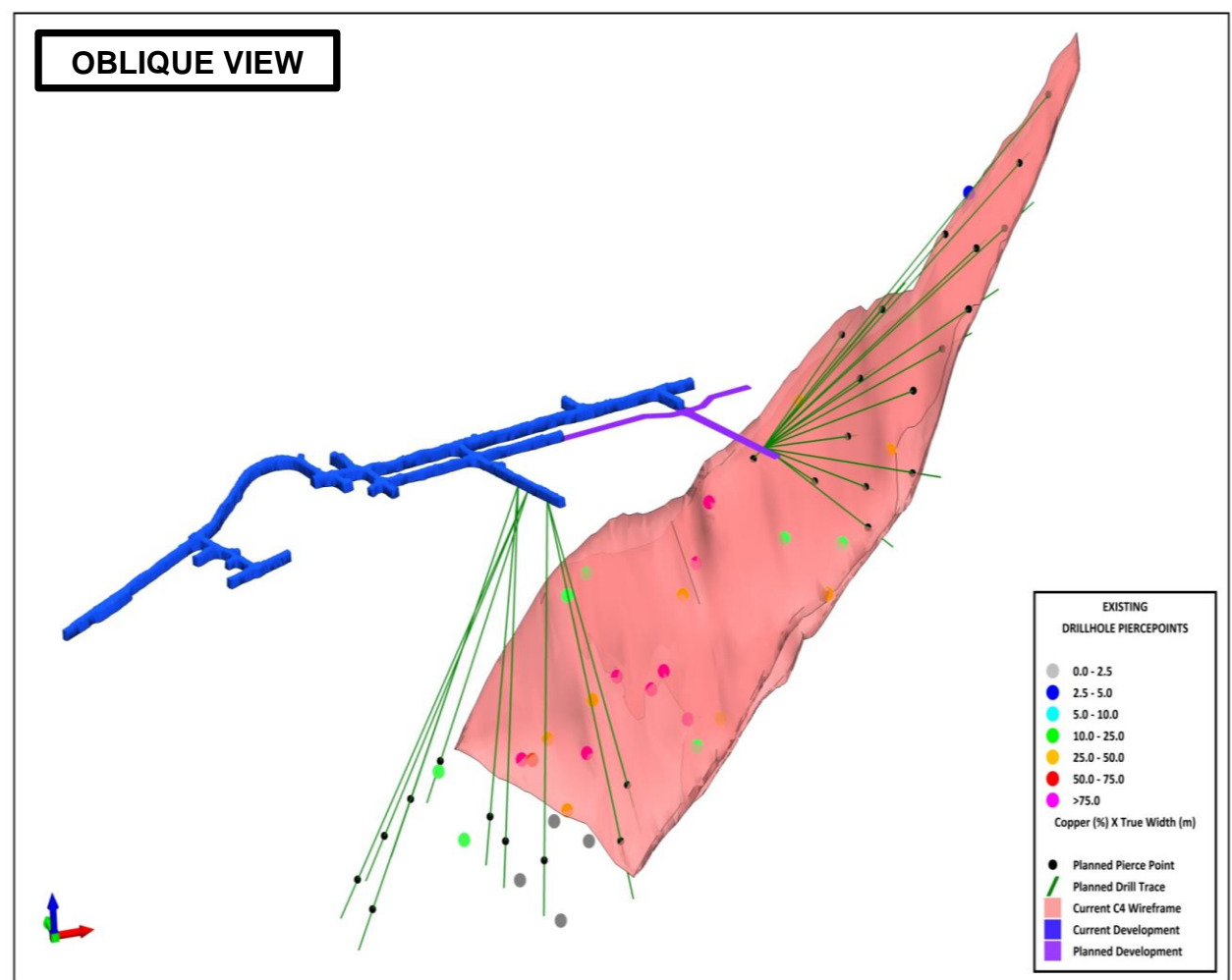
- Recent underground grade control drilling has brought the majority of the C1 ore body, down to the 2150M RL, to a 'mine ready' status
- Below the 2150m RL further drilling is required to convert to 'mine ready' status





C4 Proposed Drilling

- Grade control drilling will continue to target the C4 orebody down plunge from the 2200DDD drill drive
- Exploration drilling to take place from the 2176 (VA6) and target the upper area of the C4 orebody between the Shiraz and Merlot faults – grade control drilling to follow

