BCD RESOURCES

Middle Arm Tailings

Resource Estimate

November 2012

Contents

EXECUTIVE SUMMARY

In November 2012, BCD Resources (BCD) completed an in-house estimate of the Indicated Mineral Resource of the Middle Arm Tailings Deposit, using data from vibracoring conducted by Quaternary Resources on behalf of BCD in August 2012.

The project area is located 40km north of Launceston, and 2.5km east of Beaconsfield in Northern Tasmania. The tailings were deposited in Middle Arm during the early operation of the Tasmania Mine at Beaconsfield over the period 1877-1914.

Gold at Beaconsfield has always been refractory, although the proportion of free milling gold to refractory gold has varied. The historic operation at Beaconsfield used a roasting and chlorination process to extract the refractory gold, whereas the modern mine used bacterial oxidation. The historic battery and associated plant infrastructure (the "reduction works") was located approximately 1 mile from the main (Hart) shaft, on the banks of Middle Arm Creek. Tailings from the processing facility were discharged into the creek, and this material was then carried into Middle Arm.

Historic records indicate approximately 1.04M tonnes of ore was treated at the reduction works with approximately 855,000 ounces of gold produced at a recovered grade of 25.6g/t. No exact records of tailings grades exist, although one report from 1900 indicated a tailings grade of approximately 2.7g/t at that time. This suggests an overall metallurgical recovery of approximately 90%, comparable to the modern operation (albeit at a much higher average head grade).

The Middle Arm tailings have been the subject of past investigations and a quantity of tailings was extracted from Middle Arm and retreated in the 1980s. From 1985 to 1988, Golconda Resources re-treated 541,000 tonnes of tailings and produced 20,448 ounces of gold at a recovered grade of 1.18g/t using a carbon-in-leach process. Sampling of the Golconda Resources tailings indicate remaining grades of 0.7-1.0g/t, of which only a small fraction is cyanide leachable. This implies a head grade for Golconda Resources of approximately 2.0g/t from the Middle Arm tailings and indicates the presence of a refractory component, probably incompletely oxidised gold bearing sulphides.

A simple mass balance suggests that a minimum of 500,000 tonnes of tailings should remain in Middle Arm. BCD Resources applied for, and was granted, an exploration licence (EL6/2012) over Middle Arm in order to assess this potential. 84 vibracores with a collected on a nominal 200m x 100m grid in Middle Arm in August and September 2012. Analysis of samples from the vibracoring was conducted at the in-house laboratory at the Beaconsfield gold plant.

This information has been compiled and used to estimate the tonnage and grade of the sampled portion of the Middle Arm Tailings Deposit for gold only. Variography for grade and thickness indicate low nugget effects and long ranges. Pseudo-2D Ordinary Kriging was used to estimate gold grade and tailings thickness into a block model with block dimensions of 66m x 33m (Y and X). The resultant grade estimation is shown in Table 1.

The deposit remains open to the north although in increasing water depth, and it is assumed (although not verified) that it probably does not extend significantly further north. This should be tested with further sampling.

Table 1
BCD Resources
Middle Arm Tailings
Summary Resource Statement – 9th November 2012

Resource Category	**Gold Lower Cut off Grade** (g/t)	**Tonnes** (t)	**Gold Grade** (g/t)	**Contained Gold** (ozs)
Indicated	0.5	517,000	1.80	29,900

1 INTRODUCTION

1.1 Scope of Work

The scope of work was to take the information collected during the recent sampling program and compile it into a resource estimate.

1.2 Participants

The 2012 resource estimate was undertaken by David Gibbons of BCD Resources, who is a member of the AusIMM and who has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration. David Gibbons is a full time employee of BCD Resources.

1.3 Principal Sources of Information

The data source used in this resource estimate was the vibracore drilling information collected during the second half of 2012. The actual field data collection took place in August and September, followed by logging and assaying in September and October 2012.

1.4 Project Location and Access

The Middle Arm tailings deposit is located just east of Beaconsfield, and approximately 40km north of Launceston (Figure 1.4_1). The deposit is covered by a granted exploration licence (EL6/2012) held by BCD Resources. The deposit is confined to Middle Arm, and is entirely underwater at high tide. Large areas of tailings are exposed at low tide, but as the material is very soft, pedestrian or general vehicle access is not possible even at low tide. Access to the water edge at Middle Arm by vehicles and machinery is restricted to certain locations; the deposit was sampled by boat.

Figure 1.4_1
BCD Resources
Middle Arm Tailings Deposit
General Project Location (Deposit area marked)

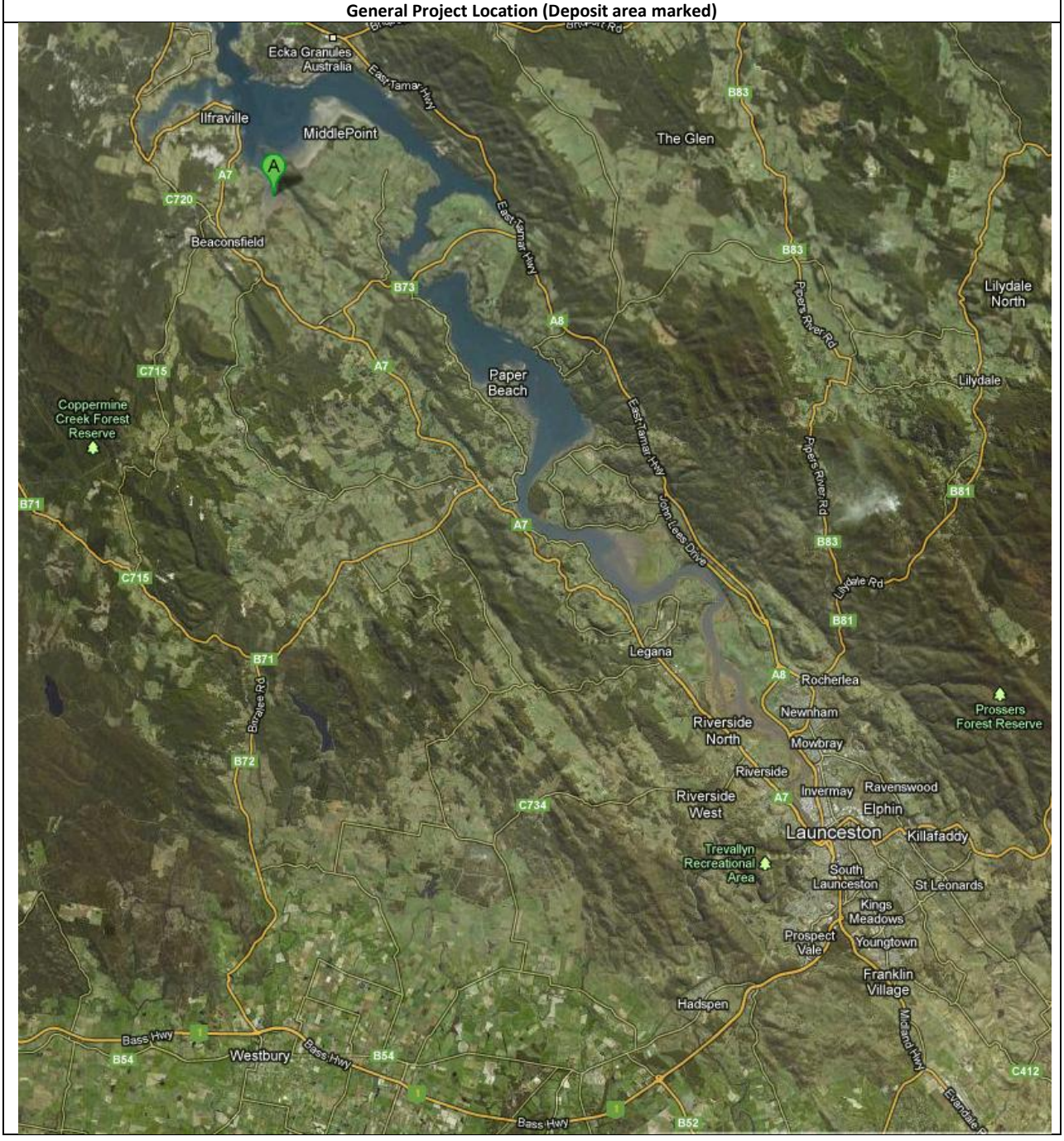
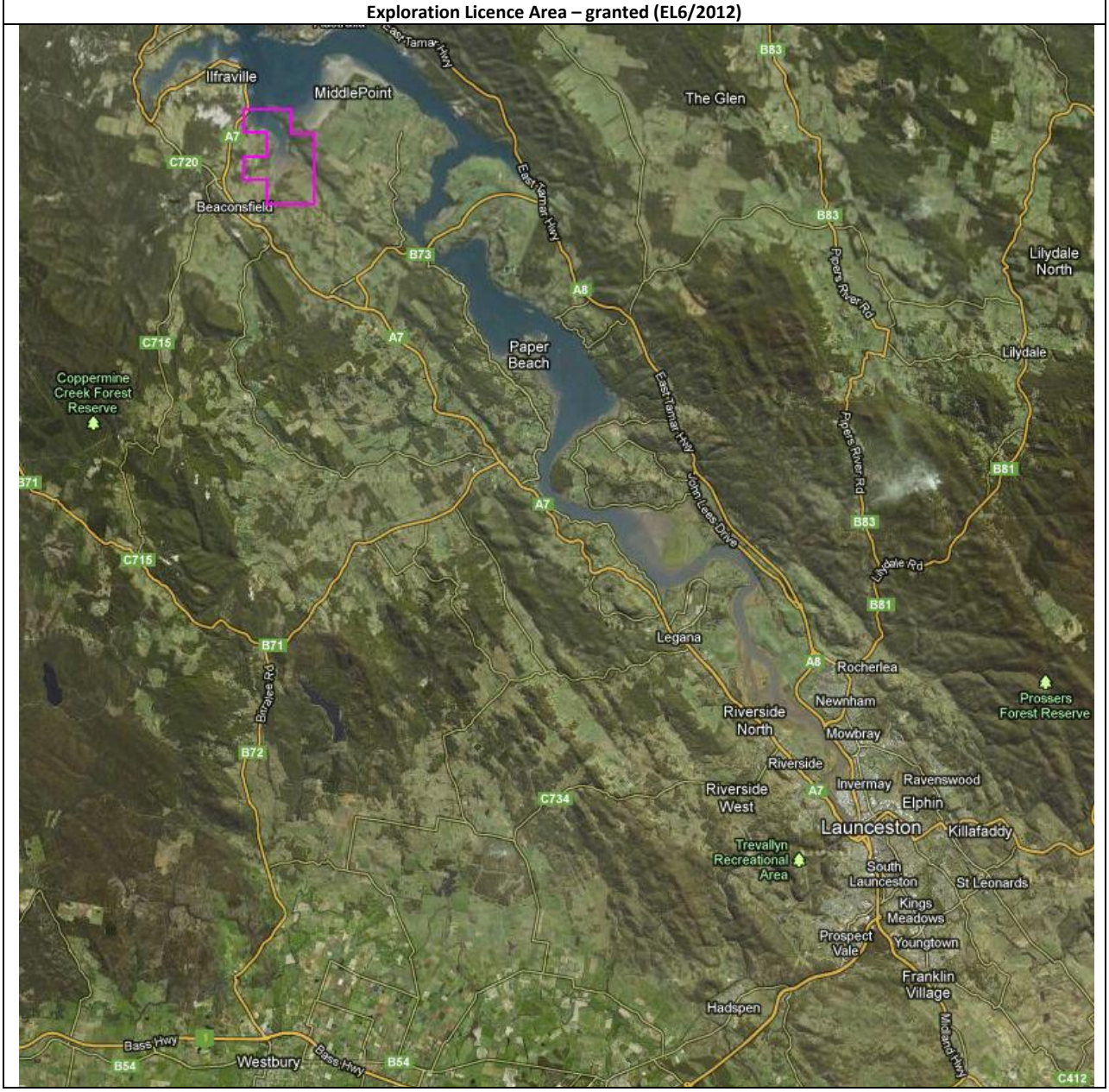


