Thornton Metals Pty Ltd
ABN: 33 140 080 039

Suite 30A, Level 13,
99 York Street, Sydney NSW 2000
Telephone: +61 (02) 9299 5485
Fax: +61 (02) 9299 1445
Website:

Annual Technical Report

Exploration Licence 5609

Bindyi

For 12 months period ending 29th April 2016

John Hillam

Lists of plans

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1 Exploration history of EL5609

- 11th August, 2014 – Exploration Licence submitted
- 30th April, 2015 – Exploration Licence granted

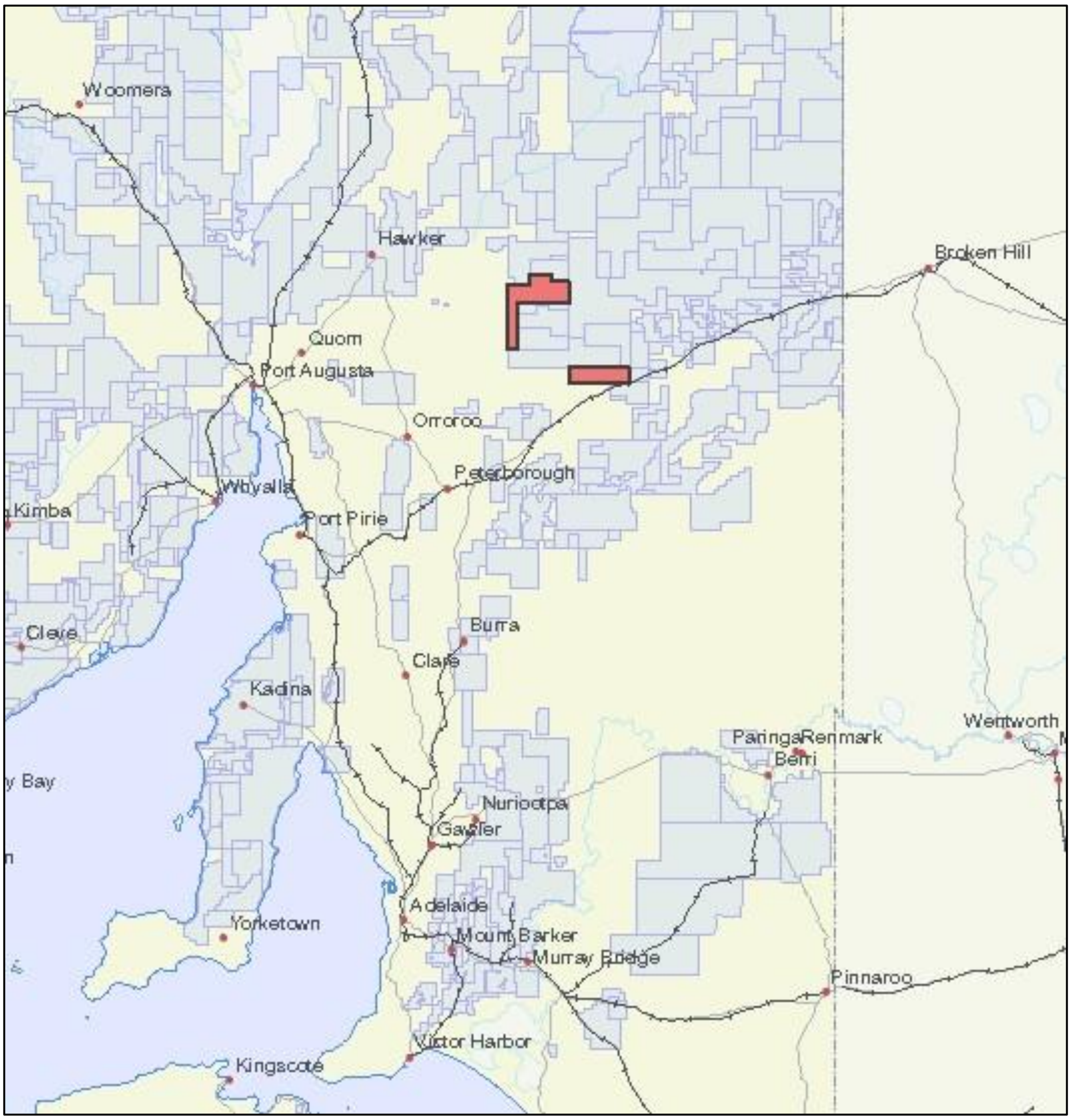
2 General

The banded iron formations associated with various tillite in South Australia have been recognised as being potential sources for iron however the low grade nature has been one of the limiting factors in why they have not been exploited.

The area Razorback Ridge and Iron Peak was highlighted in “The Investigation and Exploitation of the Razorback Ridge Iron Deposit” G F Whitten, Report of Investigations 33, 1970. At Razorback ridge it was thought that its iron resource was uneconomic due to the low prices at that time; however, this study was only part of a broader one where iron ore occurrences were investigated and recorded throughout the region. The work undertaken by the government at RBR was quite extensive and a number of drill holes were completed, an adit dug into the member B intersecting approximately 100 meters of the ore body and samples were tested metallurgically by AMDEL at that time.

With technological changes taking place in both mining and metallurgy the economics of developing RBR and other project in the Olary region have become much more positive. Also part of the attractiveness of these occurrences is the ability to produce a magnetite concentrate simply.

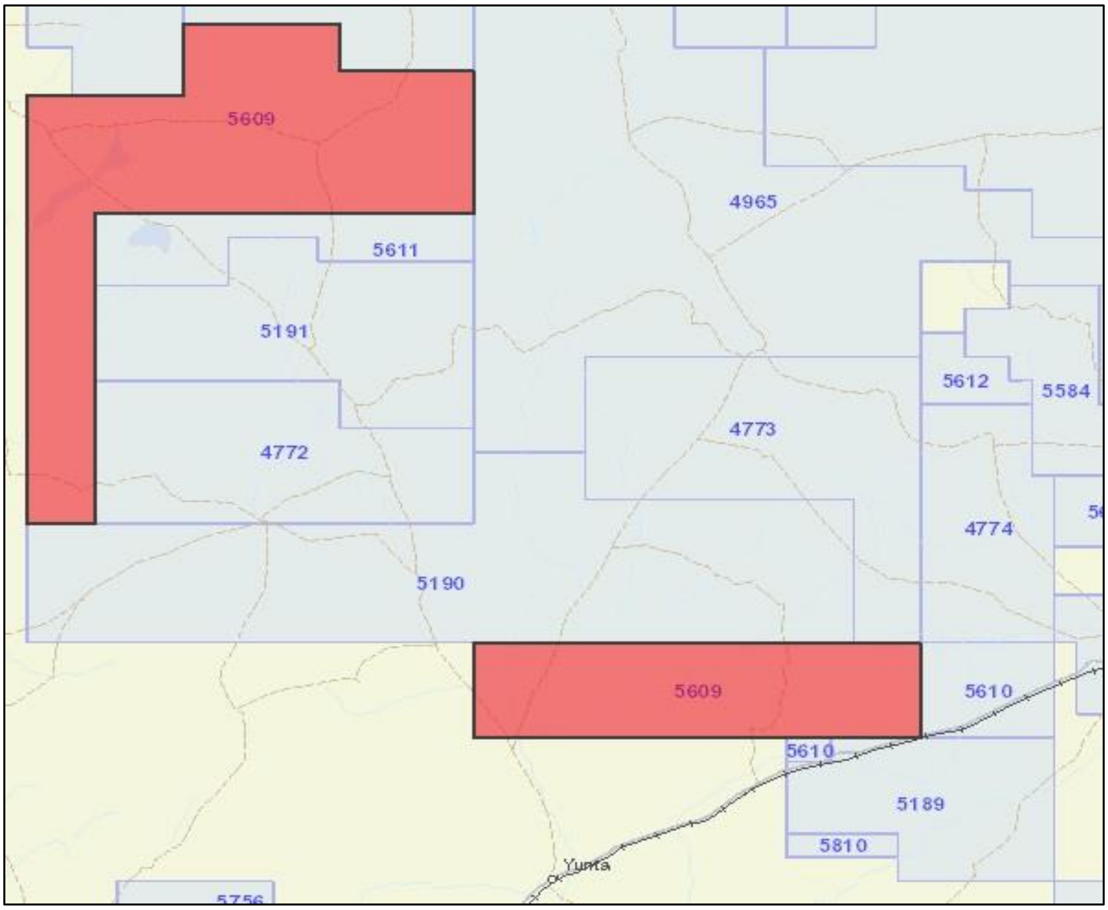
EL5609 lies 15km north and 55km North West of Yunta town, 120 kilometres west of Broken Hill. The location north of Olary is especially appealing for logistical reasons, because it is close to a small population centre, with easy and relatively close access to road and railway. A road maintained by the Outback Trust from Olary passes a few kilometres within EL5609 providing EL5609 with excellent and reliable access.



Plan 1 - Locality map for Olary (EL5609)

3 Location

EL5609 is located on the Olary 1: 250,000 map sheet in the north corner. It is located 15km north and 55km North West of Yunta town and covers 714 square kilometres area which is dominated by sparse saltbush shrubland. Most of the land is open grassland suitable only for low density grazing, with a few patches of mallee. The Bimbowrie Hills run through the centre of the lease and provide relief of over 100 metres in places. Creeks only flow after a heavy rain event. The centre of the tenement is roughly 120 km west of Broken Hill. Access to the tenement is via unpaved roads and station tracks. The road to the Bimbowrie Homestead runs through the middle of the lease.



Plan 2 - Topographic map of the area showing licence boundaries

4 Tenement Details

The table below shows the details of EL 5609 and it was obtained from the South Australian Resource Information Geoserver (SARIG). Thornton Metals Pty Ltd (TM) owns 100% of this tenement EL5609.

Tenement Number	Tenement Label	Tenement Status	Licences	Operators	Location	Tenement Start Date	Tenement Expiry Date	Area (km^2)
5609	EL 5609	Active	Thornton Metals Pty Ltd (100%)	Thornton Metals Pty Ltd	Bindyi area - approx 15km north and 55km NW of Yunta	30/04/2015	29/04/2016	714

5 Geology

EL5609 is located at the eastern end of the Adelaidian Fold-Belt, within the Olary Province. The Olary region comprises Early-Proterozoic metamorphic sediments of the Willyama Supergroup, Mid-Proterozoic granites intruding fault-bounded inliers of the Willyama Supergroup, Neoproterozoic sediments of the Adelaidian Geosyncline, and the Ordovician I-type intrusive bodies.

5.1 The Willyama Supergroup

The Willyama Supergroup, along with the Mid-Proterozoic granites, form fault-bounded inliers, collectively named the Willyama Inliers, within the Adelaidian sediments (Forbes, 1991). Due to the structural complexity of the metasediments in the inliers, and the discontinuous nature of the exposures of older basement, it has been difficult to form a stratigraphic compendium for the Olary Region or to correlate it with the type section at Broken Hill (Forbes, 1991). Laing and Barnes (1986) proposed that the geological setting for the Willyama Supergroup for the Broken Hill – Olary region comprised a shallow-water carbonate shelf to the west and local acid volcanic centres in the Olary region. The central and eastern part of the Broken Hill – Olary region (i.e. Broken Hill – Mutooroo) was the site of a rift with tholeiitic volcanism and local base-metal exhalation (Forbes, 1991).

5.2 The Adelaidian Geosyncline Metasediments

The Adelaidian Geosyncline sediments vary in age from 850 to 570 Ma (Hine, 2002), with the MacDonald Fault forming a sharp contact between these sediments (to the west) and the older Early-Proterozoic metamorphic rocks of the Willyama Supergroup to the East. Within the Olary map sheet there are four distinct groups of the Adelaidian Metasediments. These include, from oldest to youngest, the Callanna, Burra, Umberatana, and Wilpena Groups. The Adelaidian sediments in the area are mostly members of the Lower and Interglacial sequences of the Sturtian Series (Lopes, 1970). The glacial periods were closely followed by widespread deposition of neritic iron formations known as the Braemar ironstone facies (Lopes, 1970), with its origin proposed as an inorganic precipitating agent.

5.3 Structure

Both the older Early-Proterozoic rocks and younger Adelaidian sediments have been deformed to some extent by various different generations of deformation. The deformation varies from the younger sediments to the older basement, with folding more prevalent within the younger sediments and faulting more prevalent within the older basement (Lopes, 1970). The dominant structures in the Olary region are the MacDonald and Outalpa faults, both of which have a similar trend to the Teetulpa fracture zone and a continental-scale Bouger gravity anomaly extending from the west coast of Tasmania to central Australia known as the G2.

Five deformation events (three major, two minor) have been identified for the Willyama Complex and the Adelaidian sediments, with four metamorphic events also identified, corresponding to various deformation events (Berry et al., 1978). D1 to D3 are Lower Proterozoic deformation events associated with basement deformation and a mid-amphibolite facies metamorphism (D1) retrograding to a greenschist facies metamorphism (D2 & D3). D4 and D5 are associated with the Delamerian Orogeny (450 – 500 Ma) and a Barrovian-type upper greenschist facies metamorphism. During D4, reactivation of basement-intersecting faults occurred and continued through D5 (Berry et al., 1978).

Table 1 - Deformation Events

Event	Deformation Description	Metamorphic Facies
D_1	Layer-parallel muscovite-biotite foliation in the Willyama Sediments.	Mid-Amphibolite Facies
D_2	Minor folding phase, resulting in macroscopic open folds and crenulations.	Initial retrogressive greenschist facies
D_3	Macroscopic tight folding & intense development of mesoscopic crenulations & crenulation cleavage. Development of Late D_3 faulting (f_1) prior to Sedimentation.	Retrogressive greenschist facies
f_2 – Block Faulting		
D_4,f_3	Schistosity in cover metasediments, crenulations in the basement. Basement-cover interactions give tight synclines and broad anticlines in the unconformity.	Barovian-type upper greenschist facies
f_4 - Block Faulting		
D_5	Cleavage & schistosity in cover metasediments, crenulations in basement. Open anticline over granodiorite → opposite plunging F_4 synclines in cover.	Barovian-type upper greenschist facies
f_5 – Late Block Faulting		

In Neo-Proterozoic times (before 1,500 million years ago) there was a deep basin (called the Adelaide Geosyncline) stretching north-south fairly centrally within South Australia. The basin also extended out in a north easterly direction across the area of the Nackara Arc.

Over time the basin filled with sediments (known as the Adelaidean Series). Some of the first sediments to be deposited in the basin during the Sturtian Period were ironstone sediments. These were dropped by glaciers (forming tillites), and were precipitated out of glacial melt-waters and seas (forming ferruginous siltstones). Because they were the first deposits they now occur on the rim of the basin in the Braemar Ironstone Formation of the Yudnamutana Sub-Group.