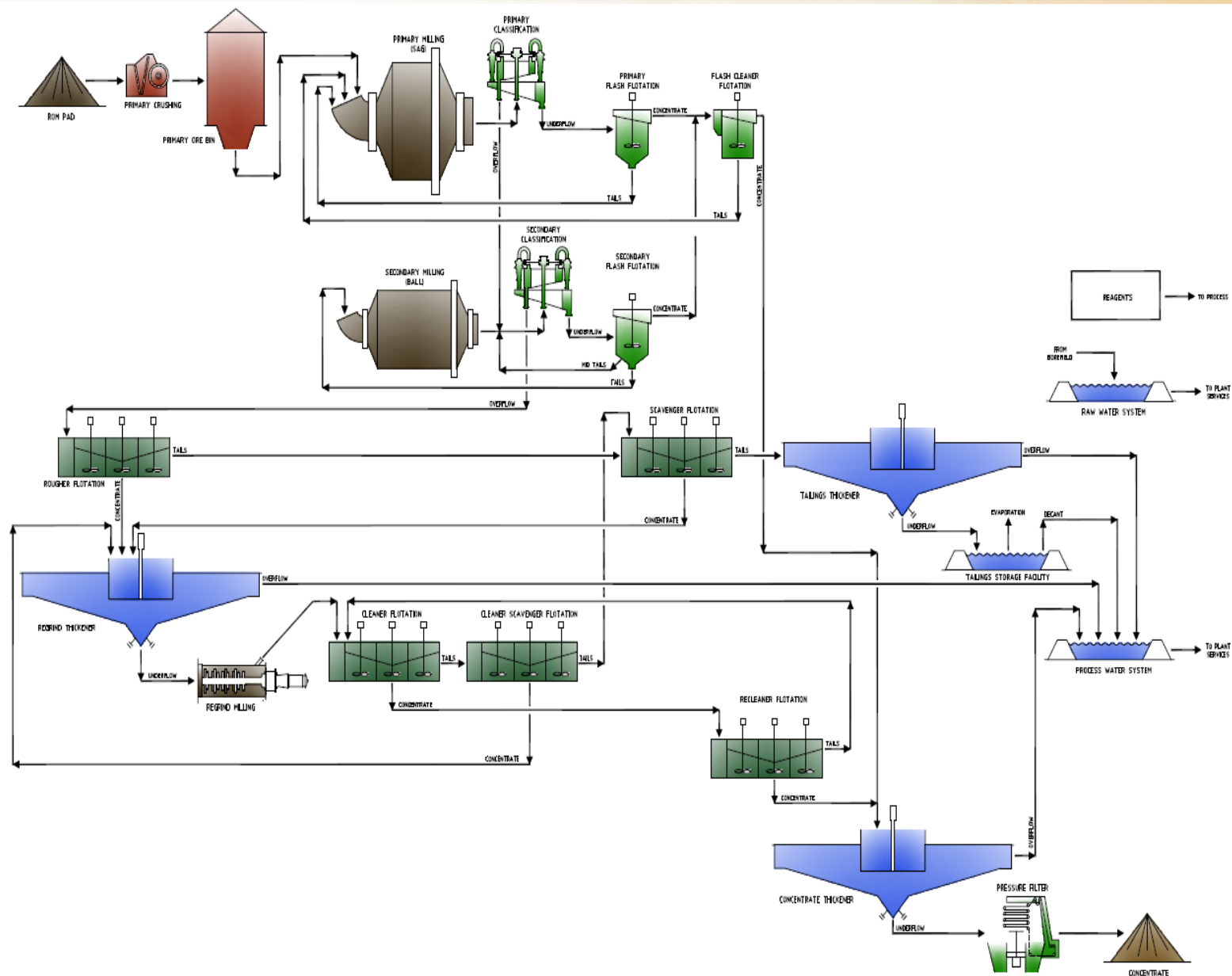


Processing Tour





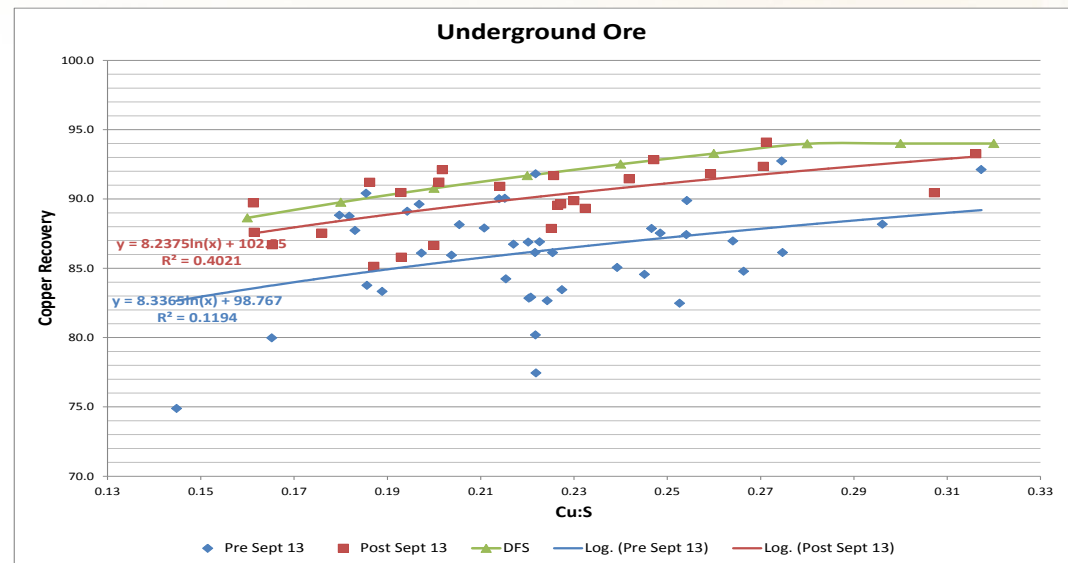
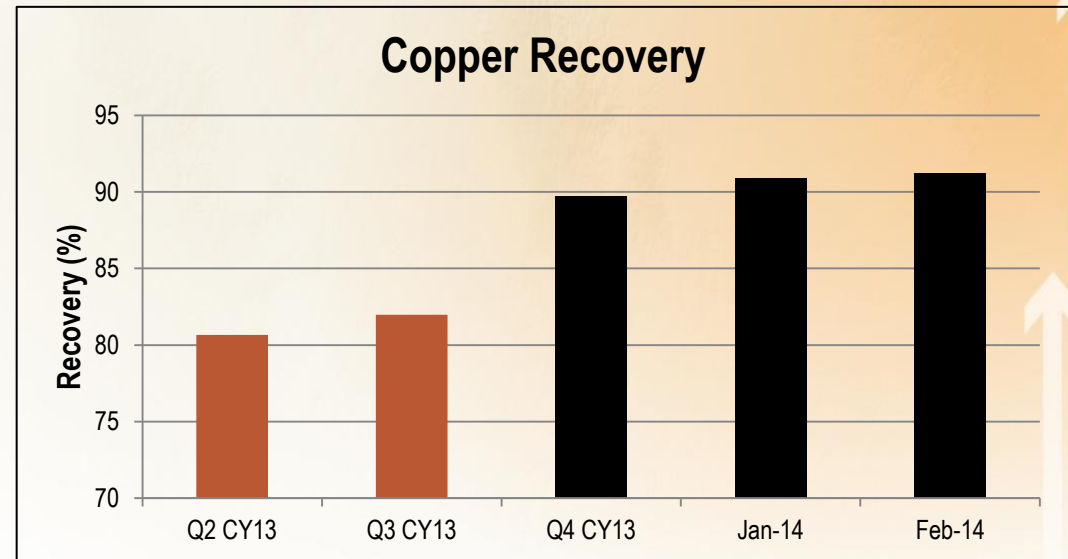
Processing Flowchart





Copper Recovery

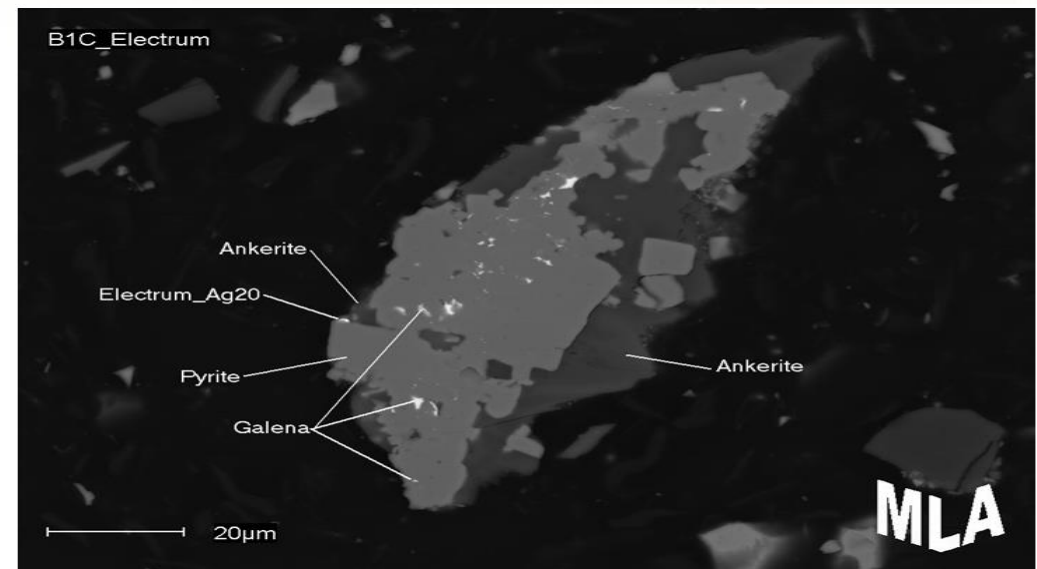
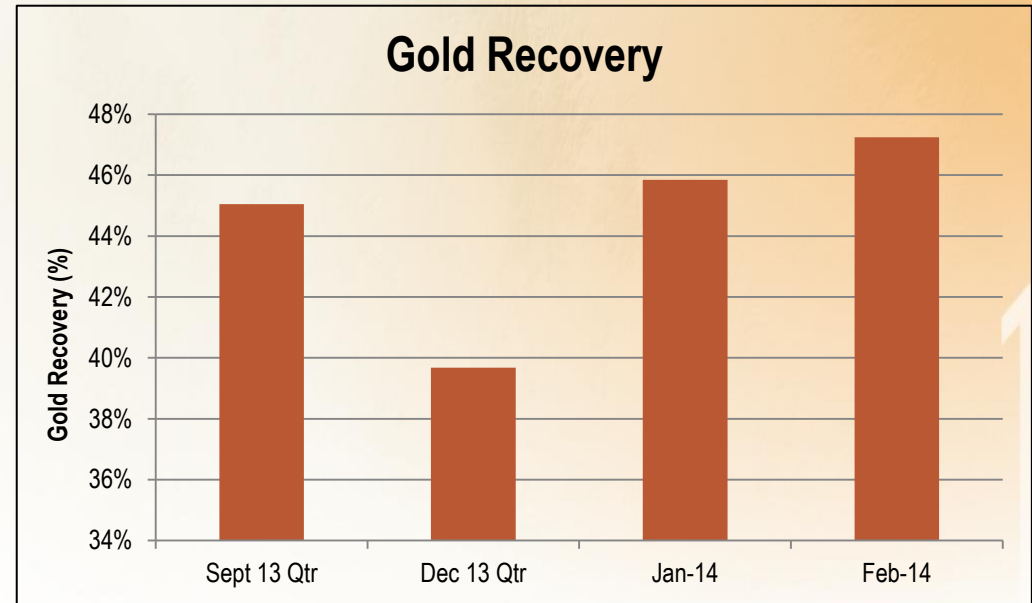
- Sustained recoveries of +90% treating underground ore
- Recovery matches DFS recovery model
- On target for sustained 92% recovery
- Recovery increase attributable to improved operational stability in flotation following implementation of advanced process control system
- Further recovery optimisation initiatives:
 - Coarser grind size – potential change in SAG mill classification
 - Optimisation of flotation flowsheet
 - Installation of column flotation cell (trial underway)
 - Ongoing reagent optimisation trials





