SNOWDEN

Final

Simcoa: Moora Quartz District
Project No. 3545

Kiaka Hills Mine Development Plan
30 November 2012

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1 Summary

Simcoa Operations Pty Ltd (“Simcoa”) requested Snowden Mining Industry Consultants Pty Ltd ("Snowden") to update the quartz Mineral Resources and Ore Reserves at the two farms (owned by A Tonkin and J Tonkin) in the area north of Kiaka Road near Moora, WA, referred to as Kiaka Hills. The Project was designed in three phases.

Phase 1 and Phase 2 of the Project included resource interpretation and preparation of 3D orebody models. This final report covers Phase 3 of the Project which included the preparation of pit and waste dump designs and the estimation of Mineral Inventory (Mineral Resources and Ore Reserves) within the pit designs. This work has included:

- Pit optimisation using Whittle software.
- Open pit designs, including haul ramps.
- Estimation of the Mineral Inventory (Mineral Resources and Ore Reserves) within the open pit designs.
- Mine layout and haul road designs.
- Waste dump designs.

Table 1.1 shows the Mineral Resources at Kiaka Hills based on a total Mineral Inventory of 8.98 million tonnes (Mt) within seven open pit designs.

Table 1.1 Kiaka Hills, Resources based on Mineral Inventory in open pits

Farm Area	Indicated Resources Mt	Inferred Resources Mt	Total Resources Mt
A Tonkin (total) (25% Indicated)	1.05	3.14	4.19
J Tonkin North (50% Indicated)	1.72	1.72	3.48
J Tonkin South (50% Indicated)	0.65	0.65	1.31
Total	**3.42**	**5.51**	**8.98**

Snowden has applied a mining recovery factor of 90% to the Mineral Inventory (Mineral Resources) in pit to estimate the Ore Reserves.

Assuming that mining is approved then Snowden considers that approximately 38% of the Mineral Inventory can be classified as Probable Ore Reserves with 62% classified as Inferred Resources in pit. Table 1.2 shows the breakdown of the Mineral Inventory of Probable Reserves and Inferred Resources in pit.

Table 1.2 Mineral Inventory (Ore Reserves and Inferred Resources) in pits

Reserves/Resources	Mt	Fe2O3 %	Al2O3 %	TiO2 %	P2O5 %
Probable Ore Reserves	3.08	0.093	0.23	0.022	0.004
Inferred Resource in pits	5.00	0.093	0.23	0.022	0.004
Total Mining Inventory	**8.08**	**0.093**	**0.23**	**0.022**	**0.004**

Additional closer spaced drilling is required to convert the Inferred Resources to Indicated Resources, which can then be converted to Probable Reserves. This should be followed by more detailed resource estimation and revised pit designs.

This final report can be submitted to the Department of Mines and Petroleum (“DMP”) regarding the development of future silica mining at Kiaka Hills and obtaining approval for mining at Lease M70/1292.

2 Introduction

2.1 Scope of Report

Simcoa Operations Pty Ltd (“Simcoa”) requested Snowden Mining Industry Consultants Pty Ltd ("Snowden") to update the quartz Mineral Resources and Ore Reserves at the two farms (owned by J Tonkin and A Tonkin) in the area north of Kiaka Road near Moora, WA, referred to by Simcoa as “Kiaka Hills”. The Resource and Reserve Update Project (“Project”) was designed in three phases.

Phase 1 and Phase 2 of the Project included resource interpretation and preparation of 3D orebody models. This final report covers Phase 3 of the Project which included the preparation of pit and waste dump designs and the estimation of Mineral Inventory (Mineral Resources and Ore Reserves) within the pit designs.

2.2 Work completed

2.2.1 Phase 1 and 2

The work completed during Phase 1 and 2 included:

- Interpretation of silica ore grade intersections (Phase 1).
- Wireframing of silica orebodies and creation of 3D models (Phase 2).

2.2.2 Phase 3

This work completed during Phase 3 has included:

- Pit optimisation using Whittle software.
- Open pit designs, including haul ramps.
- Estimation of the Mineral Inventory (Mineral Resources and Ore Reserves) within the open pit designs.
- Mine layout and haul road designs.
- Waste dump designs.
- A statement in line with the Australasian Code for the reporting of Mineral Resources and Ore Reserves, 2004 edition (the JORC Code).

This final report can be submitted to the Department of Mines and Petroleum (“DMP”) regarding the development of future silica mining at Kiaka Hills and obtaining approval for mining at Lease M70/1292.

2.3 Personnel

The interpretation of the silica mineral resource was undertaken by Mr Terry Parker (Principal Consultant- Corporate) based on current grade specification at the Moora Quartz Mine. The ore grade intercepts were wire-framed by Mr Lindsay Farley (Senior Consultant Applied Geosciences) to produce three dimensional (3D) resource models. Simcoa provided topographic survey data which was converted to 1 m contours.

Whittle pit optimisation and pit design supervision was undertaken by Mr Stuart Pederick. The pit, waste dumps and road designs were undertaken by Ms Paula Constain (Mining Consultant). The estimation and classification of the quartz Mineral Resources was undertaken by Mr Terry Parker.

Mr Parker was Mine Manager and Geologist at the Moora Quartz Mine from 1990 to 1994 and from 2002 to 2008. He has also consulted to Simcoa since 1995 and is familiar with the style of mineralisation and mining operation. He is regarded as a Competent Person (CP) in terms of the JORC Code for the reporting of Mineral Resources and Ore Reserves of silica (chert) deposits used to produce silicon metal. Mr Parker is a Fellow of the AusIMM and a Chartered Professional. Mr Parker consents to the inclusion of this report in the form and context in which it appears.

The report was reviewed by Mr Frank Blanchfield, Divisional Manager Mining, a Fellow of the AusIMM.