Figure 1.4_2
BCD Resources
Middle Arm Tailings Deposit
Exploration Licence Area – granted (EL6/2012)



1.5 List of Abbreviations

A summary of abbreviations that may be used in the report is provided as Table 1.5_1.

Table 1.5_1
Typical Abbreviations

Abbreviation	Description	Abbreviation	Description
Au	Gold	oz	ounce (Troy) (=31.10348g)
CV	Coefficient of Variation	ppm	Parts per million
DTM	digital terrain model	QAQC	quality assurance quality control
GPS	Global Positioning System	RC	Reverse Circulation
g/t	Grams per tonne	DDH	Diamond Drill Hole
JORC	Joint Ore Reserves Committee	t	Tonne
kg	Kilogram	kt	Kilotonne
km	Kilometre	2D	Two-dimensional
m	Metre		
m^2	square metre		
mE	metres East		
mN	metres North		
mRL	metres Relative Level		

2 PROJECT BACKGROUND

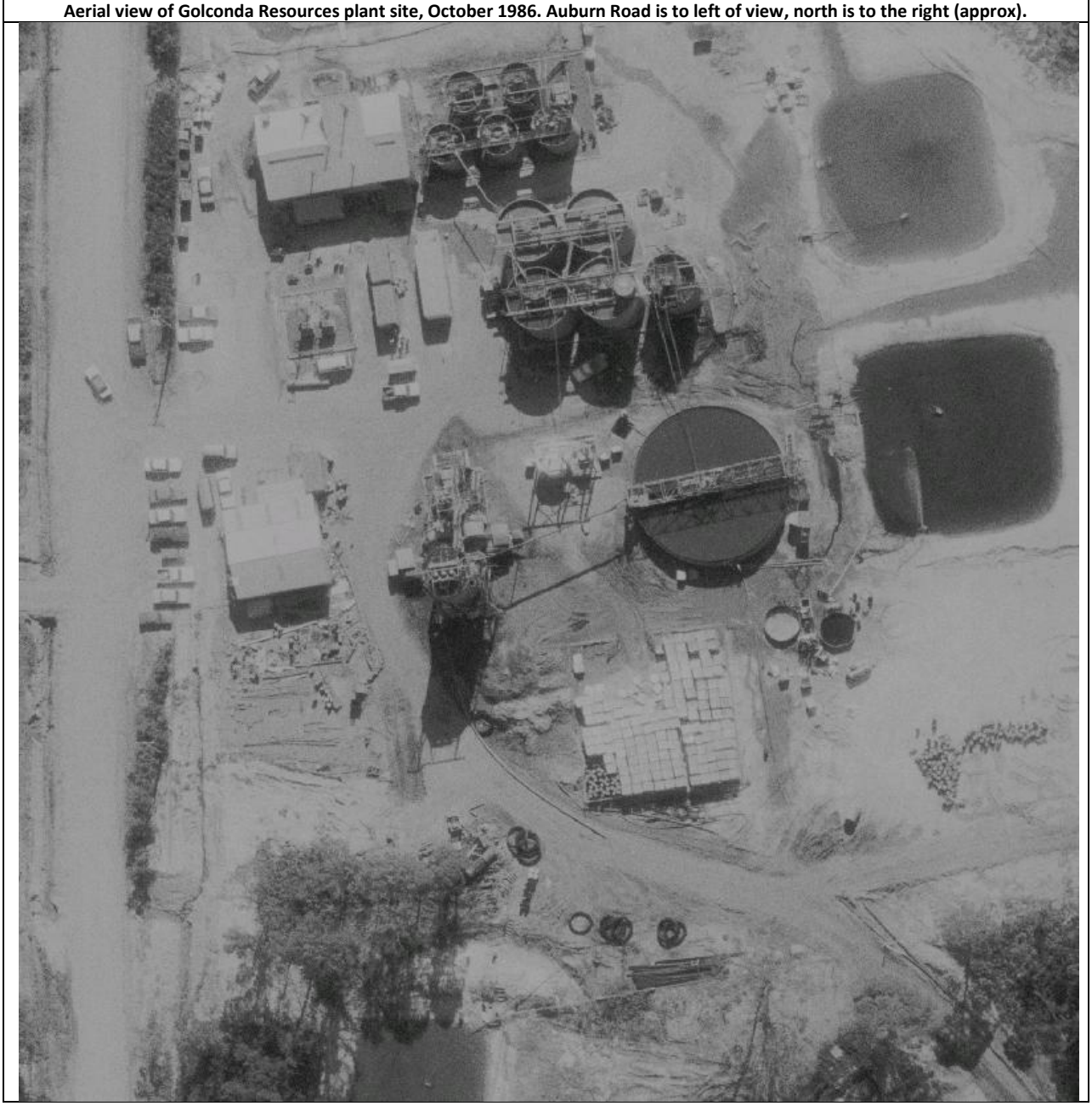
2.1 Historical Production and Recent Exploration

The Middle Arm tailings were deposited in Middle Arm from 1877 to 1914 during the early operation of the Tasmania Mine at Beaconsfield. Sporadic investigations into retreatment of this material occurred throughout the 1900s, with the most extensive work undertaken by a company called Blue Metal Industries (BMI) in the mid to late 1970s. BMI conducted sampling as well as feasibility studies but ultimately did not proceed to production.

From 1985 to 1988, Golconda Resources recovered and re-treated 541,000 tonnes of Middle Arm tailings and produced 20,448 ounces of gold at a recovered grade of 1.18g/t using a carbon-in-leach process. Golconda constructed a plant and four tailings storage dams close to Middle Arm on Auburn Road, Beaconsfield. The operation was marred by a spill of cyanide bearing solution into Middle Arm which was alleged to have resulted in a fish kill at Beauty Point. The spill occurred as a result of a failed dam wall on tails dam 1. The tailings were recovered mostly by swamp dozers, excavators and trucks although the company also owned a Mudcat dredge. The dredge was not very successful, so the primary means of extraction was for swamp dozers to push the material into large windrows at low tide. These windrows were large enough to remain out of the water at high tide, and they would gradually dry over a period of weeks. When a windrow was sufficiently dry, it would be dug out by excavator. This method of operation was only suitable for that part of the deposit that was exposed by low tide for a significant period of time each tidal cycle. As such, areas under permanent water further north were not exploited.

As part of the 541,000 tonnes, Golconda also treated a land based pile of material known locally as ‘the stockpile’. This is referenced in the BMI reports and was reported to contain 140,000 tonnes of gold bearing sands (with the original source again being early Tasmania Mine tailings).

Figure 1.4_2
BCD Resources
Middle Arm Tailings Deposit
Aerial view of Golconda Resources plant site, October 1986. Auburn Road is to left of view, north is to the right (approx).



2.2 Previous Resource Estimates

Smith (1975) produced a reserve estimate on behalf of BMI in 1975 (Table 2.2_1).