Gold Recovery

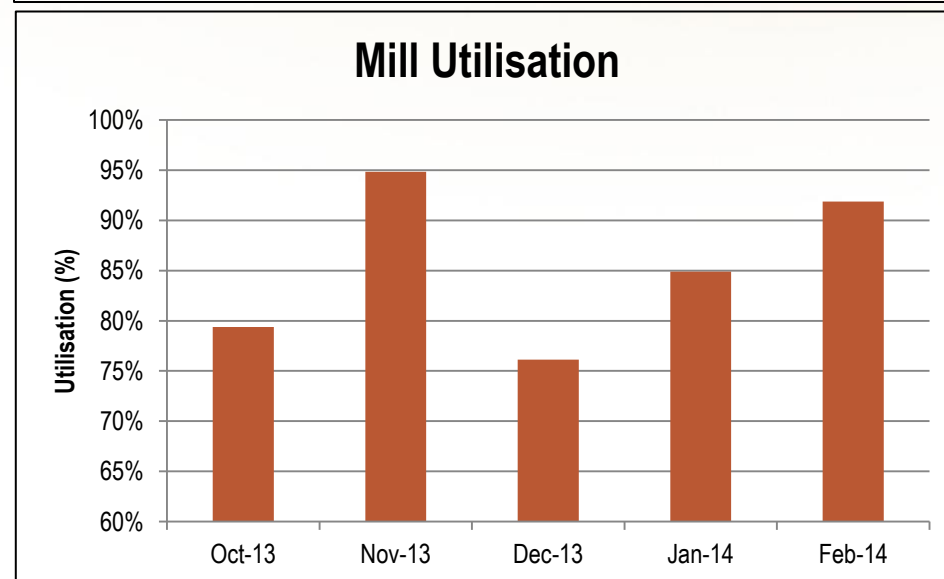
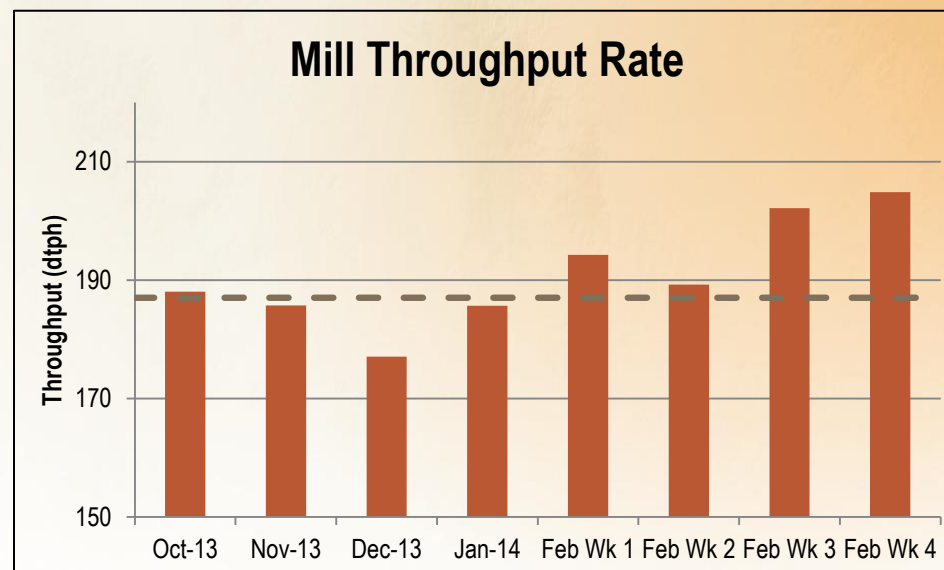
- Mineralogy undertaken to better understand gold associations:
 - Confirmed gold occurs almost exclusively as electrum
 - Typically associated with pyrite when observed
 - Extremely fine $<3\mu\text{m}$
- Further testwork being completed to confirm results of initial testwork
- Options for economic recovery uplift to be examined in Q2 CY2014
- Gold recovery improvements must not be at the expense of copper recovery
- Maintaining 45% gold recovery within internal forecasts





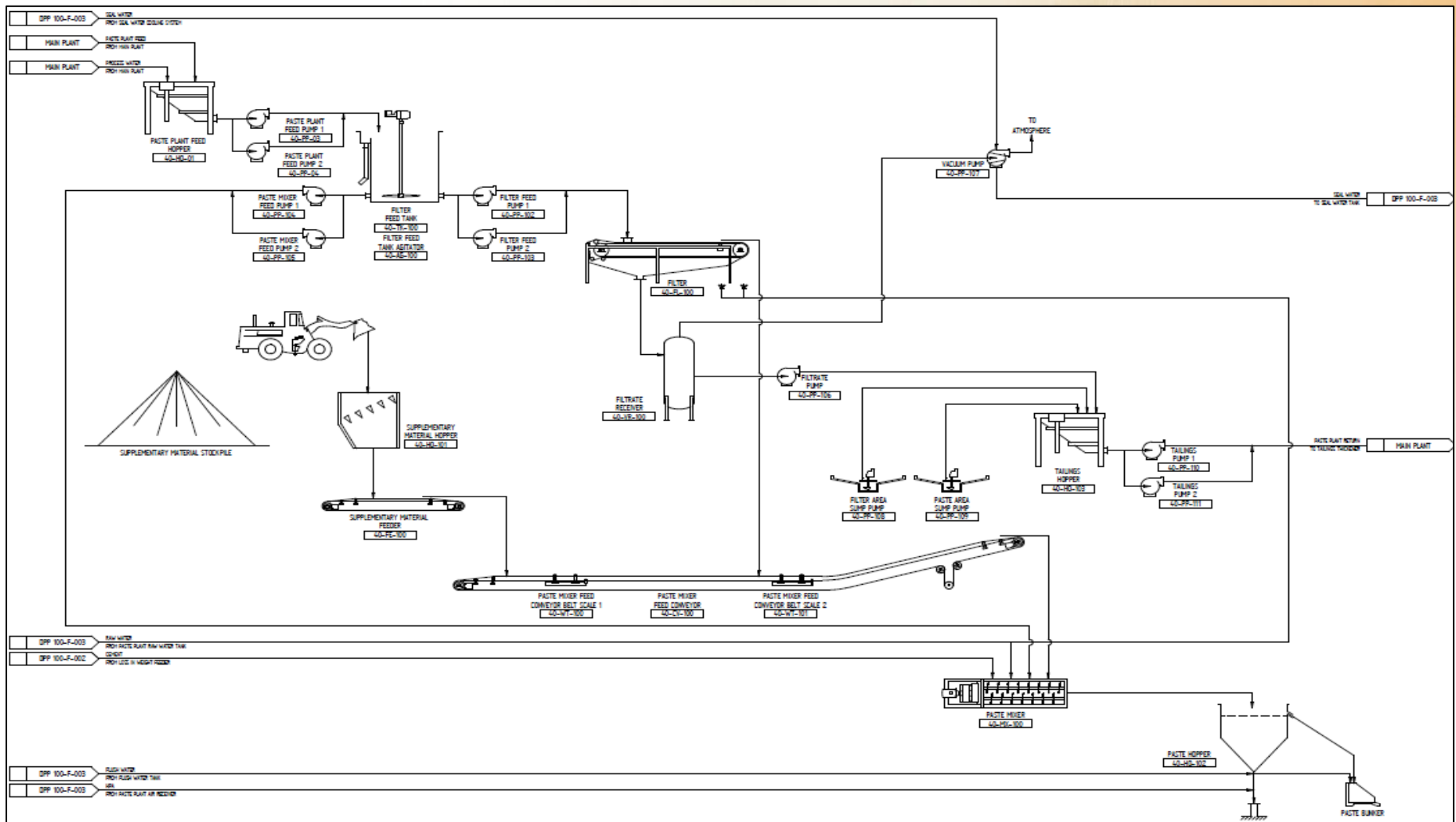
Milling Throughput Improvement Program

- Milling throughput has been influenced by higher than expected critical size material
- Milling performance has been stabilised at 1.5mtpa with changes to operating strategy:
 - Ore blend management to reduce variability
 - Optimisation of steel charge
 - Partial SAG bypass to ball mill
 - Ejection of critical size material
- Modelling shows that the installation of a pebble crusher results in:
 - Improved grind management
 - Reduced operational variability
 - Reduced operating costs
 - Increased milling capacity
- Pebble crusher option being considered
- SAG mill utilisation improved by:
 - Optimisation of grate design
 - Planned upgrade to CV01 magnet





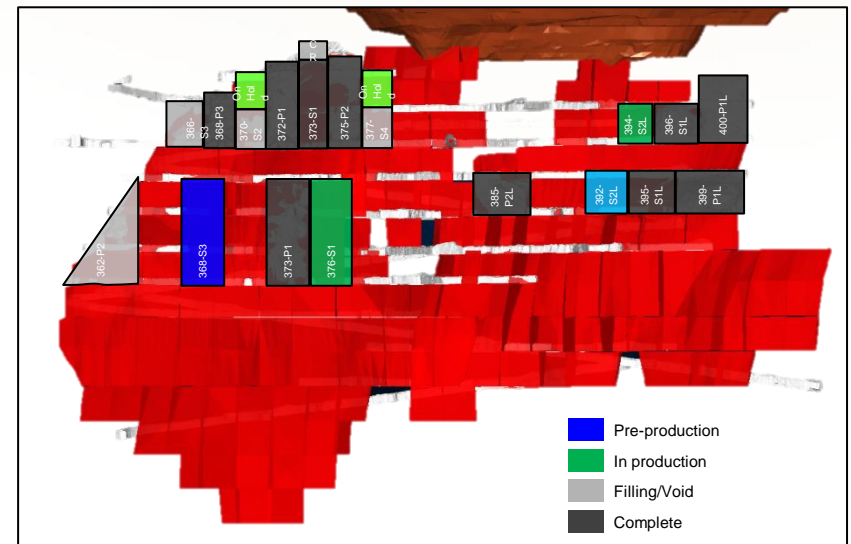
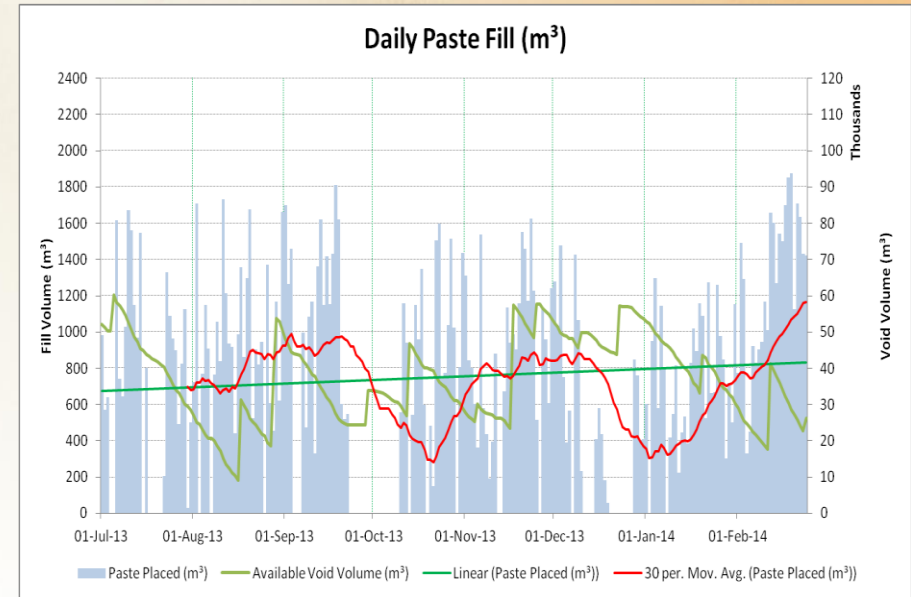
Paste Plant