In the PIRSA publication 'Iron Ore in South Australia, Commodity Review 8 it states:

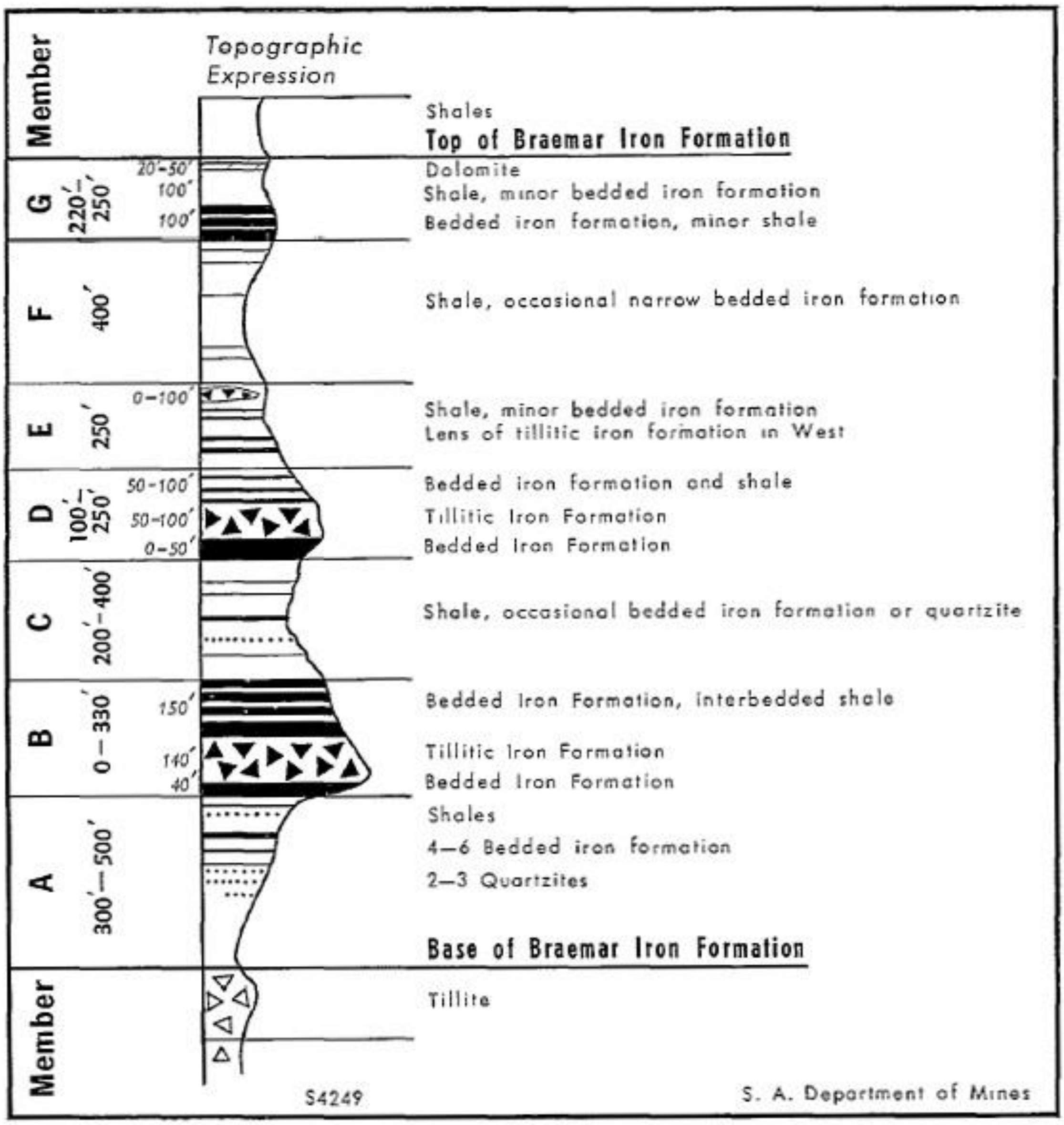
> "The best expression of Neoproterozoic iron-rich rocks is the Braemar Ironstone facies in the Nackara Arc"

In time, the basin became 'squashed' and folding and faulting produced mountains and hills within them. The overall movement of the land mass was to the north-north-west as the continent continued its break away from Antarctica. These movements had greatest effect along the north-south axis of the basin, causing the Mount Lofty and Flinders Ranges to be created. The movements had less effect on the eastern arm of the basin, though two broad folds have occurred within this arm. Their strikes are in the same direction as the basin itself, so that the original structure of the basin's NE arm is still largely preserved. Nevertheless, the same movements caused the basin to be pulled somewhat northward and westward around a more stable part of the crust now known as the Curnamona Province. Another notable feature of the landscape is the large granite mass known as the Anabama Granite. This occurs on the southern boundary of the Nakara Arc basin. Some 400-500 million years ago, during Ordovician times, this granite intruded between the ironstone layers on the rim of the basin, displacing them to either side.

The Braemar formation has been partly drawn into the north-south folding and faulting pattern of the Adelaide Geosyncline, and has no doubt also been influenced with orogenic events in the area like that of the Anabama Granite, so that in places it appears dislocated.

In the 1960s Graham Whitten explored the commerciality of the Braemar Formation at razorback ridge to the north and west of this area and concluded that it was at that time not commercial, though he identified one horizon (Member B) as having the most potential especially in regard to a thick bed of ferruginous siltstone which occurred below the tillite of this member. During the investigation, the South Australian Mines Department sank 3 drill holes and an adit into this part of the formation.

Plan 22 shows the sequence of beds (stratigraphic column) which make up the Braemar Formation in the target region. 7 members were identified (A to G).



Plan 3 - shows the sequence of beds (stratigraphic column) which make up the Braemar Formation in the target region. 7 members were identified (A to G)

The area of interest, the banded iron formations, are considered to be part of the lenticular, ferruginous Braemar ironstone facies which pass into both the Pualco Tillite and the Benda

Siltstone, part of the Neo-proterozoic aged Sturtian glacials. The Holowilena Ironstone of the central Flinders Ranges is considered the unmetamorphosed equivalent of the Braemar ironstone facies.

6 Work Completed April 2015 – April 2016

6.1 Low Impact Exploration Activities

TM conducting processing tests for the samples collected from the creek during the reporting period in an attempt to achieve the followings:

-- Consistent and reliable separation of 60% Fe or better;

-- Recovery performance and yield calculation from the pilot separation plant;

-- Process samples from different locations to see if the Fe content varied;

-- Repetitive tests to increase the yield and or recovery percentage;

-- Repetitive operation of the separation plant to achieve consistent results.

259 samples were collected for processing test.

Although the outcome is not satisfactory, TM is still looking for an alternative and a reliable separation technology.

6.2 Processing test

Low impact samples are collected from creeks in 20 kg plastic bags using infill sampling method. Then samples are weighted and assayed by handheld XRF device four times, in order to measure the FE grade of each sample. The next step is to run the samples through magnetic separating machine and collecting the outputs which are concentrate, middling and tailings. In the next step concentrate is tested by handheld XRF four times to gain an average of its FE grade, moreover, it is weighted, thus mass recovery of iron could be calculated. Furthermore, middling and tailings are weighted, and tested by handheld XRF test respectively once and twice. The outputs of separating machine are kept in different size plastic bags and kept, in case if there were a necessity for further experiments.

6.3 Pre-Magnetic separator

The first stage for processing samples was implemented by scanning the sample with two hand held magnets and then assaying them utilizing an XRF machine. During the early phases the concentrate was assayed only once by XRF machine. At the end information such as Sample ID, GPS coordinate, Fe grade of concentrate alongside of other elements detected in samples are written in an Excel Sheet and it was sent to head office for our archives. Then, the sample was bagged and kept, for further analysis. It is worthy to mention that every concentrate bag is labelled with sample ID, GPS coordinate and Fe grade determined by XRF machine. The below flow chart is a summary of the early stages procedure.

Pre-Magnetic Separator Unit

Separation performed with 2 hand held magnets

Ferrite-Holding pot 88*18mm, 13.5 mm

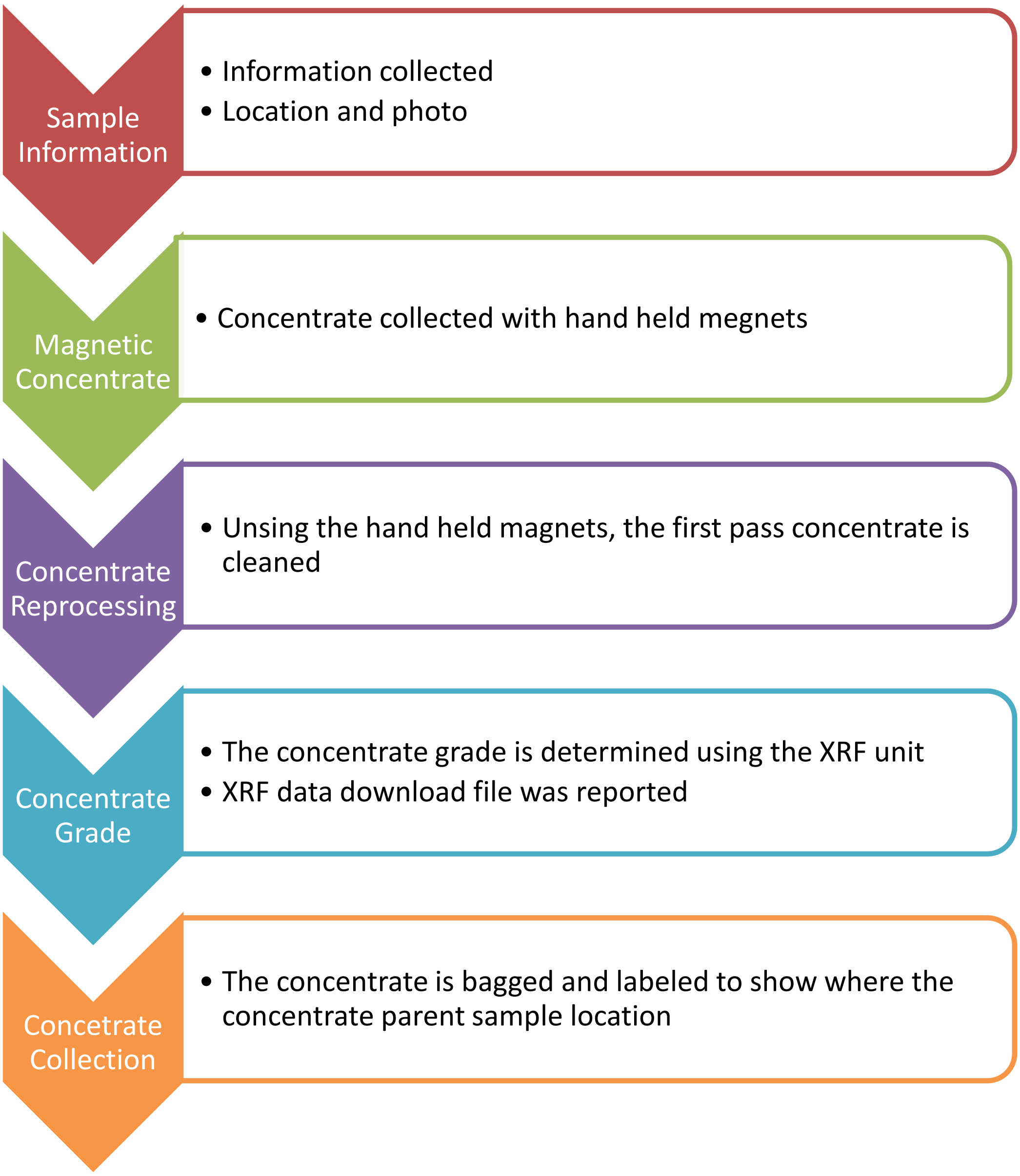
Alnico-Horseshoe 78*54*82mm, 2 holes

Hand held XRF unit

Innov-X system Inc model DPO-2000-CX-A-EN-EN-GC

Assays were conducted on concentrate only

The below flowchart shows the procedure:



6.4 Magnetic Separator

A pilot plant consisting of a magnetic separator was purchased from Eriez Magnetite Pty Ltd. During this stage the Drum was commissioned. This machine specially manufactured by Eriez magnetic had its main function to separate magnetic particles from sand. Firstly, the operator used a 5mm screen to remove unnecessary materials then pours the sand sample in the hopper of the machine; followed by setting specific adjustments. The parameters that can be manipulated on this machine are the drum speed and feeder speed. By changing the velocity the grade and the mass recovery of the concentrate changes. The magnetic strength of the machine however was 1200 Gauss.

Photo 1 - Magnetic Separator

This machine produced three outputs Concentrate, middling and tailings. Based on the project director's directions, different modes were tested and subject to experiment action. These procedures were devised in order to establish a method which could produce the optimum and consistent result. During this stage only one output, concentrate was tested with the XRF machine. Every sample was labelled with an ID and GPS coordination. The concentrate was bagged, labelled with ID, GPS coordination & Fe Grade.