3 Mineral Resources

3.1 Drilling and sampling

Holes have been drilled at Kiaka Hills using a blast hole percussion rig (Tamrock 1000) with open holes. Samples were collected every 2 m vertical depth. Target depth was 40 m, but many holes stopped short due to cavities and or blockages.

Drill spacing commenced at 40 m (along strike) by 40 m across strike. In the J Tonkin farm resource area this was reduced to 20 m across strike.

Samples were riffle split down to about 2 kg into calico bags and transported to the Moora sample preparation laboratory. The samples were wet-screened through 1mm aperture sieves to remove unwanted clays and soil. Samples were dried in an oven at 100^{o}C for several hours, roll crushed to -1mm, riffle split to about 50g and pulverised in a ring mill. Approximately 10g was packaged and transported to Simcoa's laboratory at Kemerton for analysis by XRF. Duplicate samples were included at approximately 1 in 20 samples.

It is noted that the drilling and sampling method is far from ideal, but is very cheap compared to diamond drilling and reverse circulation drilling and can give reliable results if ground conditions are good. If the rock is badly faulted then this can cause downhole contamination (by clays) and even prevent further drilling.

Although it is not normal to accept mineral resource estimation based on open hole drilling, this method has proved reasonably reliable in resource estimation at the Moora Quartz Mine, which has been operating since 1989.

The sample results obtained tend to be conservative as contaminated samples are rejected from mineral intercepts and not included in resource estimation. The drill hole samples are washed to remove unwanted contamination (clays), similar to the process at the crushing and wet screening plant and represent a "beneficiated" sample.

The grades are based on samples that have been washed and screened at 1 mm to try and replicate the estimated quartz product grades (after washing and screening at -75 mm +25 mm). This has been shown to provide more reliable grade results although the relationship is not 100%.

3.2 Quartz product chemical grade specifications

Table 3.1 shows the quartz grade specifications and targets for 2012 that apply at the Moora Quartz Mine. Recently the specification for iron has been relaxed to 0.30% Fe_2O_3 in the quartz product, which has allowed an increase in the resource base of the silica deposits.

Table 3.1 Quartz product chemical grade specifications and targets, 2012

Grade	Target	%Fe_2O_3	%Al_2O_3	%TiO_2	%$CaCO_3$	%MgO	%P_2O5
A	12,000	0.07	0.15	0.020	0.050	0.050	0.003
ALP	34,000	0.07	0.20	0.012	0.050	0.050	0.010
B	10,000	0.07	0.20	0.015	0.050	0.050	0.025
C	4,000	0.10	0.20	0.030	0.050	0.050	0.010
D	0	0.05	0.20	0.030	0.050	0.050	0.003
E	14,000	0.19	0.30	0.015	0.050	0.050	0.010
HT	6,000	0.08	0.20	0.050	0.050	0.050	0.003

Table 3.2 shows the cut-off quartz grade specifications for the Mineral Resources at Kiaka Hills. They are based on the lowest quality mineral grade (E grade) which is high in iron and alumina. Approximately 50% of the drill hole samples were below (better than) these grade specifications and form the mineral resource base. No attempt has been made to subdivide the Mineral Resources into different grades as the drill holes are not close enough to ensure continuity of grade.

The resource base cut-off grade specification allows for the combination of high and low grade material to be mined and blended during mining, and for a degree of beneficiation at the plant to produce quartz product. The concept is similar in principle to normal cut-off grades but in reverse due to the unwanted contaminants. It is similar to iron ore resource estimation regarding contaminants, although with iron ore the iron content is analysed.

Table 3.2 Kiaka Hills, quartz resource base cut-off grade specifications

% Fe_2O_3	% Al_2O_3	% TiO_2	% CaO	% MgO	% P_2O_5
0.30	0.40	0.10	na	na	0.05

Following blast hole and grade control drilling, different ore grades are subdivided from the resource base and mined separately according to the silica mineralisation and contaminants. The ratio or balance of the different ore grades varies with each deposit.

The different ore grades are transported to Simcoa's smelter operations at Kemerton, where they are blended according to silicon customer's specifications and requirements, which can change from year to year.

3.3 Resource classification

At the Moora Quartz Mine the resources are classified based on drill spacing for practical and simplistic purposes. In reality the ranges of influence of the six important chemical (contaminant) elements, vary significantly but are generally in the range of 10 m to 20 m. The grade of the contaminants is critical to the interpretation of quartz resources. The range of influence of phosphorus (P_2O_5), related primarily to the apatite mineral, is much shorter than the range of influence of other contaminants such as alumina (Al_2O_3), but this is considered too complex for resource classification. Table 3.3 shows the typical resource classification criteria at the Moora Quartz Mine.

Table 3.3 Resource classifications

Resource category	Drill spacing.
Measured	10 m x 10 m
Indicated	20 m x 20 m
Inferred	40 m x 40 m

Some of the Main Pit at the Moora Quartz Mine has been drilled at 10 m by 10 m spacing, which has since proved unnecessary as blast hole drilling is based on staggered 3 m x 3 m spaced drilling. Grade control sampling is based on 3 m holes across strike and 6 m spaced lines along strike, equivalent to 50% of all blast holes. This has been shown to be sufficient for fairly reliable ore type grade and waste prediction.

Based on this (simple) classification half of the resources at J Tonkin farm were classified as Indicated and the other half as Inferred. At A Tonkin farm 25% of the resource was classified as Indicated and the remainder as Inferred.

3.4 Preliminary Mineral Resource estimation

Snowden (T Parker) estimated the mineral resources at the two Kiaka Hills farms in July 2012, based on the drillhole samples and spacing. Within each drillhole a minimum of two (2 m vertical) adjacent samples that satisfied the base resource grade cut-offs were combined to form a mineral intercept. The mineral intercepts were averaged to estimate the tonnes and grades of the resource. The total estimate by this method was 12.0 Mt which was discounted by 50% to account for uncertainties in the continuity of mineralisation between drill holes and allow for the exclusion of small isolated zones.

