The Australian JORC Code from a Coal Mining Perspective

Presented by
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Introduction

- Overview
  - Table 1 of the JORC code
  - Measured, indicated and inferred resources
  - Transparency and auditability
  - Preston Sanders equation
  - Reconciliation/s process/s and modelling techniques
- A overview of the methodology used in Australian coal mines with respect to JORC
- Daniel Saunders has 12 years reporting and is a member of the AusIMM

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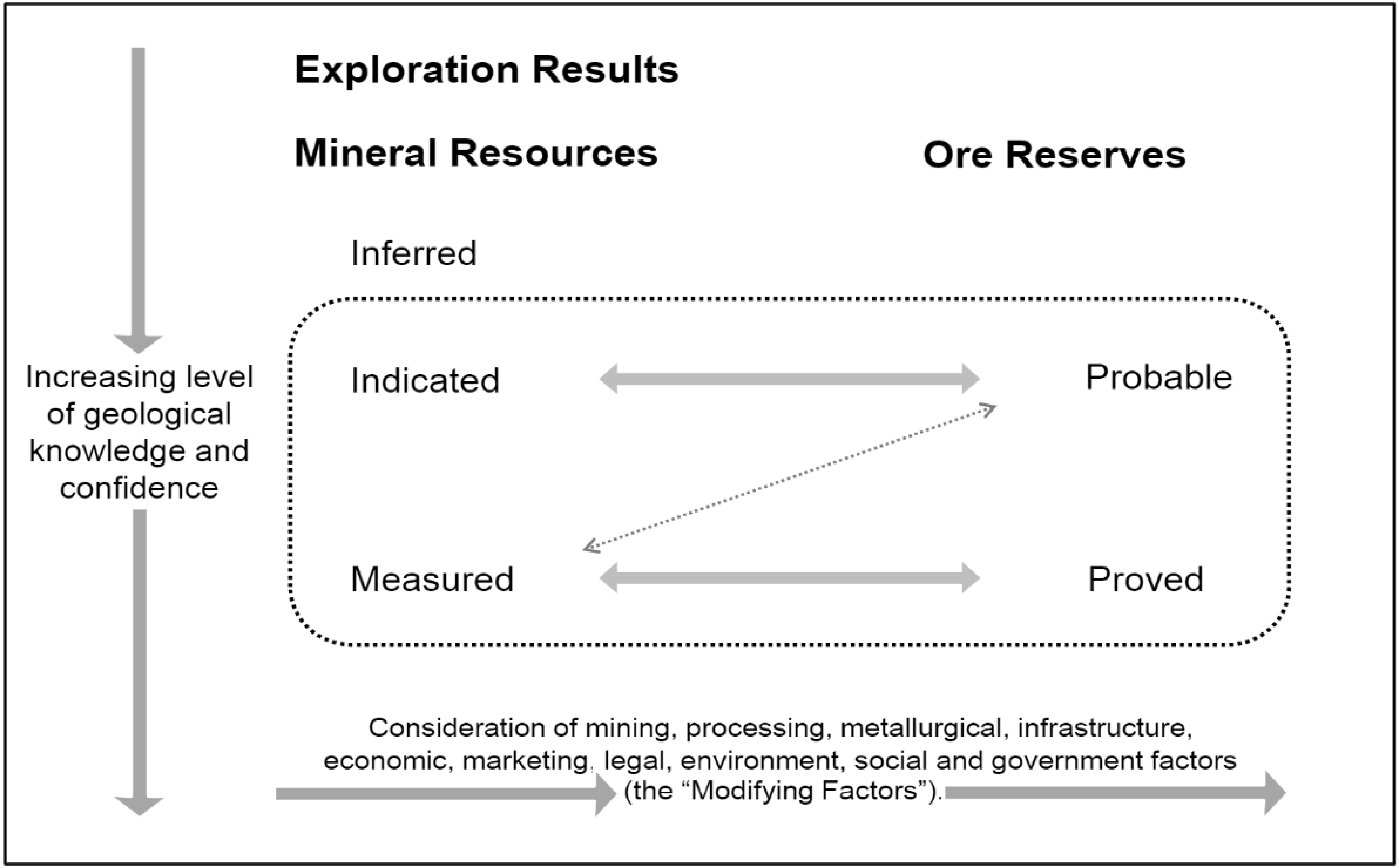
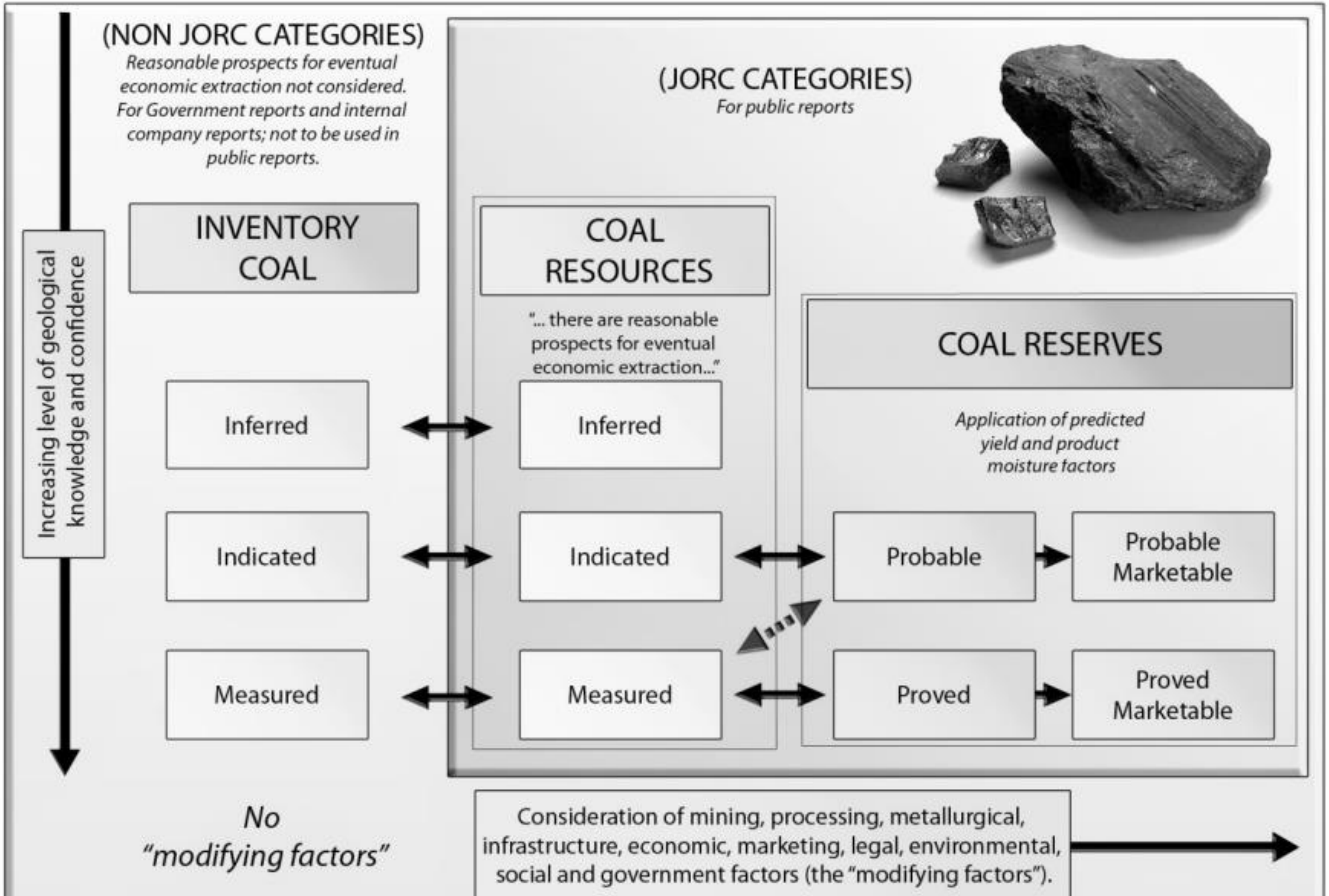
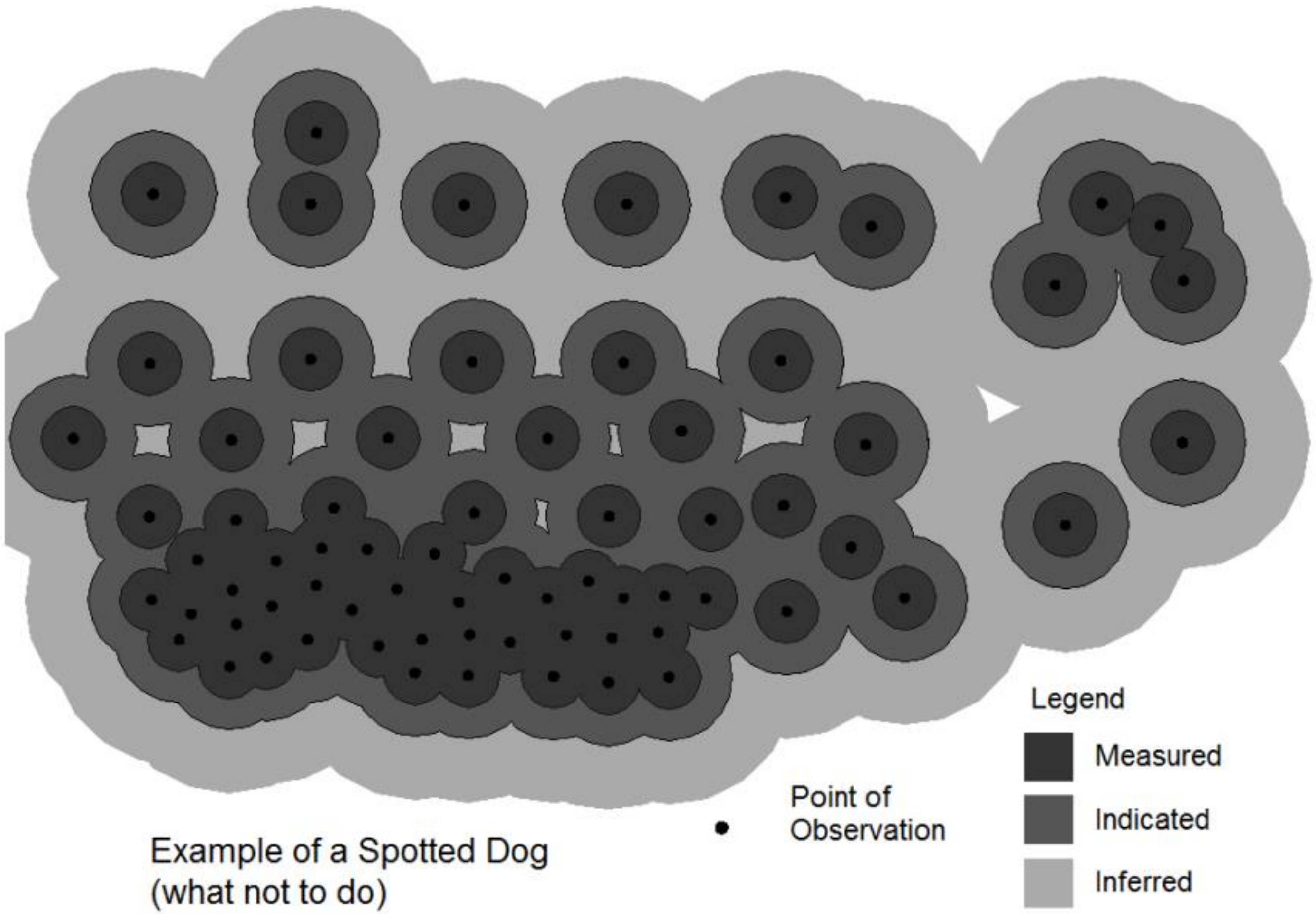

Exploration Results
Mineral Resources
Ore Reserves
Inferred
Indicated
Probable
Measured
Proved
Increasing level of geological knowledge and confidence
Consideration of mining, processing, metallurgical, infrastructure, economic, marketing, legal, environment, social and government factors (the "Modifying Factors").


(NON JORC CATEGORIES)
Reasonable prospects for eventual economic extraction not considered. For Government reports and internal company reports; not to be used in public reports.
Increasing level of geological knowledge and confidence
INVENTORY COAL
Inferred
Indicated
Measured
(JORC CATEGORIES)
For public reports
COAL RESOURCES
"... there are reasonable prospects for eventual economic extraction..."
Inferred
Indicated
Measured
COAL RESERVES
Application of predicted yield and product moisture factors
Probable
Probable Marketable
Proved
Proved Marketable
No "modifying factors"
Consideration of mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and government factors (the "modifying factors").

Sampling Techniques



Example of a Spotted Dog
(what not to do)

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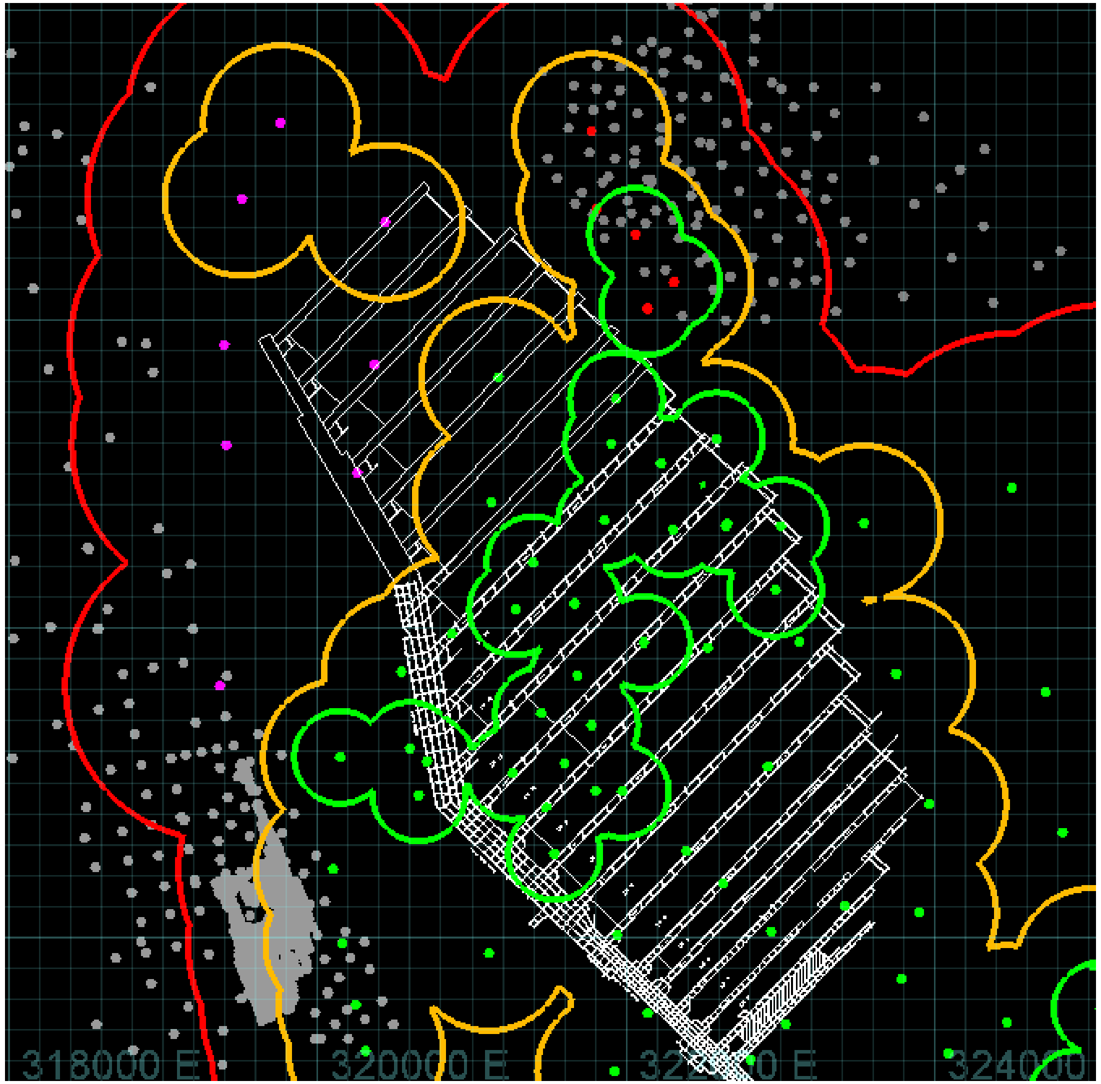
Sampling Techniques

- Sample size for pretreatment
- Crushed datasets
- Working section vs ply
- Regressions



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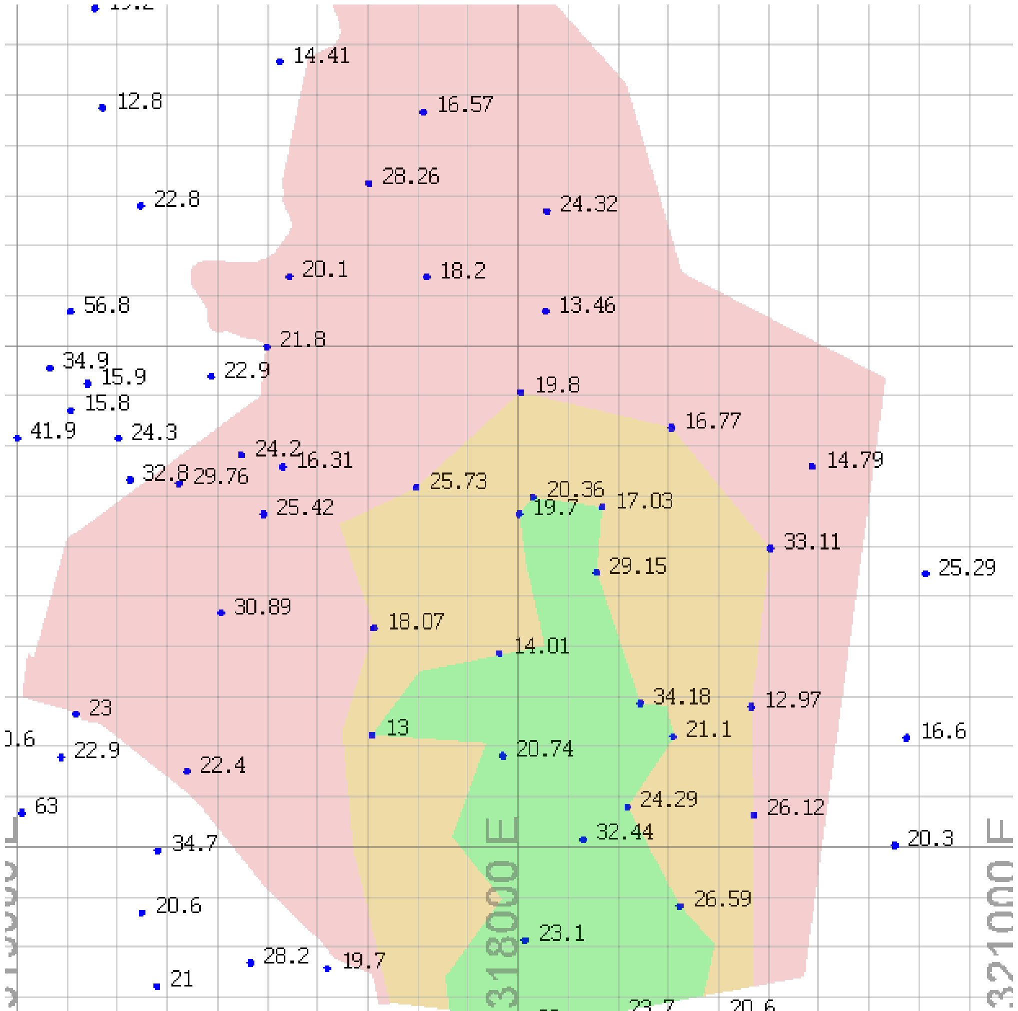
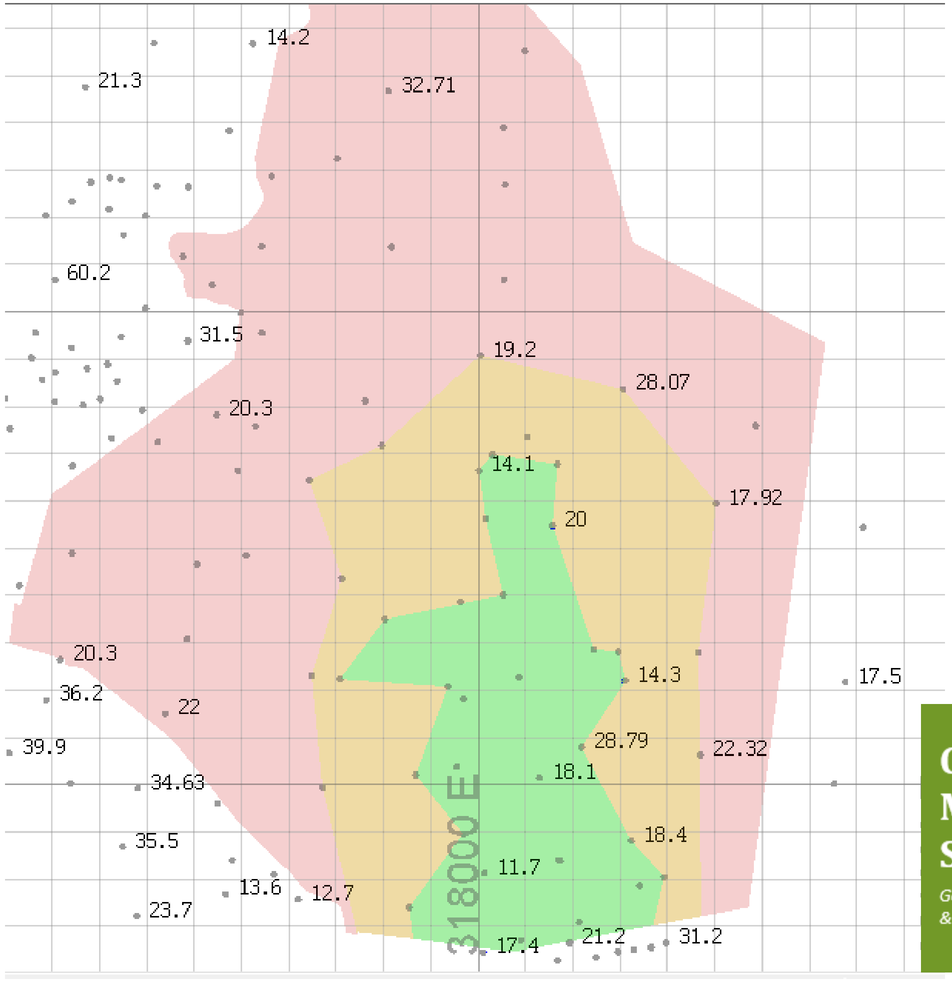
Seam A & B raw ASH sampled in working section and ply = 5-20% variance across lease