Table 2.1_1 BCD Resources Middle Arm Tailings Deposit 1975 Gold Reserve Estimate (0g/t cutoff) converted to metric units			
Category	**Tonnes (t)**	**Grade Au (g/t)**	**Ounces (oz)**
Not classified	654,000	3.6	75,300

The reserve was estimated by calculating the 'area of influence' of the relevant sampling and then applying the average depth and average gold value from the drill holes within that area. Samples were 'drilled' by hand sludge pump for the tailings in Middle Arm, and by auger for the 'stockpile'. Assays were performed by the Department of Mines. Sample intervals did not correspond to logged stratigraphy and the assays were adjusted (upwards) where they were deemed to have been diluted by sampling of barren clay or silt. A top cut of approximately 3dwt/t was applied (approximately 4.6g/t). Bulk density was estimated at 2,500lb/yd^3, which is approximately 1.5t/m^3. BMI considered this conservative and produced calculations at a series of higher bulk densities as well. No map of the reserve area is available, but based on the sampling locations the reserve must have only applied to that part of Middle Arm south of Brandy Creek, as no samples were taken north of this area.

Records from the Golconda Resources era are scarce, but there is no indication that Golconda conducted any further sampling or resource work, and therefore presumably relied on the work done by BMI 10 years earlier.

3 GEOLOGICAL SETTING

The geology of the Middle Arm tailings is essentially that of the Tasmania Reef, with the alteration of processing and (limited) mixing with natural sediments.

3.1 Tasmania Reef

The Tasmania Reef is a sediment hosted mesothermal quartz lode style gold deposit that formed during the Devonian. It is composed predominantly of quartz and ankerite, with much lesser quantities of calcite, various sulphides and gold. The sulphides are pyrite (specifically arsenic bearing *arsenical pyrite*), arsenopyrite, chalcopyrite and various other accessory to trace sulphides. Gold occurs as free gold and as very fine inclusions in pyrite.

3.2 Historic Processing

Ore from the mine was processed at the reduction works located adjacent to Middle Arm Creek. After rock breaking, the ore was crushed in the battery and passed over amalgamated copper plates, and then onto the concentrating system. A concentrate (sulphide rich) was formed, and this was then roasted until "dead". The roasted ore was then impregnated with chlorine gas in vats, which dissolved the gold. The ore was leached, with the gold adsorbed onto charcoal which was collected and later burnt with the ash smelted (Davies, 1899). A later report (Cundy & Fawcett, 1914) describes a similar process but refers to cyanidation rather than chlorination.

Some of the effects of the various processing steps are likely to be:

- Reduction in gold content
- Reduction in sulphur content
- Reduction in arsenic and lead content (likely to possible)
- Addition of mercury (loss of mercury into tails from amalgamation process)

3.3 Middle Arm

Middle Arm is one of several 'arms' of the Tamar Estuary in Northern Tasmania. Middle Arm receives flows from various streams although only the largest of these (Middle Arm Creek) is perennial. The various other streams that flow into Middle Arm are ephemeral. Middle Arm Creek has a relatively large catchment, and originates from groundwater flows from limestone outcrop (Walker, 2012). The Tamar Estuary (including Middle Arm) is subject to high tidal amplitudes and is classified as a 'dynamic' system (Walker, 2012).

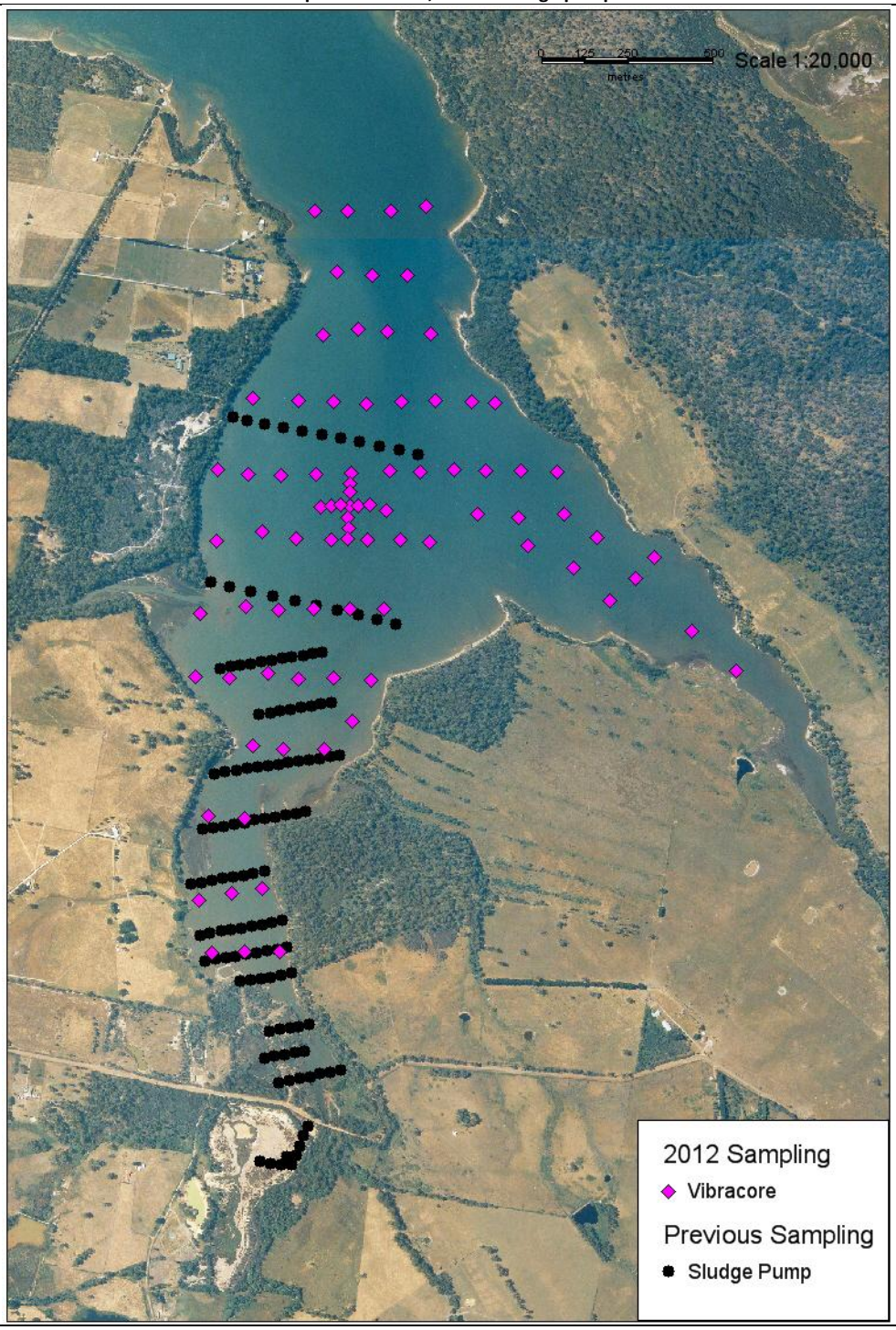
During the period of operation (1877-1914) the tailings from the reduction works represented by far the largest sediment load into Middle Arm. Gold bearing tailings remain exposed at surface across Middle Arm, indicating negligible sedimentation in Middle Arm post-1914. Limited mixing of pre-existing sediments and tailings during tailings deposition may have occurred but is expected to have been minimal. Lower contacts of tailings are typically sharp and clear (based on recent vibracoring), although this is less obvious at the very northern limits of sampling (i.e. the furthest distance from the reduction works).

4 DATA COLLECTION

4.1.1 Sludge Pump

Investigation of the tailings in Middle Arm has been undertaken by a combination of sludge pump and vibracoring techniques. Figure 4.1_1 displays a plan of the known sample locations. Only the vibracore samples were used in the resource evaluation.

Figure 4.1_1
BCD Resources
Middle Arm Tailings Deposit
Plan of sample locations coloured by method.
Purple - vibracore, Black – sludge pump



The initial sampling was done by BMI. The program was commenced on June 12th, 1973 and 101 holes were 'drilled'. Spacing was typically 500 x 100 ft, or 150 x 30m (approx.) with lines oriented ENE/WSW.

Two more lines of sludge pump samples were taken in 1995 when the area was held under EL27/92 by K. A. "Alec" White. The results were reported when the area was put up as an ERA by Mineral Resources Tasmania in 1996, 12 months after the sampling was completed. There are no other publicly available reports about EL27/92. The lines were positioned to test areas north of the zone worked by Golconda Resources, although the southernmost line appears to overlap the Golconda workings to some extent. Positioning of both these samples and the earlier BMI samples is questionable (due to the technology available at the time) but the locations shown in figure 4.1_1 are the published locations from the relevant reports.

4.1.2 Vibracoring

Vibracoring is a method of sampling used for damp to wet unconsolidated to semi-consolidated sediments. A continuous core can be extracted with little or no contamination and complete core recovery. This was identified as the best method of sampling the Middle Arm tailings and BCD engaged a contractor (Quaternary Resources) to undertake a vibracoring program. 93 sites were planned and 84 cores were taken. The field work commenced on 27th August 2012 and finished on 5th September 2012. The system used was a 'Wacker' vibracorer, powered by a small four stroke Honda engine. 80mm OD aluminium pipe with 2mm wall thickness was used for core barrels. The system was deployed from a ~6m flat bottomed punt hired from Gravelly Beach Marine and launched daily from the Port Dalrymple Yacht Club boat ramp at Beauty Point.

4.1.2.1 Drill Hole Spacing

Vibracores were taken on 200m spaced lines with spacing between holes of 100m along line. A single close spaced (~25m spacing) 'variography star' was cored in the approximate centre of the survey area.

4.2 Surveying

4.2.1 Introduction

All data for Middle Arm has been recorded into Zone 55 of the MGA94 (Map Grid of Australia) coordinate system.