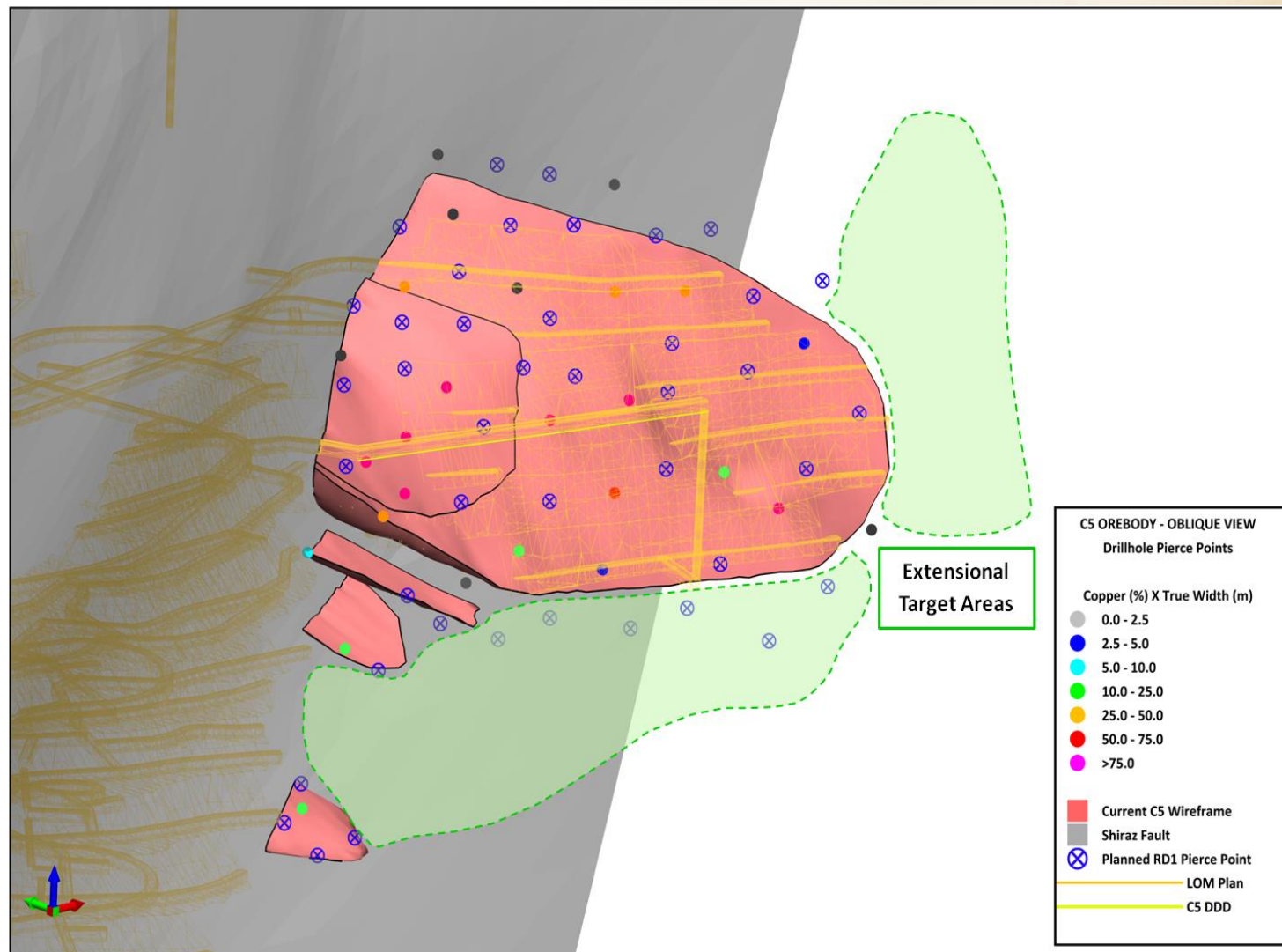
Paste Plant

- October 2013 shutdown resolved issues with Paste Plant operational performance
- Second binder silo commissioned and binder supply contract in place
- Improved operational performance attributable to:
 - Increased operational focus and supervision
 - Improved maintenance strategies and equipment optimisation
- Improved paste production capacity on gravity feed:
 - Up to 1,800m³/day
 - 30 day moving average of 1180 m³/day – continues to improve
- Mine sequence now limits ‘pumped’ paste to 27,000 m³ for stope filling and 12,950 m³ for the S1 stope crown via the open pit in the next 12 months
- Maximisation of tailings supply for paste production:
 - Review of tailings system completed
 - Supplementary feed trial planned Q4
 - Testwork underway for whole of tailings feed





Exploration Tour



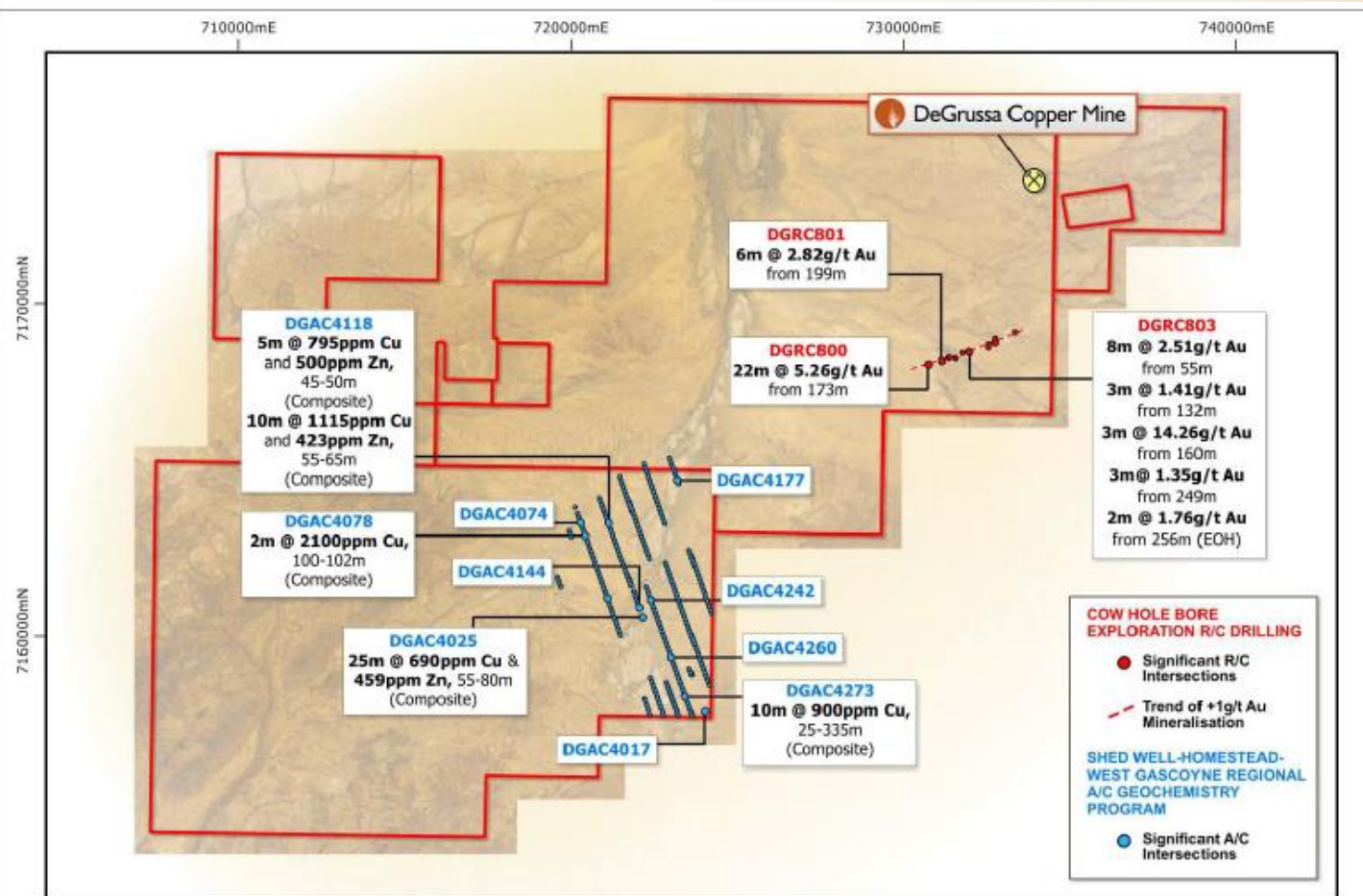
Proposed C5
Resource Definition
Drilling Programme

Proposed C5
Exploration Drilling
Programme

Drilling programmes to
commence mid
CY2014 when C5 drill
drive is complete



DeGrussa – Recent Exploration Drilling – Anomalous Results



Note: Intercepts as announced in Sandfire's Quarterly Report dated 21 January 2014.