Table 3.4 shows the Mineral Resources estimated at Kiaka Hills (July, 2012).

Table 3.4 Kiaka Hills, Mineral Resources (July, 2012)

Farm Area	Indicated 000 tonnes	Inferred 000 tonnes	Total 000 tonnes
J Tonkin North	871	871	1,742
J Tonkin South	667	667	1,334
A Tonkin	733	2,199	2,932
Total	**2,271**	**3,737**	**6,008**

Note: Resources reported to the nearest 1,000 tonnes

Table 3.5 shows the July 2007 estimated Mineral Resources with average "in-situ" beneficiated grades.

Table 3.5 Kiaka Hills, Mineral Resources (July 2012)

	M tonnes	% Fe_2O_3	% Al_2O_3	% TiO_2	% CaO	% MgO	% P_2O_5
J Tonkin N	1.74	0.082	0.237	0.017	0.027	0.025	0.003
J Tonkin S	1.33	0.079	0.263	0.022	0.028	0.026	0.005
A Tonkin	2.93	0.107	0.229	0.025	0.025	0.023	0.005
Total	**6.01**	**0.087**	**0.222**	**0.020**	**0.024**	**0.023**	**0.004**

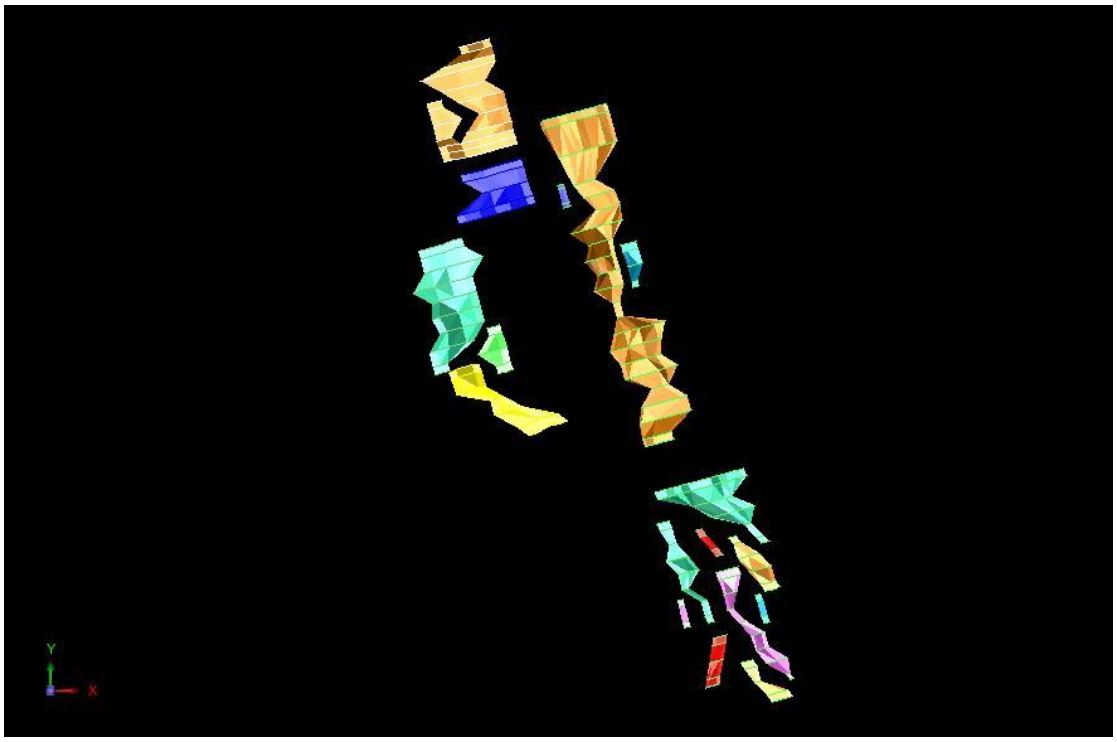
Quartz mineralisation is also known to exist in a quartz ridge to the east of J Tonkin North Ridge (referred to as the East Ridge). The farm owners (J Tonkin) have expressed the wish to exclude this area from future mining. These potential resources have been excluded from this study.

3.1 Revised Mineral Resource estimation (3D resource models)

To provide a more accurate estimation of the volume and tonnes of the quartz resource the mineral intercepts for each hole were combined into 3D resource models. Generally, there was at least one mineral intercept per hole. The resources are based on a minimum of 4 m (2 x 2 m) vertical intersections which have been extrapolated from hole to hole. Figure 3.1 shows a plan view of the resource models.

Snowden estimated the volume within these 3D models at 4.77 million cubic metres (Mm^3), equivalent to 11.92 Mt at a bulk density of 2.5 tonnes/m^3, which is similar to the July 2012 estimate of 12.0 Mt. Snowden notes that about a quarter of the volume within the resource models (about 3 Mt) occurs in isolated small pockets, which will be impractical to mine, particularly in the J Tonkin South area, shown at the bottom of the diagram.

Figure 3.1 Kiaka Hills 3D resource models



The 3D resource models were used as the basis for open pit and waste dump designs.

4 Mine Development Plan

4.1 Open Pit Optimisation

Snowden prepared a block model at 50 m x 50 m x 4 m, which incorporated the resource model. Snowden applied a Whittle pit optimisation programme in order to minimise the waste removal to an acceptable waste:ore ratio of 1:1. This reduces the cost of mining silica and reduces the waste and environmental foot print. The pit optimisation included all the available resources. The block model was optimised to generate open pit shells to be used for pit designs.