Photo 2 - Concentrate produced by Magnetic Separator

Photo 3 - Tailings produced by magnetic separator

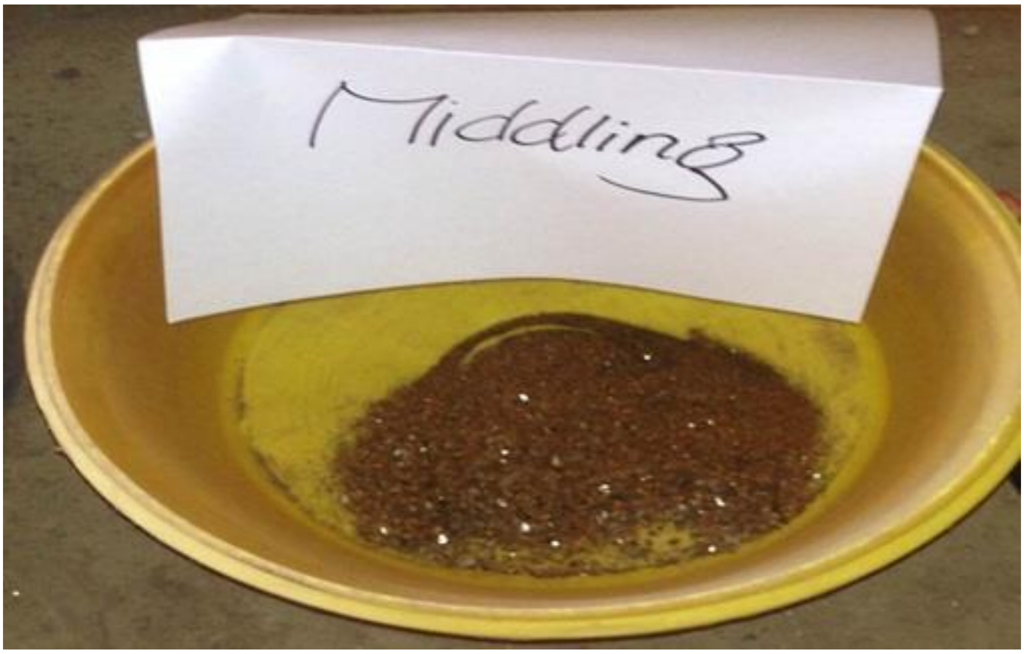
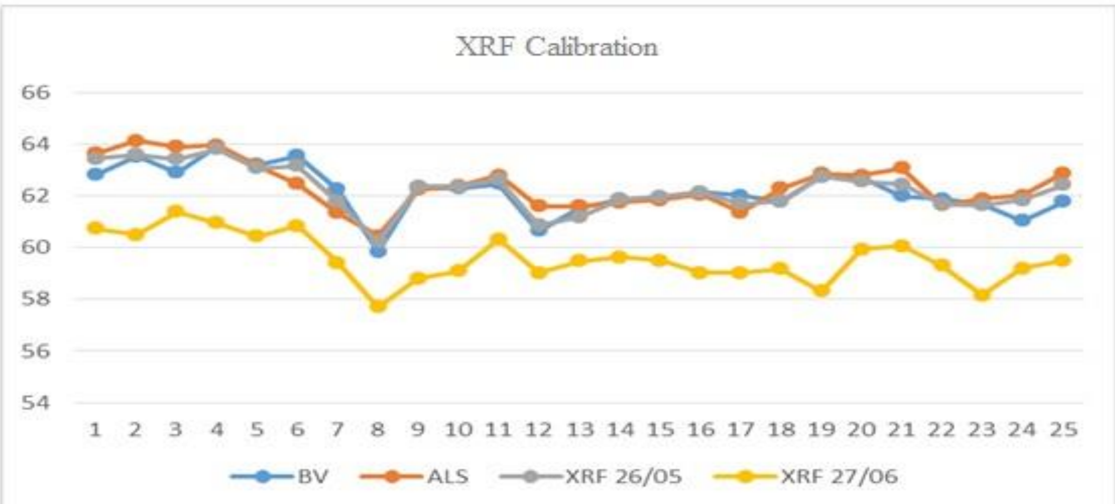


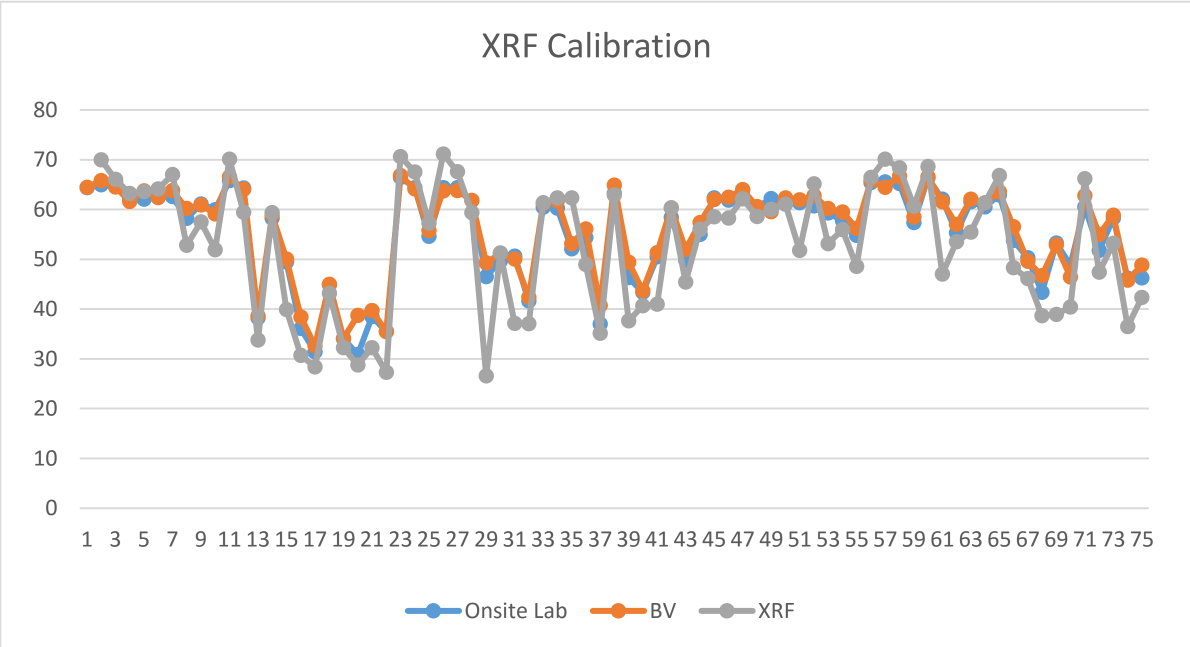
Photo 4 - Middling produce by magnetic separator

6.5 XRF calibration

In order to produce more accurate and precise results, a method was developed to calibrate the XRF machines. This procedure was completed by liaising with specialist supplies Olympus Company including as a site visit by their personal. Every day before processing new samples the XRF machine were calibrated from samples which had been tested by an external lab, then the results were compared to what was achieved by several lab, next step was adjusting the parameters of the XRF machine in a way so the margin of error would be in



the range of ±2%.



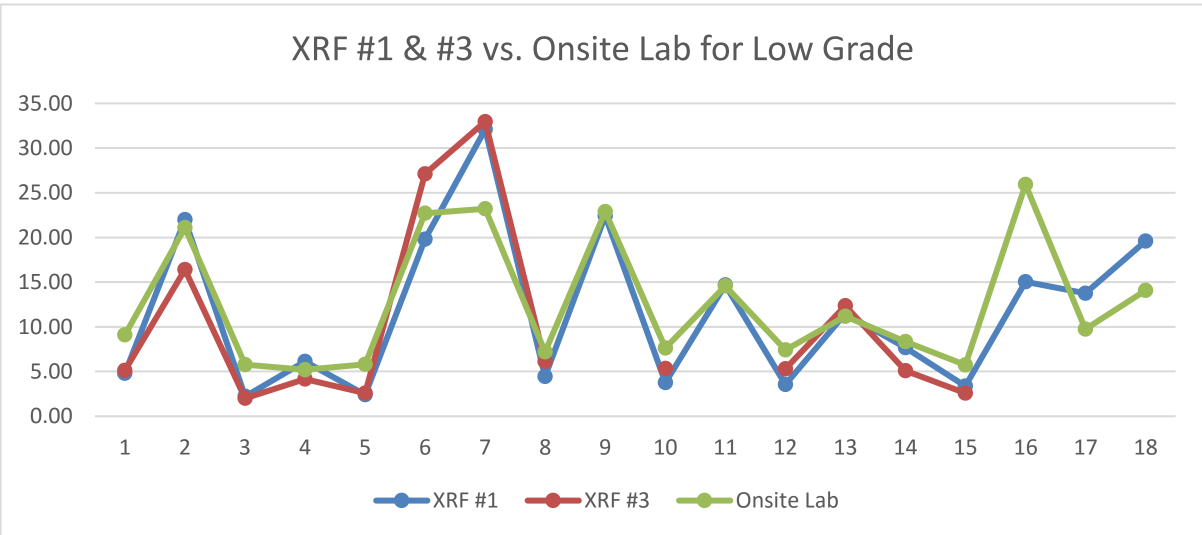
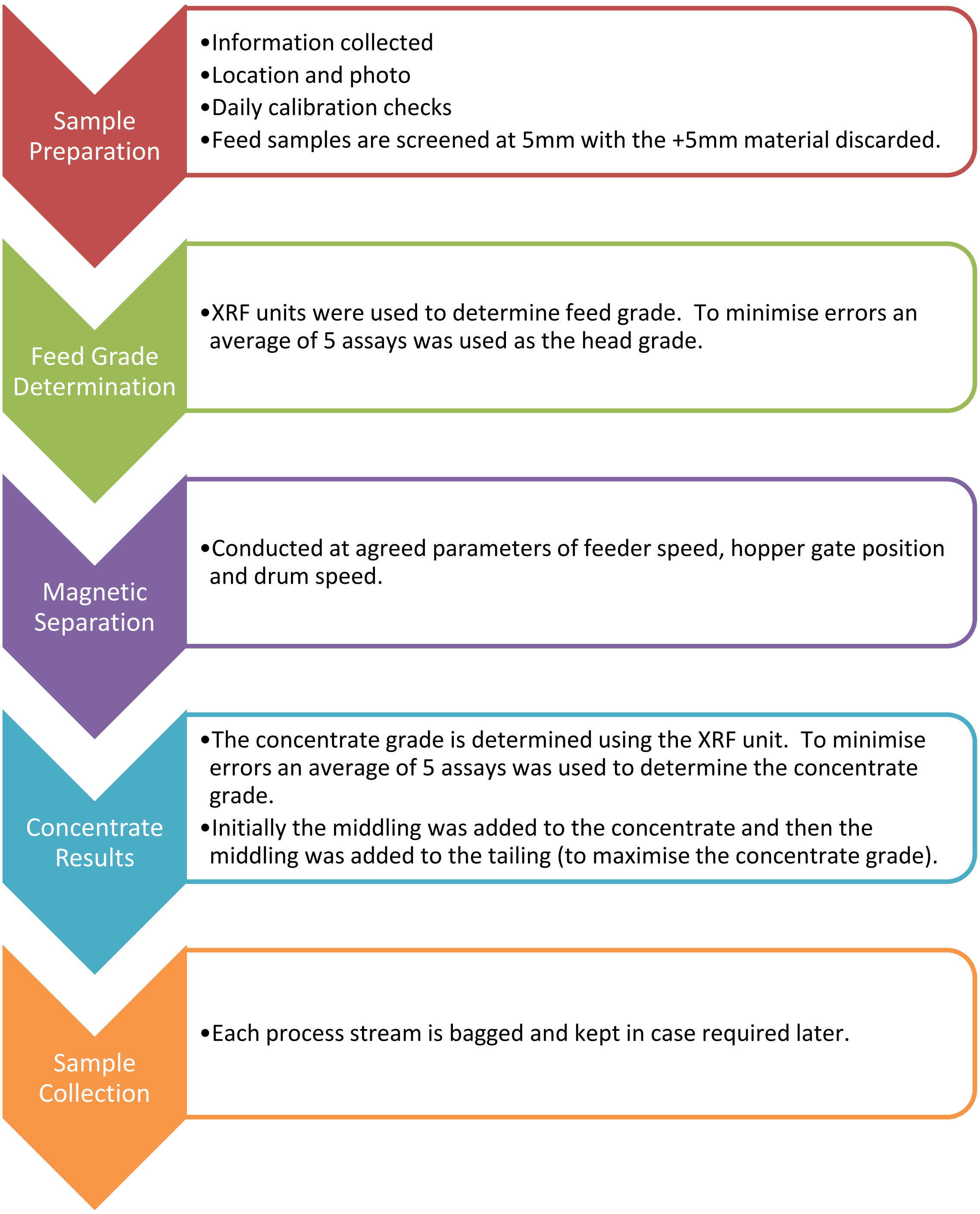


Figure 1 - Margin of error between XRF machine and Lab results

The below flow chart is a summary of the procedure.

1. TM Magnetic Separator
   - Eriez Model DFA25 with a 1200 Ga ceramic magnetic configuration with 914mm drum diameter and 150 mm wide with a 30A vibratory feeder.
   - Innov-X system Inc model DPO-2000-CX-A-EN-EN-GC
   - Whole sample processed (approximately 20 kg)



6.6 Changes to Procedures

In order to improve the results and optimize the production rate of the separating machine, on regular basis there were changes made to the operational procedure. Previously it was decided that every concentrate extracted from samples should be assayed 5 times. This required the purchase of up to 4 more XRF machines. However, after running many tests (5x) it was concluded that 4 tests suffices needed. Further, middling were added to list of assays. Middling are particles which have substantial magnetite elements attached to them (20%-50%) but often included/ a layers as a part of particle which mainly is magnetite. It was

Table 2 – Final Version of the Daily Report

Fe% 1	Fe% 2	Fe% 3	Fe% 4	Fe% 5	Fe% Average	d Deviation	Feeder Speed	Gate Parition	Machine	Drum Speed	Scale 1	Scale 2	Scale 3	Scale 4	ng Time (s)	of Concentrate (kg)	rate%Fe 1	rate%Fe 2	rate%Fe 3	rate%Fe 4	rate%Fe 5	rate %Fe Average	Standard Deviation	of Tailings (kg)	Tailings (calculated)	Recovery	Recovery
2.101	2.601	2.268	1.879	2.789	2.3276	0.66337	200	2	ATG Drum 1200 Gaus	300	22.5	0	90	90	11.54	0.65	43.331	55.459	59.112	56.977	50.891	53.15	5.60426	16.6	0.34%	3.76%	85.80%
2.14	0.864	0.588	0.9	0.926	1.0836	0.58353	200	2	ATG Drum 1200 Gaus	300	22.5	0	90	90	15.81	0.2	36.011	42.702	50.942	49.44	39.647	43.7484	5.6908	24.92	0.76%	0.79%	31.70%
1.327	1.136	0.7	0.749	0.811	0.9446	0.32349	250	2	ATG Drum 1200 Gaus	350	22.5	0	90	90	9.74	0.08	28.828	41.459	42.779	58.806	43.16	43.0064	9.51971	23.77	0.80%	0.34%	15.27%
2.417	2.272	1.868	1.735	2.299	2.1182	0.46329	200	2	ATG Drum 1200 Gaus	200	22.5	0	90	90	15.08	0.52	45.882	37.583	43.308	40.1	41.343	41.6432	2.81765	22.86	1.22%	2.23%	43.78%
1.181	0.983	1.387	3.158	1.134	1.5686	1.67937	250	2	ATG Drum 1200 Gaus	350	22.5	0	90	90	10.64	0.05	44.507	41.697	44.56	36.835	40.07	41.5338	2.90675	23.36	1.50%	0.21%	5.61%
0.653	0.67	0.69	0.796	0.806	0.723	0.11823	250	2	ATG Drum 1200 Gaus	350	22.5	0	90	90	8.81	0.08	38.63	46.549	42.739	41.495	34.591	40.8008	4.01383	31.73	0.62%	0.25%	14.19%
1.399	0.813	1.053	1.505	1.042	1.1624	0.41216	250	2	ATG Drum 1200 Gaus	350	22.5	0	90	90	10.19	0.28	36.229	35.468	36.442	42.274	34.908	37.0642	2.66172	28.24	0.81%	0.98%	31.30%
0.735	0.967	0.838	1.018	0.794	0.8704	0.18266	250	2	ATG Drum 1200 Gaus	350	22.5	0	90	90	9.57	0.12	35.055	43.012	28.885	38.217	32.535	35.5408	4.82807	29.23	0.73%	0.41%	16.63%
0.666	0.968	0.924	0.908	0.944	0.882	0.12523	250	2	ATG Drum 1200 Gaus	350	22.5	0	90	90	8.45	0.11	26.818	35.796	44.685	47.808	20.889	35.1992	10.2406	21.07	0.70%	0.52%	20.83%
0.583	0.814	1.33	0.1825	0.777	0.7373	0.62095	250	2	ATG Drum 1200 Gaus	350	22.5	0	90	90	10.13	0.08	28.109	25.468	40.045	35.945	39.142	33.7418	5.89798	22.1	0.62%	0.36%	16.45%
0.693	0.556	0.612	0.498	0.953	0.6624	0.33828	250	2	ATG Drum 1200 Gaus	350	22.5	0	90	90	9.6	0.08	22.321	33.869	24.547	36.726	38.459	31.1844	6.53378	28.15	0.58%	0.28%	13.33%

decided that middling produced by the separating machine must be assayed but only once.