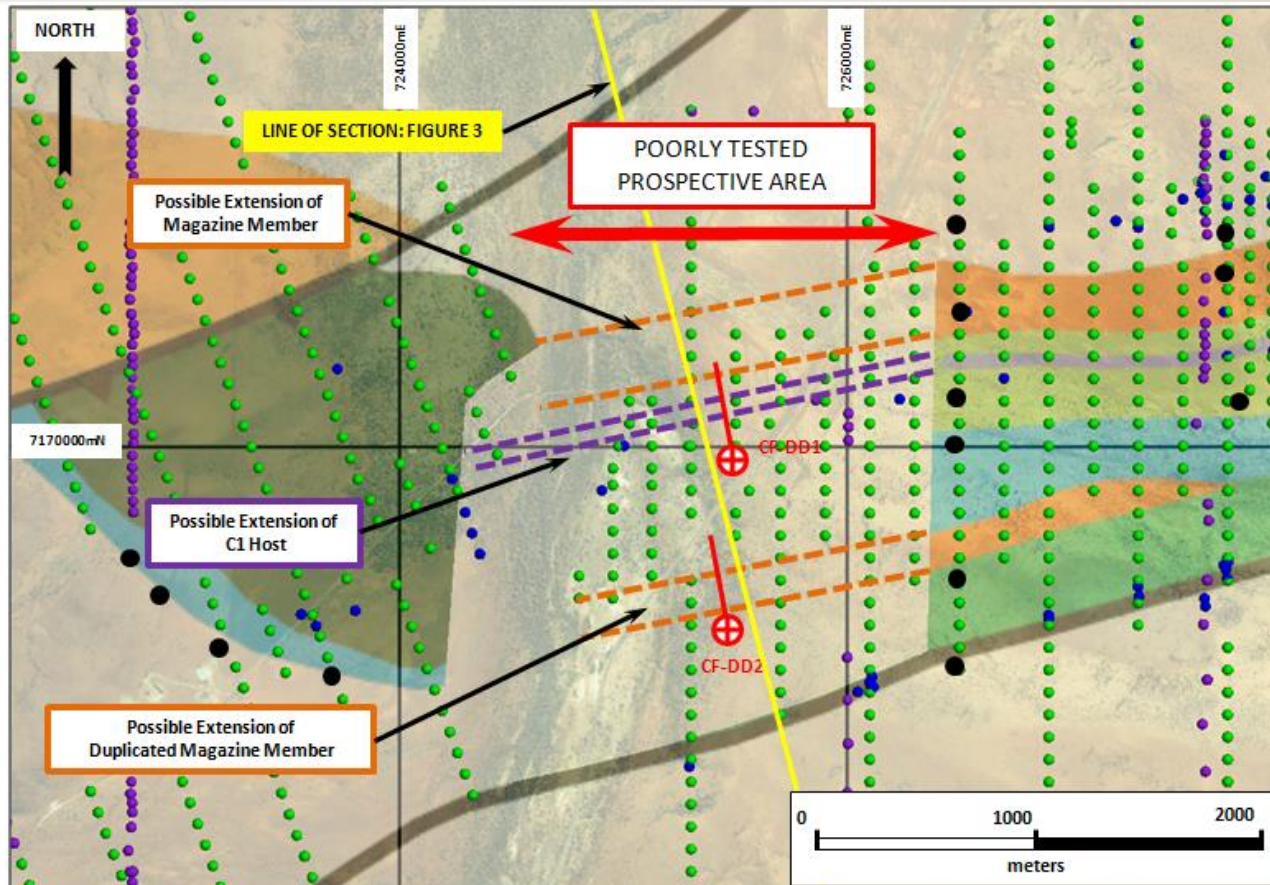
Recent Aircore Drilling at the Shed Well, Homestead and Gascoyne East project areas have defined anomalous copper in favourable host lithologies

Continued work at Cow Hole Bore has confirmed the continuity and tenor of gold mineralisation

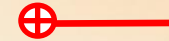
Desktop modelling of the area will be completed and a review of further favourable mineralised locations along this structure to be identified



DeGrussa – Co Funded Drilling – Linking the Sequence



DOLERITE INTRUSIONS		Dolerite
		Dolerite
		Dolerite
		Dolerite
DEGRUSSA FORMATION		Siltstone, sandstone, conglomerate
		Siltstone, sandstone, conglomerate
		Siltstone, sandstone, conglomerate, basalt
		MAGAZINE MEMBER
		Conglomerate, volcanic tuff, shale



**PROPOSED CO-FUNDED
DIAMOND DRILLHOLE**

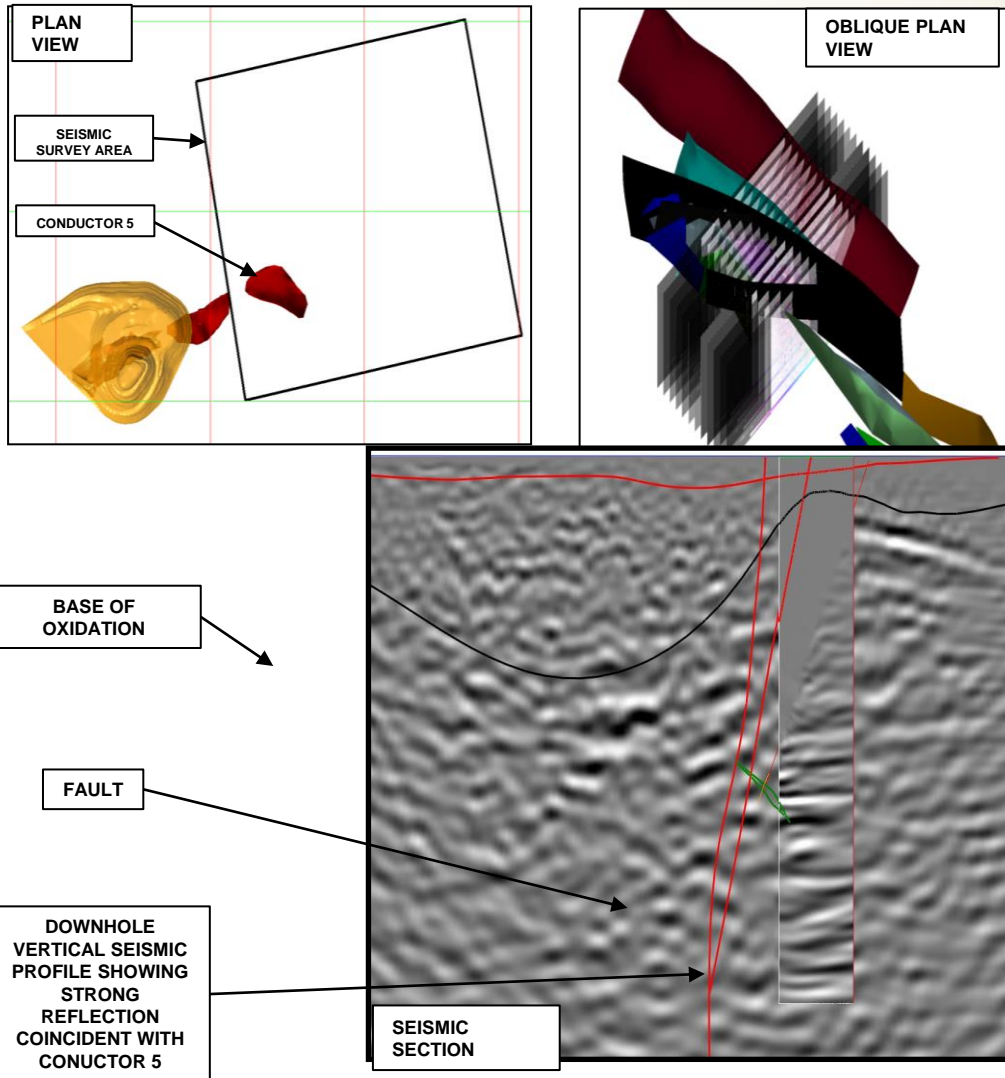
EXISTING DRILLHOLE COVERAGE

- RAB Drillhole
- Aircore Drillhole
- Reverse Circulation Drillhole
- Diamond Drillhole

The co-funded drilling is targeting areas with deep transported cover near the path of the Gascoyne River. The objective of the program is to determine why the stratigraphy varies so markedly from the eastern sequence that we can trace, to the western sequence which is highly variable and non contiguous.