4.2.2 Collars

The position of all vibracore collars was located by handheld GPS and estimated to be within +/-5m in northing and easting. No elevation information was recorded since the collars were all on the river bed, beneath the water surface. Depths are relative to the river bed rather than an absolute datum and a detailed bathymetric survey would be required to tie the collars to an absolute datum.

4.2.3 Down Hole Surveying

All vibracores were vertical or close to vertical and very short (less than 6m) so no inclination information was collected and no downhole surveying was undertaken.

4.2.4 Topography

Detailed bathymetry for Middle Arm is not available at this time.

4.3 Logging

All vibracores have been geologically logged. The tailings material, when fresh, typically presents as dark to very dark grey fine silty mud, and is rarely coarse enough to be properly described as sand. Often, although not exclusively, the tailings has a sharp lower contact with a shell rich layer of mid-grey sandy estuarine mud.

4.4 Sampling

The vibracores were split by sawing each one in half longitudinally with a metal cutting blade on a circular saw. The cores were placed in a wooden cutting frame to simplify this process. The depth of cut was just sufficient to cut through the aluminium barrel and parallel cuts were performed on opposite sides of the barrel. The barrel was then placed onto a bench and a short length of thin sheet metal was used as a knife to cut through the sediment, after which the two halves fell apart providing access for logging and sampling. Cores were generally half core sampled for grade, leaving sufficient material for further analysis or metallurgical testwork.

4.5 Sample Preparation and Analysis

The vibracore samples were dried, crushed (if required) and ground. Assaying for gold was performed using a 25g fire assay with AAS finish.

4.6 Quality Control Procedures

Standards (including blanks) were submitted with at the rate of 1 in 27 with the field samples. Standards were certified and purchased from Geostats. One half core field duplicate was submitted. The assay laboratory also conducted its own quality control program, consisting of duplicates at a rate of approximately 1 in 8.

4.7 Density Measurements

Bulk density determinations were conducted on 6 vibracores. In each case, the method was based on the volume of the core barrel and the critical dimension (76mm ID) was assumed to be consistent. For four of the cores, the core was dried with the sample inside the barrel and the sample was then extracted and weighed. For the other two cores, the sample was removed from the barrel before being dried. In each case, maximising extraction of sample from the barrel and minimising spillage was approached carefully. All of these cores were whole core sampled.

5 DATA VERIFICATION

5.1 Assessment of Quality Control Data

Standard and blank analyses were acceptable in all cases. Laboratory original vs. repeat gold assays were also good (R=0.97).

5.2 Assessment of Previous Sampling

The most extensive previous sampling was that conducted by BMI. This was used to construct the 1975 reserve estimate (654,000t at 3.6g/t for 75,300 ounces). The area that this reserve related to was similar to the area worked by Golconda Resources in the mid 1980s, and therefore a general estimate of the sample quality is possible. Golconda treated 541,000 tonnes and produced 20,448 ounces at a recovered grade of 1.18g/t, and limited sampling of the Golconda tailings dams indicates the unrecovered gold is 0.7-1.0g/t. This implies a head grade of approximately 2g/t for Golconda, much lower than the 3.6g/t indicated by BMI. The most likely explanation is that there was a fundamental flaw with the sampling method. None of the pre-2012 sampling has been used in this resource estimate. It is possible that the bulk density used by BMI (which was estimated, not measured) was also not appropriate, which would impact tonnes and ounces but not grade.

5.3 Drillhole Twinning

The hole in the centre of the variography star was twinned. The grade for the two holes was similar (1.6g/t compared to 1.7g/t) but the thickness was significantly different (0.20m compared to 0.49m). The most likely explanation for the discrepancy is the variable nature of both the sub-tailings surface and the tailings surface – in each case they are likely to be braided to some degree leading to very rapid local thickness variations. The boat may also have drifted slightly between cores so the exact separation distance is not certain.

5.4 Compaction

One of the disadvantages of vibracoring is that the vibration of the core barrel can cause some compaction in the core. This is due to the loss of fluid (water or gas) from the pore spaces during coring. For each core, the penetration length and recovered length is measured so compaction can be quantified, but it is not possible to be confident about where the compaction has occurred and if it is differential or evenly spread along the core length. In some ways this does not matter because the assay values are done on a mass basis, but when it comes to measuring thickness and bulk density it does become significant. For this reason, it is important that the thicknesses derived from the vibracoring are compared to bulk densities also derived from vibracoring. For the purposes of the resource estimate the volume, bulk density and tonnage can be estimated in an absolute sense with sufficient confidence, but the actual in-situ resource occupies a somewhat greater volume (it is thicker, being uncompacted) and has a slightly lower bulk density than the resource estimate reports. This is relevant if (or when) the resource is ultimately extracted. The average compaction (as a percentage of recovered length) was approximately 30% for the vibracores.

5.5 Downhole Contamination

The vibracore barrel passes through the unconsolidated sediment by generating a thin layer of liquefaction along the wall of the tube; this is generated by the vibration. A small quantity of material can therefore become smeared down the tube wall. This is notable in samples from beneath the tailings reporting non-zero gold levels – values of 0.01g/t to 0.05g/t were common and this may be due to minor contamination. In all cases the tailings were at the top of the stratigraphy and had the potential to smear and cause minor contamination downhole. This is not believed to be a significant problem.

5.6 Data Quality Summary

Data quality for the 2012 vibracoring is believed to be good. Data quality for sludge pumped samples is believed to be poor and the use of this data is not recommended.

6 MINERAL RESOURCE ESTIMATE 2012

6.1 Introduction

The Middle Arm Tailings Deposit has been modelled and a volume, tonnage and grade has been estimated. The deposit is spread over a very large area, although tailings forms only a thin veneer over much of the area. A significant portion of the contained metal is concentrated in the northern part of Middle Arm, where the deposit thickens and where Golconda Resources did not operate.

6.2 Geological Interpretation and Modelling

6.2.1 Introduction

Review and edit of the grade domains were carried out using the interactive modelling facilities in the Surpac mining software package. All modelling work was completed in MGA94, Zone 55 coordinates.

6.2.2 Mineralised Domain Modelling

The vibracore logging and sampling data was compiled in a spreadsheet and was not put into a database. The spreadsheet was used to construct a string file containing each completed core as a single point with a mineralised zone composite grade and thickness as description fields, along with the hole ID. Each hole was composited to the full thickness of the logged zone of tailings, with reference to the assays, and the RLs set to 0m.

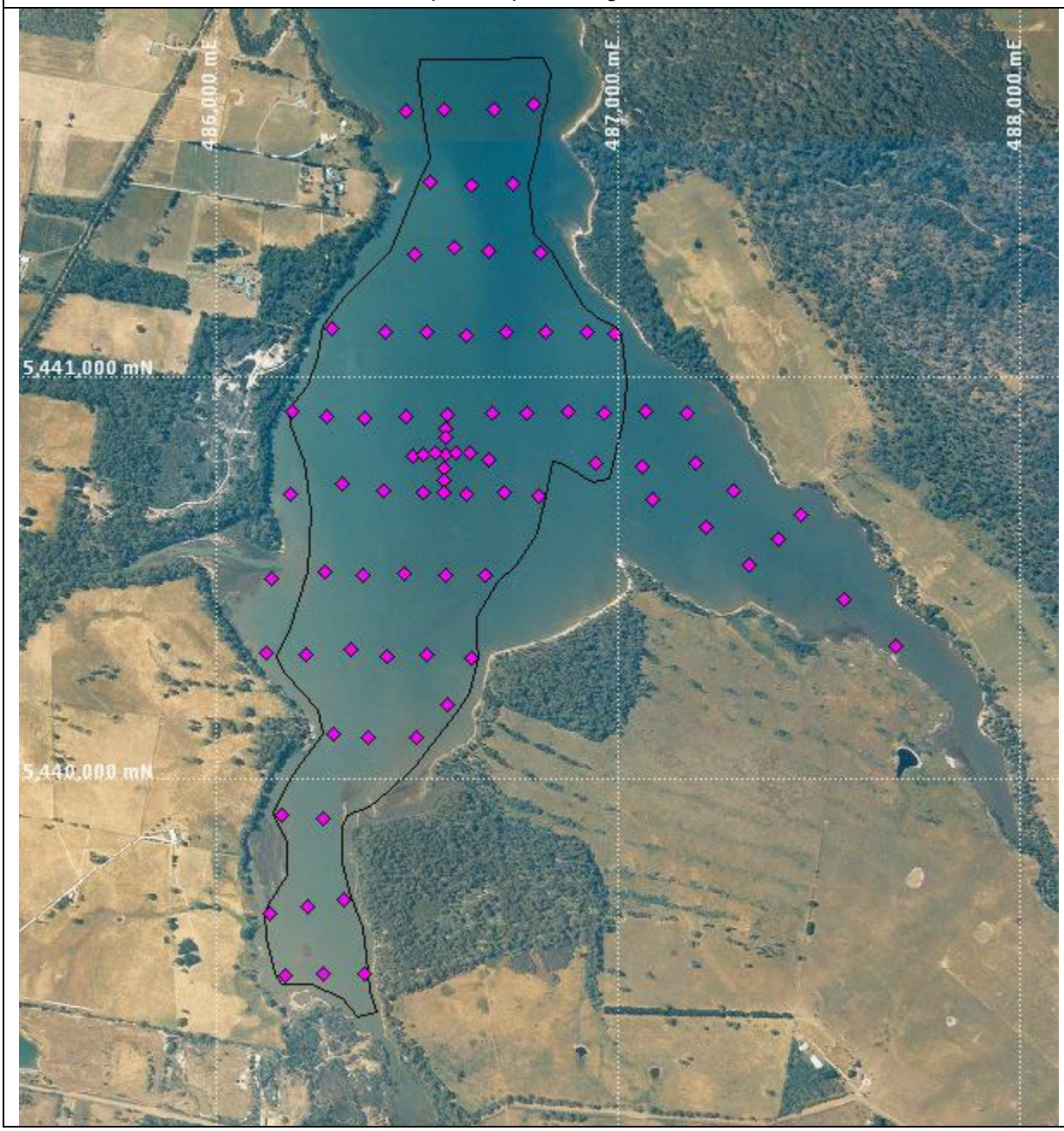
Based on the knowledge that around the periphery of Middle Arm the thickness of the tailings becomes zero (i.e. against the shoreline), a ‘zero thickness line’ was digitised as the mineralised zone boundary, also taking into

account areas of known outcrop. Samples from Clog Tom Creek were largely excluded from the defined boundary due to the low grades. Strictly the northern boundary (where the deposit remains open) may not be zero thickness as modelled, but this is a conservative approach.