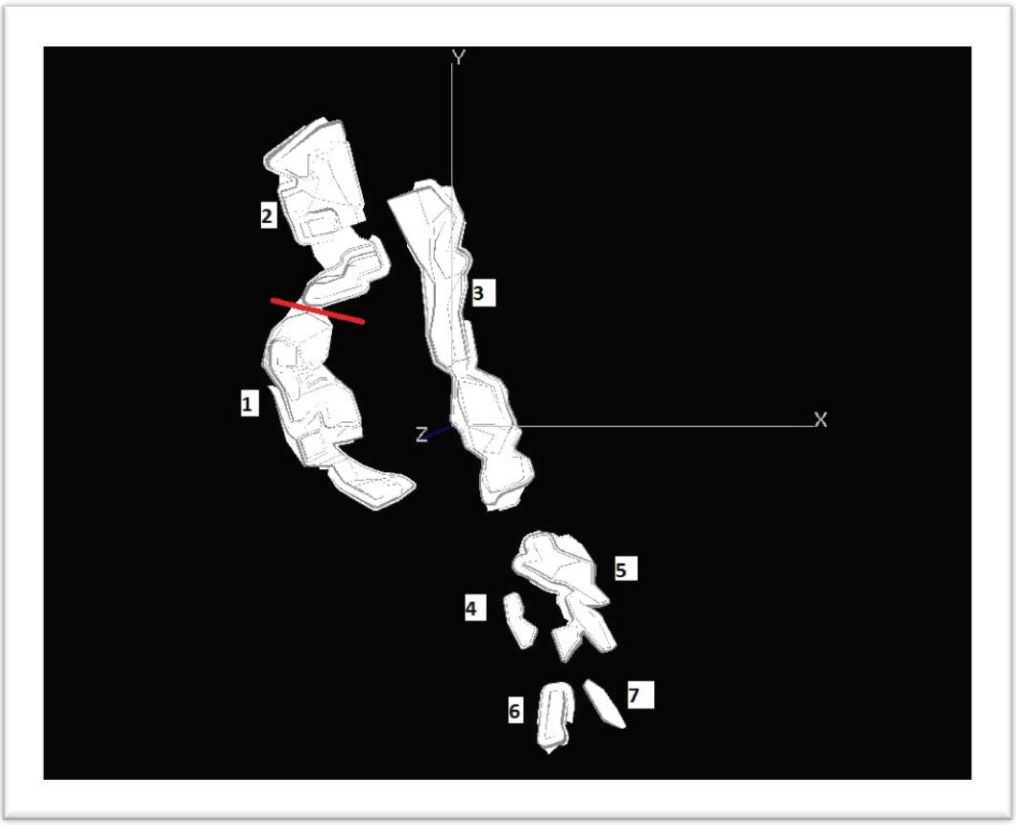
4.2 Open Pit designs

The open pits at Kiaka Hills were designed using the following parameters, which are applied at the Moora Quartz Mine:

- 70 degree pit wall batter angle,
- 4m safety berms at 20 m vertical depth
- 16 m wide haul ramps at a gradient of 1 in 10.

Figure 4.1 shows the open pit designs numbered from 1 to 7. The designs have been created to minimise waste mining and aiming to achieve a strip ratio (waste:ore) of approximately 1:1. As a result the pit outlines appear irregular. Following further drilling it is likely that the pit designs will be modified to a more regular outline.

Figure 4.1 Kiaka Hills Open Pit designs



4.3 Mining Inventory

Table 4.1 shows a summary of the open pit Mining Inventory. It is noted that Pit 6 has a high stripping ratio, but by eliminating this pit the waste to ore ratio reduces to 1.03. Details of the Mining Inventory by pit and by 4 m bench are shown in Appendix A.

Table 4.1 Kiaka Hills open pit Mining Inventory

Pit	Ore Volume	Ore Tonnes	Waste Volume	Waste tonnes	Total Volume	Total tonnes	Strip ratio
1	883,868	2,209,670	847,678	2,119,196	1,731,546	4,328,866	0.96
2	792,649	1,981,622	702,137	1,755,343	1,494,786	3,736,965	0.89
3	1,390,392	3,475,980	1,489,179	3,722,948	2,879,571	7,198,928	1.07
4	65,176	162,941	34,525	86,314	99,702	249,255	0.53
5	367,576	918,941	542,762	1,356,905	910,339	2,275,847	1.48
6	52,403	131,007	193,010	482,524	245,412	613,531	3.68
7	40,697	101,743	28,328	70,821	69,026	172,564	0.70
All	**3,592,762**	**8,981,905**	**3,837,620**	**9,594,051**	**7,430,382**	**18,575,956**	**1.07**

Table 4.2 shows a summary of the open pit Mining Inventory based on pit designs (shown in Figure 4.1). The four small pits at J Tonkin South have been combined into Pit 4.