In July 2014, assaying tailings were considered and added to the daily routine of assessing samples. A new procedure was devised to calculate other parameters which did assist in the process of developing an effective regime for mining separation procedure to be developed.

The below is a summary of the procedures taken into action:

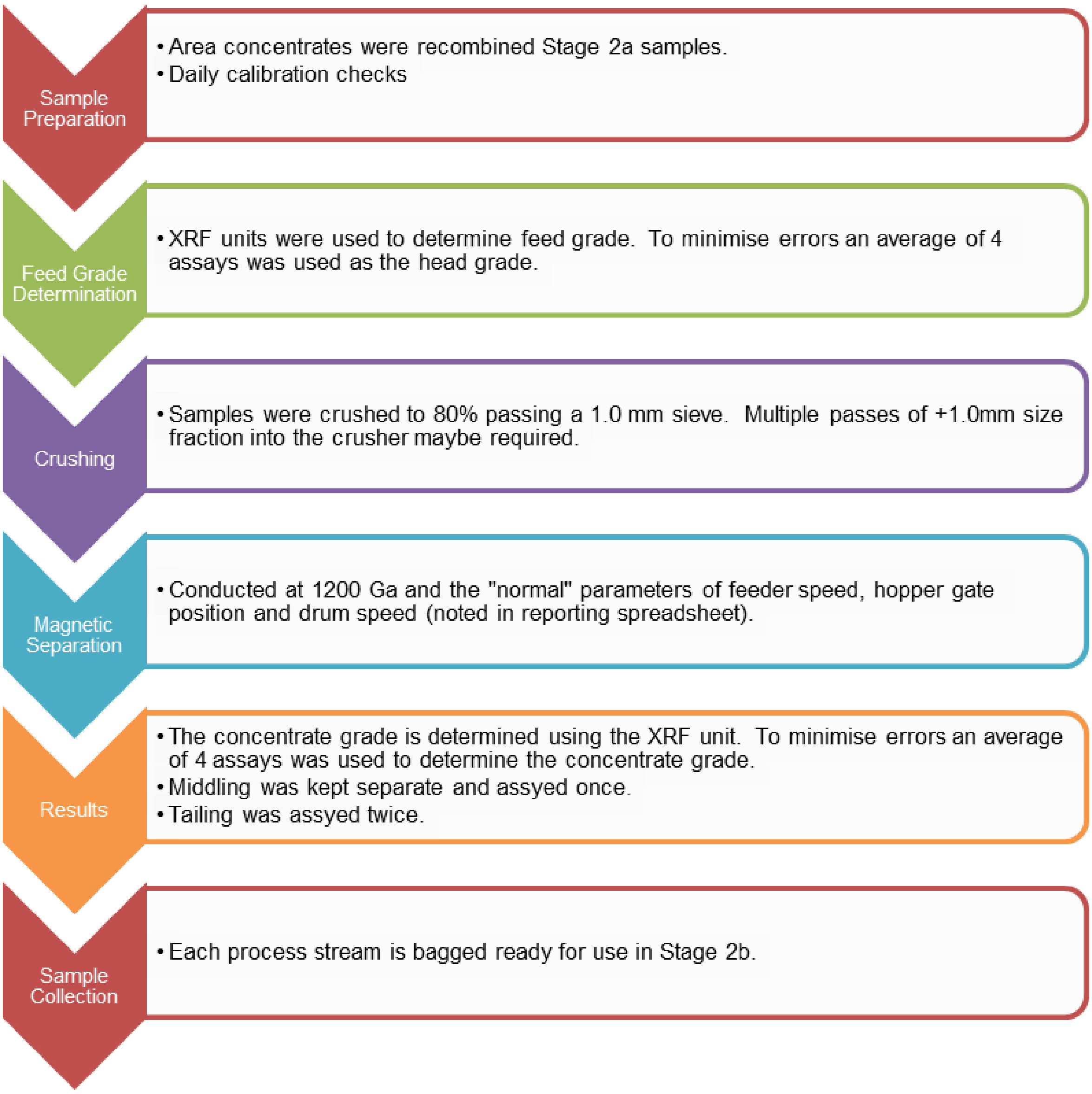
- A single middling grade was undertaken
- Reduced the number of concentrate assay samples to 4. This was done as the XRF analysis was slowest part of the procedure and it was decided to process more samples
- The tailings were assayed twice (and the average was used in mass balance calculations)

6.7 Commercial assessment of the project

In this stage, the commercial feasibility of the project was still under investigation. It was imperative to devise a plan to produce consistently concentrates which is over +62% Fe grade. In order to achieve this objective, a new procedure was created. The new procedures based on our study of the separating machine performance were the purpose of this study. It was concluded that 1200 Ga magnet can produce concentrate generally more than +62% of Fe grade. The reason for that was, the weaker magnet separates samples of higher grade leaving the large primary particle behind.

Later all the concentrates produced by 2500 Ga magnetic mode were combined. Because of the higher magnetic strength it could pull materials which were large primacy rock particle and thus reduced the grade of concentrate. However, when they were processed by 1200 Ga machine. The machine produced the 3 outputs; concentrate middling and tailings. Concentrates were assayed by XRF 4 times did result in +62% average Fe grade. The middling were assayed only once and tailings were tested by XRF two times. After completing processing samples they were bagged and labelled in case required later.

This double process did not result in any significant increase in the overall recovery rate of magnetite fine. It doubled the processing procedure for no tangible benefit.



6.8 Consistent production of high grade concentrate

The most outstanding characteristic of 2500 Ga separating machine was the fact it could produce a significant increase in the mass recovery, however, the grade were halved in many cases which was less than desirable. In order to recover as much Fe from the sand as possible this mode was used in these experiments. According to our procedure after sampling certain regions in Olary (EL5609) and running the sample through the machine we could gain an outstanding amount (20% increased) of mass recovery. The recovered concentrate by using 2500 Ga magnetic separator was collected, assayed and kept. After running 100 samples from the source areas as before and producing a considerable amount of magnetite, they were combined with each other and tested with XRF machine for the last time. For producing a high quality product all the concentrate made by 2500 Ga magnetic separator was again run through by 1200Ga. The concentrate produced by that machine was collected and then tested by the XRF. The samples were bagged labelled and kept in case if they are required later.

6.9 TM Unit processing 100 Kg Sample

In order to provide bulk sample to potential clients, it has decided to produce 100kgs of 62% Fe samples in bulk for determine of how many separating machine might be required in order to produce a rate that could meet the production demand. Samples collected from the same area again were processed for this phase by the TM unit which is a commercial pilot with the following specification:

- 1250 Ga magnetic strength
- 30 A vibrator feeder
- 914mm drum diameter and 150 mm width

The samples are assayed and their head Fe grade was recorded. Then they were placed by the use of 5mm screen, in order to filter any unnecessary material. The samples were poured in the machine. Three outputs were produced tailings, middling and concentrate. The same procedures for testing these outputs were repeated again. 4 times test for the concentrate, 1 time for the middling and 2 times for the tailings.

7 Conclusion & Recommendation

After numerous tests the following problems were apparent

(1) The separation technology was not stable and did not produce repetitive and consistent results

(2) The recovery of magnetite in some area was less than 10% of the potential iron ore contained in the samples

(3) The changes in the iron ore price in late 2014 and the unreliability of the separation technology render the project uneconomical over a large area

(4) The iron ore price needs to increase significantly which is not apparent in the near future.

Appendix 1 Log Sheet

Appendix 2 Sample Feed

Appendix 3 Concentrate

Appendix 4 Tailings

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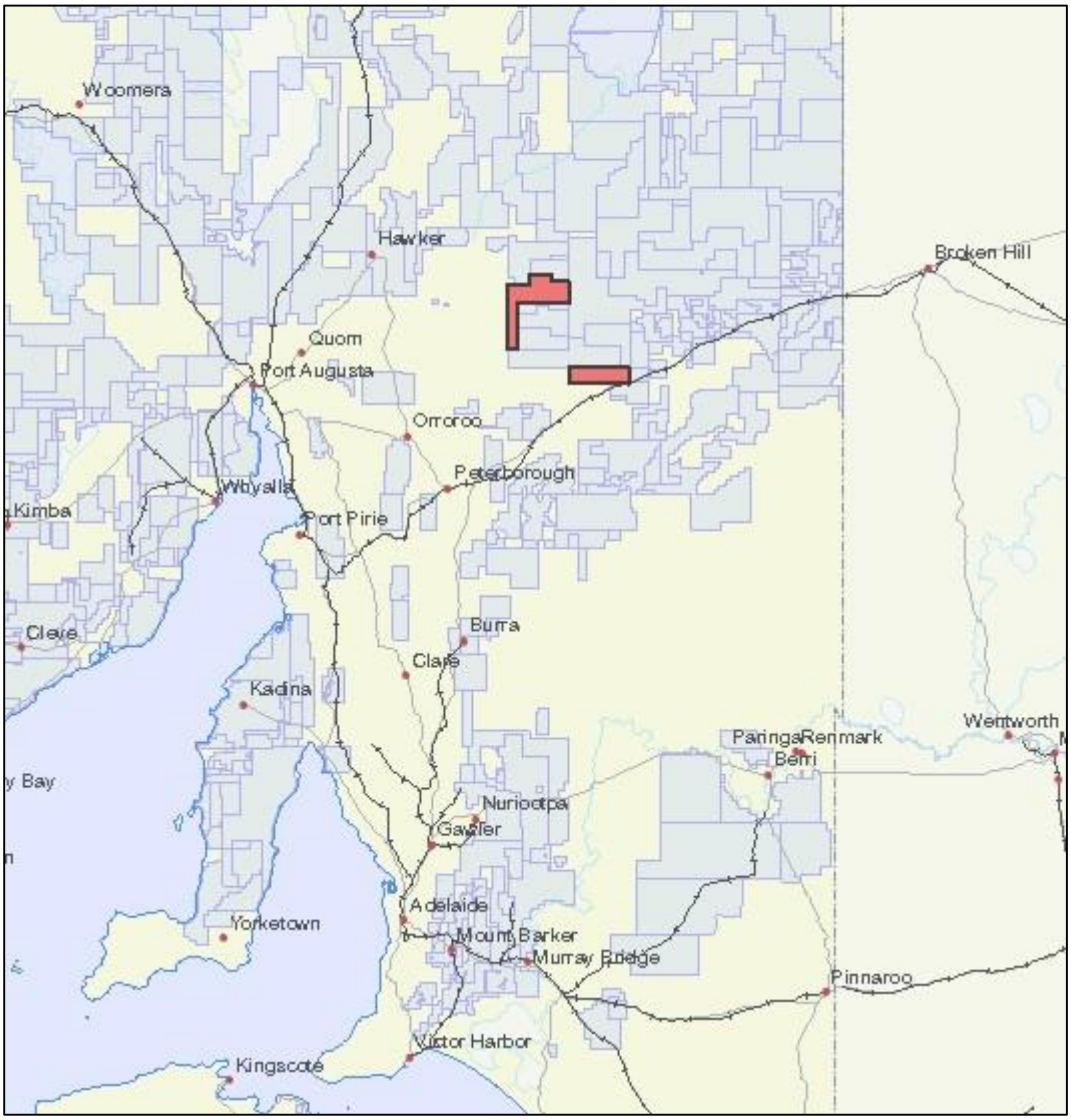
With technological changes taking place in both mining and metallurgy the economics of developing RBR and other project in the Olary region have become much more positive. Also part of the attractiveness of these occurrences is the ability to produce a magnetite concentrate simply.

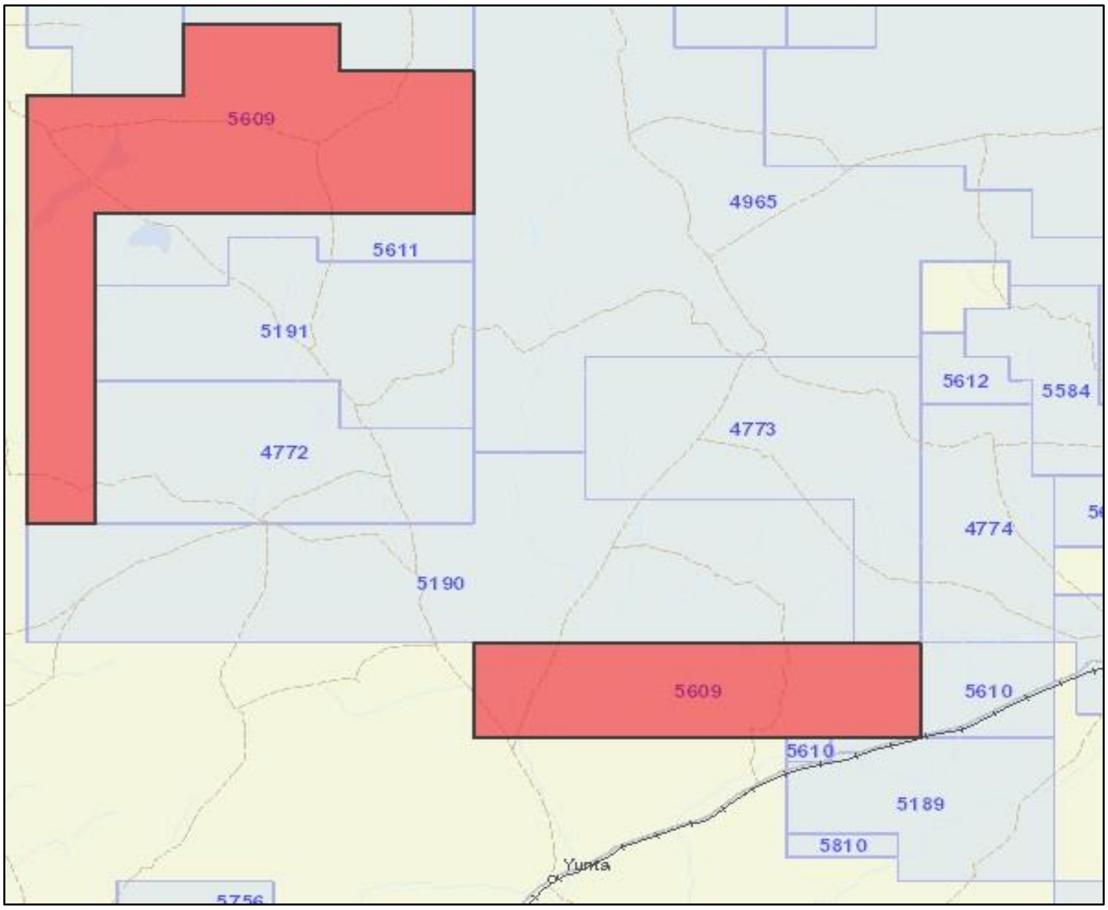
EL5609 lies 15km north and 55km North West of Yunta town, 120 kilometres west of Broken Hill. The location north of Olary is especially appealing for logistical reasons, because it is close to a small population centre, with easy and relatively close access to road and railway. A road maintained by the Outback Trust from Olary passes a few kilometres within EL5609 providing EL5609 with excellent and reliable access.