DeGrussa – Research & Development – Seismic Study



A high resolution surface 3D seismic survey has been completed over the Conductor 5 orebody. This survey detected the position of the mineralisation at a low level of confidence.

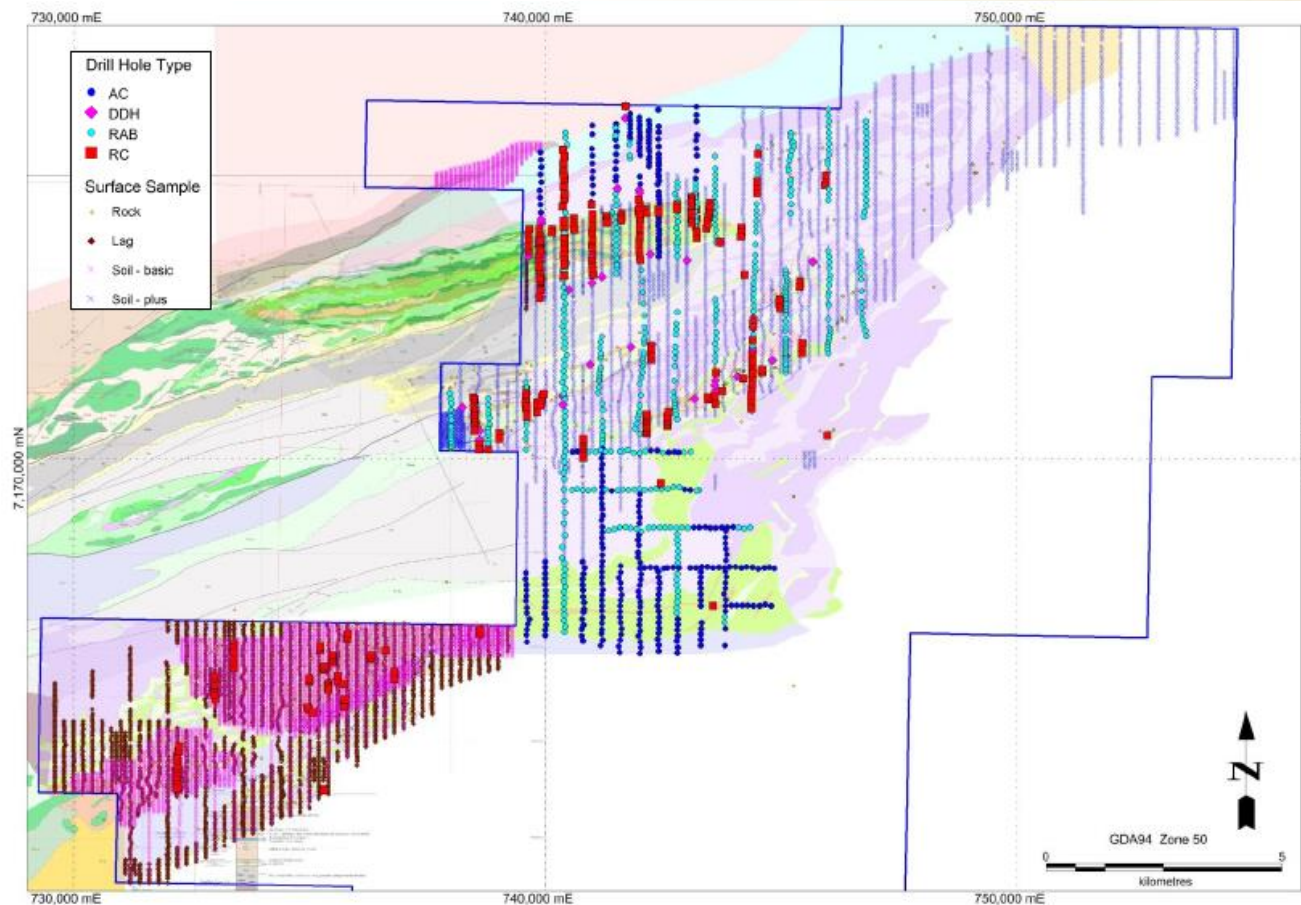
Possible Reasons:

- Fracture zones associated with faults act as reflectors (noise)
- Deep oxidation profile complicates processing and mutes signals
- 3D seismic surface did not extend far enough south to collect enough reflected seismic energy

A 2D Seismic survey has been completed for 2km south of the C5 orebody to see if a larger survey area detects C5. Down-hole acoustic televiewer and full wave sonic surveys have been completed to better define seismic velocity profiles.



Talisman – Datasets Under Evaluation



A high quality dataset is available from the Talisman teams recent exploration program. This data, viewed with the DeGrussa knowledge base, is already providing encouraging geological indicators.

Springfield

- 42 DDH
- 325 RC
- 386 AC
- 594 RAB holes
- Total - 43,824 drill samples
- 12,910 Soil samples
- 3,216 Lag samples
- 509 Rock chip samples

Halloween and Halloween West

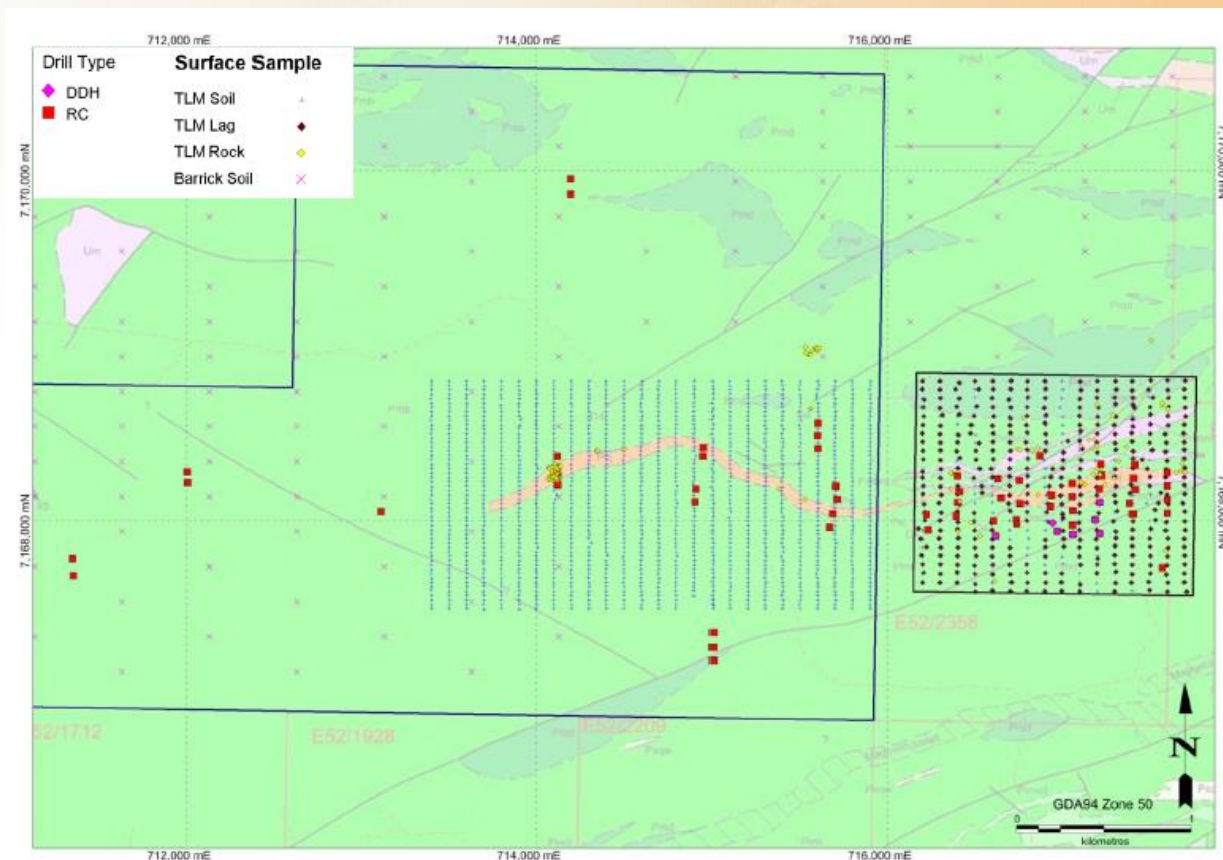
- 8 DDH
- 66 RC
- Total - 5,412 drill samples
- 1,782 soil samples
- 367 lag samples
- 109 rock samples

Talisman – Work Program Commenced

- Geochemical review:
 - Initial indications are that additional assaying needs to occur on existing drill samples to allow evaluation of the key Principal Components Analysis as identified at DeGrussa
 - Determine key geochemical areas of interest
- Geophysical review:
 - Complete full evaluation and integration of Talisman FLEM / MLEM, and Gravity
- Mapping
- Mapping validation, removing data boundaries