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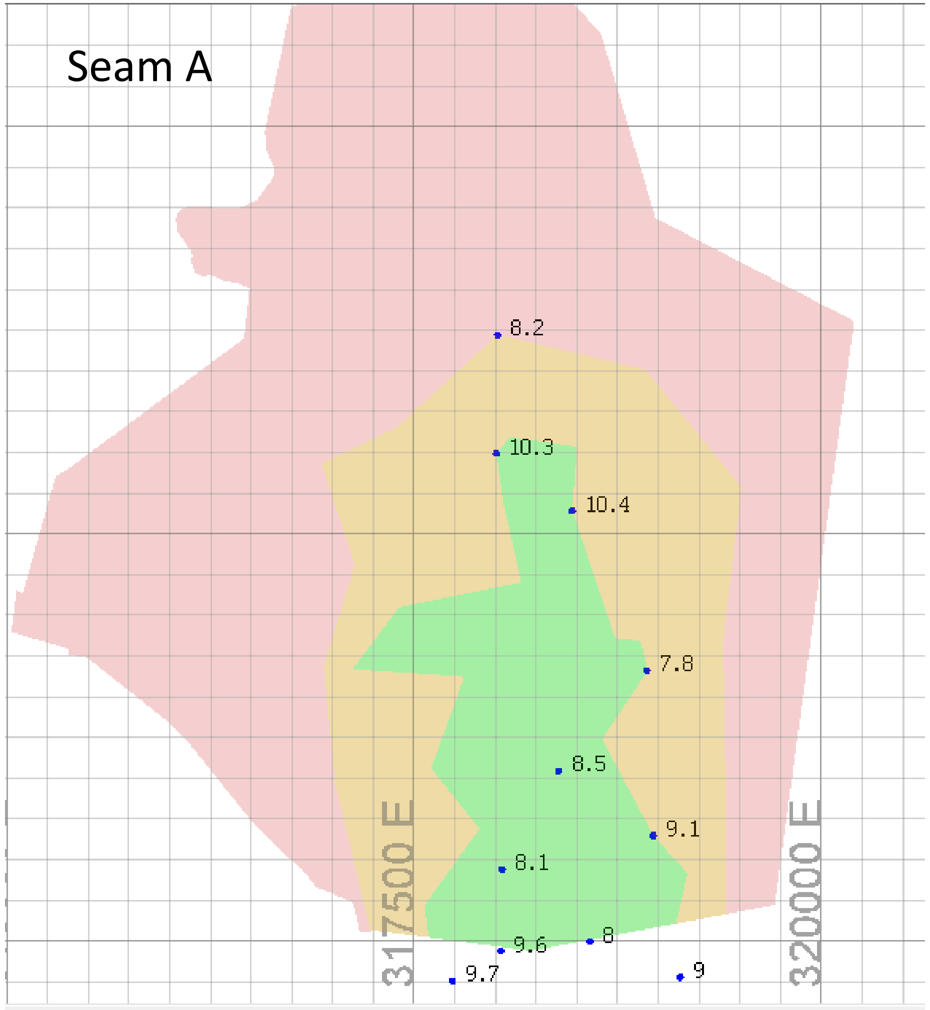
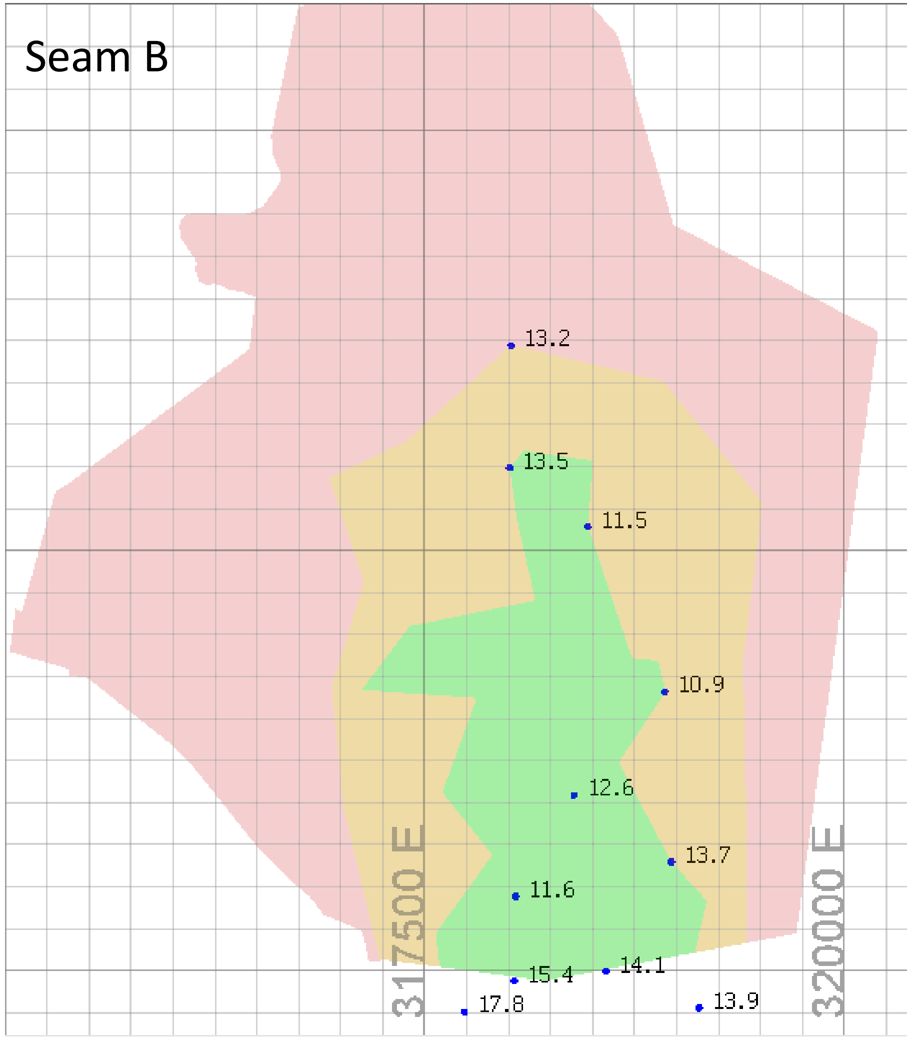
Product ash for our reserve reporting





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Correlating washability datasets – working section vs ply

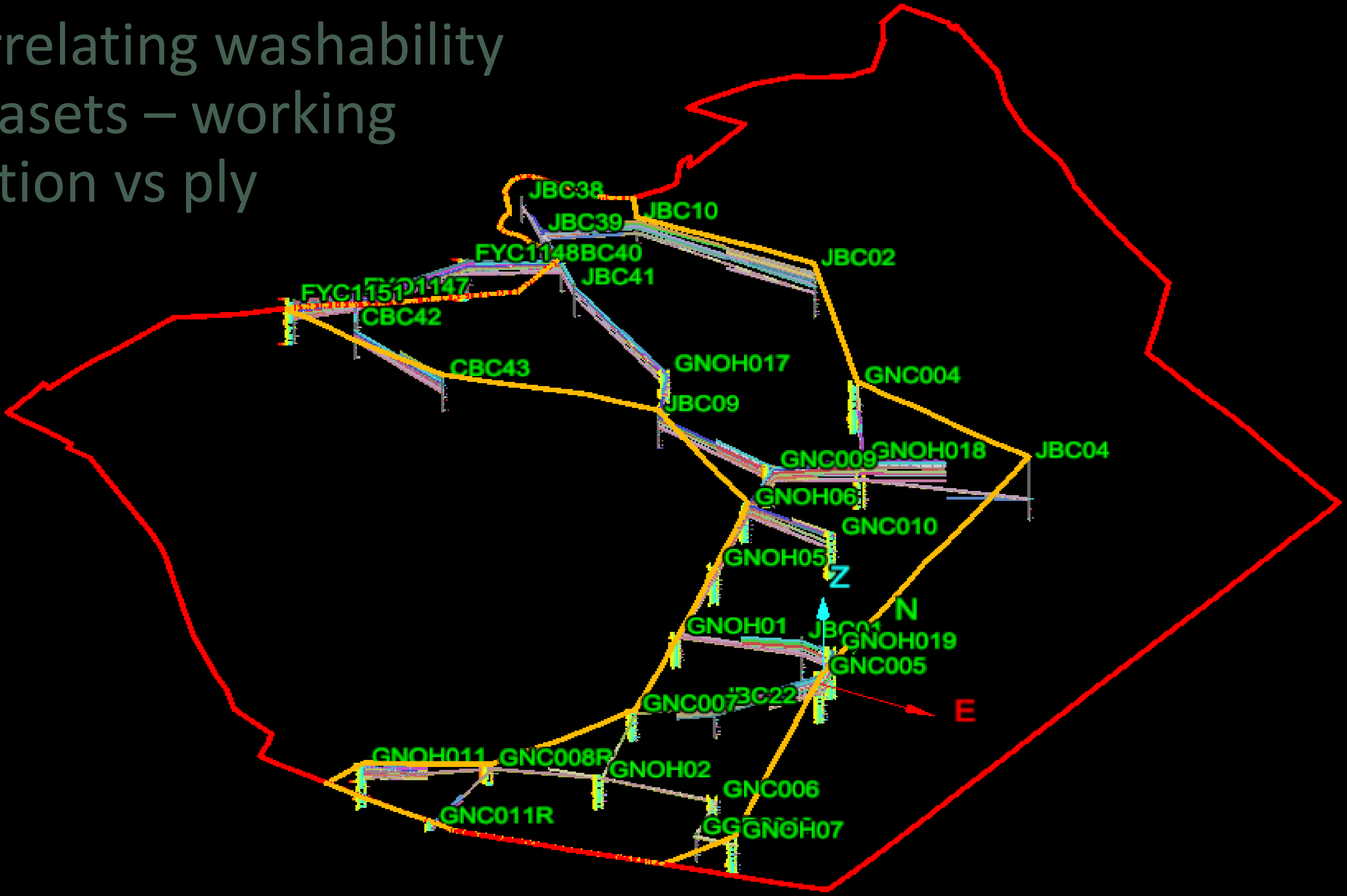

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Table 1

Section 1 Sampling Techniques and Data

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Section 1 Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Sampling techniques	• Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Coal sampling strategies tended to change with each coring program at Glendell North, resulting in a mixture of ply and working section samples and a limited combined database with which to model variations across the lease. Drilling programs since 2001 - 2012 sample using ply boundaries from geophysical logs and analysis is carried out on working section composite samples. Since 1996 most Boreholes have been geophysically logged and more recently acoustic scanners have been ran and used for geotechnical design by interpreting bedding, joint and structural orientation. None of the NQ holes were geophysically logged at the time of drilling, although 10 holes were cleaned out and geophysically logged in 1996. Wireline logging companies have as standard procedures a calibration process for downhole sondes, which takes place on a regular basis. The NQ core holes (pre 1981) were analysed mainly as individual ply samples, giving a good coverage of raw coal analysis (proximate analysis, TS, CSN) across the lease area. The washability data for these holes was limited to F1.45 and F1.60 analysis, with no pre-treatment of samples – this data has been used in estimation of yield and product ash across the Mt Owen Complex due to the current market and the drive for yield over coal quality. Crushed datasets are accurate in the higher cut points. Samples from large diameter holes drilled in 1996 were subjected to pre-treatment procedures and detailed washability and together with the 2001 HQ holes, form the basis of the coal washability database for the Glendell area which Glendell North shares the same seams for estimation of plant yield. Samples from HQ holes drilled in 1996 were analysed for a limited series of washability tests F1.45 and F1.60. They possess good quality detailed clean coal analysis on the 2 washed fractions. These

		holes are located in the south of the resource blocks. Samples from HQ holes drilled since 2001 undergo detail sizing and pre-treatment procedures before washability testing. Raw coal quality data from NQ/JBC series holes was collected from hard copies sheets and entered into a coal quality database in Excel and is loaded in to Vulcan for modelling. More recent quality data was extracted from digital laboratory reports in Excel files. All quality data is stored in multiple tables compiled and validated by coal quality consultants A & B Mylec. Within these tables colour coded values indicate regressions have been used to derive that value. These relationships exist with high R-Squared values and are also scrutinised for outliers and errors.
Drilling techniques	• Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	A series of partially NQ cored holes (JBC Series) was drilled vertically prior to 1981 at ~800m spacing's and sampled for raw and product qualities, however no geophysics or photos to validate depths/recovery and only targeted deeper thicker seams. A series of both core and noncore HQ (FY series) have been drilled vertically up to 2006 for the Liddell open cut as it mined south with older Foybrook boreholes in the north eastern extents. This series has geophysics in more recent drilling and a combination of raw, product and geotechnical sampling. A 2nd series of fully cored and noncore HQ holes were drilled vertically in 2011-12 (GN series) as a prefeasibility for the Glendell North project. Coal quality for raw and product were taken on a ply level. Geotechnical Samples at various intervals. Chip samples for lithological logging were taken from the air drilling. A 3rd series or the continuation of the GN series is underway now in 2017. TG, N, GG, DW, S, SB, RE, LC, SP, ESC, UV, D, series reside within the lease extents and in the geological model to help the interpolation process and give horizon/edge control. They let the modeller reflect the geology using Vulcan quite accurately and do not influence or are significant in classifying the current target area. Therefore not discussed in detail in this report.

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Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and coal quality and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Sample recovery for the NQ series of holes was sometimes poor and often poorly recorded. More recent HQ holes had core recovery measured in the HQTT inner splits at the drill site and compared at that time to drillers core drilled length. Thickness of coal recovered was also checked against downhole geophysics (density log) for final verification. Predictions of seam depth are created prior to drilling to try and maximise core recovery by knowing the sequence. Contractual obligation and industry standards of 95% recovery is the general rule otherwise the hole is redrilled. Bright coals have a poorer recovery than dull coal due to the cleat, brittleness and the inherent vitrinite percentage, this biases some results by over weighting the sample by the higher ash proportion forecasting higher than actual ashes. During mining at Glendell (7 years -~4.5Mt pa) there has only been one sample from one seam that has caused any material issues which were insignificant for LOM. Recovery of 70% was modelled and didn't accurately represent actuals.
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Coal Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged.	Most holes are lithologically logged in varying levels of detail. All core and non-core holes at Glendell North have detailed lithological logging which is suitable for seam correlation purposes if no geophysical logs are available This method is suitable and appropriate for all aspects of mining. Limitations of the JBC holes include lack of core in the higher stratigraphy and poor detailed logging of the Lemingtons and Ravensworth seam groups. The majority of these plies cannot be picked and/or correlated so the use of modelling software and algorithms decides based on boreholes nearby where and how thick the seams will be in the abovementioned seam groups. Although depth and thicknesses are derived from known quantitative points it is in the author's opinion that modelled data is more qualitative therefore less confidence in classification is exercised.

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		Core was quantitatively logged to centimetre accuracy; non core chip logging sampled at 1 meter intervals and logged to approximately half a meter accuracy. All recent core and non core chip samples were logged and are All recent core holes have core photography and geophysics
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	Coal sampling strategies tended to change with each coring programme, over the years resulting in a mixture of ply and working section samples and a limited combined database with which to model variations across the lease. Drilling programs from 2001 to 2011 sampled using ply boundaries from geophysical logs and the analysis is carried out on working section composite samples. Drill holes from 2011, after an extensive re-correlation of the Mt Owen Complex (includes Glendell North), have been sampled and analysed on a ply basis where possible The full core once corrected for depth and correlated by seam/ply, is then placed in sample bags, clearly labelled to be sent to the labs. Exploration planning decides the appropriate diameter core to ensure sufficient sample mass – thinner seams that do not have enough mass are crushed without pre-treatment or combined with other plies. No splitting or sawing of core takes place. Sample preparation at the laboratory complies with Australian Standards for sample preparation. Exploration geologist liaise with lab and validate results, sample sizes are to an Australian standards for the designated treatment process. No non-core material was sampled.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading	The majority of coal quality holes have raw coal analyses which has been compiled by A&B Mylec, validated and used to create the raw quality grids tables ready for modelling. Certain correlations and relationships exist with coal quality variables and these are tested to prove confidence in lab results.

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	times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established).	Laboratories used to analyse coal cores during exploration, mining or loading all comply with Australian Standards for sample preparation and coal quality testing, they are certified by the National Association of Testing Authorities Australia (NATA). Downhole geophysical logging undergoes quality assurance and quality control through routine tool calibration.
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	Laboratories used to analyse coal cores have complied with Australian Standards for coal quality testing and are certified by the National Association of Testing Authorities Australia (NATA). Repeat sampling on a regular basis to validate results is standard procedure for proximate analysis testing. A&B Mylec (coal quality consultants) have been involved in validating laboratory results, compilation and management of the coal quality database and overseeing sample preparation and analysis regimes for Glendell North core. Twinned holes have been drilled in the 2012 program to validate the older pre 1981 JBC holes. Although the collar RL value is slightly wrong the JBC hole was correct lithologically. Lithological and geophysical data are stored in Vulcan isis database, they are undergoing an uploading process to Glencore's Geobank databases so version control and validated data does not get lost or corrupted. Part of this process is validating all lab data. Quality data is compiled by Ab Mylec before being entered into Vulcan – they are presently the custodians and up keepers of coal quality data for Glendell North presently. All databases are reviewed prior to loading into Vulcan, then undergo Glencore's internal health check process which coal quality is a main component Various regression relationships derived by coal quality advisers A&B Mylec, are used to fill in gaps of no data, these values are colour coded to let the user know it is not a tested sample.