Plan 1 - Locality map for Olary (EL5609)

3 Location

EL5609 is located on the Olary 1: 250,000 map sheet in the north corner. It is located 15km north and 55km North West of Yunta town and covers 714 square kilometres area which is dominated by sparse saltbush shrubland. Most of the land is open grassland suitable only for low density grazing, with a few patches of mallee. The Bimbowrie Hills run through the centre of the lease and provide relief of over 100 metres in places. Creeks only flow after a heavy rain event. The centre of the tenement is roughly 120 km west of Broken Hill. Access to the tenement is via unpaved roads and station tracks. The road to the Bimbowrie Homestead runs through the middle of the lease.



Plan 2 - Topographic map of the area showing licence boundaries

4 Tenement Details

The table below shows the details of EL 5609 and it was obtained from the South Australian Resource Information Geoserver (SARIG). Thornton Metals Pty Ltd (TM) owns 100% of this tenement EL5609.

Tenement Number	Tenement Label	Tenement Status	Licences	Operators	Location	Tenement Start Date	Tenement Expiry Date	Area (km^2)
5609	EL 5609	Active	Thornton Metals Pty Ltd (100%)	Thornton Metals Pty Ltd	Bindyi area - approx 15km north and 55km NW of Yunta	30/04/2015	29/04/2016	714

5 Geology

EL5609 is located at the eastern end of the Adelaidian Fold-Belt, within the Olary Province. The Olary region comprises Early-Proterozoic metamorphic sediments of the Willyama Supergroup, Mid-Proterozoic granites intruding fault-bounded inliers of the Willyama Supergroup, Neoproterozoic sediments of the Adelaidian Geosyncline, and the Ordovician I-type intrusive bodies.

5.1 The Willyama Supergroup

The Willyama Supergroup, along with the Mid-Proterozoic granites, form fault-bounded inliers, collectively named the Willyama Inliers, within the Adelaidian sediments (Forbes, 1991). Due to the structural complexity of the metasediments in the inliers, and the discontinuous nature of the exposures of older basement, it has been difficult to form a stratigraphic compendium for the Olary Region or to correlate it with the type section at Broken Hill (Forbes, 1991). Laing and Barnes (1986) proposed that the geological setting for the Willyama Supergroup for the

Broken Hill – Olary region comprised a shallow-water carbonate shelf to the west and local acid volcanic centres in the Olary region. The central and eastern part of the Broken Hill – Olary region (i.e. Broken Hill – Mutooroo) was the site of a rift with tholeiitic volcanism and local base-metal exhalation (Forbes, 1991).

5.2 The Adelaidian Geosyncline Metasediments

The Adelaidian Geosyncline sediments vary in age from 850 to 570 Ma (Hine, 2002), with the MacDonald Fault forming a sharp contact between these sediments (to the west) and the older Early-Proterozoic metamorphic rocks of the Willyama Supergroup to the East. Within the Olary map sheet there are four distinct groups of the Adelaidian Metasediments. These include, from oldest to youngest, the Callanna, Burra, Umberatana, and Wilpena Groups. The Adelaidian sediments in the area are mostly members of the Lower and Interglacial sequences of the Sturtian Series (Lopes, 1970). The glacial periods were closely followed by widespread deposition of neritic iron formations known as the Braemar ironstone facies (Lopes, 1970), with its origin proposed as an inorganic precipitating agent.

5.3 Structure

Both the older Early-Proterozoic rocks and younger Adelaidian sediments have been deformed to some extent by various different generations of deformation. The deformation varies from the younger sediments to the older basement, with folding more prevalent within the younger sediments and faulting more prevalent within the older basement (Lopes, 1970). The dominant structures in the Olary region are the MacDonald and Outalpa faults, both of which have a similar trend to the Teetulpa fracture zone and a continental-scale Bouger gravity anomaly extending from the west coast of Tasmania to central Australia known as the G2.

Five deformation events (three major, two minor) have been identified for the Willyama Complex and the Adelaidian sediments, with four metamorphic events also identified, corresponding to various deformation events (Berry et al., 1978). D1 to D3 are Lower Proterozoic deformation events associated with basement deformation and a mid-amphibolite facies metamorphism (D1) retrograding to a greenschist facies metamorphism (D2 & D3). D4 and D5 are associated with the Delamerian Orogeny (450 – 500 Ma) and a Barrovian-type upper greenschist facies metamorphism. During D4, reactivation of basement-intersecting faults occurred and continued through D5 (Berry et al., 1978).

Table 1 - Deformation Events

Event	Deformation Description	Metamorphic Facies
D_1	Layer-parallel muscovite-biotite foliation in the Willyama Sediments.	Mid-Amphibolite Facies
D_2	Minor folding phase, resulting in macroscopic open folds and crenulations.	Initial retrogressive greenschist facies
D_3	Macroscopic tight folding & intense development of mesoscopic crenulations & crenulation cleavage. Development of Late D_3 faulting (f_1) prior to Sedimentation.	Retrogressive greenschist facies
f_2 – Block Faulting		
D_4,f_3	Schistosity in cover metasediments, crenulations in the basement. Basement-cover interactions give tight synclines and broad anticlines in the unconformity.	Barovian-type upper greenschist facies
f_4 - Block Faulting		
D_5	Cleavage & schistosity in cover metasediments, crenulations in basement. Open anticline over granodiorite → opposite plunging F_4 synclines in cover.	Barovian-type upper greenschist facies
f_5 – Late Block Faulting		

In Neo-Proterozoic times (before 1,500 million years ago) there was a deep basin (called the Adelaide Geosyncline) stretching north-south fairly centrally within South Australia. The basin also extended out in a north easterly direction across the area of the Nackara Arc.

Over time the basin filled with sediments (known as the Adelaidean Series). Some of the first sediments to be deposited in the basin during the Sturtian Period were ironstone sediments. These were dropped by glaciers (forming tillites), and were precipitated out of glacial melt-waters and seas (forming ferruginous siltstones). Because they were the first deposits they now occur on the rim of the basin in the Braemar Ironstone Formation of the Yudnamutana Sub-Group.

In the PIRSA publication ‘Iron Ore in South Australia, Commodity Review 8 it states:

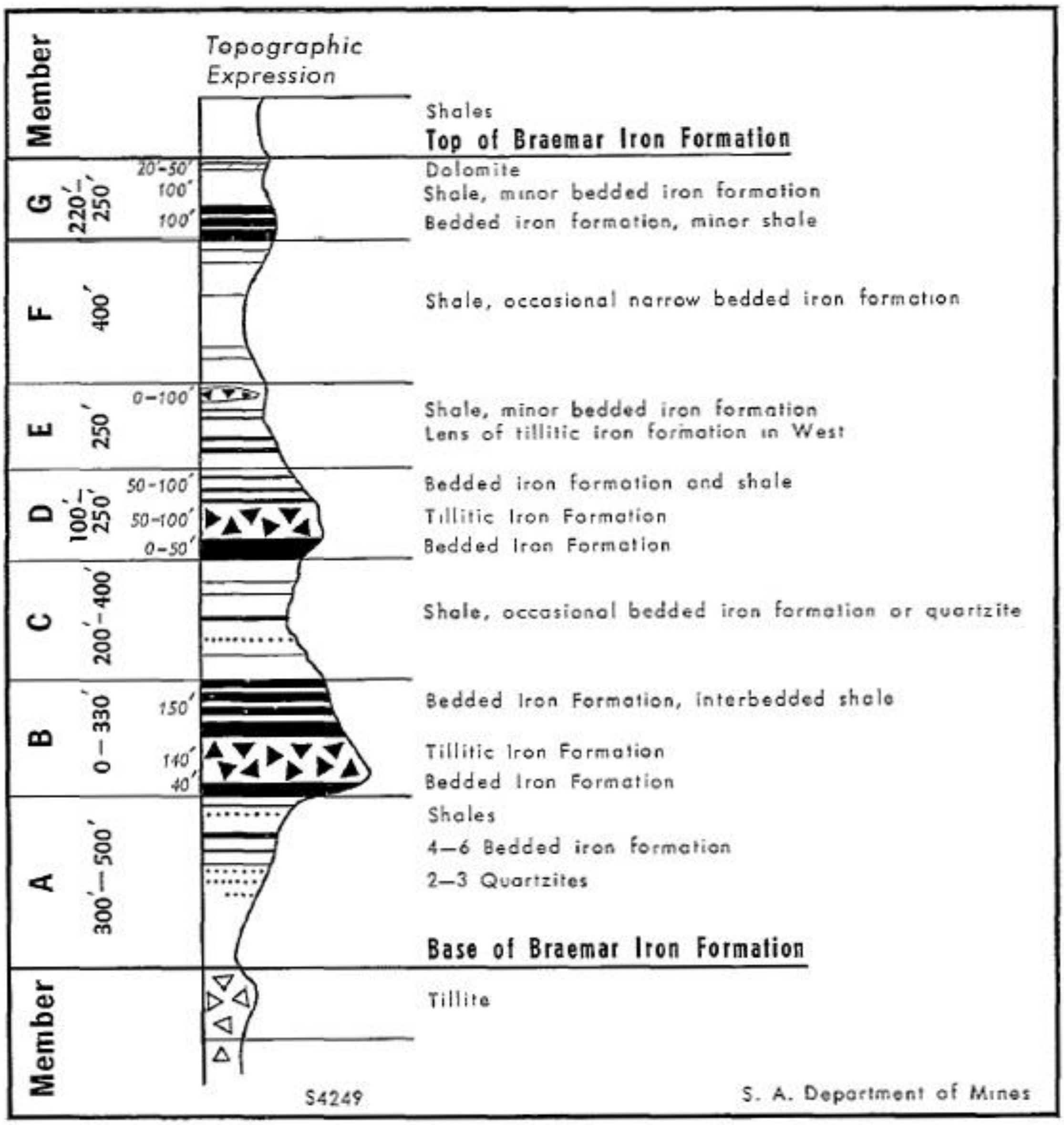
> “The best expression of Neoproterozoic iron-rich rocks is the Braemar
> Ironstone facies in the Nackara Arc”

In time, the basin became ‘squashed’ and folding and faulting produced mountains and hills within them. The overall movement of the land mass was to the north-north-west as the continent continued its break away from Antarctica. These movements had greatest effect along the north-south axis of the basin, causing the Mount Lofty and Flinders Ranges to be created. The movements had less effect on the eastern arm of the basin, though two broad folds have occurred within this arm. Their strikes are in the same direction as the basin itself, so that the original structure of the basin’s NE arm is still largely preserved. Nevertheless, the same movements caused the basin to be pulled somewhat northward and westward around a more stable part of the crust now known as the Curnamona Province. Another notable feature of the landscape is the large granite mass known as the Anabama Granite. This occurs on the southern boundary of the Nakara Arc basin. Some 400-500 million years ago, during Ordovician times, this granite intruded between the ironstone layers on the rim of the basin, displacing them to either side.

The Braemar formation has been partly drawn into the north-south folding and faulting pattern of the Adelaide Geosyncline, and has no doubt also been influenced with orogenic events in the area like that of the Anabama Granite, so that in places it appears dislocated.

In the 1960s Graham Whitten explored the commerciality of the Braemar Formation at razorback ridge to the north and west of this area and concluded that it was at that time not commercial, though he identified one horizon (Member B) as having the most potential especially in regard to a thick bed of ferruginous siltstone which occurred below the tillite of this member. During the investigation, the South Australian Mines Department sank 3 drill holes and an adit into this part of the formation.

Plan 22 shows the sequence of beds (stratigraphic column) which make up the Braemar Formation in the target region. 7 members were identified (A to G).



Plan 3 - shows the sequence of beds (stratigraphic column) which make up the Braemar Formation in the target region. 7 members were identified (A to G)

The area of interest, the banded iron formations, are considered to be part of the lenticular, ferruginous Braemar ironstone facies which pass into both the Pualco Tillite and the Benda

Siltstone, part of the Neo-proterozoic aged Sturtian glacials. The Holowilena Ironstone of the central Flinders Ranges is considered the unmetamorphosed equivalent of the Braemar ironstone facies.

6 Work Completed April 2015 – April 2016

6.1 Low Impact Exploration Activities

TM conducting processing tests for the samples collected from the creek during the reporting period in an attempt to achieve the followings:

-- Consistent and reliable separation of 60% Fe or better;

-- Recovery performance and yield calculation from the pilot separation plant;

-- Process samples from different locations to see if the Fe content varied;

-- Repetitive tests to increase the yield and or recovery percentage;

-- Repetitive operation of the separation plant to achieve consistent results.

259 samples were collected for processing test.

Although the outcome is not satisfactory, TM is still looking for an alternative and a reliable separation technology.

6.2 Processing test

Low impact samples are collected from creeks in 20 kg plastic bags using infill sampling method. Then samples are weighted and assayed by handheld XRF device four times, in order to measure the FE grade of each sample. The next step is to run the samples through magnetic separating machine and collecting the outputs which are concentrate, middling and tailings. In the next step concentrate is tested by handheld XRF four times to gain an average of its FE grade, moreover, it is weighted, thus mass recovery of iron could be calculated. Furthermore, middling and tailings are weighted, and tested by handheld XRF test respectively once and twice. The outputs of separating machine are kept in different size plastic bags and kept, in case if there were a necessity for further experiments.