Samples inside the zero thickness line were then projected vertically by the thickness of the mineralised zone and the whole package was triangulated for a first-pass estimate of tailings volume.

A views of the boundary of this mineralised domain and the vibracore sample locations is displayed in Figure 6.2.2_1.

Figure 6.2.2_1
BCD Resources
Middle Arm Tailings Deposit
Boundary of resource zone
Zero Thickness Line (black line) defines edge of resource estimate area



6.3 Statistical Analysis

6.3.1 Introduction

Statistical analysis was undertaken based on full thickness composite data of the gold assays.

6.3.3 Sample Length Analysis

The tailings deposits are typically very thin (<1m true thickness). Sample lengths were based on visible changes in stratigraphy with no minimum length criteria applied. The minimum sample taken was 0.05m, with a maximum sample length of 0.80m. Average sample length was 0.28m.

6.3.4 Statistical Analysis of Composite Data

Basic statistical analysis of the composite data inside the mineralised domain has been conducted. Descriptive statistics are presented in Table 6.3.4_1. The summary chart of the dataset indicates it may form a very mildly positively skewed distribution. The histogram, log histogram and probability plots for the mineralised domain are presented in Figure 6.3.4_1.

Table 6.3.4_1
BCD Resources
Middle Arm Tailings Deposit
Summary Full Length Composite Statistics
Mineralised Domain

Statistic	Au (g/t)
Count	**67**
Minimum	0.45
Maximum	3.64
Mean	1.57
Median	1.57
Standard Deviation	0.70
Coefficient of Variation	0.45

Figure 6.3.4_1
BCD Resources
Middle Arm Tailings Deposit
Histogram Plot

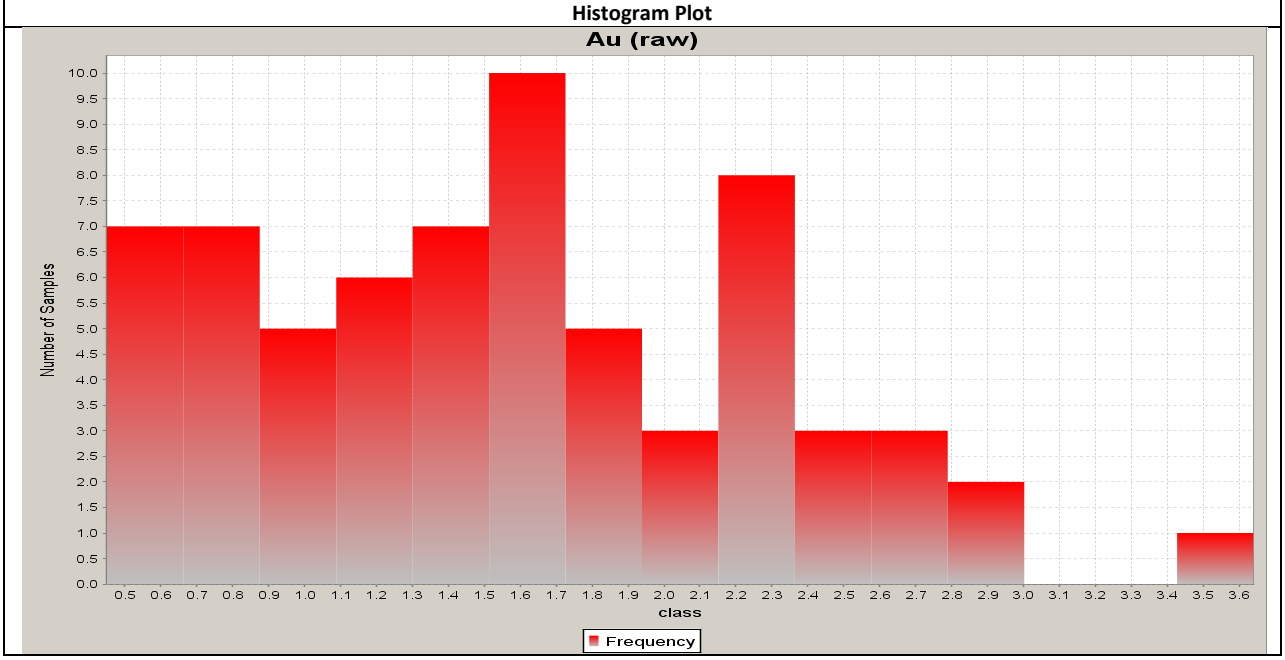


Figure 6.3.4_1
BCD Resources
Middle Arm Tailings Deposit
Log Histogram Plot

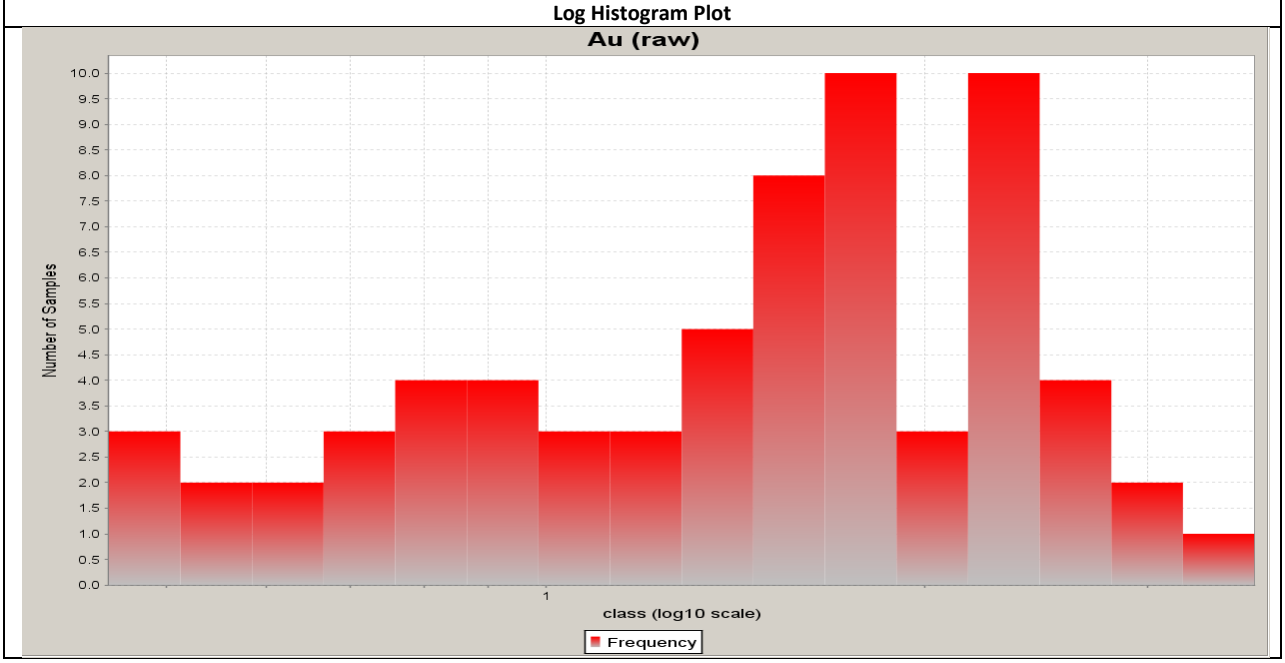
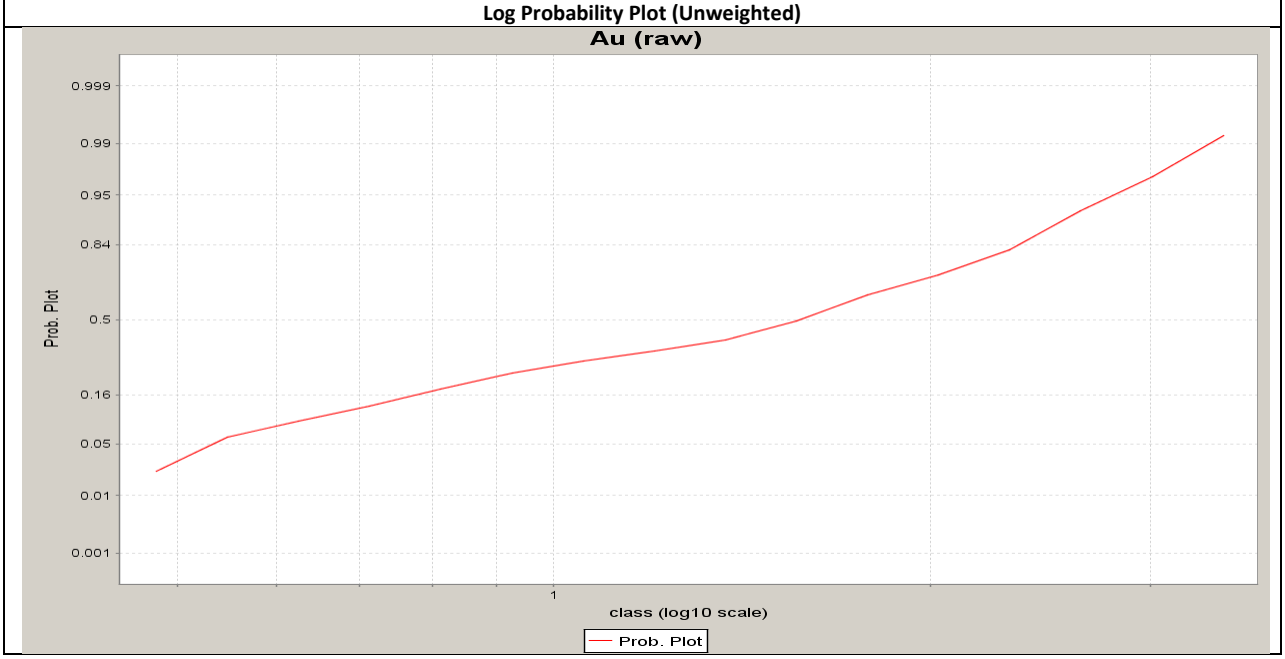