		In-situ moisture holding capacity testing to determine the in-situ density has been completed so correct reporting of the resource can be undertaken. All parameters from proximate analysis are also normalised to 2.5% moisture using Preston-Sanders equation for gridding in Vulcan. Logged sample intervals are checked against down hole geophysical logs and depths corrected.
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Coal Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	There are several generations of drill holes. Survey quality of more recent drilling is considered accurate while older drillhole collars may be less accurate. This is certainly the case with JBC boreholes which have been known up to 20m out from collar coordinates. This doesn't present a major problem as the topography is relatively flat with only minor z value variance. All drillhole collars used for the geological model at Glendell North are within several metres of the DTM. Survey pickup has been completed by registered mine surveyors. Mine survey is recent and reliable. Grid system is GDA94 in Zone 56. Topographic control can be coarse in older mined out areas and under older dumps, as newer LIDAR data is incorporated into original topography surfaces newer project like Glendell North are very accurate.
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • Whether the data spacing and distribution is sufficient to establish the degree of geological and coal quality continuity appropriate for the Coal Resource and Coal Reserve estimation procedure(s) and classification applied. • Whether sample compositing has been applied.	Drill spacing for the JBC 1960's to 1980's exploration was developed for exploring the region for potential underground deposits. However due to increasing deformation towards the east, and closer to the basin margin, the gentle almost flat seams of the central Hunter Valley become progressively steeper and present as large undulating folded anticlines and synclines before major thrust faulting with considerable displacements create a very deformed and complicated stratigraphy, not suited at all for underground mining. In 2012 Glendell north project started drilling but mainly disregarded these previous holes to ensure the viability of the resource was not compromised by 'potentially' old unreliable data. These holes generally trend along the centre of the project

	orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	Prior to this, holes are assumed vertical in the model. The use of verticality data corrects the apparent thicknesses and z value of the seam spatially. Vertical drilling in coal deposits that reside in large scale folds is the best practice and most un bias way to sample. As the entire cored interval is sampled any additional material due to apparent thicknesses would be evenly distributed over the seam. Although discussion resides around apparent thickness creating errors in folded deposits when modelling. It is wrong to think this and what is known to be apparent thickness is the true thickness that will be mine at that given point in space, as stated above sampling flat seams to dipping seams will not create any bias as they are all proportionally the same.
Sample / data security	• The measures taken to ensure sample security	Coal in core is stored onsite in a locked freezer until correlations are completed. They are then plied out and samples are double bagged, tagged and documented for despatch by courier. Sample mass is always compared to sample length by the laboratory. Data stored digitally is only accessible by certain people within the business and protected by IT' in terms of back up and viruses etc. Geobank restricts more people again and also controls what can and cannot be deleted, copied, etc. This is a suitable system
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	The process from capture of geological data at the drill rig, to correlation of coal seams intersected and completion of drill logs, to loading and geological modelling is considered best practice by industry standards. A external audit was conducted by ground design's Darren Hope on the Lemington seams, Barret Seam and Liddell Seams in the project area which looked for anomalies in the Ash vs RD, Ash vs VM and Ash vs SE relationships. These anomalous values were investigated and mostly found the seam picks were not aligned to sample interval i.e. roof or floor being composited into the working section. This can happen two ways – not correcting depths before sampling and /or changing seam picks in database or spreadsheets without considering

Section 2 Reporting of Exploration Results

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Criteria	JORC Code Explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a license to operate in the area.	CL708 is held by Liddell Tenements PTY LTD a joint venture between Glencore and Matsushimi. It was granted on the 17th of May 1990 and will expire on the 30th of December 2023. Cl708 covers an area of ~2187 hectares. The Homestead a national heritage building and adjacent farm buildings are a major constraint in the middle of the lease with a cost of ~$21 million to relocate - as per initial assessment. The joint venture adds some complexity for approval, along with several creek diversions and a major road reposition. Glencore interest in CL708 = 67.5% Matsushimi interest in CL708 = 32.5% Two Exploration Leases have recently been acquired by Glendell Tenements Pty Ltd. EL6594 and EL8184 are mostly at shallow depts. i.e. natural topography down to 15.24m. The limit of oxidation is dependent on the overlying strata, massive or interbedded stratigraphy, pervasive jointing, clay tuffs or weathered coal and geological structure. Weathered coal below massive sandstone can be smutty down to 30m and clay can have the opposite affect protecting coal from weathering only metres from the surface. Due to this the new leases only contain minor amounts of coal and were only purchased to gain surface rights. Glencore interest in EL6594 and EL8184 = 100% These EL's will need to be converted into ML's if the project goes ahead. The security of the tenure and the likelihood of obtaining a ML from government is not considered a risk at the time of writing this report.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	A total of 64 NQ holes totalling over 7250m were drilled across the region, by Renison Goldfields Consolidated (RGC) between 1969 and 1981. These holes were drilled to the Barrett Seam under

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		the supervision of geologists from the Joint Coal Board. The Hebden Seam was not considered to be of economic significance at that time so few holes were extended below the Barrett Seam to intersect the Hebden Seam. Drillhole data from partially cored slim NQ holes in the Liddell South/Glendell North area (CL708, from the CL358 northern boundary to the Block Fault Zone. These holes were drilled by JABAS as part of the Bowmans Creek drilling program in the 1970's, giving a "JBC" prefix to the holes. The holes often intersected the Hebden Seam and allow a continuation of data and structural grids throughout the region i.e. (CL358) up to the Block Fault Zone in CL708. These holes were not geophysically logged. A geophysically logged hole drilled in ML1629 in 2011 adjacent to a JBC hole indicated core sections have reliable depth and thickness information. Six large diameter (200mm) partially cored drill holes south of the project area, totalling approximately 600m were drilled by Glendell Joint Venture (GJV) in 1994 to obtain detailed sizing and coal preparation data. The holes were sited next to older slim holes to provide a comparison between the two data sets. Full seam intersections were obtained from Pikes Gully to Barrett Seams and the data has been used to provide product yield and ash predictions. Since April 2000 exploration drilling has been widespread, more reliable and geology better understood across Glencore sites Mt Owen, Glendell, Ravensworth and Liddell - however this was not unit 2012. In 2012 a series of HQ boreholes were drilled by Glencore, 11 cored holes and 19 non-cored. These are given the GN prefix and targeted the anticline for structural control and coal quality of all plies in a north south orientation generally along the anticline axis which proves consistency and expected trends from Glendell to Liddell
Geology	• Deposit type, geological setting and style of mineralisation.	Coal seams at Glendell North occur within the Vane Sub Group of the Late Permian Whittingham Coal Measures. Eight seams

		with open cut potential have been identified across the lease area within the stratigraphic interval from the Lemington seam group to the Hebden Seam with minor Bayswater tonnes along and near its crop line. The distribution of coal seams across the lease is governed by the main structural feature of a northerly plunging anticline which is flattening out in the north, topography and depth of weathering. The lower seams in the sequence crop out only in the south at Glendell while seams higher in the sequence crop in a north-south strike along the limbs of the anticline. The Bayswater Seam of the overlying Jerrys Plains Sub Group is intersected in holes to the east and east and west of Glendell North. Coal measures in this part of the Hunter Valley have been deposited in an extensional event during the Permian . Transgression and regression events have occurred and bioturbation from marine creatures can be seen and are fossilised directly below the Bayswater seam in the Archerfield sandstone. This marine influence is evident throughout the Lemington sequence with increases sulphur up to from 1-3%. The waxing and waning caused lots of splitting and coalescing of thin Lemington plies which then were subject to a number of phases of post-depositional tectonics. Large basin-bounding faults, such as the Hunter and Hebden Thrusts, give way to large steeply dipping anticlines and synclines only to broaden out into gentle undulating seams that flatten out the in the west. Evidence of Syn-depositional environments can be seen in the eastern project boundary with interburdens above the Bayswater seams relatively thin along the anticline and thicker further east in the Rix's Creek syncline. This suggests deposition was occurring during the east/west compressional event (new England fold belt– 5m interburdens thicken to 20m) Compression due to the subducting pacific plate evolved into volcanism with regional dykes and sills occurring in the north project area. Normal faulting is associated with the volcanism as magma chamber deplete and/or extension occurring - evident in the block fault zone. This zone is a regional structure

		It traverses through the Project area and has been mined through with open cut methods successfully several times previously. It does not pose any significant risk economically. Since these major tectonic events the Hunter river and its tributaries have eroded the sediments creating the Hunter Valley.
Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: - easting and northing of the drill hole collar - elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar - dip and azimuth of the hole - down hole length and interception depth - hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Individual drill hole results are not tabulated and presented in this report however can be if requested and approved by Glencore Management.
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	All coal seams intersected have been correlated on a - ply by ply basis throughout the deposit using geophysics (where available) and drill hole graphic logs. Ply coal quality has only been composited, weighted by length and Density. No cut offs for coal quality have been applied. Cut-offs on thickness have been applied as a legacy from previous reports. Anything less than 0.3m is not reported This needs to be changed because it is a ply model and does not reflect what will be mined. No metal equivalents reported.

Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known).	The anticline is asymmetrical with a steeper eastern limb. The fold axis is slightly east of the centre of the lease. The dip of strata on the more gently dipping western limb decreases towards the western margin of the lease. Strip ratios more favourably along crest of anticline (4.5:1 and progressively increase on either limb to 7:1)
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not limited to a plan view of drill hole collar locations and appropriate sectional views.	Figures presented in this report include: Lease Details, Resource Reporting Areas, Coal Resources, Bayswater, Lemington Seams, Pikes Gully, Arties, Liddell and Barrett Seams resource classifications
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Raw coal quality data from all coal samples analysed and reported by the laboratory have been loaded and used in the computer geological model when estimating coal resources. Outputs from the model honour the data. Weighted average ash and calorific value at an in situ moisture basis are presented in the Resource Declaration.
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Groundwater models created from piezo's and geological model
Further work	• The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, **provided this information is not commercially sensitive.**	There is currently exploration work being conducted. This is work for the feasibility report and for confidence in seam geometries and coal quality

Section 3 Estimation and Reporting of Coal Resource

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Criteria	JORC Code Explanation	Commentary
Database integrity	• Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Coal Resource estimation purposes. • Data validation procedures used.	Geological ply models are published in February for the LOM process. They are reconciled and compared to previous year's model for major variation. To create the latest model - tables are exported from previous model to ensure that all edits are not lost, then all recent blast hole data/exploration data is added. Validation checks conducted i.e. proximate = 100. Reconciliations - between 2016 and 2017 models display an increase in resource tonnes in the order of 0.4% (1.7Mt out of the 445Mt) – this check provides confidence in the data. Database integrity will be fully rolled out for 2018 model builds utilising Geobank as the primary source which will have version control, restrictions and the one source of validated data.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	The Competent Person (CP) is the current Resource Geologist across the Complex who has a sound knowledge of the geology and mining of identical deposits at Liddell, Glendell and Mt Owen. No inspection as this is in project stage
Geological interpretation	• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. • Nature of the data used and of any assumptions made. • The effect, if any, of alternative interpretations on Coal Resource estimation. • The use of geology in guiding and controlling Coal Resource estimation. • The factors affecting continuity both of grade and geology.	There is a relatively high level of confidence in correlation of coal seams throughout the deposit with the use of downhole geophysical logs in Mapteks Eureka software. The Lemington and Hebden Seams have lower confidence as Lemington has been extensively eroded around the plunging Camberwell Anticline and many holes were only drilled to the Barrett Seam so did not intersect the underlying Hebden Seam Seam picks are considered to be accurate, however stone bands / seam splits were not consistently sampled during early

		exploration programmes. Coal seam continuity, thickness and coal quality parameters are well understood in the Indicated and Measured Resource categories due to the spacing of drill holes and the subsequent data provided back from the CHPP which is used as a means of reconciliation. The main geological feature at Glendell North is the Camberwell Anticline. Small-scale (<10m throw) faults may occur, although they are not expected to influence the status of the resource. The Hunter Valley Dyke does intrude CL708 along a NE/SW strike Grades from Glendell in the South to Liddell in the North display consistency with little change providing confidence when classifying at borehole spacing's of 350m
Dimensions	• The extent and variability of the Coal Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Coal Resource.	CL708 covers the most northern area of the Camberwell Anticline. Open cut resources reside in the 300m down from surface and below this underground resources have been defined.
Estimation and modelling techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. • The availability of check estimates, previous estimates and/or mine production records and whether the Coal Resource estimate takes appropriate account of such data. • The assumptions made regarding recovery of by-products. • Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation). • In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. • Any assumptions behind modelling of selective mining units. • Any assumptions about correlation between variables. • Description of how the geological interpretation was used to control the resource estimates. • Discussion of basis for using or not using grade cutting or capping. • The process of validation, the checking process used, the comparison of model data to drill hole data, and use of	All plies (Lemington to Hebden) have seam thickness and elevation gridded in Vulcan to allow assessment of the structure and trends of coal plies. The ply model algorithm used was structural surfaces and all seams are modelled. Interpolated thicknesses have been assigned a zero value and then modelled to give interpolated values to understand variance. There was little change noted. Structure grids are cut to topography / base of weathering / void. Ply structure grids have 25m mesh size, quality grids are 25m mesh size. All quality samples are used in modelling except values that have been assigned an 'E' which denotes that this value will not be modelled. These values are outliers when evaluating correlation coefficients of the standard quality regressions (e.g. Ash vs RD etc.) Base of weathering (BOW) is gridded using borehole data picks. A substantial geological dataset in the central part of the area confirms seam thickness, quality and continuity and is sufficient for classification as Measured and Indicated Resources. Outside this area, there is insufficient information to determine coal continuity so Inferred Resources have been assigned. Measured Resources were generally supported by data points (drill holes) no more than 200m-350m due to continuity of coal quality and

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	reconciliation data if available.	lack of change in geophysical signatures of open holes. Indicated Resources were generally supported by data points no more than 500m apart moving out from the north/south measured polygon, and Inferred Resources were supported by only sparse data points. Localised occurrences of somewhat more sparse data within a defined resource category zone may exist. depth cut-offs have been used to limit the resources in underground areas only for the Lemington Seams, Measured and Indicated resources are less than 300m deep and only minimum Inferred resources extend beyond 300m depth. Resources were estimated using a computer model (Vulcan). Seam thickness was gridded using 25m grid node spacing and cut on a BOW grid and mined out areas as of June 2017- which does not affect Glendell North area, note that the Narama void is in newly obtained EL and needs to excluded – previous models do not pick above Bayswater seam data here. In situ density grids were developed using 25m grid node spacing. The resource polygons were in turn made into solid triangulations. A minimum ply / seam thickness of 0.3m and Lemingtons seam below 300m was applied. A block model was created from grids with a block size to match the grids at 25m
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Coal resources were estimated using in situ density adjusted to 6% moisture. ARD-Ash regression relationships derived by coal quality advisers A&B Mylec, were used to calculate in situ density for resource estimation and gridded in the geological model.
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	- Any coal less than 30cm thick has been excluded – which is under review and likely to change - Only 4.5Mt of the resource is greater than 40% ash, these plies are very thin and most of them are mined in a thicker working section – it is not correct to apply cut offs on a ply model so this has not been undertaken.
Mining factors or assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual	Resources estimated on a ply basis. No interburdens (non-coal) material between coal plies has been included in the resource tonnage. No working section logic or aggregation has been

	economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Coal Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	applied. ROM to in situ ratios of adjacent pits are close to one which demonstrates this methodology represents the resource. The majority of coal resources are typically less than 300m in depth, and are best suited to open cut mining methods. In the east under ML1415 and in the west below Narama's void are the two areas that are less likely to be mined.
Metallurgical factors or assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Coal Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	To determine grade for CL708 Glendell mine is used as it resides directly to the south - seam distribution is the same. Glendell produces three export thermal coal products (at 9% as received moisture): less than 12% product ash (average 11.35%), less than 6% sulphur and calorific value 6570 kcal/kg; less than 12% product ash (average 10.25%), greater than 0.6% sulphur and calorific value 6660 kcal/kg, less than 17% product ash (average 13.1%) and calorific value 6320 kcal/kg. Glendell also produces an export semi-soft coking coal with less than 9% ash, CSN greater than 4 and calorific value of 6815 kcal/kg at 9% as received moisture.
Environmental factors or assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	No environmental assumptions have been made for this resource estimate, however, NSW Coal Mines require development consent under the Environmental Planning and Assessment Act, 1979 before a mining lease is granted. Resources located in leases granted under the Mining Act, 1992 have environmental management and rehabilitation conditions, security bonds for all mining and exploration titles and clear enforcement power to ensure titleholders comply with their obligations.
Bulk density	• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. • The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit. • Discuss assumptions for bulk density estimates used in the	Coal resources were estimated using in situ density adjusted to 6% moisture. And defaults used for the few seams that have not been sampled Because of the lack of historical ARD density determination, ARD-Ash regression relationships derived by coal quality advisers, A&B Mylec, were used to calculate in situ density for resource estimation and gridded in the geological model.

	evaluation process of the different materials.	
Classification	• The basis for the classification of the Coal Resources into varying confidence categories. • Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). • Whether the result appropriately reflects the Competent Person's view of the deposit.	Coal resources were estimated for all seams (Lemington to Hebden). Resource classifications reflect the Competent Person's confidence in the deposit. The status of coal resources within each polygon was classified either as a: Measured Resource – where the geological data points based on detailed and reliable exploration, sampling and testing information support a reasonable level of confidence in seam thickness, continuity, coal quality and structure. Measured resources were typically supported by points of observation less than up to 350m apart. Indicated Resources - where the geological data points contributed to a reasonable level of confidence in seam thickness and continuity, as well as some coal quality. Indicated resources were typically supported by points of observation less than 500m apart. Inferred Resources - where there was a limited and /or no coal quality data within the area and/or drill hole spacing was only sufficient to delineate seam thickness to a low level of confidence. Inferred resources were typically supported by sparse points of observation.
Audits or reviews	• The results of any audits or reviews of Coal Resource estimate, including review with Reserve CP and Glencore Management.	The geological model was audited by Ground Designs Pty Ltd prior to undertaking resource estimations. Comparisons were conducted between the old Minex model and Vulcan model. Coal Resources each year have been reconciled against the previous year's JORC estimation to explain variance.
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Coal Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should	Coal resources have been classified into Measured, Indicated or Inferred Resources depending on the density of points of observation (core and non-core holes with geophysics) which provide varying levels of confidence in the resource estimate. The resource estimation is a global estimate. No mine exists to reconcile

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COAL QUALITY REGRESSION SLIDES – 22nd April 2021

DEVELOPMENT OF IN SITU DENSITY EQUATION

- The following stages are involved in deriving an in situ density equation for a given resource:

1. Following analysis, the laboratory raw ash data is converted from the as analysed air-dried moisture to the assumed in situ moisture basis (eg 6%)

2. The laboratory relative density is converted from air-dried to the assumed in situ moisture basis utilising the Preston Sanders Equation, as defined below:

RD(in situ) = RD(ad) *(100-IM(ad)) / [100+RD (ad)*(IM(ins) – IM (ad)) – IM (ins)]

Where:	*RD (in situ) = In situ density*	
	RD (ad)	*= Air Dried Relative Density*
	IM (ins)	*= In situ Moisture Level*
	IM (ad)	*= Air Dried Moisture*

3. These two datasets are then regressed to develop the ash/in situ density relationship.

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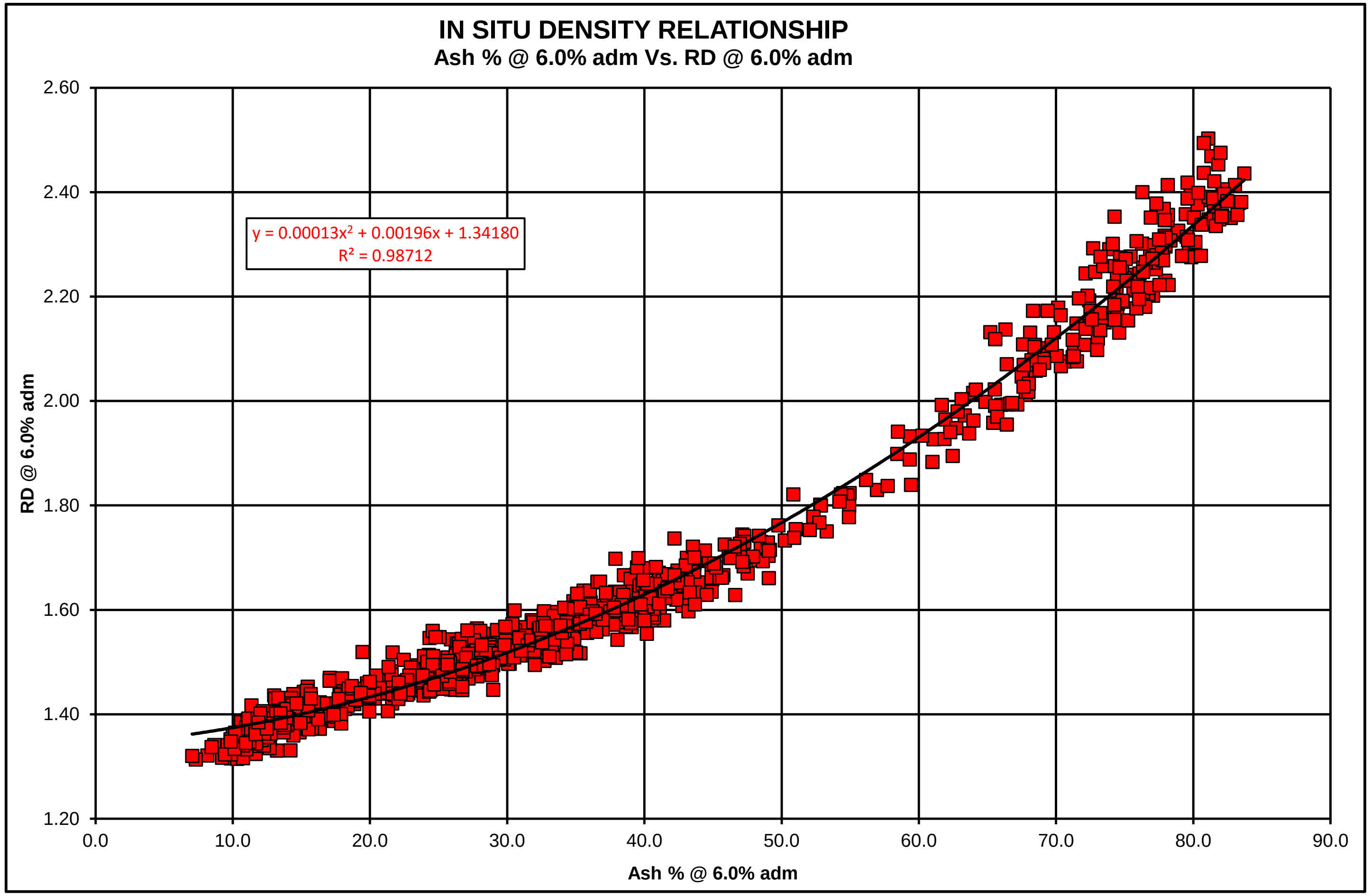
IN SITU DENSITY RELATIONSHIP