Table 4.2 Kiaka Hills openpit Mining Inventory

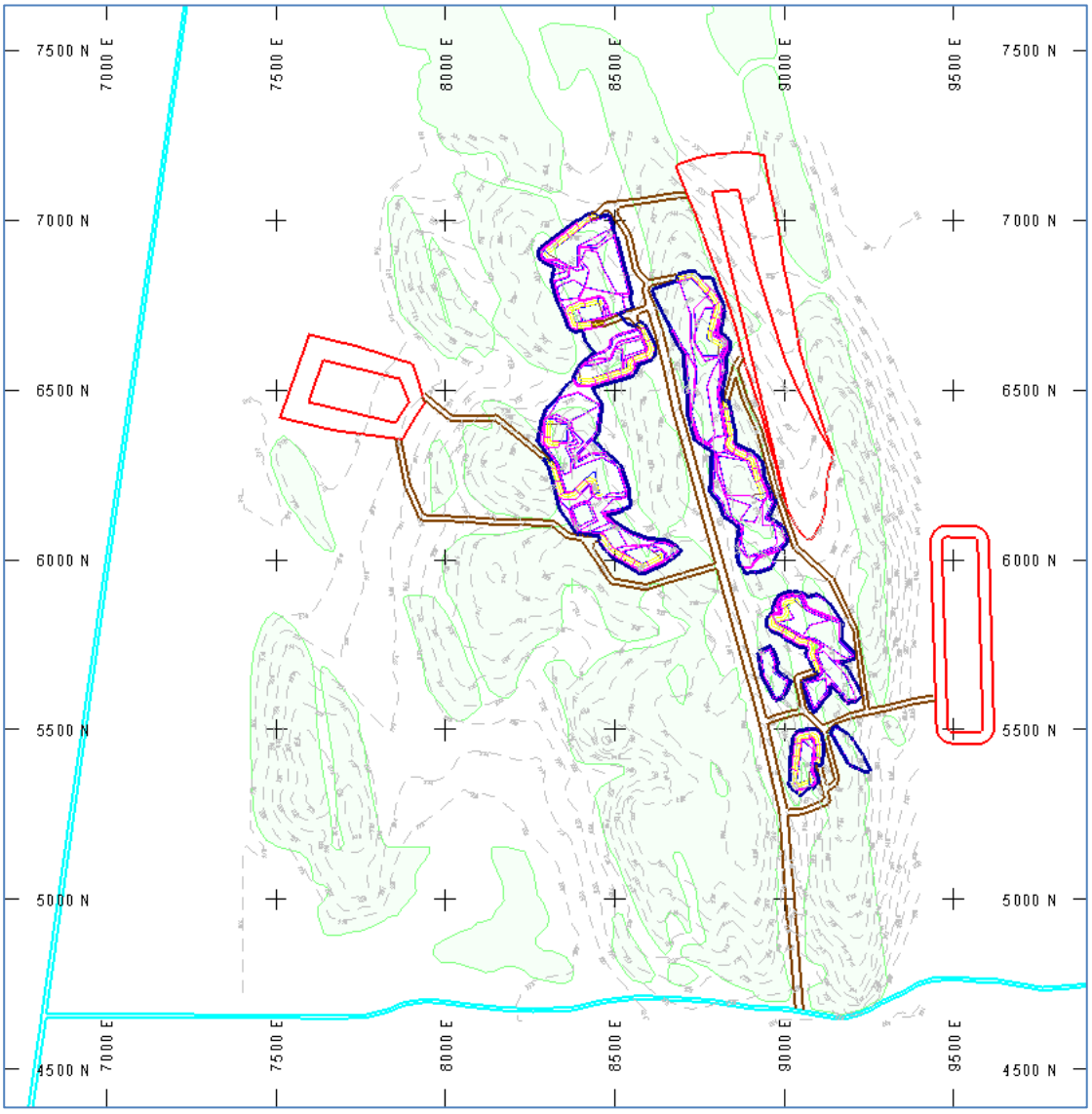
Pit	Ore Volume	Ore Tonnes	Waste Volume	Waste tonnes	Total Volume	Total tonnes	Strip ratio
1	883,868	2,209,670	847,678	2,119,196	1,731,546	4,328,866	0.96
2	792,649	1,981,622	702,137	1,755,343	1,494,786	3,736,965	0.89
3	1,390,392	3,475,980	1,489,179	3,722,948	2,879,571	7,198,928	1.07
4 (5,6,7)	525,853	131,4633	798,626	1,996,565	1,324,479	3,311,198	1.52
All	**3,592,762**	**8,981,905**	**3,837,620**	**9,594,051**	**7,430,382**	**18,575,956**	**1.07**

Table 4.2 shows there are approximately 8.98 Mt of Mineral Resources that can be effectively mined from the open pits, within a realistic mine design. A proportion of the Mineral Resources can be converted to probable Ore Reserves.

4.4 Mine design

Figure 4.2 shows a plan view of the Kiaka Hills preliminary conceptual mine design showing the open pit design outline (dark blue), waste dump design (red), haul roads (brown), pit ramps (yellow) and sealed roads (light blue). The uncleared native vegetation areas are coloured green. Some of the native vegetation area contains declared rare flora (DRF) and threatened ecological community (TEC) plants. The plan also shows contours at 1 m intervals.