6.3 Pre-Magnetic separator

The first stage for processing samples was implemented by scanning the sample with two hand held magnets and then assaying them utilizing an XRF machine. During the early phases the concentrate was assayed only once by XRF machine. At the end information such as Sample ID, GPS coordinate, Fe grade of concentrate alongside of other elements detected in samples are written in an Excel Sheet and it was sent to head office for our archives. Then, the sample was bagged and kept, for further analysis. It is worthy to mention that every concentrate bag is labelled with sample ID, GPS coordinate and Fe grade determined by XRF machine. The below flow chart is a summary of the early stages procedure.

Pre-Magnetic Separator Unit

Separation performed with 2 hand held magnets

Ferrite-Holding pot 88*18mm, 13.5 mm

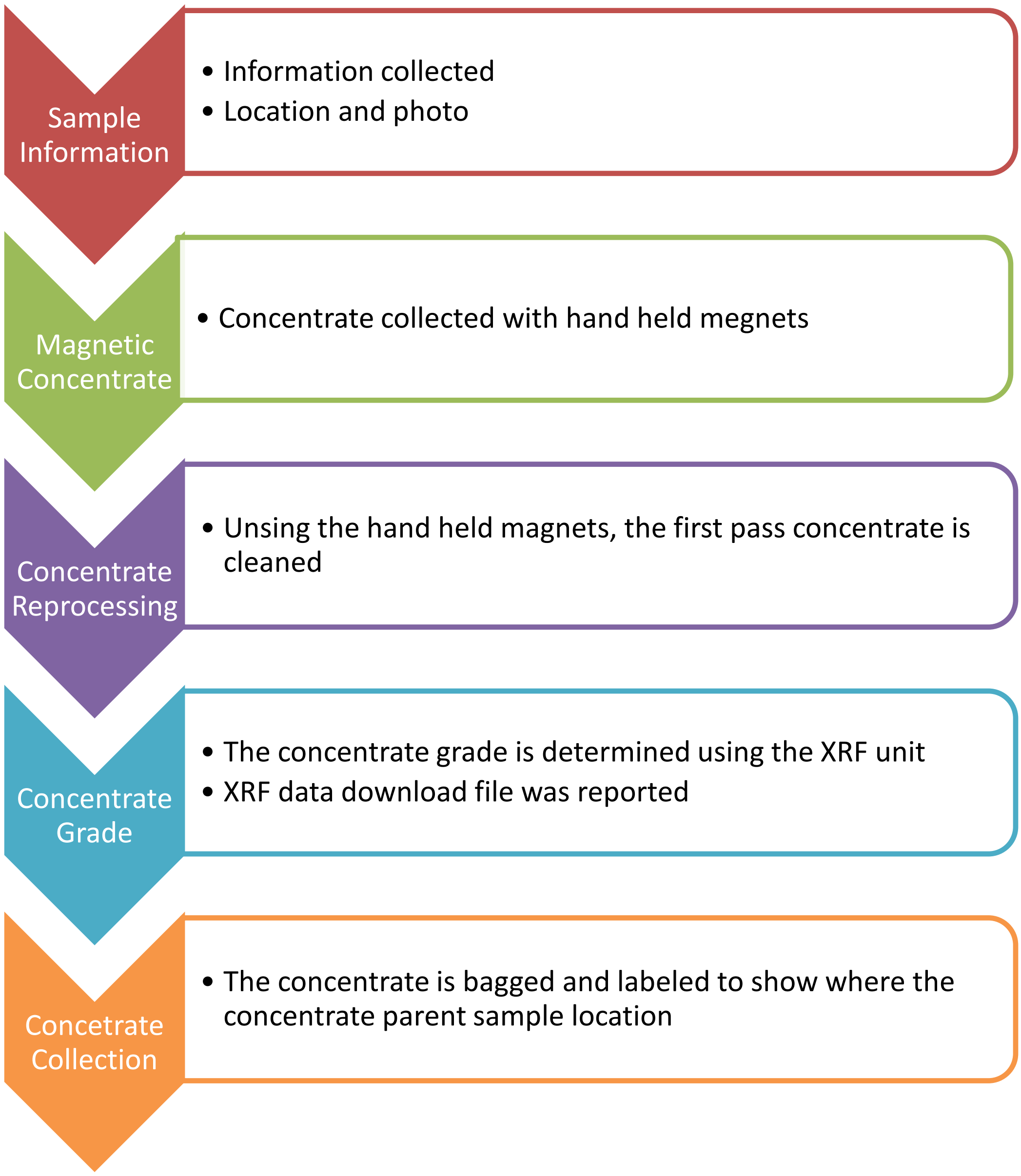
Alnico-Horseshoe 78*54*82mm, 2 holes

Hand held XRF unit

Innov-X system Inc model DPO-2000-CX-A-EN-EN-GC

Assays were conducted on concentrate only

The below flowchart shows the procedure:



6.4 Magnetic Separator

A pilot plant consisting of a magnetic separator was purchased from Eriez Magnetite Pty Ltd. During this stage the Drum was commissioned. This machine specially manufactured by Eriez magnetic had its main function to separate magnetic particles from sand. Firstly, the operator used a 5mm screen to remove unnecessary materials then pours the sand sample in the hopper of the machine; followed by setting specific adjustments. The parameters that can be manipulated on this machine are the drum speed and feeder speed. By changing the velocity the grade and the mass recovery of the concentrate changes. The magnetic strength of the machine however was 1200 Gauss.

Photo 1 - Magnetic Separator

This machine produced three outputs Concentrate, middling and tailings. Based on the project director's directions, different modes were tested and subject to experiment action. These procedures were devised in order to establish a method which could produce the optimum and consistent result. During this stage only one output, concentrate was tested with the XRF machine. Every sample was labelled with an ID and GPS coordination. The concentrate was bagged, labelled with ID, GPS coordination & Fe Grade.

Photo 2 - Concentrate produced by Magnetic Separator

Photo 3 - Tailings produced by magnetic separator

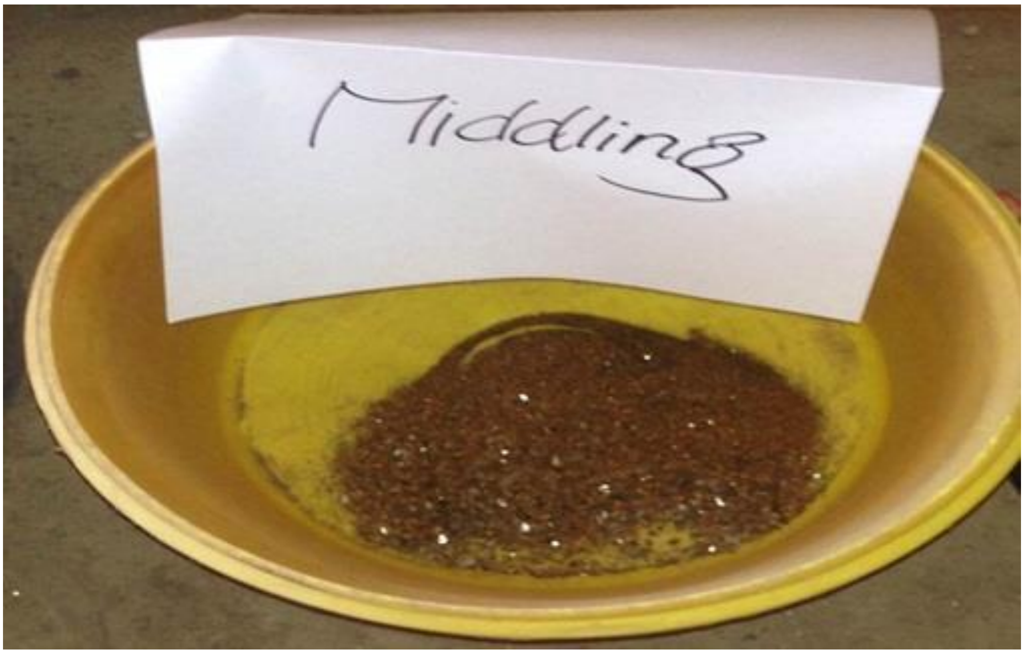
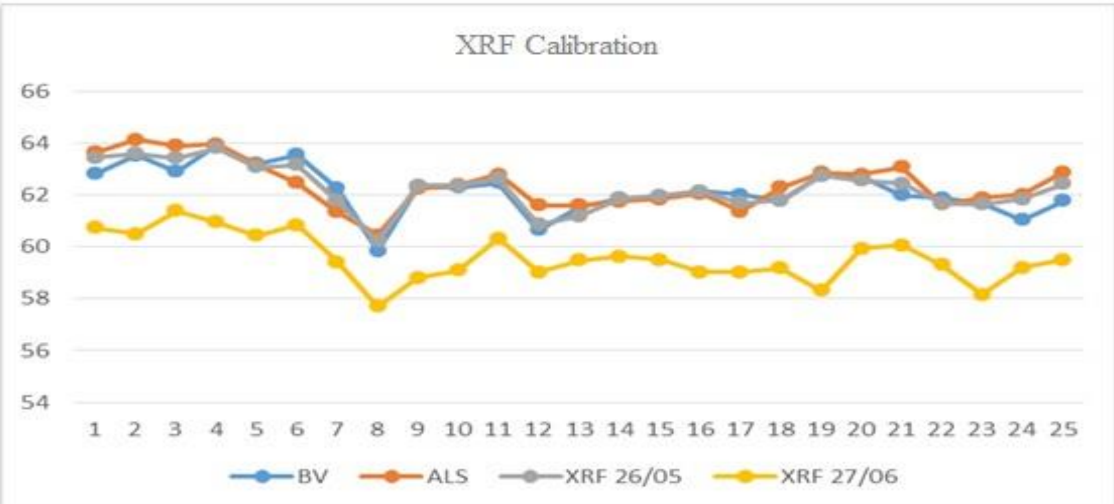


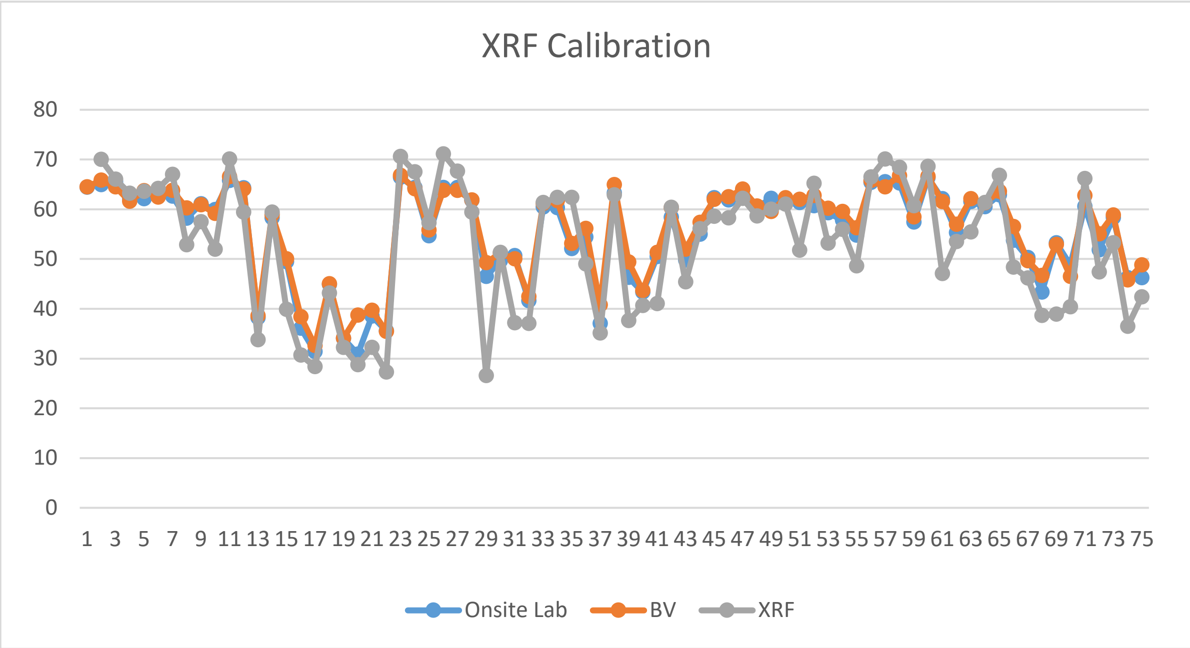
Photo 4 - Middling produce by magnetic separator

6.5

XRF calibration

In order to produce more accurate and precise results, a method was developed to calibrate the XRF machines. This procedure was completed by liaising with specialist supplies Olympus Company including as a site visit by their personal. Every day before processing new samples the XRF machine were calibrated from samples which had been tested by an external lab, then the results were compared to what was achieved by several lab, next step was adjusting the parameters of the XRF machine in a way so the margin of error would be in the range of ±2%.





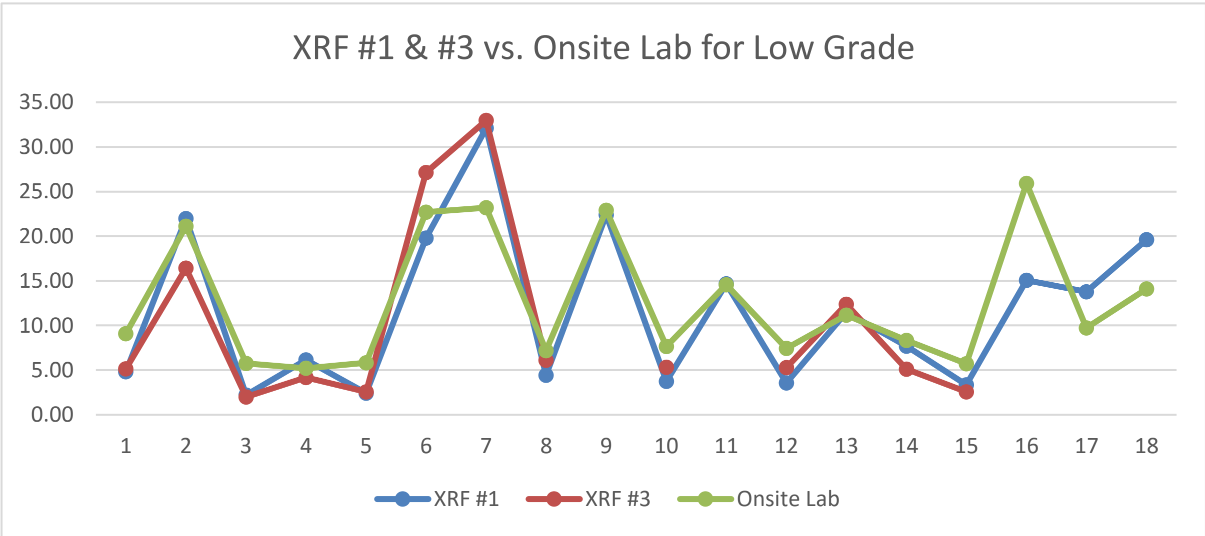


Figure 1 - Margin of error between XRF machine and Lab results

The below flow chart is a summary of the procedure.