In Situ Density = 0.00013 x Ash %^{2} + 0.00196 x Ash % + 1.34180 ***[R^2 = 0.98712]***

Where Ash % is at 6% moisture basis

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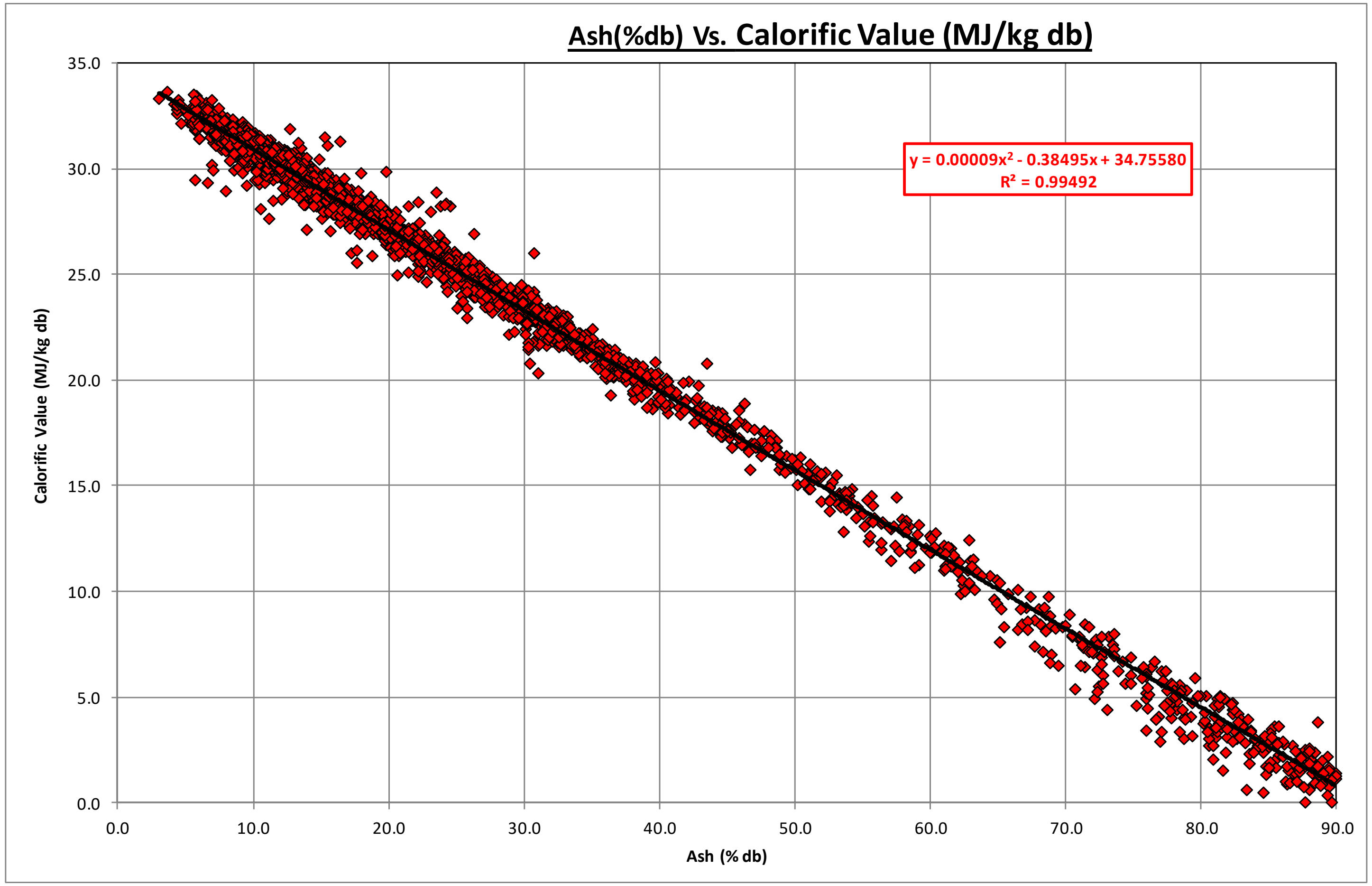
OTHER STANDARD COAL QUALITY RELATIONSHIPS

- Ash (%ad) vs ARD
- ARD vs Ash (%ad)
- Ash (%db) Vs. Calorific Value (MJ/kg, db)
- Vol vs fax Mf (max Fluidity)

ASH (%db) Vs. CV (MJ/kg, db)



CV MJ/kg (db) = 0.00009 x Ash % (db)^2 – 0.38495 x Ash% (db) + 34.75580 ***[R^2 = 0.99492]***

Where Ash % is at a Dry Moisture Basis

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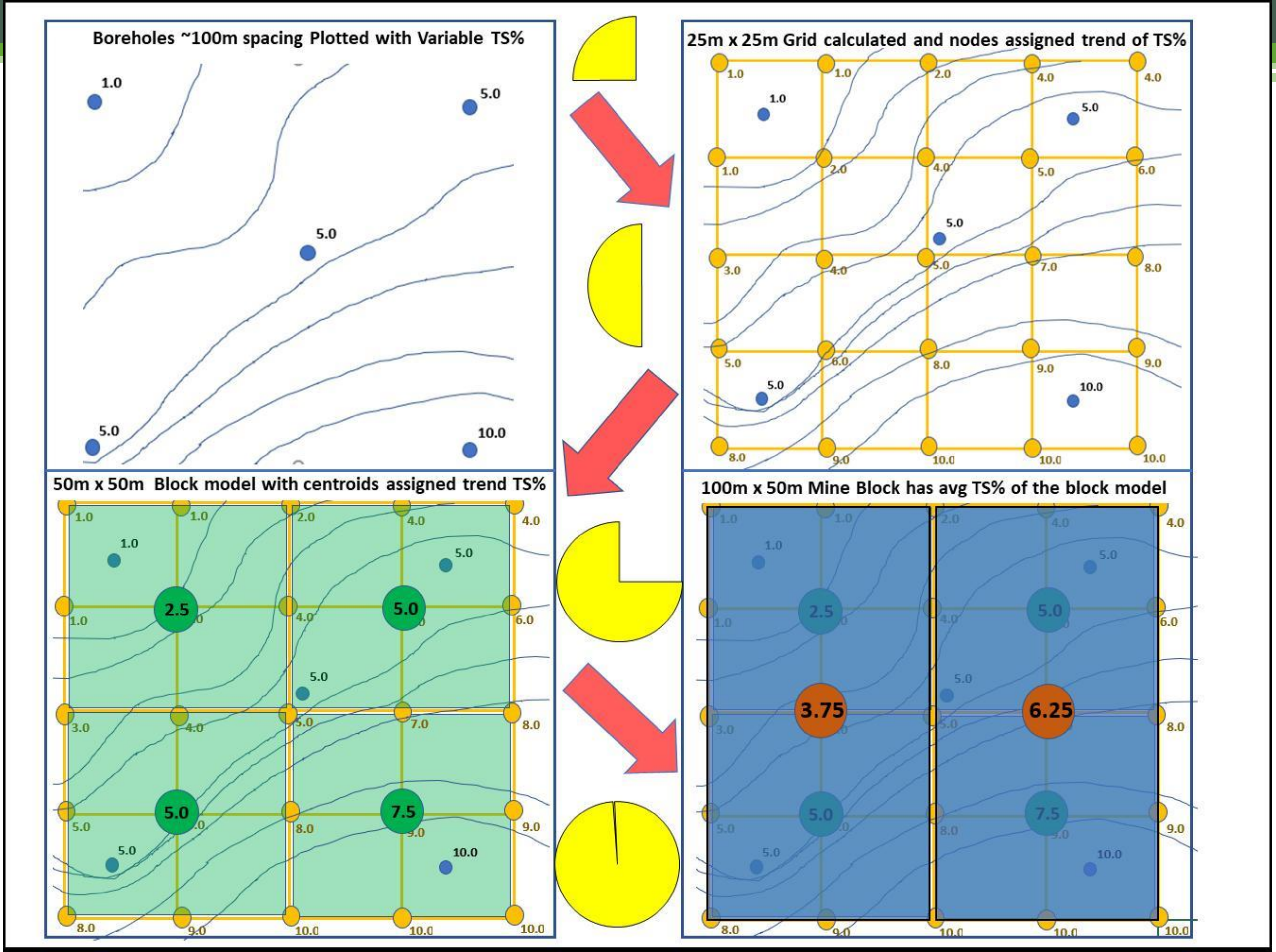
Considerations when using Block Models for Resources



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Daniels Methodology for JORC Reporting

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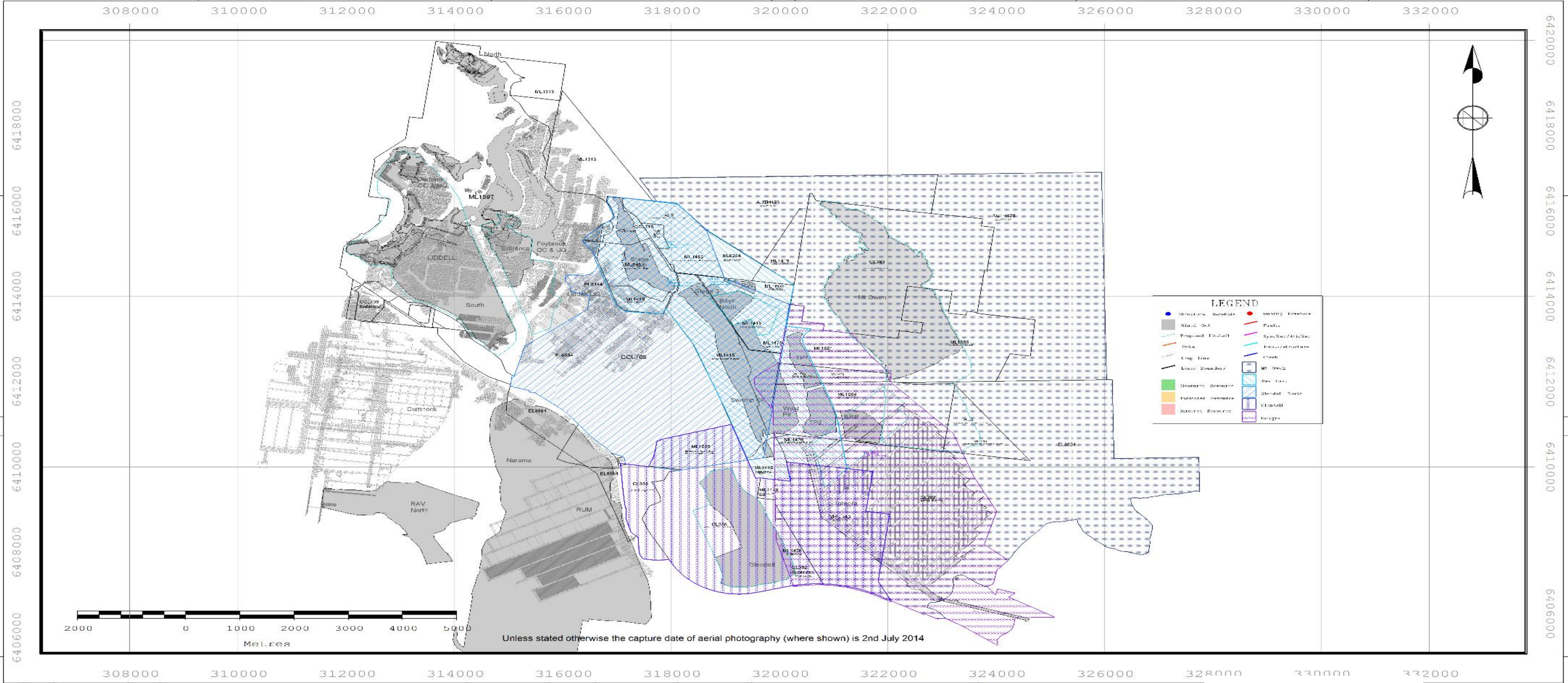
75mm AT FULL SIZE



REVIEW	NAME	SIGNATURE	DATE
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REVISIONS

REV	DATE	BY	DESCRIPTION

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SITE
GLD

DEPARTMENT
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FIGURE No.
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002

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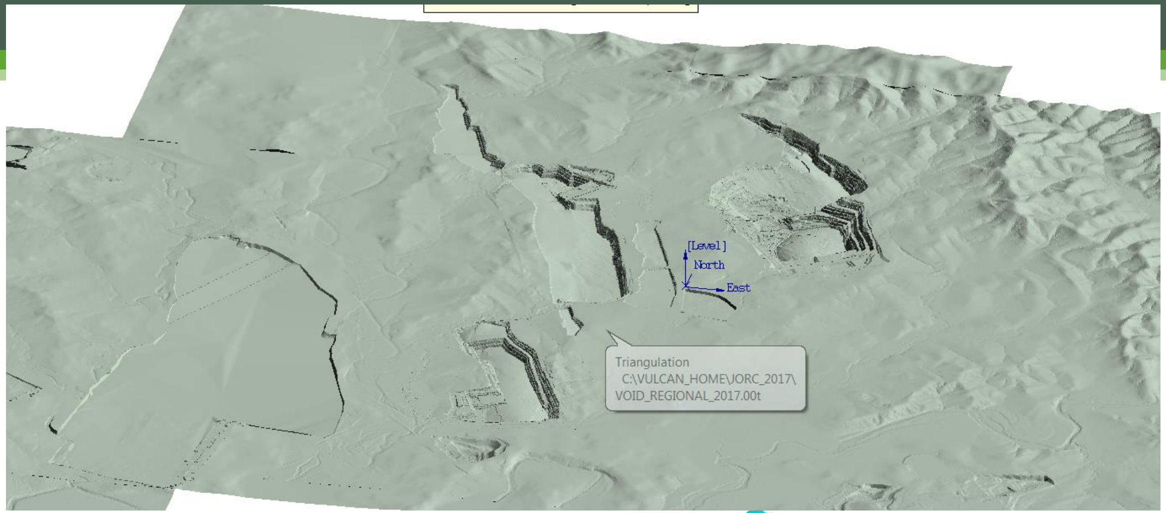
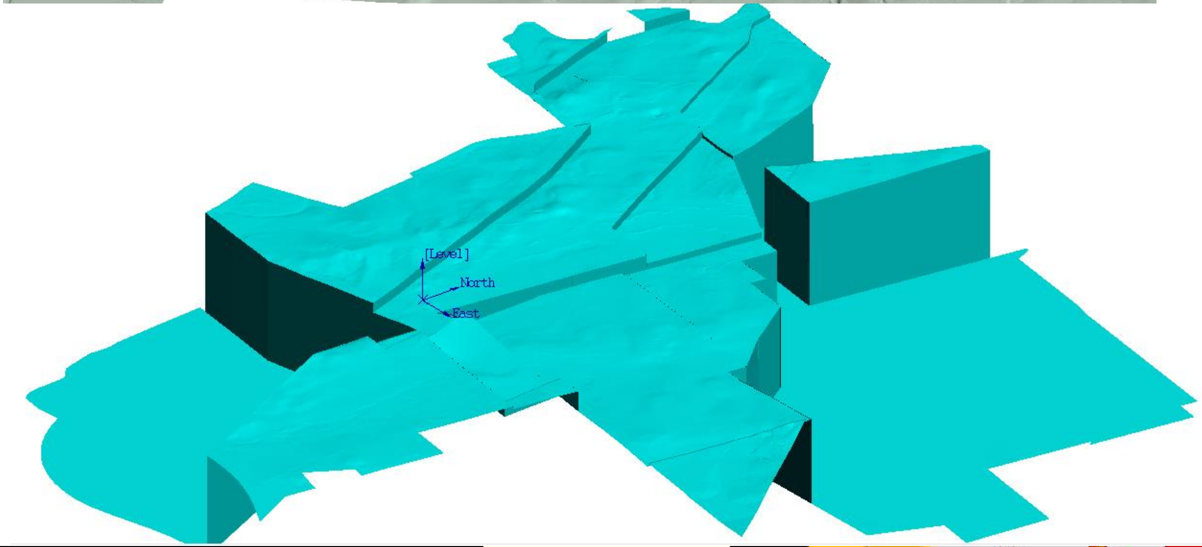
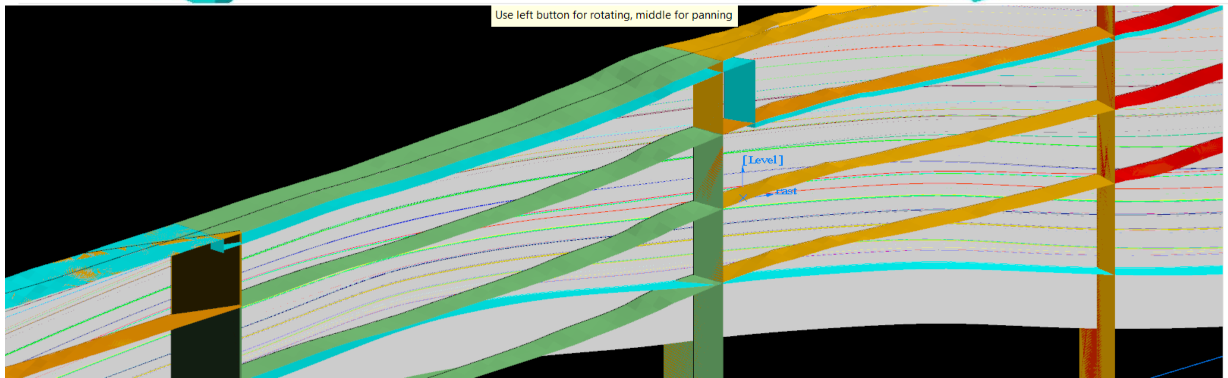
MAPTEK Vulcan

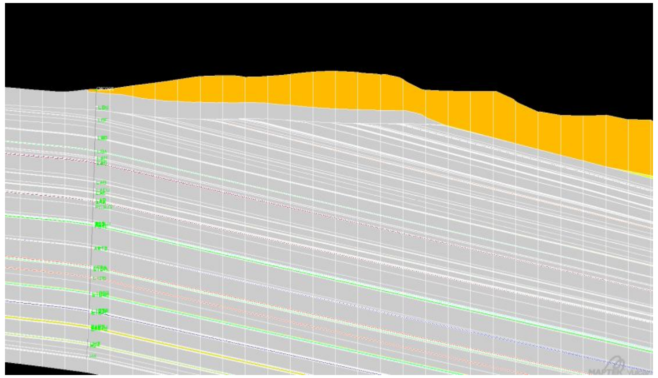
Process





- Latest void/face position cut into topography
- Lease depths built into triangulation
- Solids of polygons created at 100m increments
- Solids used to report insitu tonnes by limiting voids/topo to lease depth





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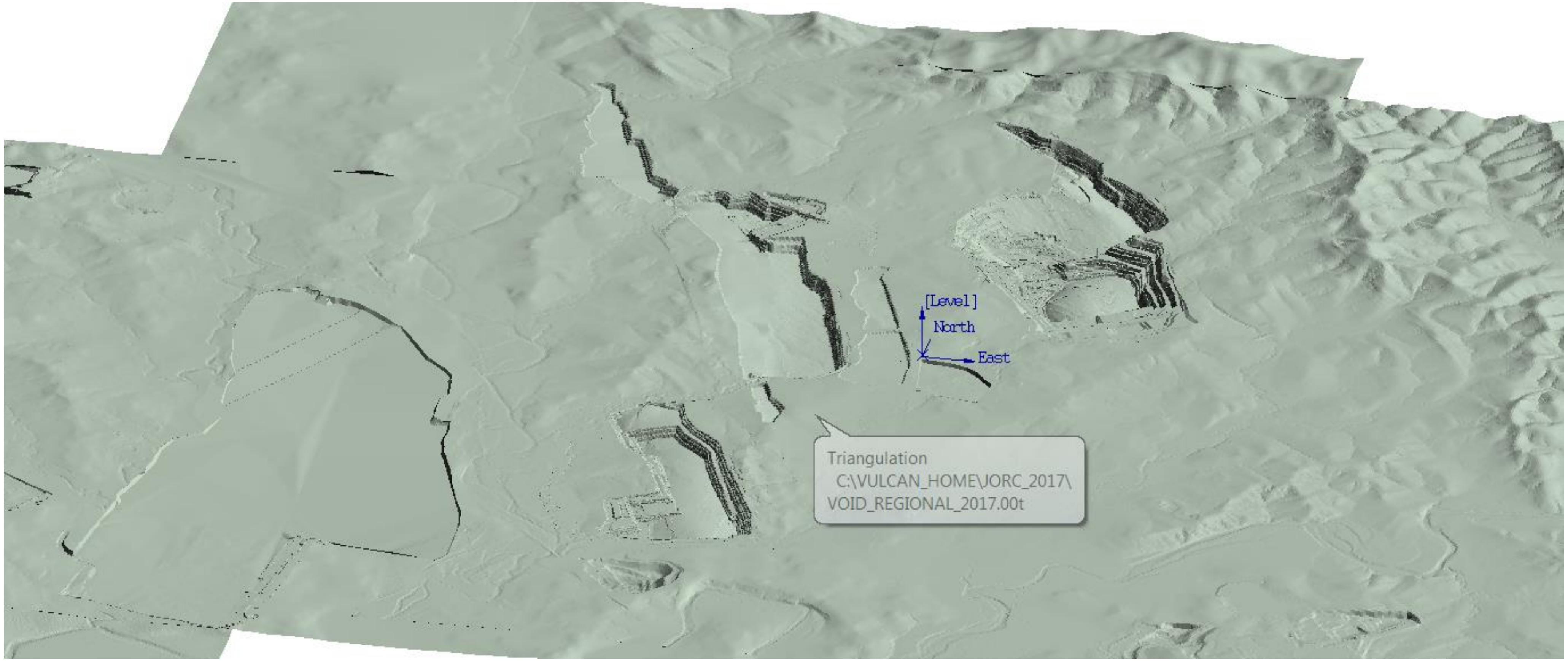