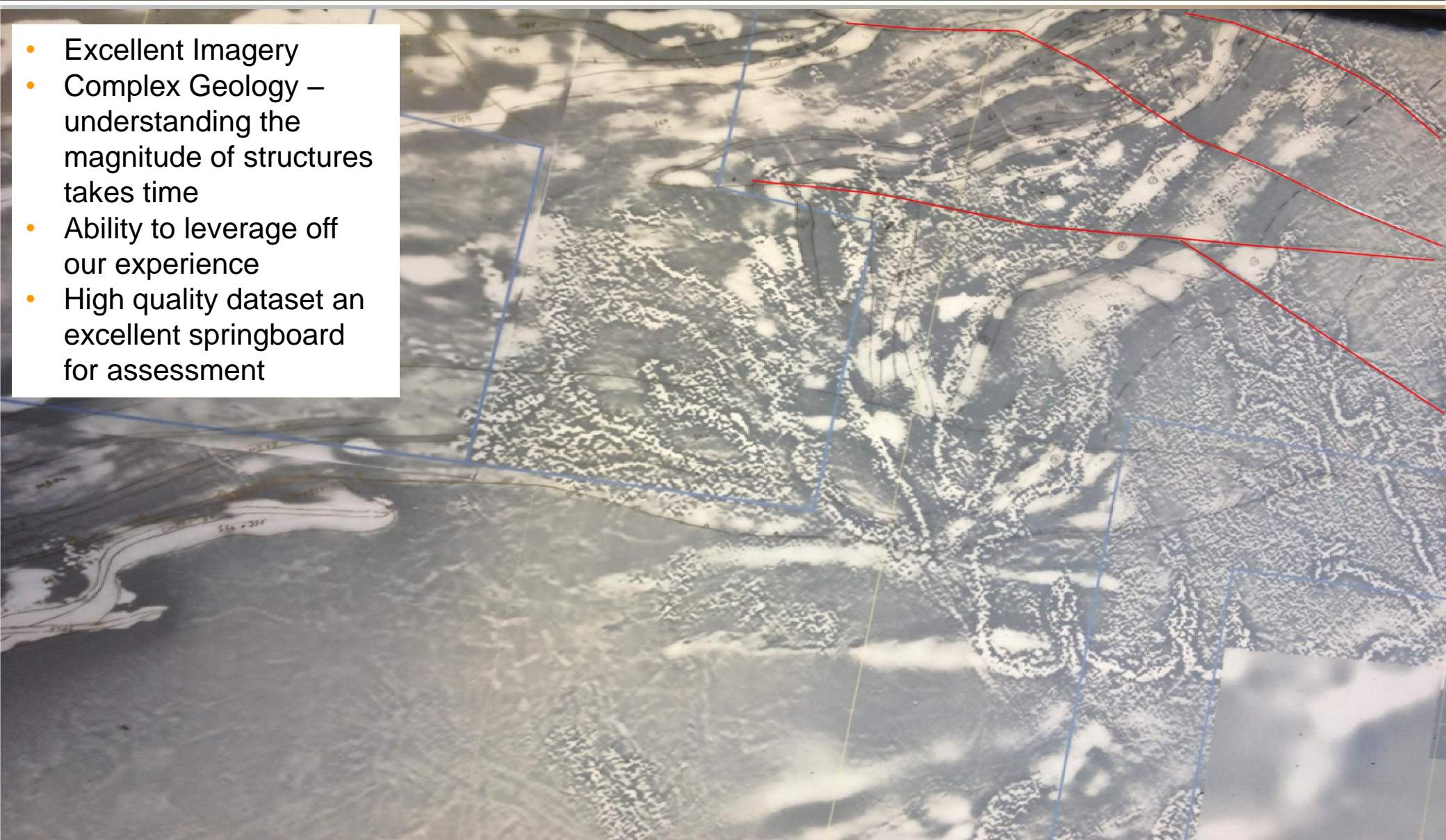
Applying DeGrussa knowledge on the Talisman dataset

Halloween and Halloween West datasets



Talisman – Geology Model Being Reviewed

- Excellent Imagery
- Complex Geology – understanding the magnitude of structures takes time
- Ability to leverage off our experience
- High quality dataset an excellent springboard for assessment



Talisman – Halloween and Halloween West

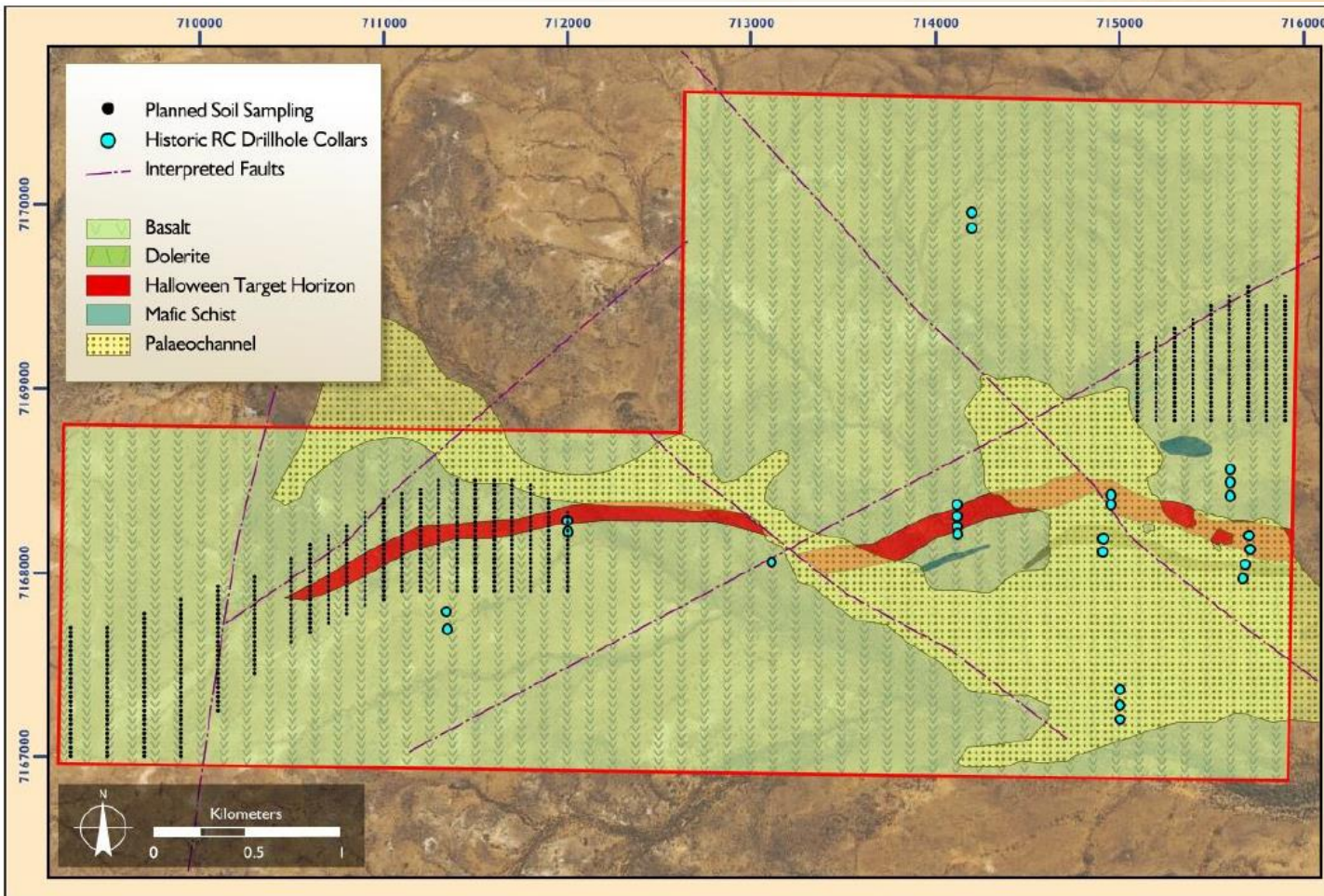
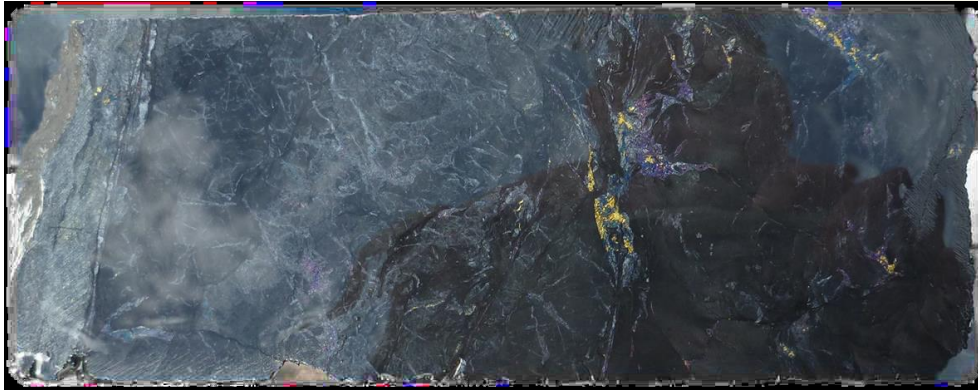