1. TM Magnetic Separator
    - Eriez Model DFA25 with a 1200 Ga ceramic magnetic configuration with 914mm drum diameter and 150 mm wide with a 30A vibratory feeder.
    - Innov-X system Inc model DPO-2000-CX-A-EN-EN-GC

- Whole sample processed (approximately 20 kg)

Sample Preparation

- Information collected
- Location and photo
- Daily calibration checks
- Feed samples are screened at 5mm with the +5mm material discarded.

Feed Grade Determination

- XRF units were used to determine feed grade. To minimise errors an average of 5 assays was used as the head grade.

Magnetic Separation

- Conducted at agreed parameters of feeder speed, hopper gate position and drum speed.

Concentrate Results

- The concentrate grade is determined using the XRF unit. To minimise errors an average of 5 assays was used to determine the concentrate grade.
- Initially the middling was added to the concentrate and then the middling was added to the tailing (to maximise the concentrate grade).

Sample Collection

- Each process stream is bagged and kept in case required later.

6.6 Changes to Procedures

In order to improve the results and optimize the production rate of the separating machine, on regular basis there were changes made to the operational procedure. Previously it was decided that every concentrate extracted from samples should be assayed 5 times. This required the purchase of up to 4 more XRF machines. However, after running many tests (5x) it was concluded that 4 tests suffices needed. Further, middling were added to list of assays. Middling are particles which have substantial magnetite elements attached to them (20%-50%) but often

Table 2 – Final Version of the Daily Report

Fe% 1	Fe% 2	Fe% 3	Fe% 4	Fe% 5	Fe% Average	d Deviation	Feeder Speed	Gate Partition	Machine	Drum Speed	Scale 1	Scale 2	Scale 3	Scale 4	ng Time (s)	of Concentrate (kg)	rate%Fe 1	rate%Fe 2	rate%Fe 3	rate%Fe 4	rate%Fe 5	rate %Fe Average	Standard Deviation	of Tailings (kg)	Tailings (calculated)	Recovery	Recovery
2.101	2.601	2.268	1.879	2.789	2.3276	0.66337	200	2	ATG Drum 1200 Gauss	300	22.5	0	90	90	11.54	0.65	43.331	55.459	59.112	56.977	50.891	53.15	5.60426	16.6	0.34%	3.76%	85.80%
2.14	0.864	0.588	0.9	0.926	1.0836	0.58353	200	2	ATG Drum 1200 Gauss	300	22.5	0	90	90	15.81	0.2	36.011	42.702	50.942	49.44	39.647	43.7484	5.6908	24.92	0.76%	0.79%	31.70%
1.327	1.136	0.7	0.749	0.811	0.9446	0.32349	250	2	ATG Drum 1200 Gauss	350	22.5	0	90	90	9.74	0.08	28.828	41.459	42.779	58.806	43.16	43.0064	9.51971	23.77	0.80%	0.34%	15.27%
2.417	2.272	1.868	1.735	2.299	2.1182	0.46329	200	2	ATG Drum 1200 Gauss	200	22.5	0	90	90	15.08	0.52	45.882	37.583	43.308	40.1	41.343	41.6432	2.81765	22.86	1.22%	2.23%	43.78%
1.181	0.983	1.387	3.158	1.134	1.5686	1.67937	250	2	ATG Drum 1200 Gauss	350	22.5	0	90	90	10.64	0.05	44.507	41.697	44.56	36.835	40.07	41.5338	2.90675	23.36	1.50%	0.21%	5.61%
0.653	0.67	0.69	0.796	0.806	0.723	0.11823	250	2	ATG Drum 1200 Gauss	350	22.5	0	90	90	8.81	0.08	38.63	46.549	42.739	41.495	34.591	40.8008	4.01383	31.73	0.62%	0.25%	14.19%
1.399	0.813	1.053	1.505	1.042	1.1624	0.41216	250	2	ATG Drum 1200 Gauss	350	22.5	0	90	90	10.19	0.28	36.229	35.468	36.442	42.274	34.908	37.0642	2.66172	28.24	0.81%	0.98%	31.30%
0.735	0.967	0.838	1.018	0.794	0.8704	0.18266	250	2	ATG Drum 1200 Gauss	350	22.5	0	90	90	9.57	0.12	35.055	43.012	28.885	38.217	32.535	35.5408	4.82807	29.23	0.73%	0.41%	16.63%
0.666	0.968	0.924	0.908	0.944	0.882	0.12523	250	2	ATG Drum 1200 Gauss	350	22.5	0	90	90	8.45	0.11	26.818	35.796	44.685	47.808	20.889	35.1992	10.2406	21.07	0.70%	0.52%	20.83%
0.583	0.814	1.33	0.1825	0.777	0.7373	0.62095	250	2	ATG Drum 1200 Gauss	350	22.5	0	90	90	10.13	0.08	28.109	25.468	40.045	35.945	39.142	33.7418	5.89798	22.1	0.62%	0.36%	16.45%
0.693	0.556	0.612	0.498	0.953	0.6624	0.33828	250	2	ATG Drum 1200 Gauss	350	22.5	0	90	90	9.6	0.08	22.321	33.869	24.547	36.726	38.459	31.1844	6.53378	28.15	0.58%	0.28%	13.33%

included/ a layers as a part of particle which mainly is magnetite. It was decided that middling produced by the separating machine must be assayed but only once.

In July 2014, assaying tailings were considered and added to the daily routine of assessing samples. A new procedure was devised to calculate other parameters which did assist in the process of developing an effective regime for mining separation procedure to be developed. The below is a summary of the procedures taken into action:

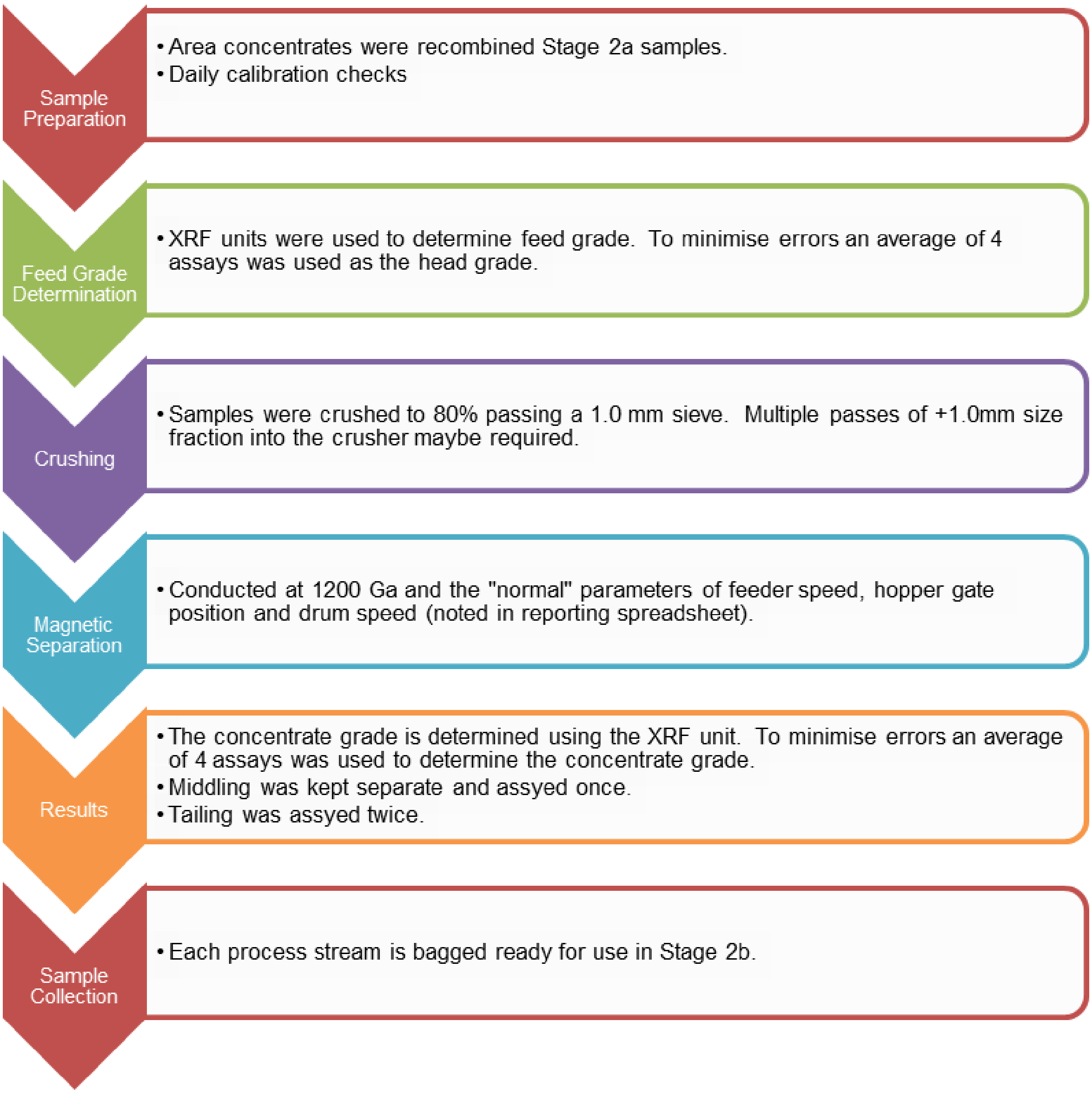
- A single middling grade was undertaken
- Reduced the number of concentrate assay samples to 4. This was done as the XRF analysis was slowest part of the procedure and it was decided to process more samples
- The tailings were assayed twice (and the average was used in mass balance calculations)

6.7 Commercial assessment of the project

In this stage, the commercial feasibility of the project was still under investigation. It was imperative to devise a plan to produce consistently concentrates which is over +62% Fe grade. In order to achieve this objective, a new procedure was created. The new procedures based on our study of the separating machine performance were the purpose of this study. It was concluded that 1200 Ga magnet can produce concentrate generally more than +62% of Fe grade. The reason for that was, the weaker magnet separates samples of higher grade leaving the large primary particle behind.

Later all the concentrates produced by 2500 Ga magnetic mode were combined. Because of the higher magnetic strength it could pull materials which were large primacy rock particle and thus reduced the grade of concentrate. However, when they were processed by 1200 Ga machine. The machine produced the 3 outputs; concentrate middling and tailings. Concentrates were assayed by XRF 4 times did result in +62% average Fe grade. The middling were assayed only once and tailings were tested by XRF two times. After completing processing samples they were bagged and labelled in case required later.

This double process did not result in any significant increase in the overall recovery rate of magnetite fine. It doubled the processing procedure for no tangible benefit.



6.8 Consistent production of high grade concentrate

The most outstanding characteristic of 2500 Ga separating machine was the fact it could produce a significant increase in the mass recovery, however, the grade were halved in many cases which was less than desirable. In order to recover as much Fe from the sand as possible this mode was used in these experiments. According to our procedure after sampling certain regions in Olary (EL5609) and running the sample through the machine we could gain an outstanding amount (20% increased) of mass recovery. The recovered concentrate by using

2500 Ga magnetic separator was collected, assayed and kept. After running 100 samples from the source areas as before and producing a considerable amount of magnetite, they were combined with each other and tested with XRF machine for the last time. For producing a high quality product all the concentrate made by 2500 Ga magnetic separator was again run through by 1200Ga. The concentrate produced by that machine was collected and then tested by the XRF. The samples were bagged labelled and kept in case if they are required later.

6.9 TM Unit processing 100 Kg Sample

In order to provide bulk sample to potential clients, it has decided to produce 100kgs of 62% Fe samples in bulk for determine of how many separating machine might be required in order to produce a rate that could meet the production demand. Samples collected from the same area again were processed for this phase by the TM unit which is a commercial pilot with the following specification:

- 1250 Ga magnetic strength
- 30 A vibrator feeder
- 914mm drum diameter and 150 mm width

The samples are assayed and their head Fe grade was recorded. Then they were placed by the use of 5mm screen, in order to filter any unnecessary material. The samples were poured in the machine. Three outputs were produced tailings, middling and concentrate. The same procedures for testing these outputs were repeated again. 4 times test for the concentrate, 1 time for the middling and 2 times for the tailings.

7 Work Completed April 2016 to April 2017 - Solar Sonic Methodology

ATG and its related companies engaged Solar Sonic to conduct a Geoscan satellite scan of South Australia for selected minerals in 2017 (SA Geoscan).

7.1 Solar Scan Technology Description

PROCESS OF SCAN VIA SATELLITE

For nearly three decades, our team has and is constantly performing research and development in this field of scanning utilizing light energy and its frequencies. What we utilize in the light frequency in our daily visual lives is only 3% of the electromagnetic spectrum. When your doctor orders an X-ray, this is a part of the electromagnetic spectrum capable of penetrating solid non-dense objects thus allowing one to see what is below the surface in great detail. Our scan laboratory utilizes the same principals but at a quantum level and manipulated frequencies.

Our team is a team of 67 quantum physicists capable of disseminating and manipulating higher frequency energetic light particles; hence, we are able to achieve multi-dimensional frequencies of light energy enhanced energetically for extreme deep penetration into the earth with reflection of energy of all that the wave energy comes in contact with.

The wave form utilized in the last decade was a retrofitted carrier wave of microwave frequencies utilizing our nuclear imaging technology. Today, we utilize a better and with more clarity electromagnetic pulse energy. Indeed, we utilize different technologies developed in our laboratories making the scanning process a true Solar Sonic system. We utilize our microwave frequencies multi- dimensionally enhanced, retrofitted signals using our frequency array technology and again multi- dimensionally enhanced, and nuclear imaging technology utilizing microwave frequencies. The actual methods of frequency manipulation or retrofitting is quite proprietary.

HOW THE SYSTEM WORKS AND HOW WE ACHIEVE RESULTS

A portion of the MAPS (Mass Area Pre-Scan Services) process involves zooming in on a site with all the three technologies explained above, we acquire from satellite imagery, aerial photography, and other GIS information zoomed to a low altitude.

We are able to identify distinct areas providing exact location of the natural resource being sought. The results are then recorded and delineated by our scientists. The pinpointed resource zones are then marked, compiled and digitally profiled providing a significant competitive edge in the field of Natural Resource Exploration. The satellite scanning and imaging technology, along with the scientists can pinpoint oil, gas, precious metals and mineral reserves with accuracy. We do this remotely without setting foot on the land in question.