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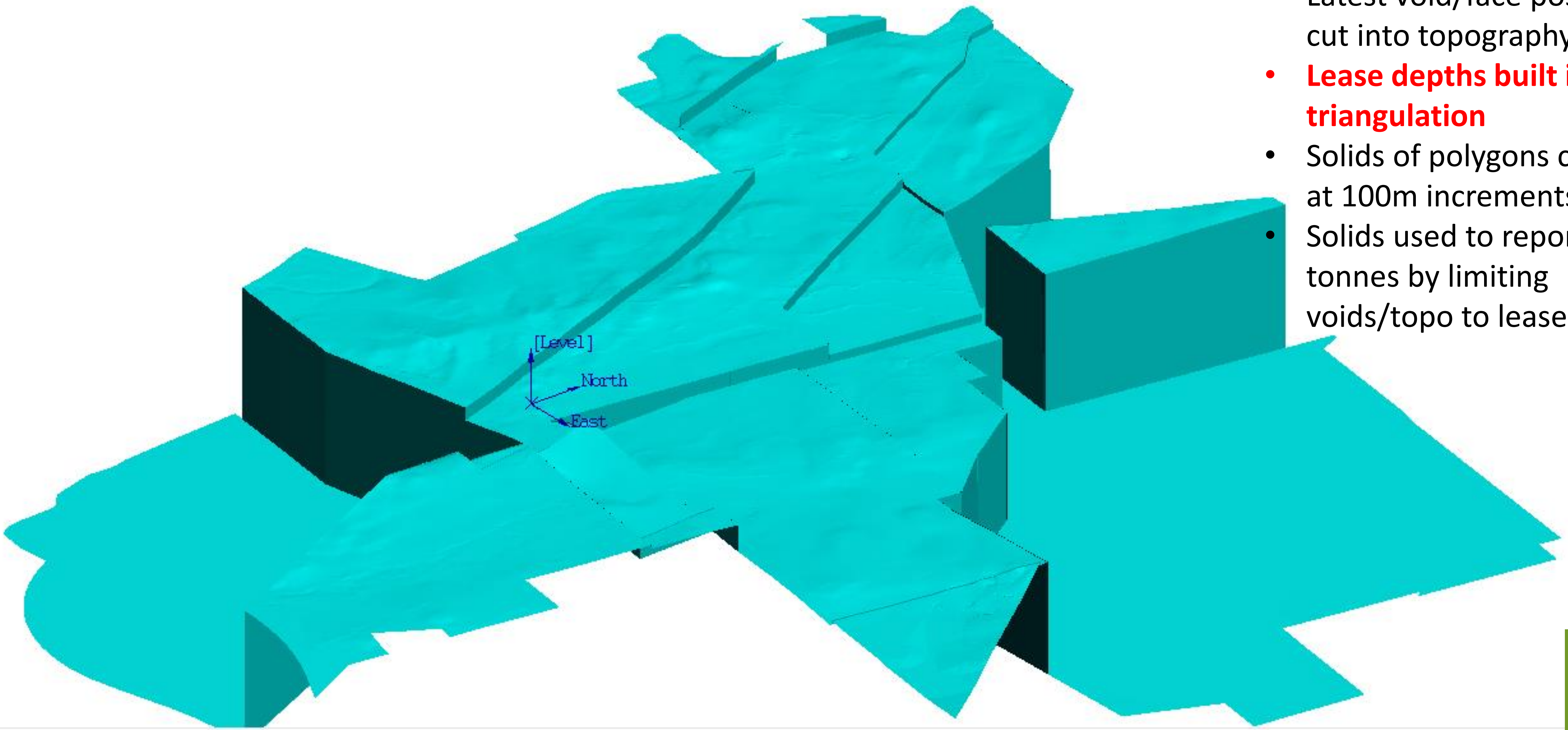
Process



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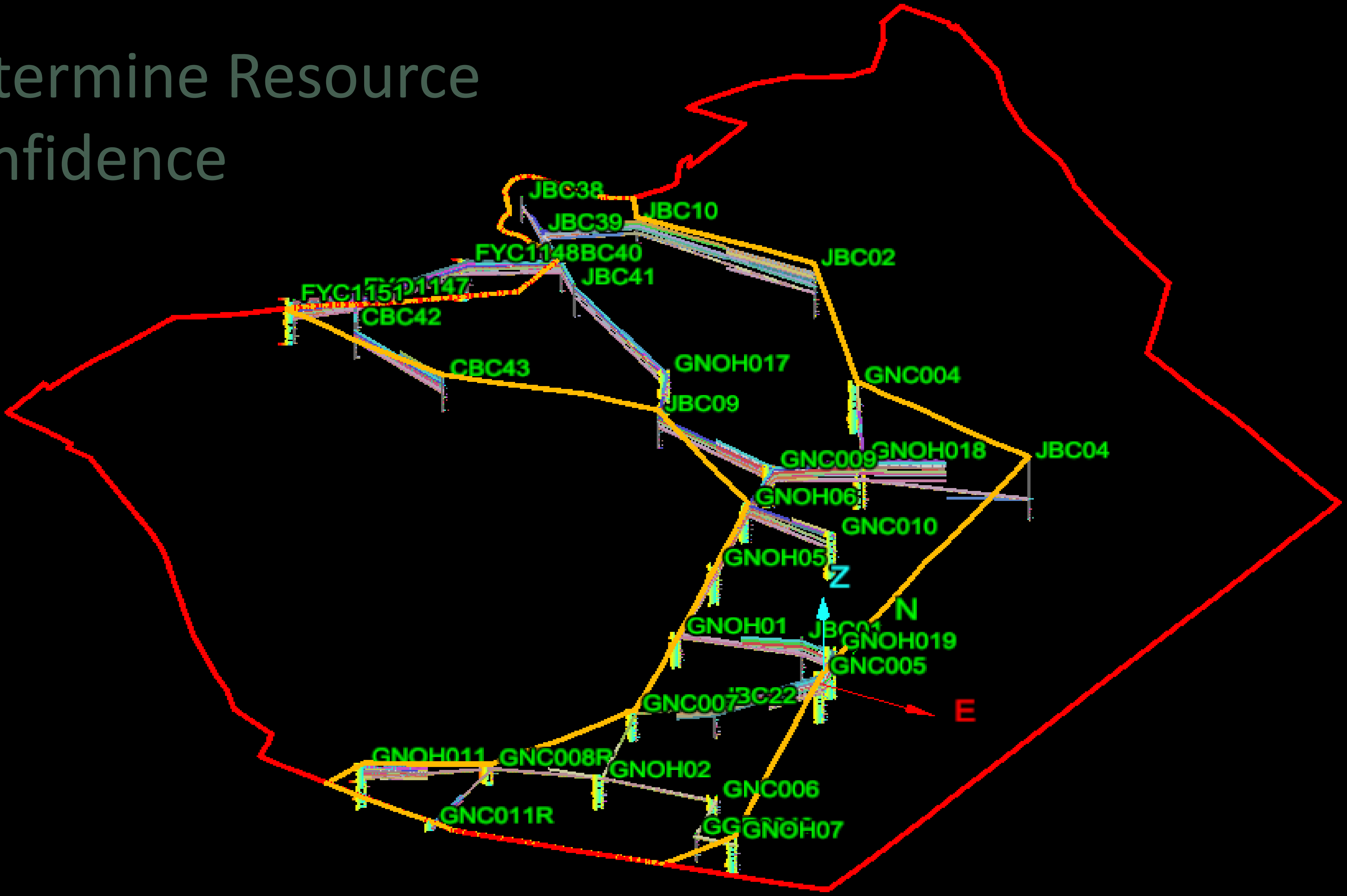
Determine Resource Confidence



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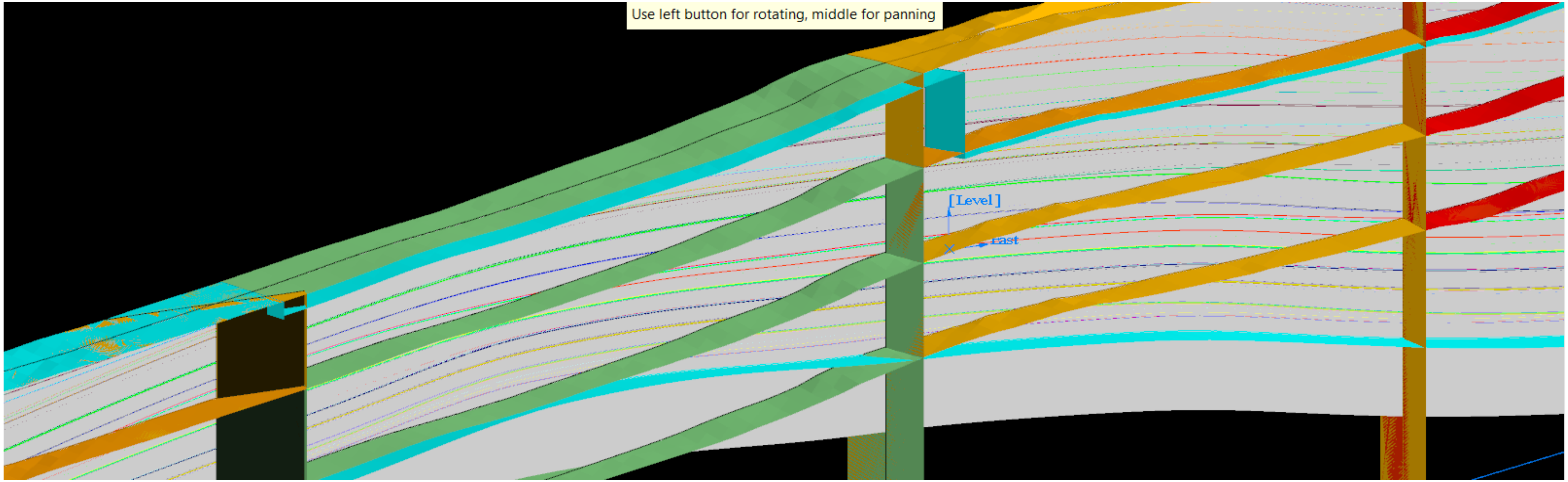
Process



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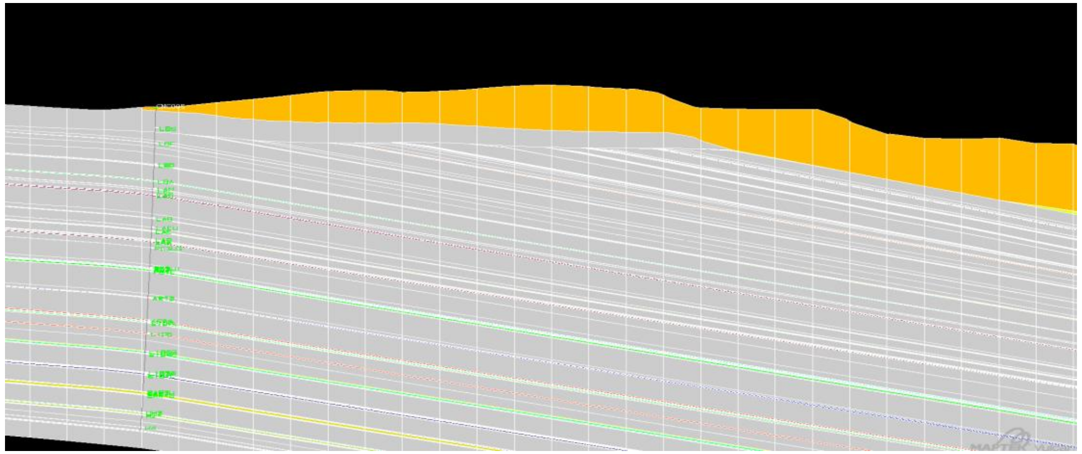

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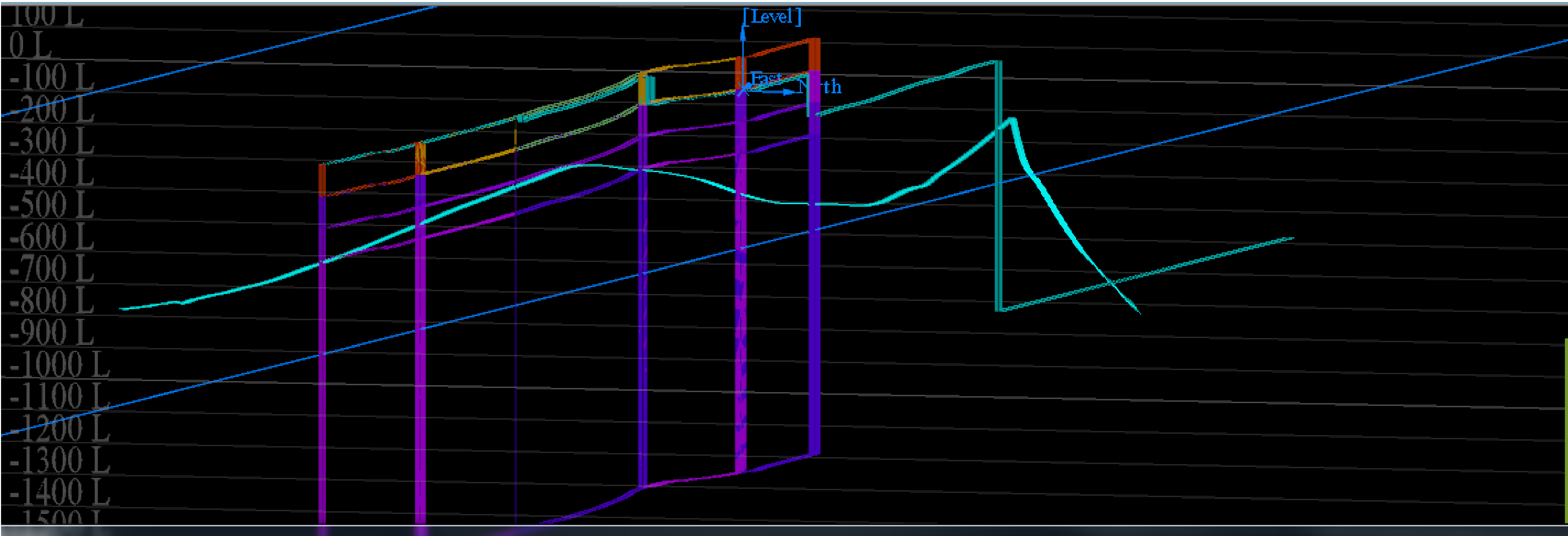

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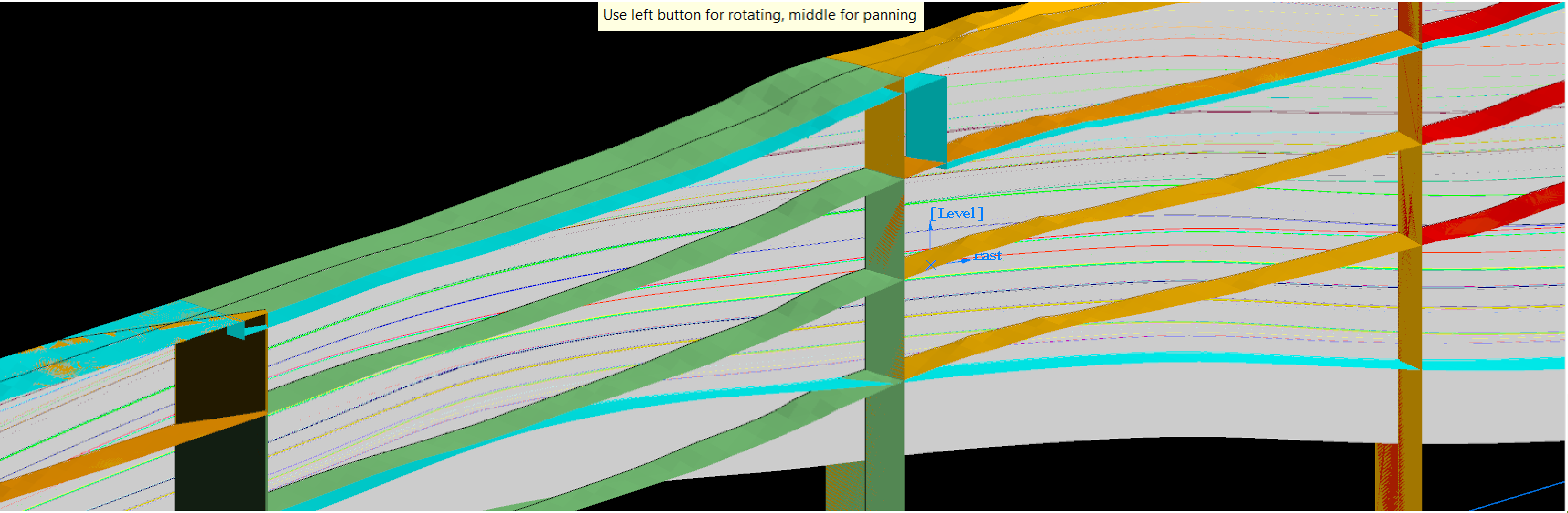
Solid triangulations cut by 100m intervals (0-100m, 100m-200m, 200m-300m, 300m-deep) by translating original topography in 100m increments (all relative to original RL)



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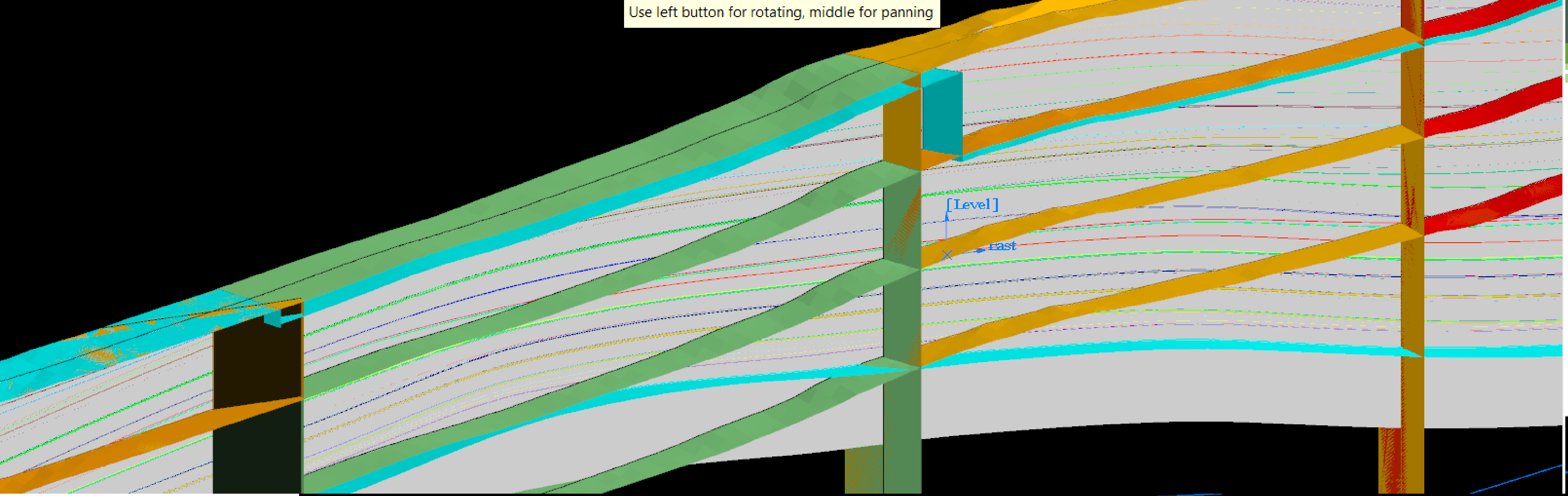