Figure 6.3.4_1
BCD Resources
Middle Arm Tailings Deposit
Log Probability Plot (Unweighted)



6.3.5 Assessment of High Grade Cut

Assessment of the grade histogram indicates no significant high grade outliers, so no top cut has been applied.

6.3.7 Bulk Density Analysis

Bulk density measurements were taken on 6 cores, for a total of 10 measurements (total aggregate core length approximately 4m). The maximum value was 1.51t/m^3 and the minimum was 0.81t/m^3. Values <1t/m^3 indicate the presence of gas bubbles. The unweighted average value was 1.20t/m^3. The mass weighted average was 1.23t/m^3 and the length weighted average was 1.19t/m^3. 1.20t/m^3 has been chosen as a suitable value to use as a global average. There is insufficient data to characterise the distribution of bulk density across the entire deposit and since this parameter for this type of deposit is strongly influenced by pore space and pore fluid as well as mineralogy, it may have significant localised variations that are not easily quantifiable. Note that this value is significantly less (~19% less) than that used by BMI in their reserve estimation (section 2.2).

Moisture contents varied from 17% to 37%, with an average of approximately 25% (unweighted).

6.4 Variography

6.4.1 Introduction

Variography is used to describe the spatial variability or correlation of an attribute (gold, lead, silver, copper, etc). The spatial variability is traditionally measured by means of a variogram, which is generated by determining the averaged squared difference of data points at a nominated distance (h), or lag. The averaged squared difference (variogram or γ(h)) for each lag distance is plotted on a bivariate plot where the X-axis is the lag distance and the Y-axis represents the average squared differences (γ(h)) for the nominated lag distance.

6.4.2 Variography

Despite the relatively small number of data, the grade variation is relatively small and reasonable variograms can be generated. These indicate very low nugget effect and long ranges (>1km) in the direction of flow (figure 6.4.2_1). Similarly, the thickness variograms show very low nugget and long range (figure 6.4.2_2).

Figure 6.4.2_1
BCD Resources
Middle Arm Tailings Deposit
Gold grade variogram direction towards 10° (MGA)

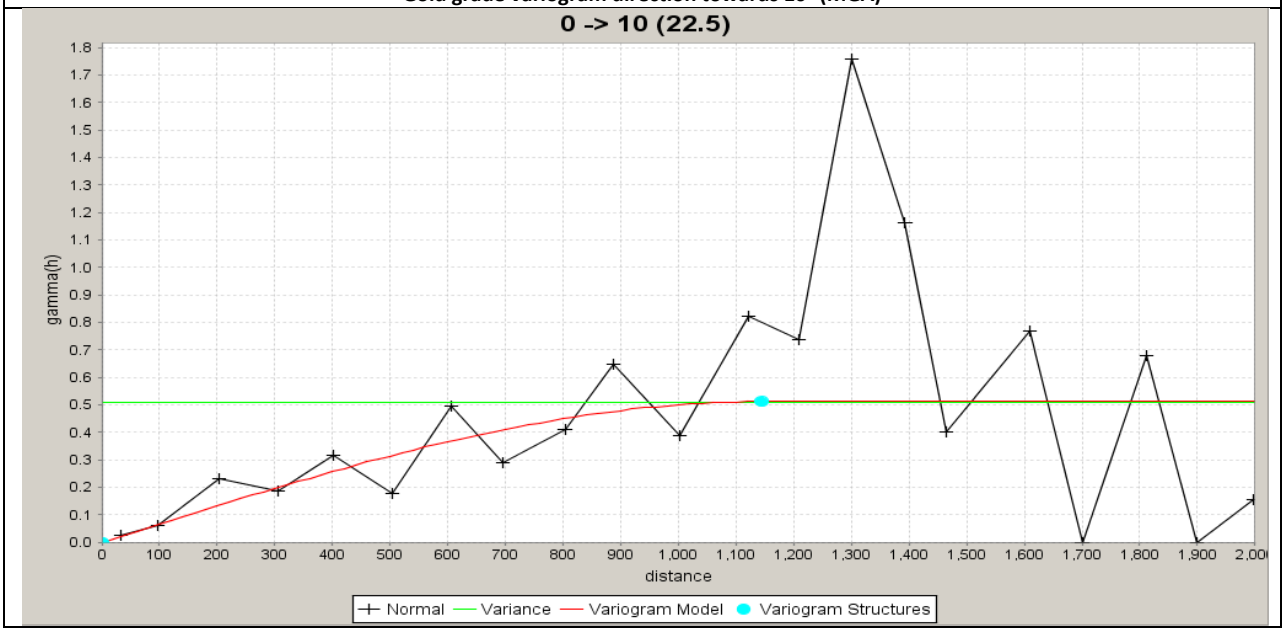
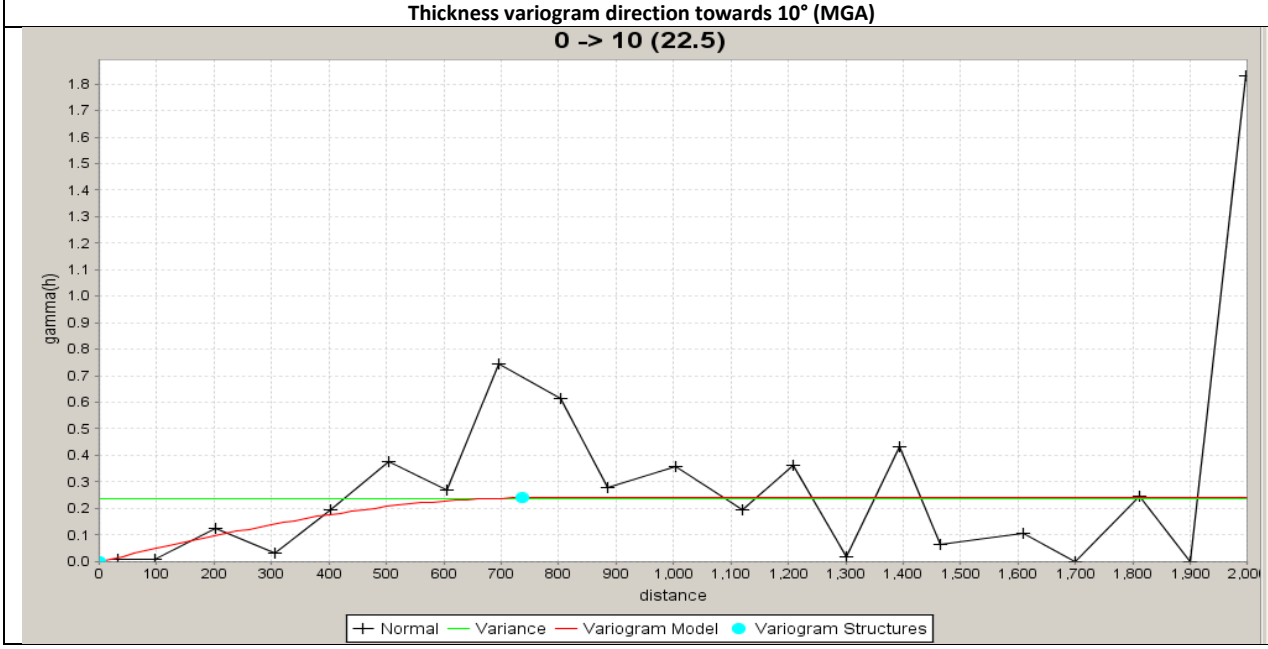


Figure 6.4.2_2
BCD Resources
Middle Arm Tailings Deposit
Thickness variogram direction towards 10° (MGA)



7.5 Block Modelling

7.5.1 Introduction

A three dimensional block model was constructed using Surpac mining software. The block model contains sufficient variables to record the results of grade estimates and other parameters required. The block model file name is *middle_arm_20121109.mdl.*

7.5.2 Polygons or Block Model

The Middle Arm Tailings Deposit has a large aerial extent – 2,300m x 800m. However, it is very thin (average <1m). This means it is effectively two-dimensional. Surpac has a polygon kriging routine, and as a first pass estimation a grid of polygons was generated over the deposit area and the grade and thickness parameters were estimated for the polygons. This was effective, but the reporting functions are more complicated so a block model was generated. There is no technical requirement for this deposit to be estimated into a three-dimensional block model, but it has been in order to simplify reporting. It is very important to note that the third dimension of the block model (in the Z direction) does not have physical meaning in the way it normally would. The thickness of mineralisation is written into a block attribute and is *not represented by the block size*.