Figure 4.2 Kiaka Hills, preliminary conceptual mine design



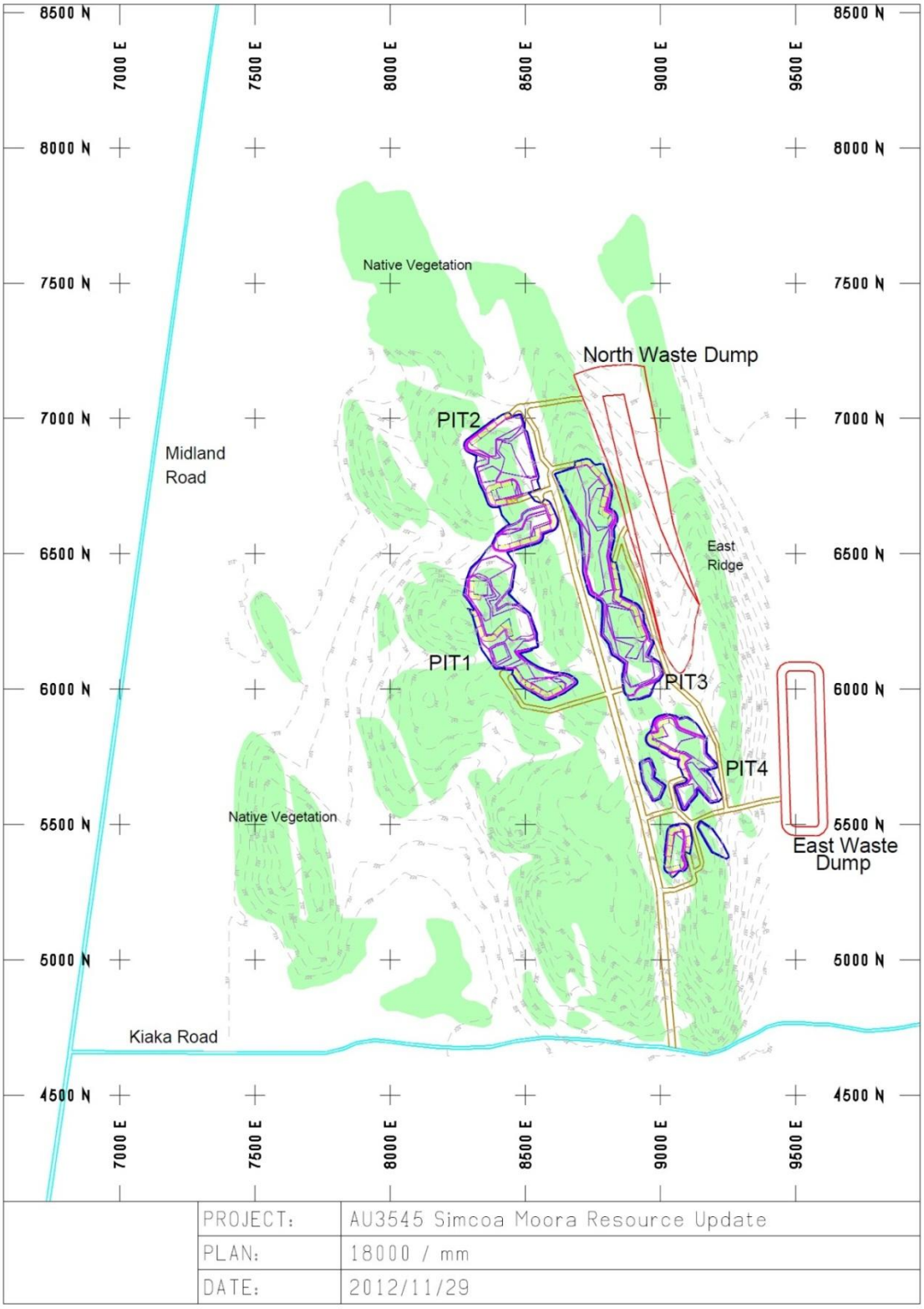
The map is based on the Moora Quartz Mine grid (modified AMG).

4.5 Revised Mine design

Following further discussions with Simcoa, a revised mine design was prepared to exclude the western waste dump and revise the mine plan to include backfilling of completed open pits. Snowden was informed that the owners of A Tonkin farm do not wish to have a waste dump on their property.

Figure 4.3 shows the revised mine design which includes roads to back fill Pit 3. This design slightly reduces the flexibility of blending ore from different pits, but is considered to be environmentally and economically more acceptable.

Figure 4.3 Kiaka Hills revised mine design



4.6 Haul Roads

Snowden has designed the haul roads based on hauling waste to two waste dumps and backfilling a completed open pit. The road design is also based on transporting ore to Kiaka Road by a wider (24 m wide) haul road. It may be necessary to crush the mined ore (using mobile crushers) to a size suitable for transporting by on-road trucks (road trains) to the Moora Quartz Mine crusher. Alternatively, a tunnel, bridge or cross roads could be built at Kiaka Road to allow off road haul trucks to transport ore to the current plant. Eventually, the crushing plant may be relocated north of Kiaka Road in an area of Kiaka Hills.

4.7 Waste dump designs

Snowden has prepared conceptual waste dump designs based on slope angles of 20 degrees. Two waste dumps have been designed, one in the valley to the north between J Tonkin North Pit (Pit 3) and the East Ridge, and the other in the cleared area east of the J Tonkin South open pits (Pits 4, 5, 6 and 7). Both areas have been cleared of native vegetation for agriculture in the past. The North Waste Dump has been designed 20 m high to a height of 264 mean relative level (mRL) and cut into the topography (valley sides).

The East Waste Dump has been designed as a stand-alone dump 12 m high, to a height of 240 mRL. Following further studies it might be preferable to merge the dump with the southern end of the East Ridge, which will appear more aesthetically and environmentally pleasing. Snowden notes that the topographic data for this dump does not extend into the eastern valley and has assumed the area to be relatively flat.

The waste volumes are based on a swell factor of 30% assuming an increase in volume due to blasting of the rock. The waste dumps have been designed to accommodate waste from the different pits and to allow backfilling of completed pits. If back filling of waste into completed pits becomes a main priority, then the waste dumps may need to be redesigned.

4.8 Ore and Waste Mining Schedule

4.8.1 Mine Schedule

Simcoa currently has no immediate plans to commence mining at Kiaka Hills. This will depend on the development of the Main Pit and West Pits at the Moora Quartz Mine, and the need or ability to blend higher alumina silica ore from Kiaka Hills at the Mine.

Snowden has based the mining of ore and waste on the following schedule:

1. Mine Pit 3 (J Tonkin N), waste to Waste Dump North
2. Mine Pits 4, 5, 6 and 7 (J Tonkin S), waste to Waste Dump East
3. Mine Pits 1 and 2 (A Tonkin), waste to backfill Pit 3 (J Tonkin N)

4.8.2 Waste Mining

Table 4.3 shows the estimated volume of waste including the swell volume (30% increase) from the four main pit areas. The estimated volume of the waste (swelled) from Pit 1 and Pit 2 (2,014,761 m^3) will readily fit within Pit 3 which has a design volume of 2,879,571 m^3. It may be possible to further rationalise the movement of waste to the waste dumps and backfill pits. The exact quantities of ore and waste have yet to be finalised and await further close spaced drilling.