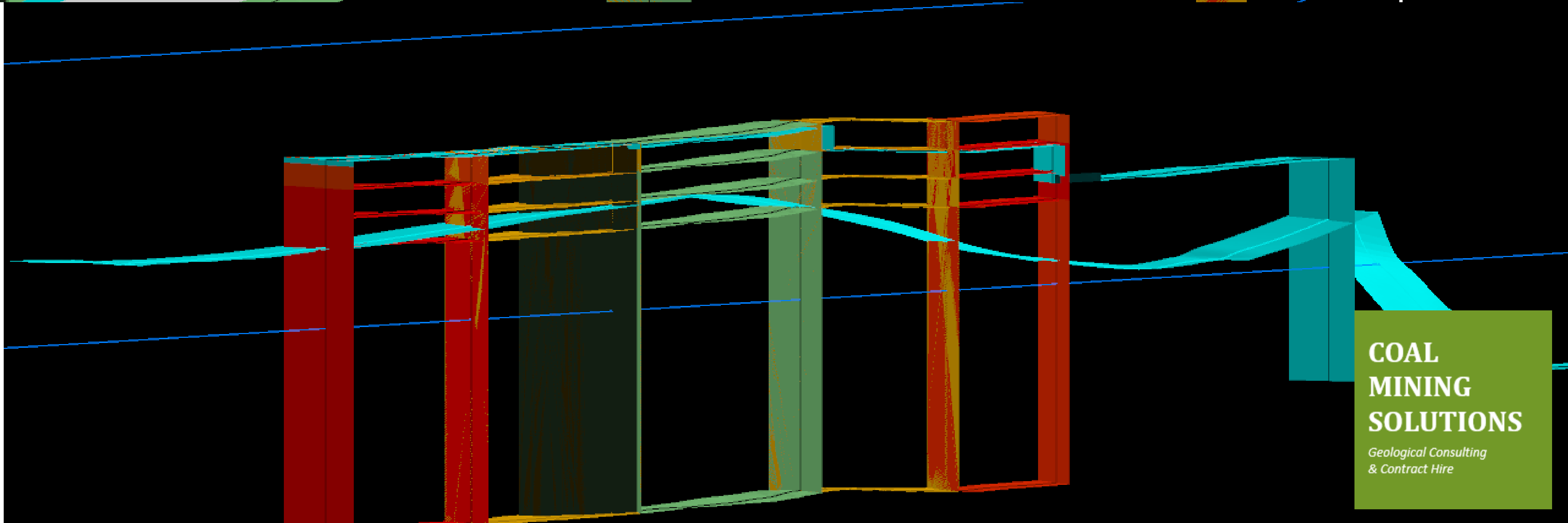

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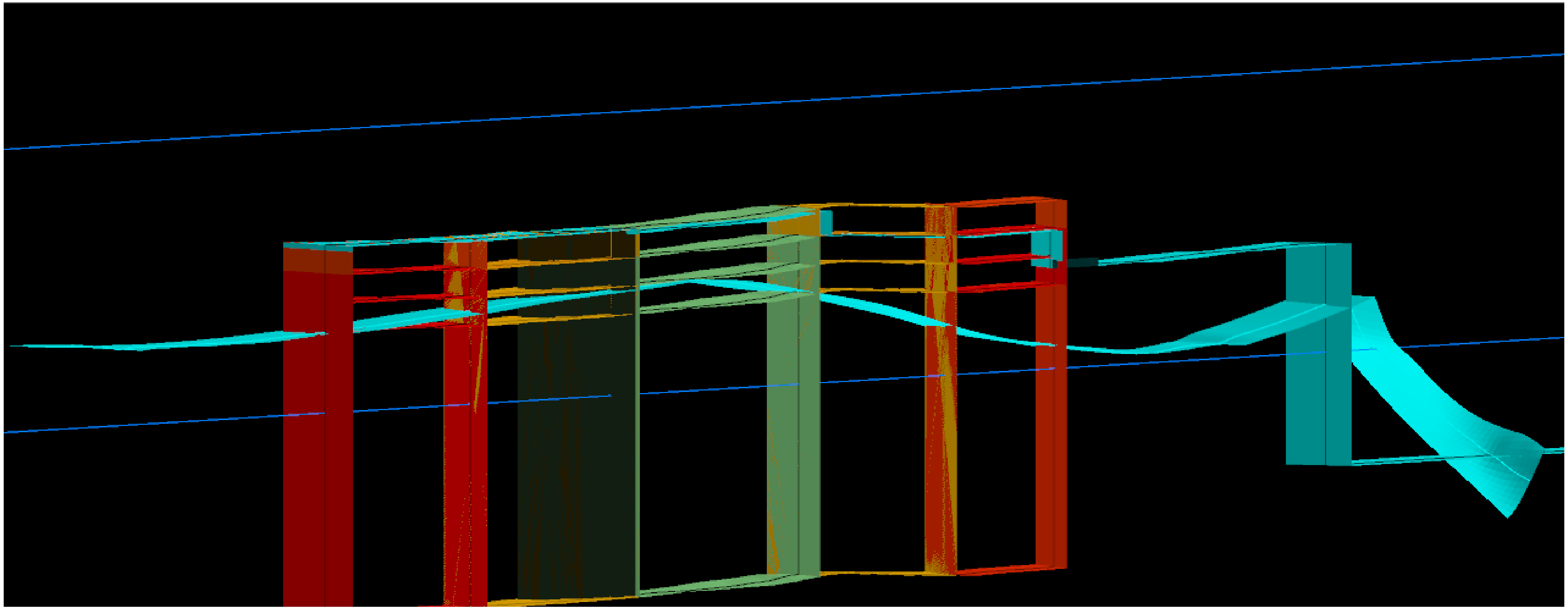
Advance reserve editor used on HARP Model to cut resource by solids limited by void model and bottom of lease surface (bottom depth of all leases merged into one triangulation)



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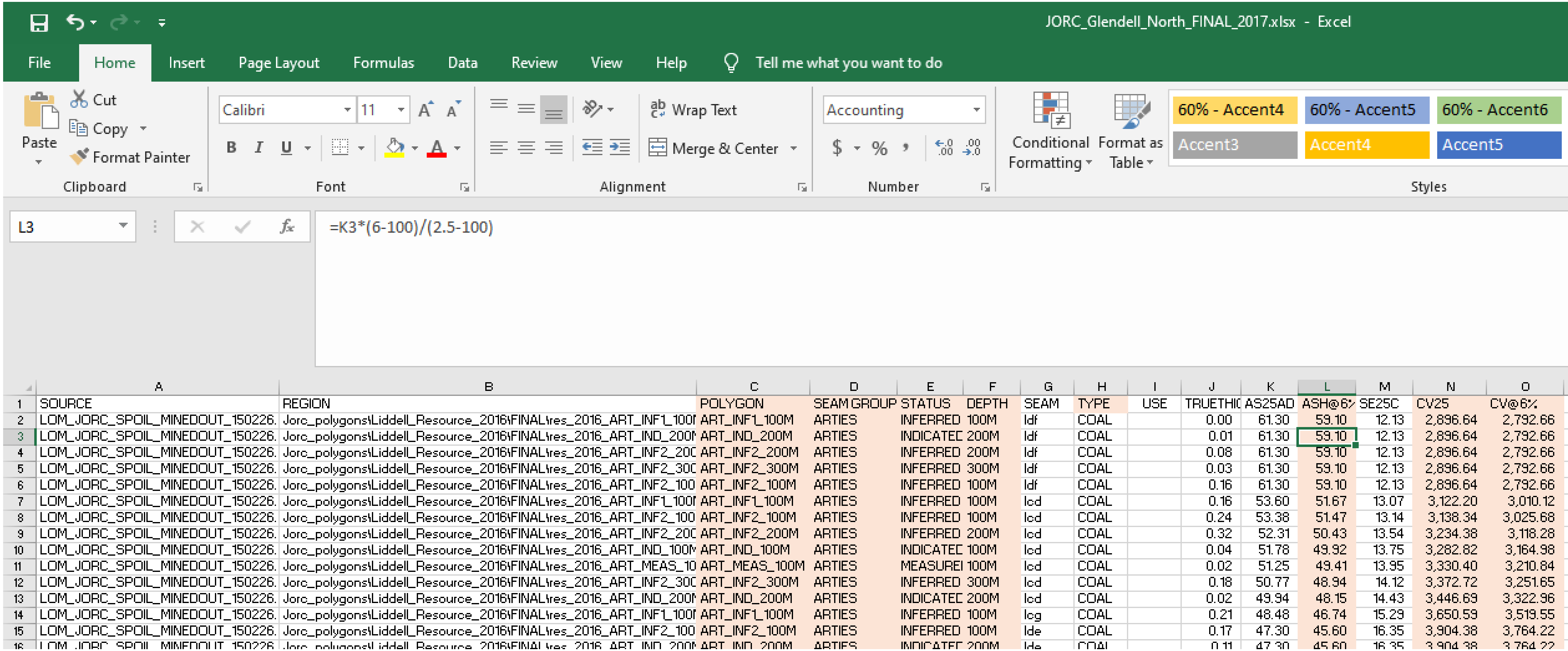
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	SOURCE	REGION	SEAM	SEAM	SEAM_VOLUME	SEAM_MASS	STRAT_ORDER	STRAT_ORDER_VOLUMI	STRAT_ORDER_MAS	TRUETHICK	TRUETHICK_VOLUME	TRUETHICK_MASS	AS25AD	AS25AD_VOLUME	AS25AD_MASS	SE25C	SE25C_VOLUME	SE25C_MASS	INSITU_PERC	INSITU_PERC_VOLUME	INSITU_PERC_MASS	TOTAL_VOLUME	TOTAL_MASS
2	LOM_JORC_SP	Jorc_polygons\Li	laa	90	1355322.707	1843491.58	216	1355322.707	1843491.576	0.6733849	1355322.707	1843491.576	12.830921	1355322.707	1843491.576	28.828413	1355322.707	1843491.576	0	0	0	1355322.707	1843491.576
3	LOM_JORC_SP	Jorc_polygons\Li	lab	92	438580.3611	594707.831	214	438580.3611	594707.8314	0.2200749	438580.3611	594707.8314	12.74299	438580.3611	594707.8314	29.02906	438580.3611	594707.8314	0	0	0	438580.3611	594707.8314
4	LOM_JORC_SP	Jorc_polygons\Li	lac	94	792538.9312	1066409.5	212	792538.9312	1066409.5	0.3763777	792538.9312	1066409.5	11.029291	792538.9312	1066409.5	29.61641	792538.9312	1066409.5	0	0	0	792538.9312	1066409.5
5	LOM_JORC_SP	Jorc_polygons\Li	lad	96	380831.8158	520966.423	210	380831.8158	520966.4227	0.1848086	380831.8158	520966.4227	12.131114	380831.8158	520966.4227	29.117691	380831.8158	520966.4227	0	0	0	380831.8158	520966.4227
6	LOM_JORC_SP	Jorc_polygons\Li	lae	98	696953.4262	947652.024	208	696953.4262	947652.0236	0.3808335	696953.4262	947652.0236	12.72614	696953.4262	947652.0236	28.853667	696953.4262	947652.0236	0	0	0	696953.4262	947652.0236
7	LOM_JORC_SP	Jorc_polygons\Li	laf	100	631850.2624	944959.127	204	631850.2624	944959.1274	0.3691939	631850.2624	944959.1274	25.62399	631850.2624	944959.1274	24.097115	631850.2624	944959.1274	0	0	0	631850.2624	944959.1274
8	LOM_JORC_SP	Jorc_polygons\Li	lag	104	470179.4392	670778.334	200	470179.4392	670778.334	0.2388757	470179.4392	670778.334	16.901529	470179.4392	670778.334	27.366496	470179.4392	670778.334	0	0	0	470179.4392	670778.334
9	LOM_JORC_SP	Jorc_polygons\Li	lah	106	1481304.375	2096702.53	198	1481304.375	2096702.531	0.7111319	1481304.375	2096702.531	15.562051	1481304.375	2096702.531	27.825264	1481304.375	2096702.531	0	0	0	1481304.375	2096702.531
10	LOM_JORC_SP	Jorc_polygons\Li	laj	110	1374273.182	1975954.22	194	1374273.182	1975954.221	0.6608986	1374273.182	1975954.221	18.828229	1374273.182	1975954.221	26.552133	1374273.182	1975954.221	0	0	0	1374273.182	1975954.221
11	LOM_JORC_SP	Jorc_polygons\Li	lak	112	1104112.446	1563773.88	192	1104112.446	1563773.882	0.5460607	1104112.446	1563773.882	15.823219	1104112.446	1563773.882	27.748275	1104112.446	1563773.882	0	0	0	1104112.446	1563773.882
12	LOM_JORC_SP	Jorc_polygons\Li	lal	114	268984.9692	431314.656	190	268984.9692	431314.6561	0.1496981	268984.9692	431314.6561	39.240987	268984.9692	431314.6561	18.83831	268984.9692	431314.6561	0	0	0	268984.9692	431314.6561
13	LOM_JORC_SP	Jorc_polygons\Li	lam	116	274657.425	392427.474	188	274657.425	392427.4737	0.2003616	274657.425	392427.4737	15.447749	274657.425	392427.4737	27.645473	274657.425	392427.4737	0	0	0	274657.425	392427.4737
14	LOM_JORC_SP	Jorc_polygons\Li	lba	118	1144269.803	1616761.1	186	1144269.803	1616761.104	0.6608127	1144269.803	1616761.104	17.76301	1144269.803	1616761.104	26.913159	1144269.803	1616761.104	0	0	0	1144269.803	1616761.104
15	LOM_JORC_SP	Jorc_polygons\Li	lbb	120	371541.4621	525765.049	184	371541.4621	525765.0487	0.2935331	371541.4621	525765.0487	18.989382	371541.4621	525765.0487	26.617087	371541.4621	525765.0487	0	0	0	371541.4621	525765.0487
16	LOM_JORC_SP	Jorc_polygons\Li	lbc	122	444500.6332	662705.567	182	444500.6332	662705.5667	0.3786693	444500.6332	662705.5667	24.89055	444500.6332	662705.5667	24.345599	444500.6332	662705.5667	0	0	0	444500.6332	662705.5667
17	LOM_JORC_SP	Jorc_polygons\Li	lbd	124	160455.6025	263794.682	180	160455.6025	263794.6819	0.1741498	160455.6025	263794.6819	40.454056	160455.6025	263794.6819	18.34481	160455.6025	263794.6819	0	0	0	160455.6025	263794.6819
18	LOM_JORC_SP	Jorc_polygons\Li	lbe	126	170950.7064	249824.657	178	170950.7064	249824.6566	0.2101775	170950.7064	249824.6566	24.87258	170950.7064	249824.6566	24.157201	170950.7064	249824.6566	0	0	0	170950.7064	249824.6566
19	LOM_JORC_SP	Jorc_polygons\Li	lbf	130	319936.8402	499445.434	174	319936.8402	499445.4345	0.5174165	319936.8402	499445.4345	32.569332	319936.8402	499445.4345	21.460309	319936.8402	499445.4345	0	0	0	319936.8402	499445.4345
20	LOM_JORC_SP	Jorc_polygons\Li	lbg	132	36600.55347	55020.535	172	36600.55347	55020.53501	0.0744945	36600.55347	55020.53501	28.434919	36600.55347	55020.53501	22.61368	36600.55347	55020.53501	0	0	0	36600.55347	55020.53501
21	LOM_JORC_SP	Jorc_polygons\Li	lbj	134	131577.3694	196588.234	170	131577.3694	196588.2339	0.542052	131577.3694	196588.2339	25.805662	131577.3694	196588.2339	23.597102	131577.3694	196588.2339	0	0	0	131577.3694	196588.2339
22	LOM_JORC_SP	Jorc_polygons\Li	lbk	136	63290.99777	90957.7428	168	63290.99777	90957.74283	0.3133898	63290.99777	90957.74283	20.724889	63290.99777	90957.74283	25.505873	63290.99777	90957.74283	0	0	0	63290.99777	90957.74283
23	LOM_JORC_SP	Jorc_polygons\Li	lbl	138	4957.432956	7088.98624	166	4957.432956	7088.986241	0.0999754	4957.432956	7088.986241	21.715424	4957.432956	7088.986241	25.191302	4957.432956	7088.986241	0	0	0	4957.432956	7088.986241
24	LOM_JORC_SP	Jorc_polygons\Li	lbm	140	318.2824071	477.423611	164	318.2824071	477.4236107	0.0128245	318.2824071	477.4236107	0	0	0	0	0	0	0	0	0	318.2824071	477.4236107
25	LOM_JORC_SP	Jorc_polygons\Li	lca	142	19856.80181	30245.7115	162	19856.80181	30245.71147	0.5095417	19856.80181	30245.71147	27.085845	19856.80181	30245.71147	23.213248	19856.80181	30245.71147	0	0	0	19856.80181	30245.71147
26	LOM_JORC_SP	Jorc_polygons\Li	lcb	144	10323.2994	16424.9463	160	10323.2994	16424.94633	0.3251226	10323.2994	16424.94633	35.5613	10323.2994	16424.94633	20.776462	10323.2994	16424.94633	0	0	0	10323.2994	16424.94633
27	LOM_JORC_SP	Jorc_polygons\Li	lcc	146	703.461956	1143.32129	158	703.461956	1143.321287	0.0347616	703.461956	1143.321287	40.744641	703.461956	1143.321287	18.282071	703.461956	1143.321287	0	0	0	703.461956	1143.321287
28	LOM_JORC_SP	Jorc_polygons\Li	lcd	148	622.996989	1076.10668	156	622.996989	1076.106679	0.0367719	622.996989	1076.106679	51.778594	622.996989	1076.106679	13.747163	622.996989	1076.106679	0	0	0	622.996989	1076.106679
29	LOM_JORC_SP	Jorc_polygons\Li	lce	150	4.423500599	6.28137119	154	4.423500599	6.281371188	0.0038985	4.423500599	6.281371188	18.900002	4.423500599	6.281371188	26.439999	4.423500599	6.281371188	0	0	0	4.423500599	6.281371188
30	LOM_JORC_SP	Jorc_polygons\Li	lcf	152	267.9984398	429.597652	152	267.9984398	429.5976517	0.0443354	267.9984398	429.5976517	36.146319	267.9984398	429.5976517	19.813849	267.9984398	429.5976517	0	0	0	267.9984398	429.5976517
31	LOM_JORC_SP	Jorc_polygons\Li	lcg	156	974.117432	1648.78096	150	974.117432	1648.780956	0.1586942	974.117432	1648.780956	43.295835	974.117432	1648.780956	17.165133	974.117432	1648.780956	0	0	0	974.117432	1648.780956
32	LOM_JORC_SP	Jorc_polygons\Li	lch	158	4223.328428	6923.82909	148	4223.328428	6923.829086	0.814148	4223.328428	6923.829086	40.517439	4223.328428	6923.829086	18.036513	4223.328428	6923.829086	0	0	0	4223.328428	6923.829086
33	LOM_JORC_SP	Jorc_polygons\Li	lda	160	0.024915207	0.03841102	144	0.024915207	0.03841102	0.2029381	0.024915207	0.03841102	29.893308	0.024915207	0.03841102	22.216133	0.024915207	0.03841102	0	0	0	0.024915207	0.03841102
34	LOM_JORC_SP	Jorc_polygons\Li	pg1	76	1069160.063	1439341.06	230	1069160.063	1439341.061	1.2647372	1069160.063	1439341.061	13.836018	1069160.063	1439341.061	28.627799	1069160.063	1439341.061	0	0	0	1069160.063	1439341.061
35	LOM_JORC_SP	Jorc_polygons\Li	pg2	80	384200.5826	525103.718	226	384200.5826	525103.7176	0.4250356	384200.5826	525103.7176	15.476558	384200.5826	525103.7176	28.062564	384200.5826	525103.7176	0	0	0	384200.5826	525103.7176
36	LOM_JORC_SP	Jorc_polygons\Li	pg3	82	444519.2667	600333.822	224	444519.2667	600333.8221	0.4820586	444519.2667	600333.8221	15.086537	444519.2667	600333.8221	28.141896	444519.2667	600333.8221	0	0	0	444519.2667	600333.8221
37	LOM_JORC_SP	Jorc_polygons\Li	art1	64	53651.61065	76936.5179	242	53651.61065	76936.51795	0.8649216	53651.61065	76936.51795	23.185115	53651.61065	76936.51795	25.043574	53651.61065	76936.51795	0	0	0	53651.61065	76936.51795
38	LOM_JORC_SP	Jorc_polygons\Li	art2	66	91032.81968	133620.302	240	91032.81968	133620.3023	0.6009952	91032.81968	133620.3023	24.96758	91032.81968	133620.3023	24.260347	91032.81968	133620.3023	0	0	0	91032.81968	133620.3023
39	LOM_JORC_SP	Jorc_polygons\Li	art3	70	126577.6877	182693.012	236	126577.6877	182693.0125	0.709472	126577.6877	182693.0125	20.921669	126577.6877	182693.0125	25.917433	126577.6877	182693.0125	0	0	0	126577.6877	182693.0125
40	LOM_JORC_SP	Jorc_polygons\Li	lafu	102	99136.90332	147587.93	202	99136.90332	147587.93	0.0889705	99136.90332	147587.93	24.75794	99136.90332	147587.93	24.470081	99136.90332	147587.93	0	0	0	99136.90332	147587.93
41	LOM_JORC_SP	Jorc_polygons\Li	lahu	108	114923.2093	169290.9	196	114923.2093	169290.9004	0.0786898	114923.2093	169290.9004	28.575017	114923.2093	169290.9004	23.262196	114923.2093	169290.9004	0	0	0	114923.2093	169290.9004
42	LOM_JORC_SP	Jorc_polygons\Li	lbeu	128	63446.42906	101504.329	176	63446.42906	101504.3291	0.1097389	63446.42906	101504.3291	36.50986	63446.42906	101504.3291	20.222012	63446.42906	101504.3291	0	0	0	63446.42906	101504.3291
43	LOM_JORC_SP	Jorc_polygons\Li	lid7	56	8482.009012	11389.6116	250	8482.009012	11389.61161	0.5594003	8482.009012	11389.61161	11.948612	8482.009012	11389.61161	29.221164	8482.009012	11389.61161	0	0	0	8482.009012	11389.61161
44	LOM_JORC_SP	Jorc_polygons\Li	pg1l	74	126637.0724	186290.424	232	126637.0724	186290.4243	0.1723264	126637.0724	186290.4243	26.561718	126637.0724	186290.4243	23.700642	126637.0724	186290.4243	0	0	0	126637.0724	186290.4243
45	LOM_JORC_SP	Jorc_polygons\Li	pg2l	78	75369.62235	106959.397	228	75369.62235	106959.3975	0.2360793	75369.62235	106959.3975	16.40134	75369.62235	106959.3975	27.690657	75369.62235	106959.3975	0	0	0	75369.62235	106959.3975
46	LOM_JORC_SP	Jorc_polygons\Li	art1l	62	25.16200777	40.9616739	244	25.16200777	40.96167388	0.0058053	25.16200777	40.96167388	42.737835	25.16200777	40.96167388	17.860693	25.16200777	40.96167388	0	0			
47	LOM_JORC_SP	Jorc_polygons\Li	art3l	68	0.669895225	0.91775638	238	0.669895225	0.917756381	8.93E-06	0.669895225	0.917756381	14.5	0.669895225	0.917756381	28.369999	0.669895225	0.917756381	0	0			
48	LOM_JORC_SP	Jorc_polygons\Li	art3u	72	11537.93039	17546.1137	234	11537.93039	17546.1137	0.1365274	11537.93039	17546.1137	31.305721	11537.93039	17546.1137	22.031308	11537.93039	17546.1137	0	0			