7.5.3 Block Construction Parameters

Table 7.5.2_1 summarises the extents of the Middle Arm block model. The block model was developed using block dimensions of 33m East by 66m North by 1mRL with no sub-blocking. The block size is designed to be approximately one third of the average drill spacing. The model is rotated slightly, to 10° (MGA).

Table 7.5.2_1 BCD Resources Middle Arm Tailings Deposit Block Model Dimensions			
	Origin	**Extent (m)**	**Block Size (m)**
East North Elevation	485,760 5,439,250 0	1,848 2,772 1	33 66 1
Bearing Dip Plunge	10 0 0		

The model is constrained to the zero thickness line described earlier.

Table 7.5.2_2 BCD Resources Middle Arm Tailings Deposit Block Model Variables			
Variable	**Default**	**Type**	**Description**
au	-99	real	Gold grade (ppm), kriged
au_x_thick	0	real	Gold grade multiplied by thickness
oz	0	real	Ounces of gold (based on block area x thickness x grade/31.1)
thickness	-99	real	Thickness of tailings (kriged)

7.6 Bulk Density Assignment

As previously discussed, a global average bulk density assignment was used, and the value chosen was 1.20t/m^3. There are insufficient data to more accurately characterise the spatial variability within the deposit.

7.7 Validation

The block model was validated against the input samples visually. The global block grade (1.79g/t) was checked against the length weighted average sample grade (1.79g/t). Due to the grid based nature of the sampling there is no clustering. The model volume (modified by the thickness attribute) was compared to the triangulated solid volume – the difference was approximately 5%, with the smaller volume (from the block model) used for reporting purposes.

7.8 Grade Estimation

7.8.1 Introduction

Grade estimation for the Middle Arm Tailings Deposit was undertaken using Ordinary Kriging (OK) method.

7.8.2 Ordinary Kriging Methods

The grade interpolation technique used for this exercise was OK, one of the more common methods for estimating block grades in exploration or mining. OK is a geostatistical approach to modelling. Instead of weighting nearby data points by some power of their inverted distance, OK relies on the spatial correlation structure of the data to determine the weighting values. This is a more rigorous approach to modelling, as correlation between data points determines the estimated value at an unsampled point.

7.8.3 Grade estimation

Single pass estimation was performed as the data spacing was uniform and grid based. The parameters used are shown in Table 7.8.3_1.

Table 7.8.3_1
BCD Resources
Middle Arm Tailings Deposit
Sample Search Parameters
Ordinary Kriging Interpolation of Gold Grades

Element	Pass	Bearing (Z)	Plunge (X)	Dip (Y)	Major Axis Max Search (m)	Maximum Vertical Search (m)	Minimum # of informing Samples	Maximum # of informing Samples
Au	1	10	0	0	500	1	2	12

The OK grade estimates were completed using Surpac mining software. In estimating the gold grades, the standard fields relating to the search neighbourhood including number of composites selected, the distance to the nearest composite, average distance of composites and the kriging variance were recorded. The resultant grade estimates are held in the model file.

7.8.4 Validation

The model was validated by visual comparison of the input data against the block model grade in plan (e.g. Figures 7.8.4_1 and7.8.4_2).

The analysis shows that the long range and low nugget effects allow for localised block estimations with a relatively low degree of smoothing. The directional trends observed in composites are more or less reproduced within the block grade estimates. Acceptable levels of reproducibility are noted between the input composites data and the block grade estimates on the basis of visual review. On this basis, the OK whole block grade estimates appear appropriate and robust.

Figure 7.8.4_1
BCD Resources
Middle Arm Tailings Deposit
Block Model and Composite Grade (Au) Comparison

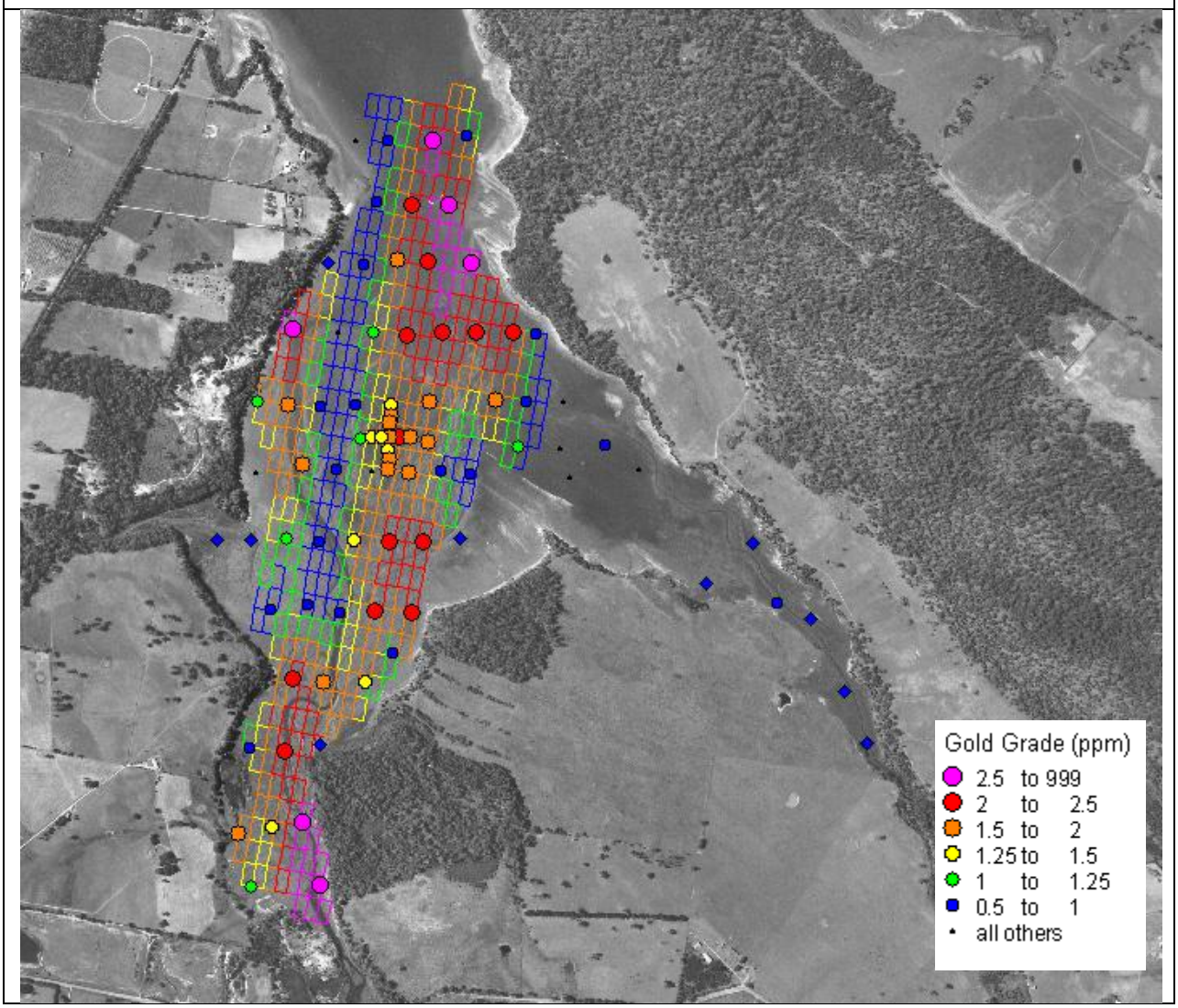
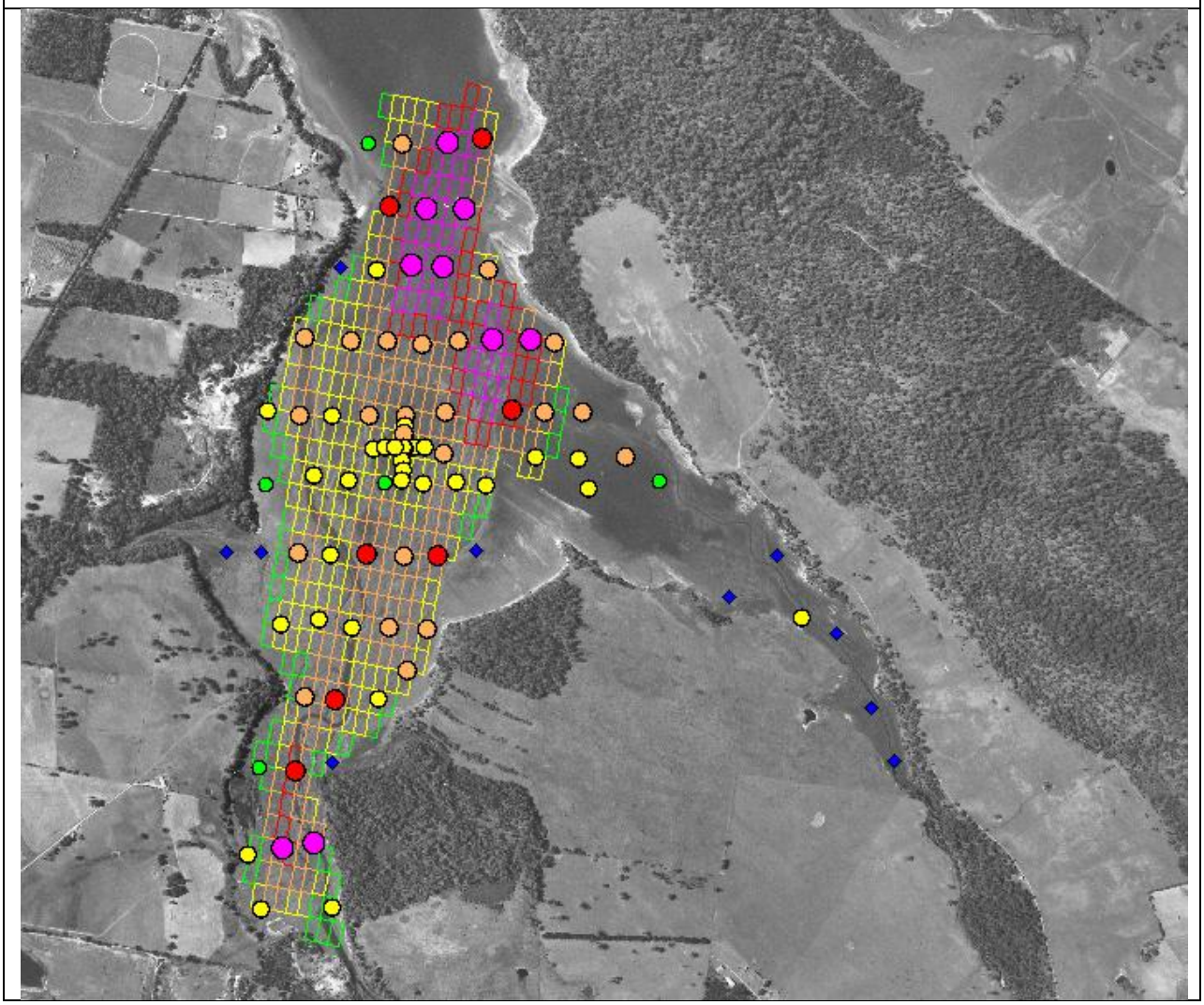