Image from Talisman Mining AGM Presentation November 2013

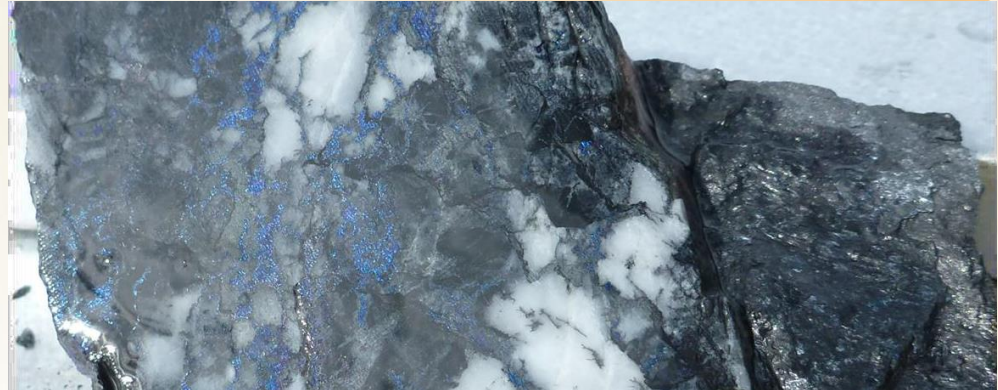
- VHMS signatures present in first pass exploration efforts by Talisman
- Projects are contiguous with the SFR tenements and increase prospective search space
- Geologists actively mapping to determine the full potential in the regional context



Thaduna Project – Resources



THDD238 – chalcocite replacing bornite replacing chalcopyrite in a graphitic shale, interval assayed 11.10% Cu and 37g/t Ag over 0.4m.*



THDD238 – chalcocite replacing bornite in a quartz graphitic shale, interval assayed 12.62% Cu and 45g/t Ag over 1m. *



THDD235 – disseminated and vein bornite in a graphitic shale, interval assayed 10.72% Cu and 37g/t Ag over 0.78m. *

The Thaduna Project Resource

7.9 million tonnes at 1.8% copper (Cu) for 142,000 tonnes of contained copper.

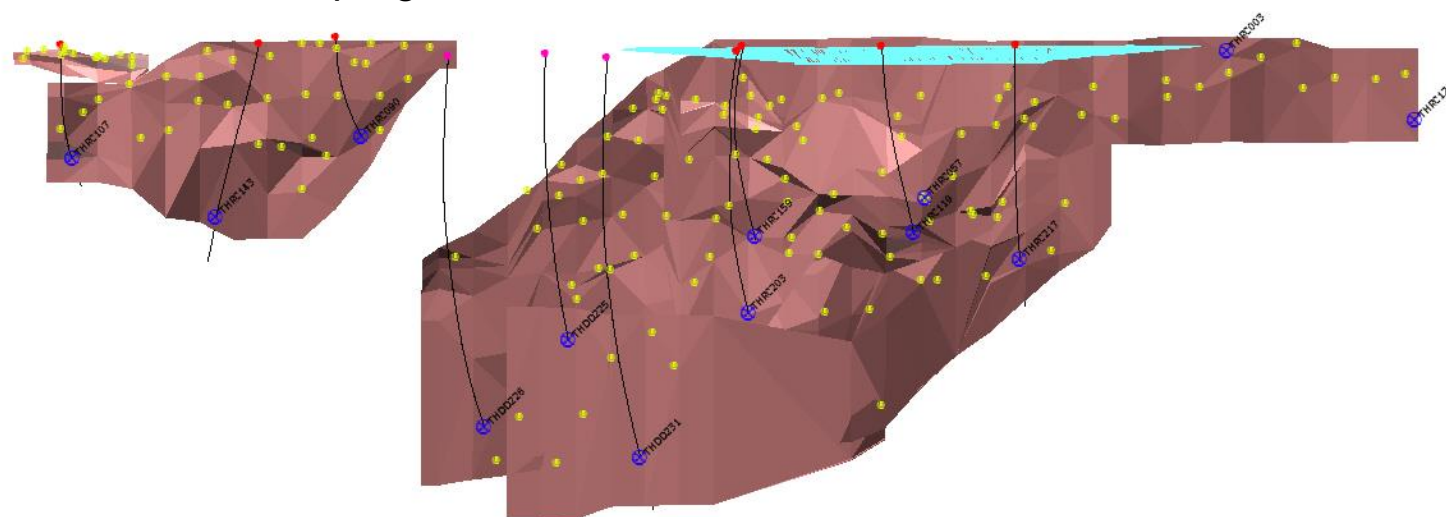
VRX announcement 12 February 2013

* Sample photos and assay results from VRX 2 July 2013 ASX release

Thaduna Project – Geology Work Plan

To validate the resource and prepare for the coming phases of project evaluation:

- Consolidate all drill core and chips
- Check downhole surveys with a gyroscopic tool
- Review sequential copper assaying vs geology
- Update structural model and targeting review
- Environmental studies progressing
- Drill metallurgical test holes and initiate program of test work

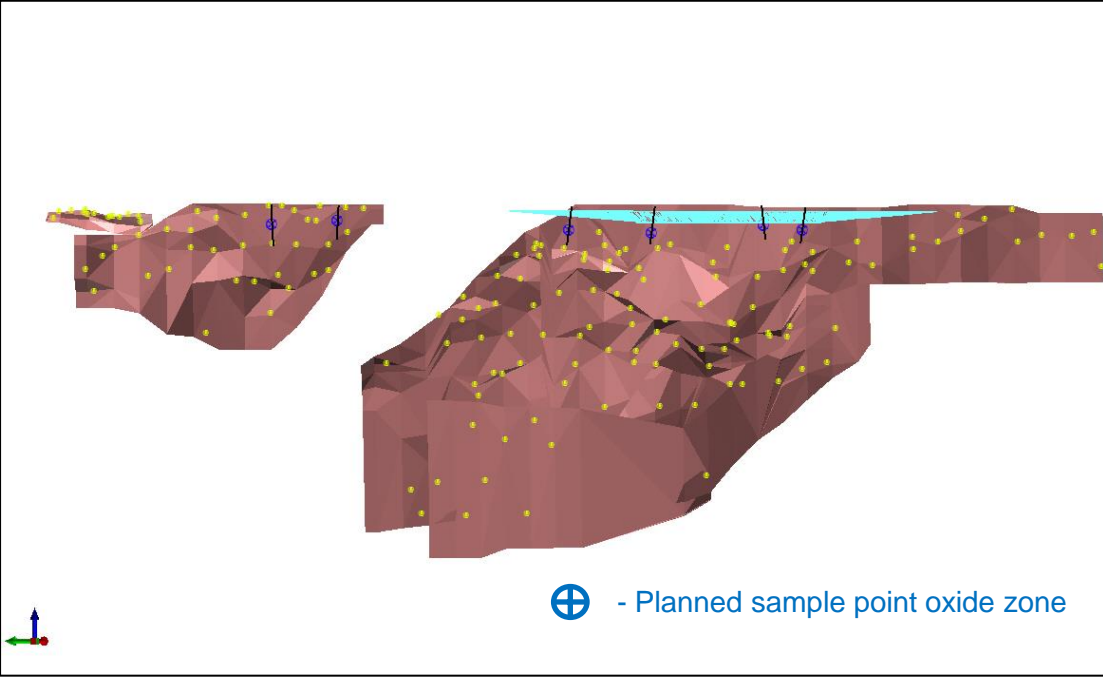


Highlighted drill traces for downhole surveying validation



Metallurgical drilling and test work is required to allow discrimination of the oxide and transition zones mineralogy and to then define the correct processing methodology. To facilitate this we have sourced specialist shallow angle drilling contractors for drilling under the existing open pit at Thaduna. A review of the existing drill data is underway to allow effective planning of the holes. Sulphide samples available from previous work by Ventnor.

Metallurgical Samples Required

	Zone	Testing	Composites
	Oxide	Oxide	As many as deemed significant for each zone
	Oxide + minor chalcocite	Oxide + Sulphide	
	Oxide + major chalcocite	Oxide + Sulphide	
	Chalcocite	Sulphide	
	Chalcocite + minor Bornite	Sulphide	
	Chalcocite + major Bornite	Sulphide	
	Bornite	Sulphide	



Thaduna Project – Two Opportunities Being Evaluated



Oxide Project

- **Treatment through proposed DeGrussa Copper Oxide Heap Leach**
- **Metallurgical testwork**
 - Will require ~250kg of PQ core of each significant composite and this work can be completed in two stages
 - Stage 1 (2 months)
 - Diagnostic leach and XRD
 - Scrubbing evaluation
 - 30 Day bottle rolls
 - Stage 2 if the Stage 1 results are supportive of economic parameters being defined (4 months)
 - Hydrodynamic testing
- **Probably evaluate open pit mining**

Sulphide Project

- **Treatment through existing DeGrussa Flotation Processing Plant**
- **Metallurgical testwork**
 - Will require ~100kg of PQ core of each significant composite
 - XRD
 - Comminution parameter determination
 - Rougher batch testing to determine primary grind
 - Regrind and cleaner testing to determine regrind and cleaner setup
 - Locked cycle testing to understand the concentrate grade and recovery
 - Full ICP concentrate analysis
- **Probably evaluate underground mining**



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