COAL MINING SOLUTIONS

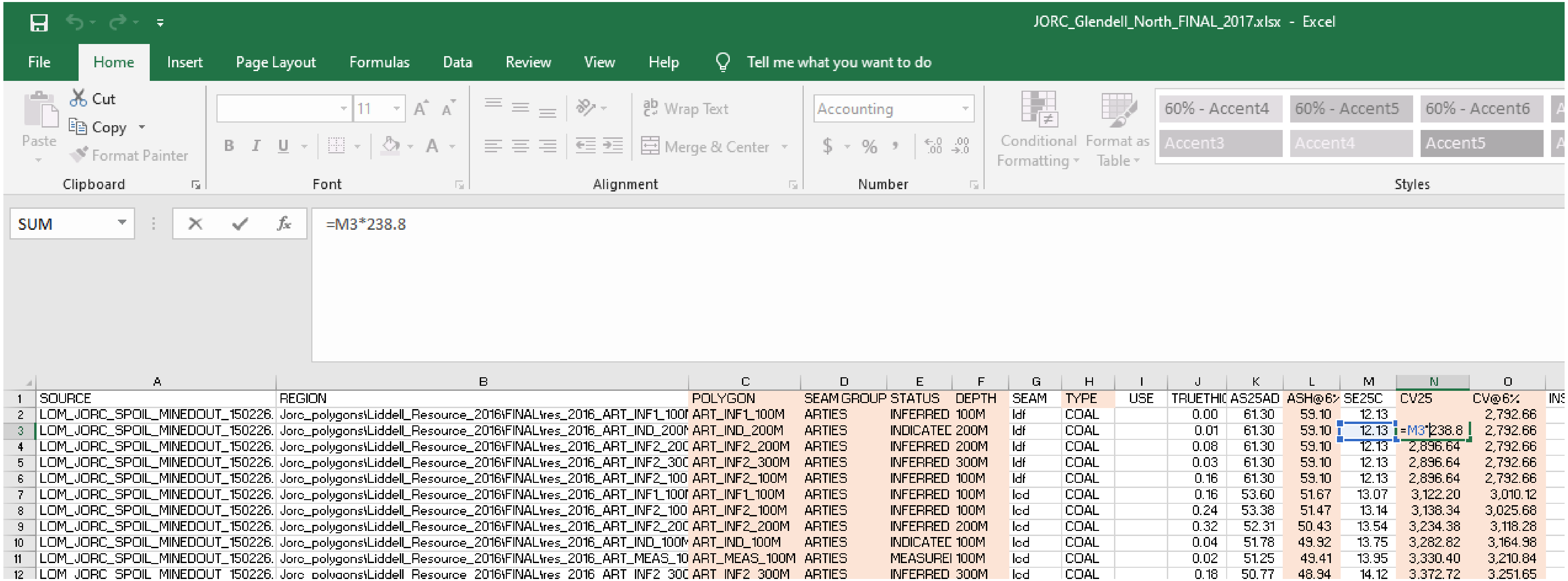
Geological Consulting & Contract Hire

Normalise dataset to desired moisture basis



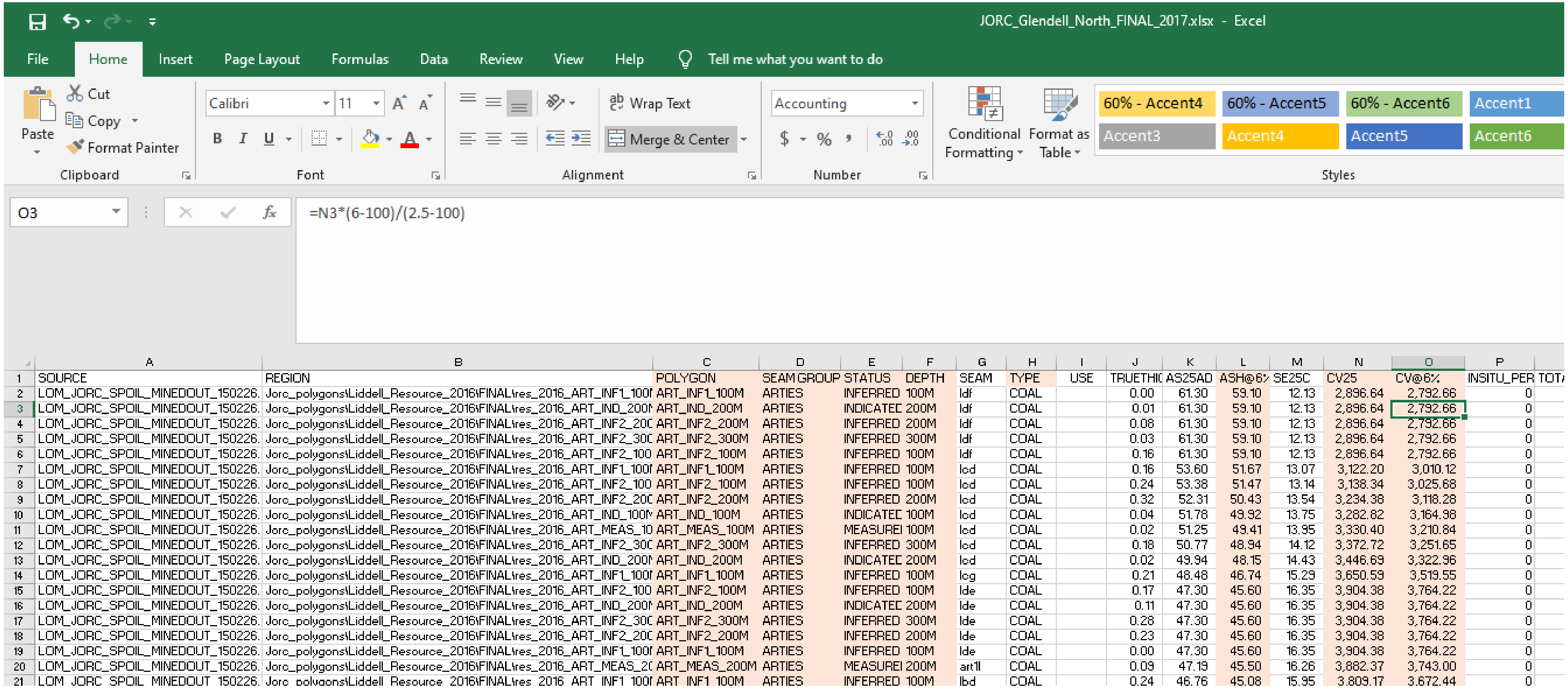
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	SOURCE	REGION	POLYGON	SEAM GROUP	STATUS	DEPTH	SEAM	TYPE	USE	TRUETHI	AS25AD	ASH@6%	SE25C	CV25	CV@6%
2	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF1_100	ART_INF1_100M	ARTIES	INFERRED	100M	ldf	COAL		0.00	61.30	59.10	12.13	2,896.64	2,792.66
3	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_IND_200	ART_IND_200M	ARTIES	INDICATED	200M	ldf	COAL		0.01	61.30	59.10	12.13	2,896.64	2,792.66
4	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_20	ART_INF2_200M	ARTIES	INFERRED	200M	ldf	COAL		0.08	61.30	59.10	12.13	2,896.64	2,792.66
5	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_30	ART_INF2_300M	ARTIES	INFERRED	300M	ldf	COAL		0.03	61.30	59.10	12.13	2,896.64	2,792.66
6	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_100	ART_INF2_100M	ARTIES	INFERRED	100M	ldf	COAL		0.16	61.30	59.10	12.13	2,896.64	2,792.66
7	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF1_100	ART_INF1_100M	ARTIES	INFERRED	100M	lcd	COAL		0.16	53.60	51.67	13.07	3,122.20	3,010.12
8	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_100	ART_INF2_100M	ARTIES	INFERRED	100M	lcd	COAL		0.24	53.38	51.47	13.14	3,138.34	3,025.68
9	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_20	ART_INF2_200M	ARTIES	INFERRED	200M	lcd	COAL		0.32	52.31	50.43	13.54	3,234.38	3,118.28
10	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_IND_100	ART_IND_100M	ARTIES	INDICATED	100M	lcd	COAL		0.04	51.78	49.92	13.75	3,282.82	3,164.98
11	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_MEAS_10	ART_MEAS_100M	ARTIES	MEASURED	100M	lcd	COAL		0.02	51.25	49.41	13.95	3,330.40	3,210.84
12	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_30	ART_INF2_300M	ARTIES	INFERRED	300M	lcd	COAL		0.18	50.77	48.94	14.12	3,372.72	3,251.65
13	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_IND_200	ART_IND_200M	ARTIES	INDICATED	200M	lcd	COAL		0.02	49.94	48.15	14.43	3,446.69	3,322.96
14	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF1_100	ART_INF1_100M	ARTIES	INFERRED	100M	lcg	COAL		0.21	48.48	46.74	15.29	3,650.59	3,519.55
15	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_100	ART_INF2_100M	ARTIES	INFERRED	100M	lde	COAL		0.17	47.30	45.60	16.35	3,904.38	3,764.22
16	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_IND_200	ART_IND_200M	ARTIES	INDICATED	200M	lde	COAL		0.11	47.30	45.60	16.35	3,904.38	3,764.22

Changing SE to Calorific Value



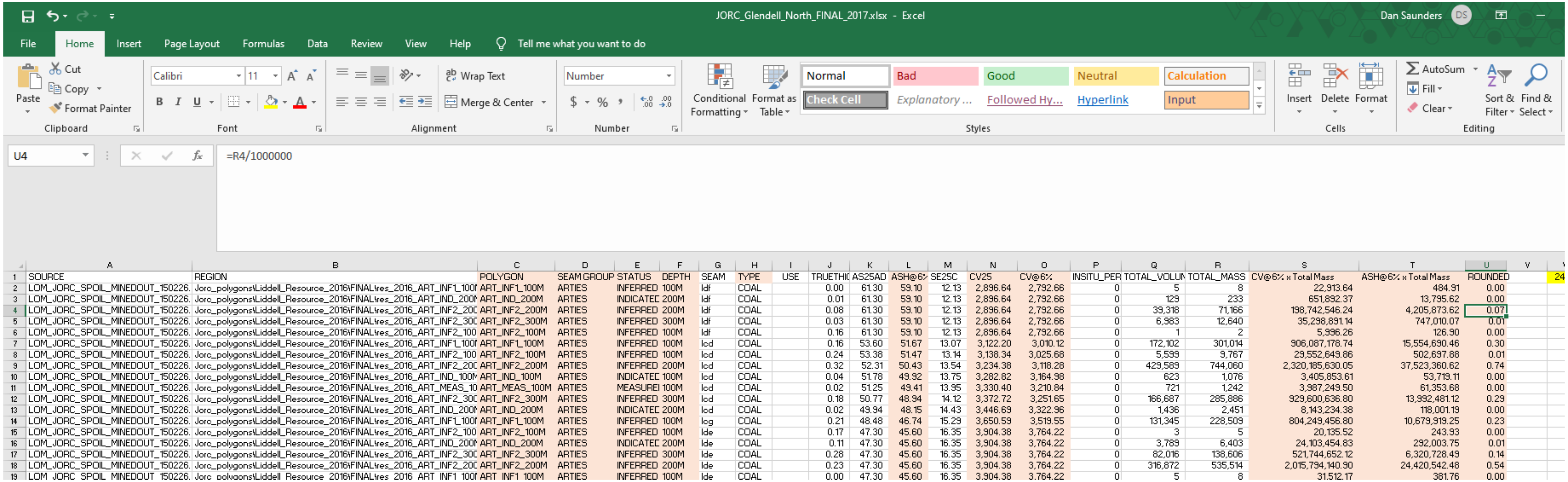
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	SOURCE	REGION	POLYGON	SEAM GROUP	STATUS	DEPTH	SEAM	TYPE	USE	TRUETHIC	AS25AD	ASH@6%	SE25C	CV25	CV@6%
2	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF1_100M	ART_INF1_100M	ARTIES	INFERRED	100M	ldf	COAL		0.00	61.30	59.10	12.13		2,792.66
3	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_IND_200M	ART_IND_200M	ARTIES	INDICATED	200M	ldf	COAL		0.01	61.30	59.10	12.13	=M3*238.8	2,792.66
4	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_200	ART_INF2_200M	ARTIES	INFERRED	200M	ldf	COAL		0.08	61.30	59.10	12.13	2,896.64	2,792.66
5	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_300	ART_INF2_300M	ARTIES	INFERRED	300M	ldf	COAL		0.03	61.30	59.10	12.13	2,896.64	2,792.66
6	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_100	ART_INF2_100M	ARTIES	INFERRED	100M	ldf	COAL		0.16	61.30	59.10	12.13	2,896.64	2,792.66
7	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF1_100M	ART_INF1_100M	ARTIES	INFERRED	100M	lcd	COAL		0.16	53.60	51.67	13.07	3,122.20	3,010.12
8	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_100	ART_INF2_100M	ARTIES	INFERRED	100M	lcd	COAL		0.24	53.38	51.47	13.14	3,138.34	3,025.68
9	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_200	ART_INF2_200M	ARTIES	INFERRED	200M	lcd	COAL		0.32	52.31	50.43	13.54	3,234.38	3,118.28
10	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_IND_100M	ART_IND_100M	ARTIES	INDICATED	100M	lcd	COAL		0.04	51.78	49.92	13.75	3,282.82	3,164.98
11	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_MEAS_10	ART_MEAS_100M	ARTIES	MEASURED	100M	lcd	COAL		0.02	51.25	49.41	13.95	3,330.40	3,210.84
12	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_300	ART_INF2_300M	ARTIES	INFERRED	300M	lcd	COAL		0.18	50.77	48.94	14.12	3,372.72	3,251.65

Normalising CV to 6% moisture



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
1	SOURCE	REGION	POLYGON	SEAM GROUP	STATUS	DEPTH	SEAM	TYPE	USE	TRUETHI(	AS25AD	ASH@6%	SE25C	CV25	CV@6%	INSITU_PER	TOT/
2	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF1_100	ART_INF1_100M	ARTIES	INFERRED	100M	ldf	COAL		0.00	61.30	59.10	12.13	2,896.64	2,792.66	0	
3	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_IND_200	ART_IND_200M	ARTIES	INDICATEC	200M	ldf	COAL		0.01	61.30	59.10	12.13	2,896.64	2,792.66	0	
4	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_200	ART_INF2_200M	ARTIES	INFERRED	200M	ldf	COAL		0.08	61.30	59.10	12.13	2,896.64	2,792.66	0	
5	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_300	ART_INF2_300M	ARTIES	INFERRED	300M	ldf	COAL		0.03	61.30	59.10	12.13	2,896.64	2,792.66	0	
6	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_100	ART_INF2_100M	ARTIES	INFERRED	100M	ldf	COAL		0.16	61.30	59.10	12.13	2,896.64	2,792.66	0	
7	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF1_100	ART_INF1_100M	ARTIES	INFERRED	100M	lcd	COAL		0.16	53.60	51.67	13.07	3,122.20	3,010.12	0	
8	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_100	ART_INF2_100M	ARTIES	INFERRED	100M	lcd	COAL		0.24	53.38	51.47	13.14	3,138.34	3,025.68	0	
9	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_200	ART_INF2_200M	ARTIES	INFERRED	200M	lcd	COAL		0.32	52.31	50.43	13.54	3,234.38	3,118.28	0	
10	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_IND_100	ART_IND_100M	ARTIES	INDICATEC	100M	lcd	COAL		0.04	51.78	49.92	13.75	3,282.82	3,164.98	0	
11	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_MEAS_10	ART_MEAS_100M	ARTIES	MEASUREI	100M	lcd	COAL		0.02	51.25	49.41	13.95	3,330.40	3,210.84	0	
12	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_300	ART_INF2_300M	ARTIES	INFERRED	300M	lcd	COAL		0.18	50.77	48.94	14.12	3,372.72	3,251.65	0	
13	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_IND_200	ART_IND_200M	ARTIES	INDICATEC	200M	lcd	COAL		0.02	49.94	48.15	14.43	3,446.69	3,322.96	0	
14	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF1_100	ART_INF1_100M	ARTIES	INFERRED	100M	lcg	COAL		0.21	48.48	46.74	15.29	3,650.59	3,519.55	0	
15	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_100	ART_INF2_100M	ARTIES	INFERRED	100M	lde	COAL		0.17	47.30	45.60	16.35	3,904.38	3,764.22	0	
16	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_IND_200	ART_IND_200M	ARTIES	INDICATEC	200M	lde	COAL		0.11	47.30	45.60	16.35	3,904.38	3,764.22	0	
17	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_300	ART_INF2_300M	ARTIES	INFERRED	300M	lde	COAL		0.28	47.30	45.60	16.35	3,904.38	3,764.22	0	
18	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_200	ART_INF2_200M	ARTIES	INFERRED	200M	lde	COAL		0.23	47.30	45.60	16.35	3,904.38	3,764.22	0	
19	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF1_100	ART_INF1_100M	ARTIES	INFERRED	100M	lde	COAL		0.00	47.30	45.60	16.35	3,904.38	3,764.22	0	
20	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_MEAS_2	ART_MEAS_200M	ARTIES	MEASUREI	200M	art1l	COAL		0.09	47.19	45.50	16.26	3,882.37	3,743.00	0	
21	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF1_100	ART_INF1_100M	ARTIES	INFERRED	100M	lbd	COAL		0.24	46.76	45.08	15.95	3,809.17	3,672.44	0	