Table 4.3 Waste Mining Schedule

Pit	Waste Volume m^3	Swell Waste Volume m^3	Destination
1	847,678	1,101,982	Back Fill Pit 3
2	702,137	912,779	Back Fill Pit 3
Total	**1,549,815**	**2,014,761**	**Backfill**
3	1,489,179	1,935,933	North Waste Dump
4 (5,6,7)	798,626	1,038,214	East Waste Dump
Total	**2,287,805**	**2,974,147**	**Waste Dumps**
Total	**3,837,621**	**4,988,907**	

4.1 Revised Mineral Resource estimation (Nov 2012)

Table 4.4 shows the Mineral Resource Inventory within open pit designs and classifications based on drill spacing. The table shows about approximately 38% of the Mineral Resources can be classified as Indicated Resources and 62% as Inferred Resources.

Table 4.4 Mineral Resource Inventory in open pits (November, 2011)

Farm Area	Indicated Resources Mt	Inferred Resources Mt	Total Resources Mt
A Tonkin (total) (25% Indicated)	1.05	3.14	4.19
J Tonkin North (50% Indicated)	1.72	1.72	3.48
J Tonkin South (50% Indicated)	0.65	0.65	1.31
Total	**3.42**	**5.51**	**8.98**

Table 4.5 shows the comparison between the preliminary resource estimate (12 Mt discounted by 50%) and the revised Mineral Resource estimate based on the 3D models. The table shows an increase of 50% in the revised Mineral Resources, which is considered to be a more reliable estimate.

Table 4.5 Kiaka Hills, MinePreliminary Resources versus Revised Resources

Farm Area	Indicated Resources Mt	Inferred Resources Mt	Total Resources Mt	Revised Resource Mt
A Tonkin (total) (25% Indicated)	0.73	2.20	2.93	4.19
J Tonkin North (50% Indicated)	0.87	0.87	1.74	3.48
J Tonkin South (50% Indicated)	0.67	0.67	1.33	1.31
Total	**2.27**	**3.74**	**6.01**	**8.98**

Further detailed drilling is required to be confident of the Mineral Resource outlines and estimation.

5 Ore Reserve Estimation

5.1 Mining Inventory

Table 5.1 shows the Kiaka Hills open pit Mining Inventory within the seven open pit designs, and the total Mineral Resources of 8.98 Mt.

Table 5.1 Kiaka Hills, open pit Mining Inventory

Pit	Farm	Resources Mt	Waste Mt	Total Mt	Strip ratio
1	A Tonkin	2.21	2.12	4.33	0.96
2	A Tonkin	1.98	1.76	3.74	0.89
3	J Tonkin North	3.48	3.72	7.20	1.07
4	J Tonkin South	0.16	0.09	0.25	0.53
5	J Tonkin South	0.92	1.36	2.28	1.48
6	J Tonkin South	0.13	0.48	0.61	3.68
7	J Tonkin South	0.10	0.07	0.17	0.70
Total		**8.98**	**9.60**	**18.58**	**1.07**

5.2 Modifying factors

The Mineral Resource Inventory is the current theoretically interpreted mineralisation that could be mined from the open pits. The mineral ore grade intercepts are based on a minimum of 4 m vertical intersection (two adjacent 2 m samples). The 3D resource models are not based on the practicalities of mining, which are currently 4 m high benches. Accordingly, a proportion of the mineral inventory will not be recovered during mining as it occurs above or below the 4 m benches. This has not been accurately quantified but Snowden consider that about 10% of this Mineral Inventory will not be recovered and has assumed the mining recovery of this Mineral Inventory to be in the order of 90%.

Snowden has applied a 90% mining recovery at zero dilution to the mineral inventory to estimate the Ore Reserves within the pit designs.

Table 5.2 shows the Mining Inventory based on a mining recovery of 90% giving a total of 8.08 Mt of quartz “ore” and a total of 10.50 Mt of waste at a strip ratio of 1.30. Snowden considers that further work is required to provide more detailed estimates of the Ore Reserves when mining has been approved.

Table 5.2 Modifying factor (mining recovery)

Pit	Mine recovery	Ore Mt	Waste Mt	Total Mt	Strip ratio
Total	100%	8.98	9.60	18.58	1.07
Total	90%	8.08	10.50	18.58	1.30

5.3 Ore Reserves

Snowden understands that the mining lease M70/1292 was approved by the DMP in early 2012 and approval to mine is awaiting the outcome of proposed mine development plans, including this report. When mining is approved, Snowden and Simcoa can report the Ore Reserves according to the JORC Code for the reporting of exploration results, Mineral Resources and Ore Reserves, subject to meeting all other criteria, including quality control procedures.

Assuming that mining is approved then Snowden considers that the approximately 38% of the Mining Inventory can be classified as Probable Ore Reserves with 62% classified as Inferred Resources in pit. Table 5.3 shows the breakdown of the Mining Inventory of Probable Reserves and Inferred Resources in pit.

Table 5.3 Mining Inventory (Ore Reserves and Inferred Resources) in pits

Reserves/Resources	Mt	Fe2O3 %	Al2O3 %	TiO2 %	P2O5 %
Probable Ore Reserves	3.08	0.093	0.23	0.022	0.004
Inferred Resource in pits	5.00	0.093	0.23	0.022	0.004
Total Mining Inventory	**8.08**	**0.093**	**0.23**	**0.022**	**0.004**

Additional closer spaced drilling is required to convert the Inferred Resources to Indicated Resources, which can then be converted to Probable Reserves. This should be followed by more detailed resource estimation, revised pit designs and a more definitive Mine Plan.