Figure 7.8.4_2
BCD Resources
Middle Arm Tailings Deposit
Block Model and Composite Thickness (m) Comparison



7.8.5 Resource Reporting

The BCD Resources 2012 grade estimate for the Middle Arm Tailings Deposit has been classified as an Indicated Mineral Resource in accordance with guidelines as set out in the in the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' of December 2004 (the Code) as prepared by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Mineral Council of Australia (JORC) or JORC Code (2004). Resource categories have been defined using JORC Code key criteria determined during the validation of the grade estimates. The confidence levels of the key criteria that were considered during resource classification are presented in Table 7.8.5_1.

Table 7.8.5_1 BCD Resources Middle Arm Tailings Deposit Confidence Levels of Key Criteria		
Items	**Discussion**	**Confidence**
Drilling Techniques	Vibracoring – industry standard for tailings deposits.	High
Logging	All holes logged consistently and with appropriate detail.	Moderate
Drill Sample Recovery	Technique gives complete recovery	High
Sub-sampling Techniques and Sample Preparation	Industry standard approach, generally half core splits submitted for gold assay. Assaying completed at in-house laboratory (non-NATA accredited).	High/Moderate
Quality of Assay Data	Industry standard assaying (25g Fire Assay/AAS finish). Moderate number of lab duplicates. Certified Reference Standards and Blanks used with good performance.	Moderate
Verification of Sampling and Assaying	No check assays undertaken at separate laboratory. Twinned hole assessment of 2 closely spaced holes showed close agreement in grade.	Moderate
Location of Sampling Points	Drill hole collars were surveyed by handheld GPS.	Moderate
Data Density and Distribution	Defined on notional 200m x 100m drill spacing. Sufficient to establish a reasonable degree of confidence in grade and volume continuity.	Moderate
Database Integrity	No assay certificates available. The data has been validated and there are no material errors identified	Moderate
Geological Interpretation	The interpreted mineralisation boundary is considered robust and of moderate confidence. No internal differentiation (e.g. grainsize) has been attempted	Moderate
Estimation and Modelling Techniques	A single mineralised domain was created and block estimates were performed using Ordinary Kriging. The estimates appear reasonable.	Moderate
Mining Factors or Assumptions	Not applied	N/A
Metallurgical Factors or Assumptions	Not applied	N/A
Tonnage Factors (Insitu Bulk Densities)	Insufficient data to *fully* describe spatial and host material changes in density, global average approach used. Six out of 67 cores had density determinations (~9%). Samples taken for densities were all from within resource boundary and spread out across resource area.	Low/Moderate
Resource Categorisation	Vibracoring is an appropriate sampling technique and the cores were spaced closely enough for geological and grade continuity to be assumed, with low nugget and long ranges. The bulk density is the least certain element in the estimate, but is still based on a number of direct measurements spread out across the resource area. The deposit is therefore classified as Indicated.	Moderate

7.8.6 Resource Categorisation

The key parameters considered during the resource categorisation are as follows:-

- Deposit style.
- Confidence in the sampling and assay data.
- The spacing of the exploration drillholes and variography
- Variation in bulk density measurements and number of bulk density measurements

Insufficient data exists to generate robust local in-situ dry bulk density estimates with a high confidence. Nevertheless, the vibracoring is an appropriate sampling technique and the cores were spaced closely enough for geological and grade continuity to be assumed. The bulk density is the least certain element in the estimate, but is still based on a number of direct measurements spread out across the resource area. The deposit is therefore classified as Indicated.

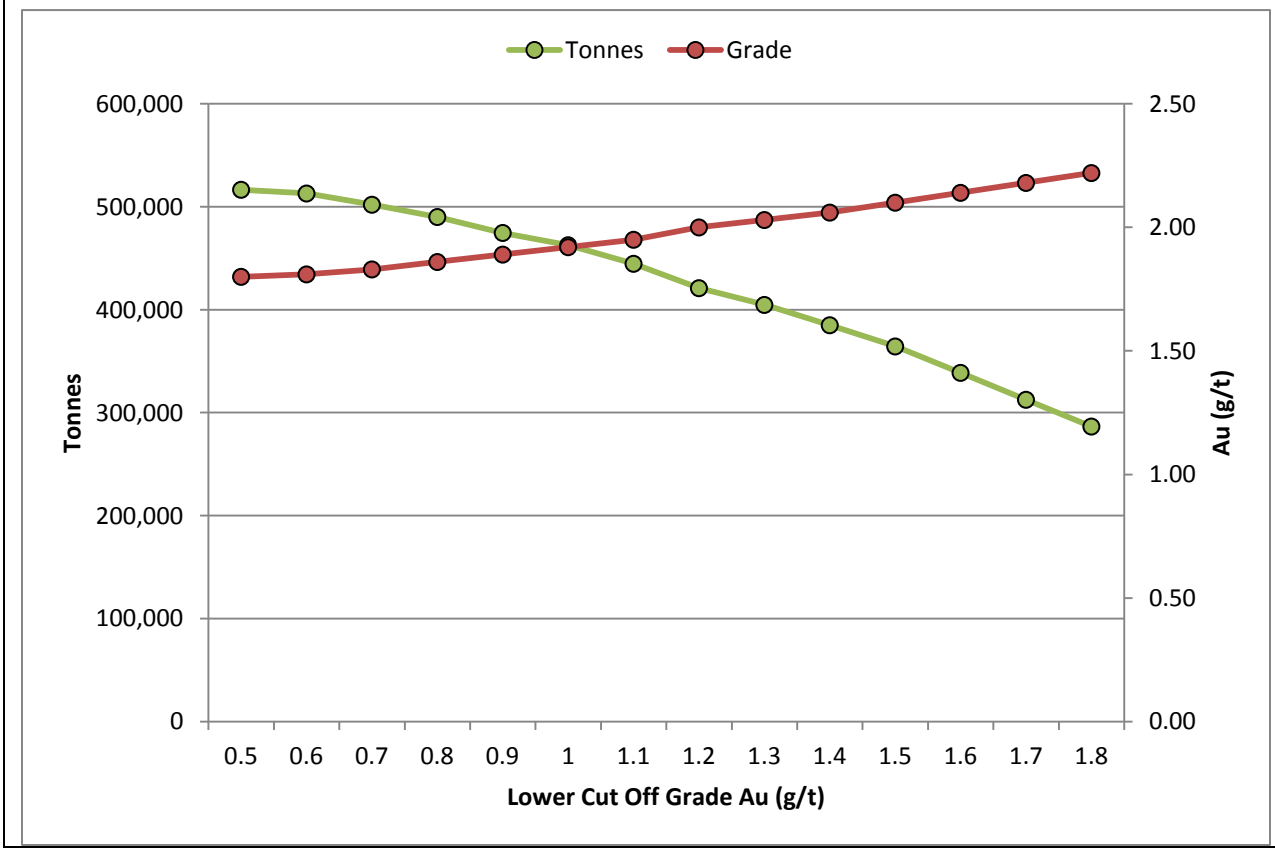
7.8.7 Grade Tonnage Report

The Indicated Mineral Resource, reported at zero cutoff, based on the 33mE x 66mN x 1mRL block model is presented in Table 7.8.7_1. The grade tonnage curve is presented in Figure 7.8.7_1. As can be observed in the grade tonnage curve, the reduction in tonnage with increasing cutoff grade is steady with no dramatic changes. There are no blocks less than 0.5g/t, so reporting at <0.5g/t cutoff does not change the resource (the lowest block grade is 0.53g/t).

Table 7.8.7_1
BCD Resources
Middle Arm Tailings Deposit
Summary Resource Statement – 9th November 2012

Resource Category	**Gold Lower Cut off Grade** (g/t)	**Tonnes** (t)	**Gold Grade** (g/t)	**Contained Gold** (ozs)
Indicated	0	517,000	1.80	29,900

Figure 7.8.7_1
BCD Resources
Pinafore Gold Deposit
Grade Tonnage



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