Remember we round to the nearest million

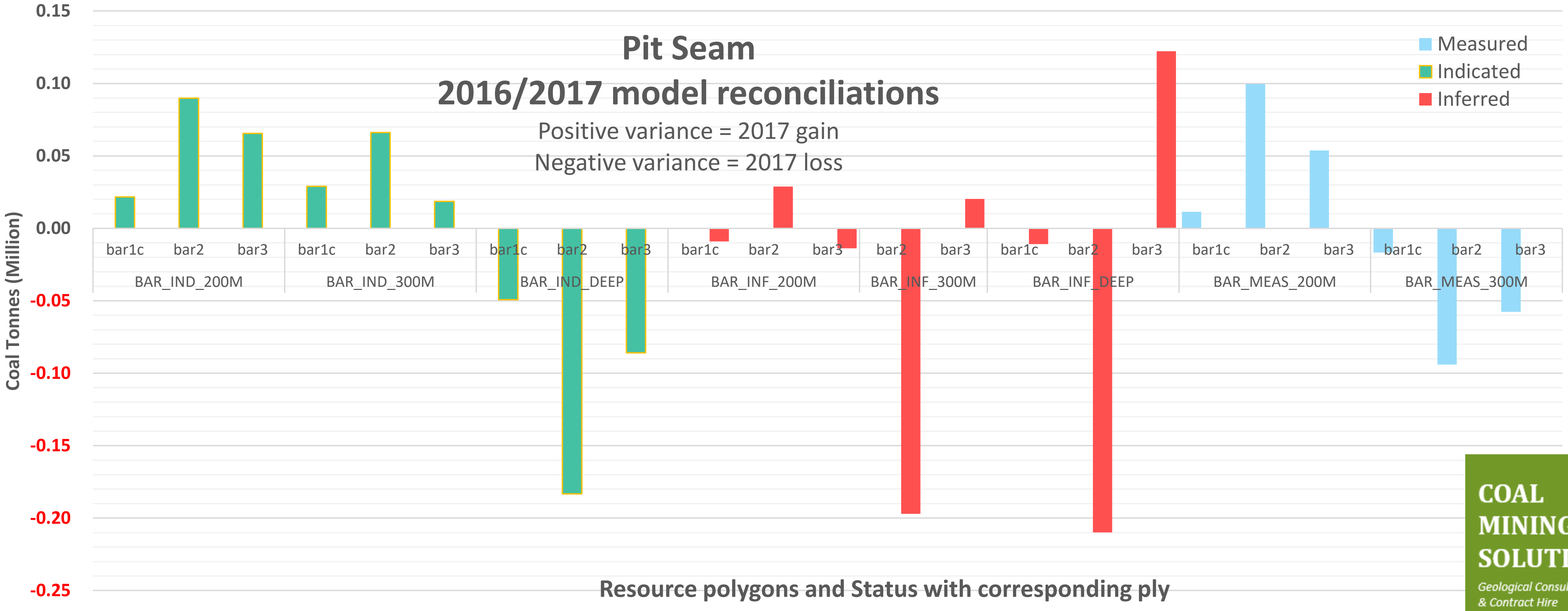


	SOURCE	REGION	POLYGON	SEAM GROUP	STATUS	DEPTH	SEAM	TYPE	USE	TRUETHI(	AS25AD	ASH@6%	SE25C	CV25	CV@6%	INSITU_PER	TOTAL_VOLUI	TOTAL_MASS	CV@6% x Total Mass	ASH@6% x Total Mass	ROUNDED		24
2	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF1_100I	ART_INF1_100M	ARTIES	INFERRED	100M	ldf	COAL		0.00	61.30	59.10	12.13	2,896.64	2,792.66	0	5	8	22,913.64	484.91	0.00		
3	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_IND_200I	ART_IND_200M	ARTIES	INDICATEI	200M	ldf	COAL		0.01	61.30	59.10	12.13	2,896.64	2,792.66	0	129	233	651,892.37	13,795.62	0.00		
4	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_20(	ART_INF2_200M	ARTIES	INFERRED	200M	ldf	COAL		0.08	61.30	59.10	12.13	2,896.64	2,792.66	0	39,318	71,166	198,742,546.24	4,205,873.62	0.07		
5	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_30(	ART_INF2_300M	ARTIES	INFERRED	300M	ldf	COAL		0.03	61.30	59.10	12.13	2,896.64	2,792.66	0	6,983	12,640	35,298,891.14	747,010.07	0.01		
6	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_100	ART_INF2_100M	ARTIES	INFERRED	100M	ldf	COAL		0.16	61.30	59.10	12.13	2,896.64	2,792.66	0	1	2	5,996.26	126.90	0.00		
7	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF1_100I	ART_INF1_100M	ARTIES	INFERRED	100M	lcd	COAL		0.16	53.60	51.67	13.07	3,122.20	3,010.12	0	172,102	301,014	906,087,178.74	15,554,690.46	0.30		
8	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_100	ART_INF2_100M	ARTIES	INFERRED	100M	lcd	COAL		0.24	53.38	51.47	13.14	3,138.34	3,025.68	0	5,599	9,767	29,552,649.86	502,697.88	0.01		
9	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_20(	ART_INF2_200M	ARTIES	INFERRED	200M	lcd	COAL		0.32	52.31	50.43	13.54	3,234.38	3,118.28	0	429,589	744,060	2,320,185,630.05	37,523,360.62	0.74		
10	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_IND_100I	ART_IND_100M	ARTIES	INDICATEI	100M	lcd	COAL		0.04	51.78	49.92	13.75	3,282.82	3,164.98	0	623	1,076	3,405,853.61	53,719.11	0.00		
11	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_MEAS_10	ART_MEAS_100M	ARTIES	MEASUREI	100M	lcd	COAL		0.02	51.25	49.41	13.95	3,330.40	3,210.84	0	721	1,242	3,987,249.50	61,353.68	0.00		
12	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_30(	ART_INF2_300M	ARTIES	INFERRED	300M	lcd	COAL		0.18	50.77	48.94	14.12	3,372.72	3,251.65	0	166,687	285,886	929,600,636.80	13,992,481.12	0.29		
13	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_IND_200I	ART_IND_200M	ARTIES	INDICATEI	200M	lcd	COAL		0.02	49.94	48.15	14.43	3,446.69	3,322.96	0	1,436	2,451	8,143,234.38	118,001.19	0.00		
14	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF1_100I	ART_INF1_100M	ARTIES	INFERRED	100M	lcg	COAL		0.21	48.48	46.74	15.29	3,650.59	3,519.55	0	131,345	228,509	804,249,456.80	10,679,919.25	0.23		
15	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_100	ART_INF2_100M	ARTIES	INFERRED	100M	lde	COAL		0.17	47.30	45.60	16.35	3,904.38	3,764.22	0	3	5	20,135.52	243.93	0.00		
16	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_IND_200I	ART_IND_200M	ARTIES	INDICATEI	200M	lde	COAL		0.11	47.30	45.60	16.35	3,904.38	3,764.22	0	3,789	6,403	24,103,454.83	292,003.75	0.01		
17	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_30(	ART_INF2_300M	ARTIES	INFERRED	300M	lde	COAL		0.28	47.30	45.60	16.35	3,904.38	3,764.22	0	82,016	138,606	521,744,652.12	6,320,728.49	0.14		
18	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF2_20(	ART_INF2_200M	ARTIES	INFERRED	200M	lde	COAL		0.23	47.30	45.60	16.35	3,904.38	3,764.22	0	316,872	535,514	2,015,794,140.90	24,420,542.48	0.54		
19	LOM_JORC_SPOIL_MINEDOUT_150226.	Jorc_polygons\Liddell_Resource_2016\FINAL\res_2016_ART_INF1_100I	ART_INF1_100M	ARTIES	INFERRED	100M	lde	COAL		0.00	47.30	45.60	16.35	3,904.38	3,764.22	0	5	8	31,512.17	381.76	0.00		

Reconciliation

- If model has new boreholes added
  - We must reconcile changes
  - i.e. run the previous resources polygons over both models
    - Quantify the variance and why it is so
  - Create new resource polygons
    - Run the new polygons over both models to quantify new changes

Model vs model - same resource polygons



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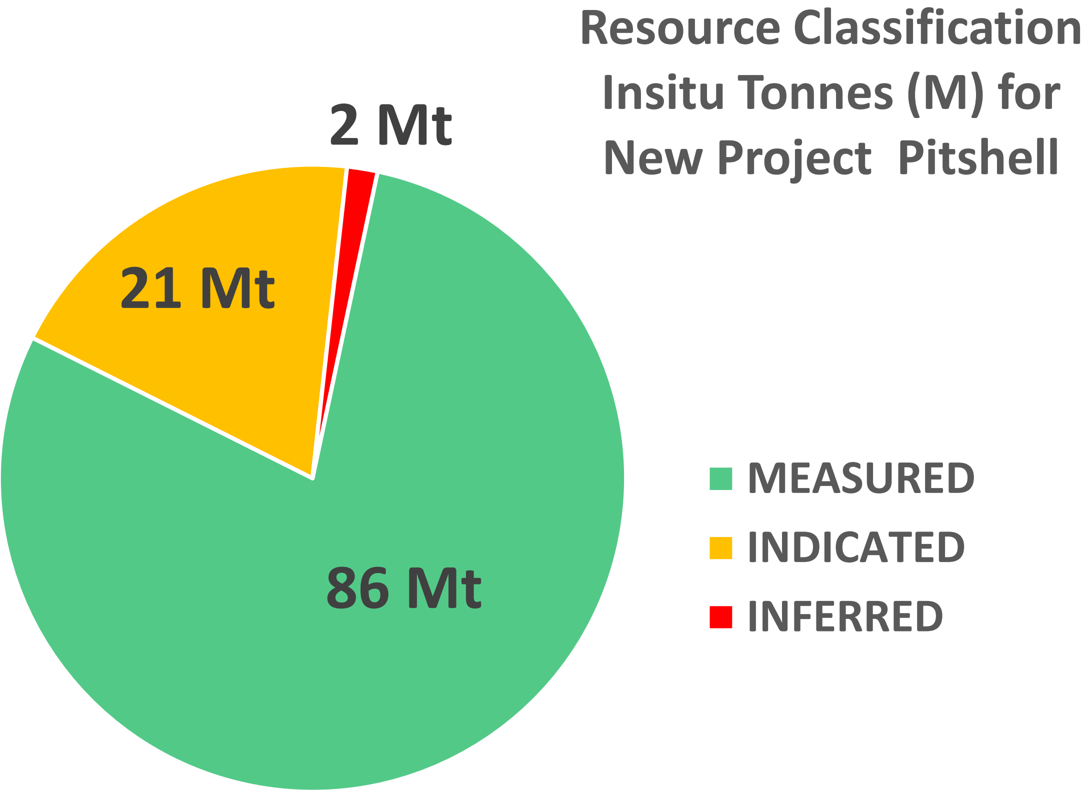
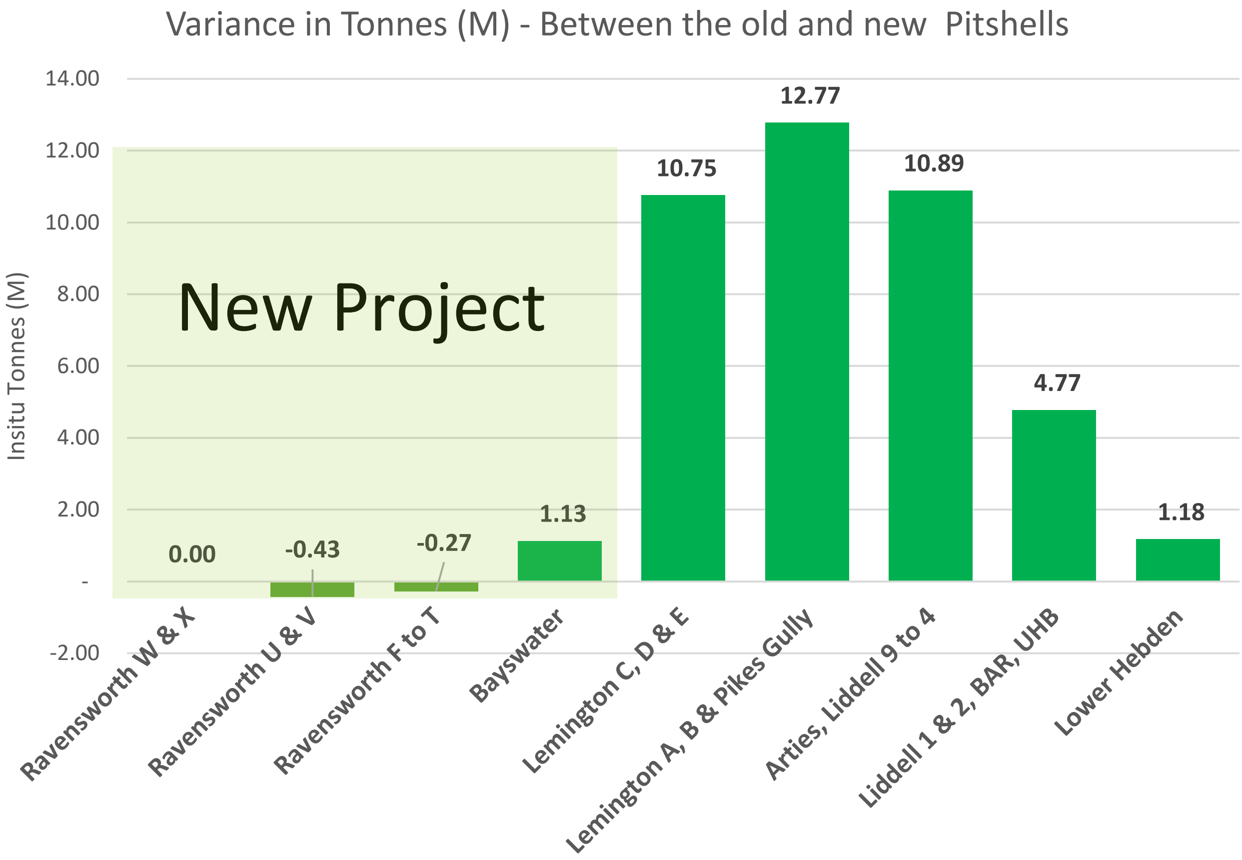
Comparison checks with previous model
New LOM pitshell
Compare old to new





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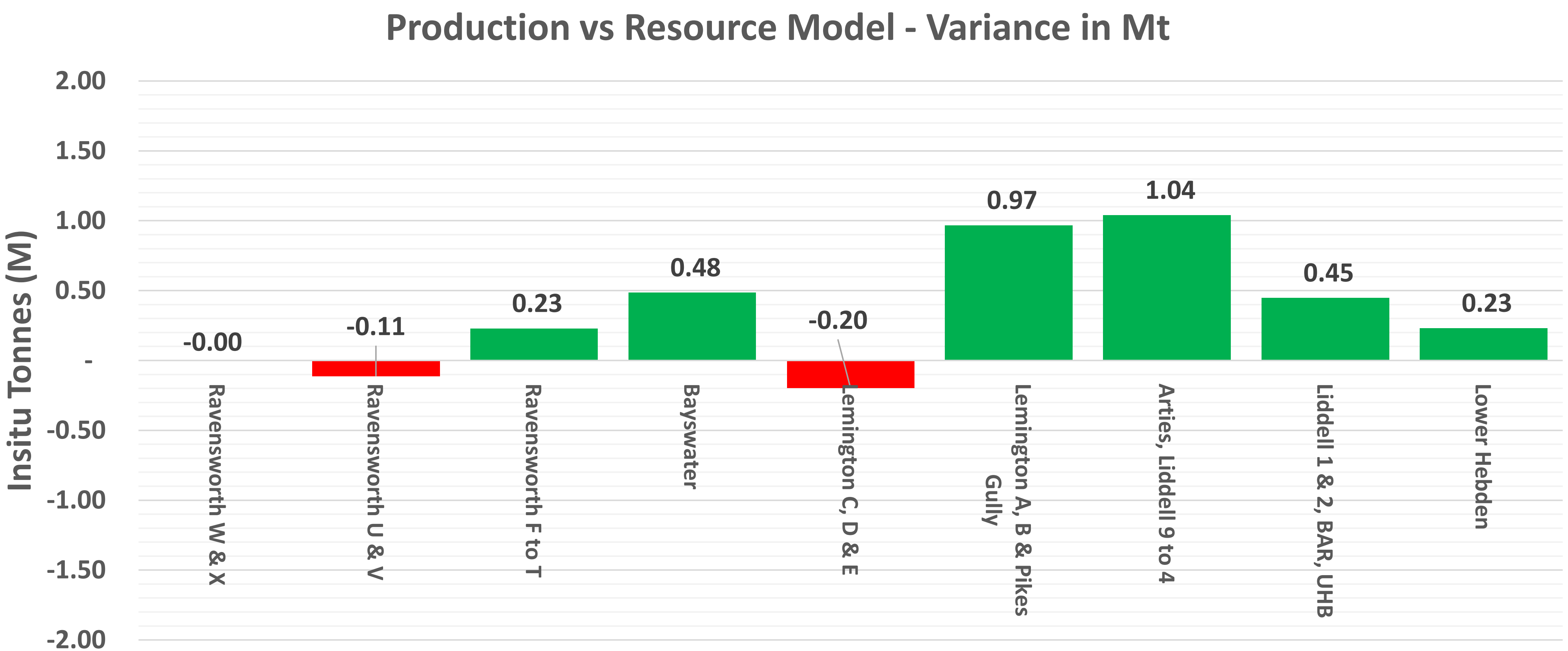
Comparison checks with previous model and yearly truck count



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Coal Quality and Transparency of Assumptions

- Edits include:
  - Density at a 6% moisture applied to volumes
  - SE and Ash in model reported at 2.5%
  - SE converted CV using 238.8 factor
  - CV and Ash converted from 2.5% to 6% using Preston Sanders Equation
  - Average CV and Ash applied to plies that do not contain proximate data
  - CV at 6% and Ash at 6% multiplied by mass to be used for weighted averages
  - Tonnes/1,000,000 - two significant figures for use in tables
  - Vlookups entered for seam, seam group and LOM status
  - IF statements and text to columns used to determine coal and resource polygo
  - ALL CHECKS CAN BE DONE WHEN COMPARING RAW DATA TO EDITED DATA

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Pivot tables created and used to determine weighted averages for Inside LOM, Outside LOM and Totals for both inside and outside. These tables are then used for “Declaration and Reconciliation”

TYPE	COAL
POLYGON	(Multiple Items)
LOM	LOM
RESOURCI	USE

	STATUS	Values							
	MEASURED			INDICATED			INFERRED		
DEPTH	Sum of ROUNDED	Sum of CV@6% x Total I	Sum of ASH@6% x Tota	Sum of ROUNDED	Sum of CV@6% x Total I	Sum of ASH@6% x Tota	Sum of ROUNDED	Sum of CV@6% x Total I	Sum of ASH@6% x Total Mass
Full	86	516,607,545,784	1,671,596,996	21.14	122,958,715,368	445,379,587	2	10,145,943,602	33,667,162
Grand To	**86.32**	**516,607,545,784**	**1,671,596,996**	**21.14**	**122,958,715,368**	**445,379,587**	**2**	**10,145,943,602**	**33,667,162**

TYPE	COAL
POLYGON	(Multiple Items)
LOM	OUTSIDE LOM
RESOURCI	USE

	STATUS	Values							
	MEASURED			INDICATED			INFERRED		
DEPTH	Sum of ROUNDED	Sum of CV@6% x Total I	Sum of ASH@6% x Tota	Sum of ROUNDED	Sum of CV@6% x Total I	Sum of ASH@6% x Tota	Sum of ROUNDED	Sum of CV@6% x Total I	Sum of ASH@6% x Total Mass
Full	104	634,187,161,435	1,920,421,297	186.04	1,144,746,313,141	3,297,971,959	220	1,335,022,162,282	4,022,441,069
Grand To	**104.37**	**634,187,161,435**	**1,920,421,297**	**186.04**	**1,144,746,313,141**	**3,297,971,959**	**220**	**1,335,022,162,282**	**4,022,441,069**

TYPE	COAL
POLYGON	(Multiple Items)
LOM	(Multiple Items)
RESOURCI	USE

	STATUS	Values							
	MEASURED			INDICATED			INFERRED		
DEPTH	Sum of ROUNDED	Sum of CV@6% x Total I	Sum of ASH@6% x Tota	Sum of ROUNDED	Sum of CV@6% x Total I	Sum of ASH@6% x Tota	Sum of ROUNDED	Sum of CV@6% x Total I	Sum of ASH@6% x Total Mass
Full	191	1,150,794,707,219	3,592,018,293	207.18	1,267,705,028,509	3,743,351,546	221	1,345,168,105,884	4,056,108,231
Grand To	**190.69**	**1,150,794,707,219**	**3,592,018,293**	**207.18**	**1,267,705,028,509**	**3,743,351,546**	**221**	**1,345,168,105,884**	**4,056,108,231**

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Final output

5B:	*Coal Resources Outside Mine Plan Area (Exclusive of Reserves)*							31 December 2017			
Type / Method	Depth & Cutoff (e.g. 0-100m & >0.3m)	Measured (A)			Indicated (B)			(A+B)	Inferred (C)		
		Tonnes (Mt)	Quality (Insitu Moisture Basis)		Tonnes (Mt)	Quality (Insitu Moisture Basis)		Tonnes (Mt)	Tonnes (Mt)	Quality (Insitu Moisture Basis)	
			CV: kcal/kg	Ash%		CV: kcal/kg	Ash%			CV: kcal/kg	Ash%
OC	0 - 100m	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OC	100 - 200m	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UG	200 - 300m	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UG	>300m	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total (Unrounded)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

5C:	*Total Coal Resources Inclusive of Reserves)*							31 December 2017			
Type / Method	Depth & Cutoff (e.g. 0-100m & >0.3m)	Measured (A)			Indicated (B)			(A+B)	Inferred (C)		
		Tonnes (Mt)	Basis)		Tonnes (Mt)	Basis)		Tonnes (Mt)	Tonnes (Mt)	Basis)	
			CV: kcal/kg	Ash%		CV: kcal/kg	Ash%			CV: kcal/kg	Ash%
OC	0 - 100m	16.9	6,215.9	17.4	26.4	6,072.8	18.6	43.4	53.0	5,948.7	20.0
OC	100 - 200m	33.9	6,483.0	14.8	49.5	6,422.0	15.1	83.4	83.2	6,284.5	16.5
UG	200 - 300m	5.0	6,533.7	14.4	32.7	6,497.5	14.6	37.7	98.8	6,394.1	15.5
UG	>300m	0.0	0.0	0.0	8.7	6,482.9	14.7	8.7	77.0	6,470.7	14.7
Total (Unrounded)		55.8	6,406.6	15.5	117.4	6,368.9	21.1	17	312.1	6,308.1	16.3

Questions and details

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- A&B Mylec for coal quality slides within this presentation – Preston Sanders etc.