Appendix A Open pit bench summary

Pit	Bench	Ore Volume	Ore tonnes	Waste Volume	Waste tonnes	Total Volume	Total tonnes	Strip Ratio
1	264	-	-	121	303	121	303	-
1	260	3,365	8,412	17,492	43,731	20,857	52,143	5.20
1	256	23,478	58,694	84,970	212,426	108,448	271,120	3.62
1	252	42,490	106,224	99,634	249,084	142,123	355,308	2.34
1	248	117,299	293,247	188,576	471,440	305,875	764,687	1.61
1	244	87,353	218,382	104,408	261,019	191,760	479,401	1.20
1	240	152,152	380,380	153,902	384,754	306,054	765,134	1.01
1	236	168,673	421,682	109,239	273,098	277,912	694,781	0.65
1	232	105,356	263,390	39,278	98,195	144,634	361,585	0.37
1	228	124,487	311,217	36,800	91,999	161,286	403,215	0.30
1	224	28,905	72,262	5,691	14,227	34,595	86,488	0.20
1	220	20,660	51,651	3,349	8,372	24,009	60,023	0.16
1	216	9,652	24,130	4,219	10,547	13,871	34,677	0.44
1	**Total**	**883,868**	**2,209,670**	**847,678**	**2,119,196**	**1,731,546**	**4,328,866**	**0.96**
2	248	380	950	16,189	40,471	16,569	41,422	42.58
2	244	23,905	59,762	47,771	119,427	71,675	179,188	2.00
2	240	122,846	307,115	157,775	394,438	280,621	701,553	1.28
2	236	182,455	456,138	154,209	385,522	336,664	841,660	0.85
2	232	125,198	312,996	88,248	220,620	213,446	533,615	0.70
2	228	159,585	398,962	108,039	270,098	267,624	669,061	0.68
2	224	79,816	199,540	42,516	106,290	122,332	305,830	0.53
2	220	66,250	165,625	52,050	130,125	118,300	295,750	0.79
2	216	32,214	80,534	35,341	88,352	67,555	168,886	1.10
2	**Total**	**792,649**	**1,981,622**	**702,137**	**1,755,343**	**1,494,786**	**3,736,965**	**0.89**
3	276	1,433	3,583	10,353	25,884	11,787	29,466	7.22
3	272	6,742	16,854	104,451	261,127	111,193	277,981	15.49
3	268	23,348	58,369	252,532	631,330	275,880	689,699	10.82
3	264	42,689	106,723	157,904	394,759	200,593	501,483	3.70
3	260	110,589	276,471	304,805	762,012	415,393	1,038,483	2.76
3	256	197,641	494,102	250,525	626,312	448,166	1,120,414	1.27
3	252	197,505	493,763	100,745	251,864	298,251	745,626	0.51
3	248	310,492	776,231	126,853	317,133	437,346	1,093,364	0.41
3	244	162,970	407,426	52,860	132,150	215,831	539,577	0.32
3	240	200,694	501,736	75,459	188,648	276,153	690,384	0.38
3	236	94,246	235,616	33,240	83,099	127,486	318,716	0.35
3	232	22,372	55,930	7,935	19,837	30,307	75,767	0.35
3	228	19,670	49,176	11,517	28,793	31,187	77,969	0.59
3	**Total**	**1,390,392**	**3,475,980**	**1,489,179**	**3,722,948**	**2,879,571**	**7,198,928**	**1.07**

Pit	Bench	Ore Volume	Ore tonnes	Waste Volume	Waste tonnes	Total Volume	Total tonnes	Strip Ratio
4	272	31	77	2	5	33	83	0.07
4	268	3,063	7,657	4,337	10,842	7,400	18,500	1.42
4	264	7,708	19,270	7,105	17,762	14,813	37,032	0.92
4	260	17,228	43,071	12,397	30,993	29,625	74,063	0.72
4	256	21,581	53,953	7,854	19,635	29,435	73,588	0.36
4	252	15,565	38,913	2,831	7,076	18,396	45,989	0.18
4	**Total**	**65,176**	**162,941**	**34,525**	**86,314**	**99,702**	**249,255**	**0.53**
5	276	6,289	15,722	61,056	152,641	67,345	168,363	9.71
5	272	20,565	51,412	81,897	204,743	102,462	256,155	3.98
5	268	38,736	96,841	149,166	372,914	187,902	469,755	3.85
5	264	40,611	101,528	74,039	185,098	114,650	286,626	1.82
5	260	76,481	191,202	95,464	238,660	171,945	429,862	1.25
5	256	94,996	237,491	56,016	140,041	151,013	377,531	0.59
5	252	63,578	158,946	20,152	50,380	83,730	209,326	0.32
5	248	26,320	65,800	4,972	12,430	31,292	78,230	0.19
5	**Total**	**367,576**	**918,941**	**542,762**	**1,356,905**	**910,339**	**2,275,847**	**1.48**
6	268	-	-	2,490	6,225	2,490	6,225	-
6	264	-	-	13,077	32,693	13,077	32,693	-
6	260	129	322	36,975	92,436	37,103	92,759	286.91
6	256	1,252	3,130	45,167	112,918	46,419	116,048	36.08
6	252	2,918	7,295	25,453	63,633	28,371	70,929	8.72
6	248	9,004	22,509	34,913	87,284	43,917	109,793	3.88
6	244	8,810	22,026	15,090	37,726	23,901	59,752	1.71
6	240	15,027	37,567	14,833	37,084	29,860	74,651	0.99
6	236	15,263	38,159	5,010	12,525	20,273	50,683	0.33
6	**Total**	**52,403**	**131,007**	**193,010**	**482,524**	**245,412**	**613,531**	**3.68**
7	268	2,277	5,691	8,187	20,468	10,464	26,159	3.60
7	264	7,110	17,774	7,524	18,809	14,633	36,583	1.06
7	260	14,128	35,321	8,151	20,377	22,279	55,698	0.58
7	256	17,183	42,957	4,467	11,167	21,649	54,123	0.26
7	**Total**	**40,697**	**101,743**	**28,328**	**70,821**	**69,026**	**172,564**	**0.70**
Grand	**Total**	**3,592,762**	**8,981,905**	**3,837,620**	**9,594,051**	**7,430,382**	**18,575,956**	**1.07**