Our scientific team has the capabilities to scan large portions of continents with non-stop and continuous satellite zooming via highly sophisticated Global Remote Scanning with high precision utilizing electromagnetic pulse infrasonic technology, while also utilizing the following capabilities:

(1) Solar Sonic Frequency and Infrasonic signal integration

(2) Customized Solar Sonic signals, Waves, beams and rays

(3) Electromagnetic radiating beams/rays from higher altitudes

(4) Molecular identification beams with much higher precision

(5) Molecular laser capabilities with more calculated precision

(6) Advanced molecular imaging and sensing technology

(7) Advanced molecular / Solar Sonic nuclear imaging capabilities

(8) Multi-wave penetration capabilities with highly calculated precision

(9) Geo-Magnetic penetration and modification capabilities

(10) Nuclear penetration capabilities of zero gravity dimensionalities

(11) Advanced radio waves and signal penetration capabilities

(12) Advanced seismic waves and infrared signature capabilities

(13) Atomic visual stimulation capabilities with highly calculated precision

(14) Electron scanning capabilities with highly calculated precision

(15) Solar Sonic global positioning systems with multidimensional imaging

(16) Advanced electronic linkage capabilities with multidimensional imaging

(17) Advanced nuclear imaging capabilities of underwater and underground

(18) Molecular Metric beams for element dimensionalities and assessment

(19) High altitude nuclear imaging of homogenous elements

(20) Sub-atomic variation sensor of Terrestrial Magnetism

(21) Sub-atomic imager of nuclear positioning dimensions

(22) High altitude nuclear topographic imager / marker

(23) High altitude nuclear volcanic imager of infrared signatures

(24) High altitude nuclear Seismic sensor of seismic signatures

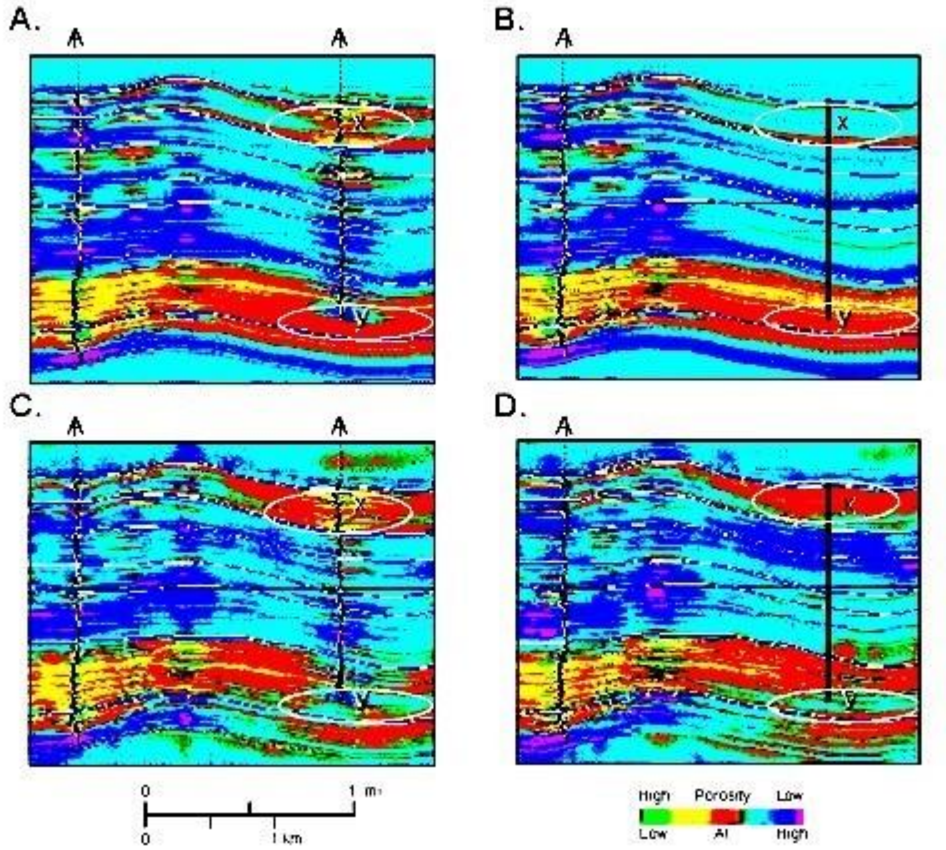
(25) High altitude nuclear sensor of sub-terrain radioactivity

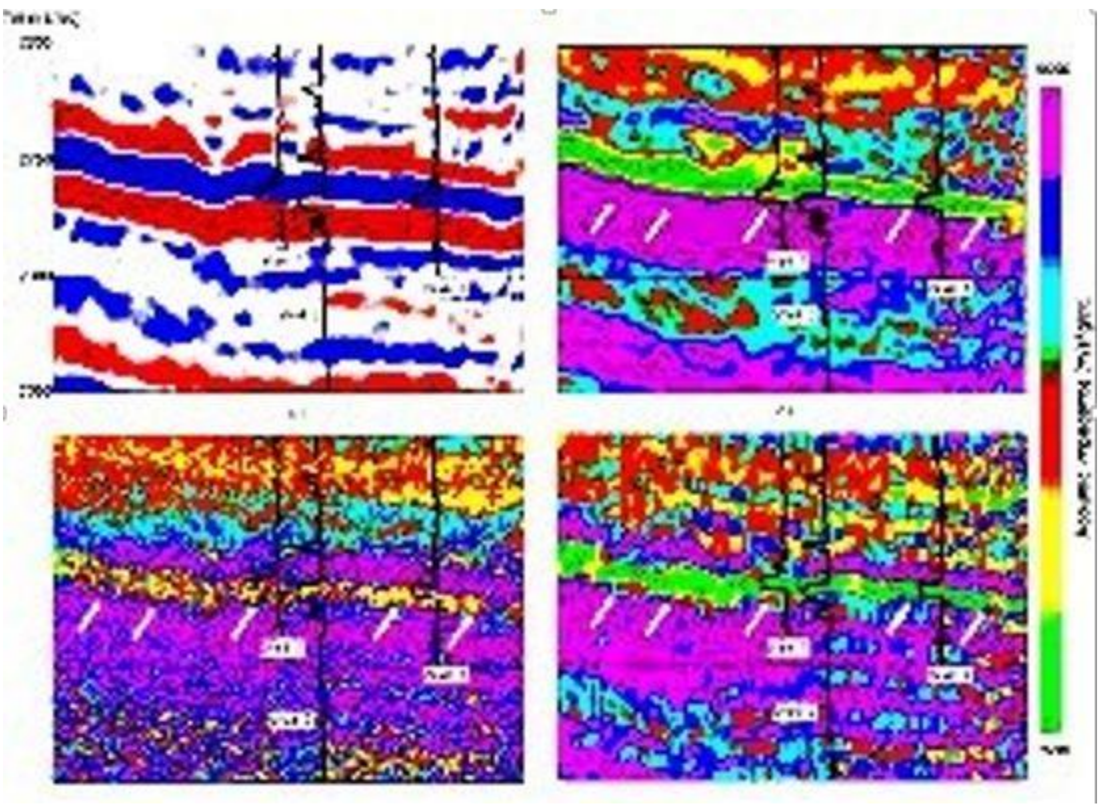
(26) High altitude nuclear sensor of sub-terrain gravitational fields

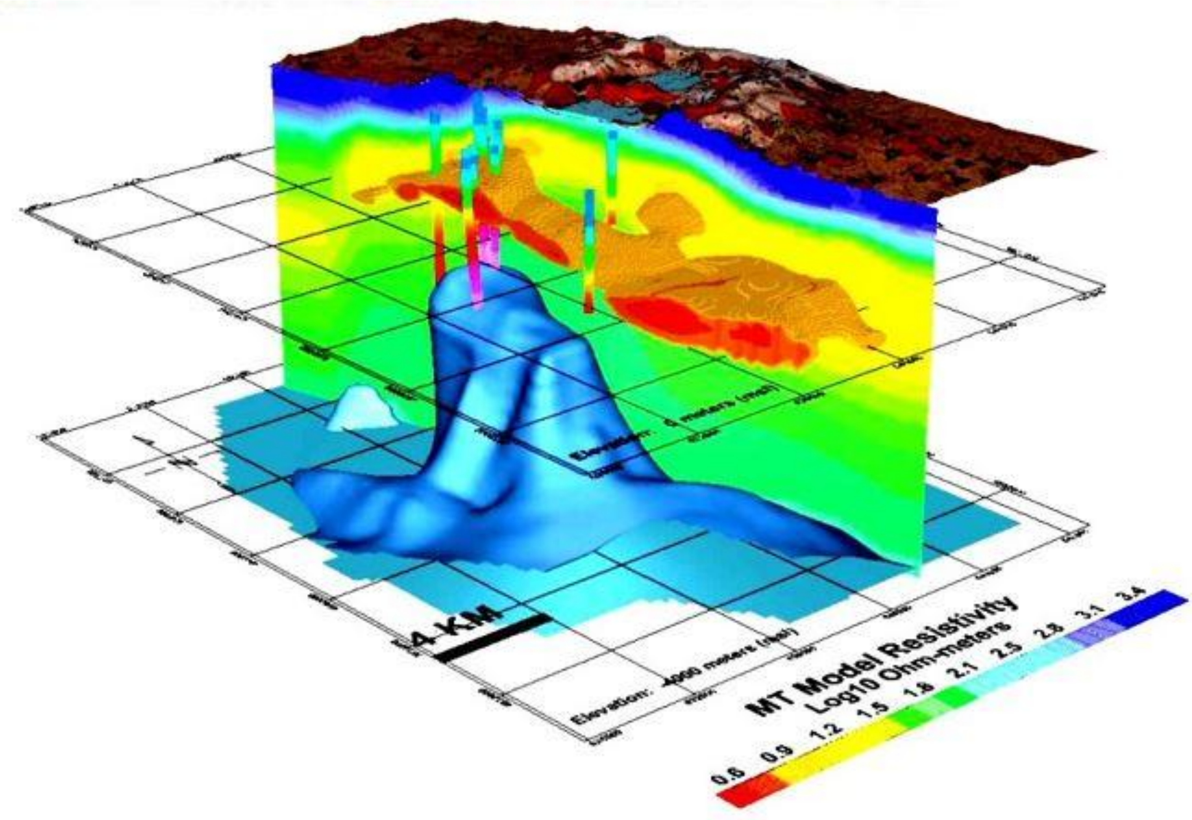
As you may comprehend, we are capable of sensing all geo-seismic signatures and markers subterranean. As the reflected energy returns to the satellite and back to the quantum computer, the imagery or statics of heat, magnetic, elemental, mineral, radioactivity, and subterranean gravitational field, all become calculable in a scan area. Everything has a signature which is known and our proprietary software is designed to qualify targeted minerals or precious material inclusive of artifacts.

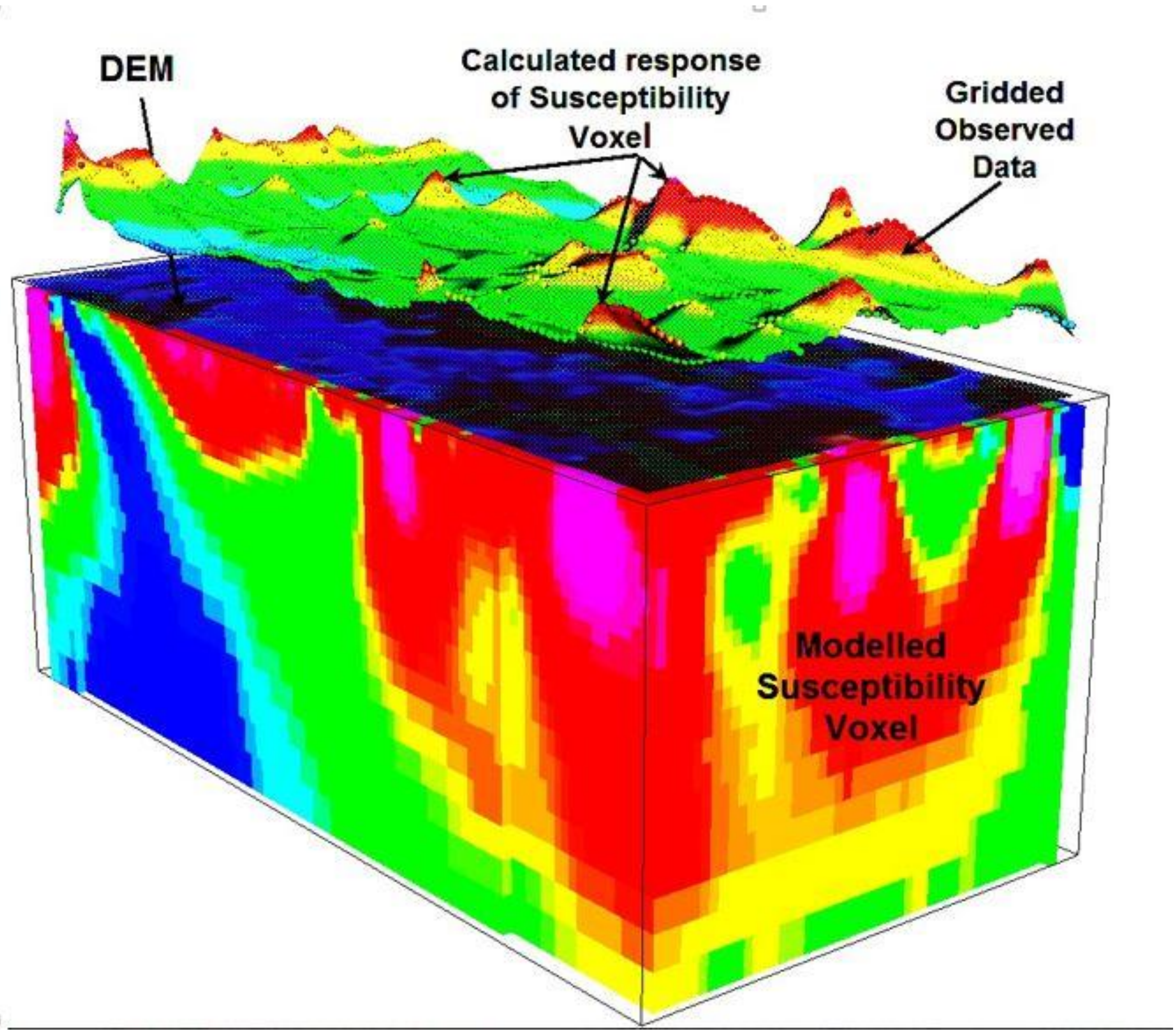
In the case of gold or even silica for example, the return energy or wave signature of the target is clearly identified and seen as a wave form reflection for the software to qualify and quantify definitively. This is how we can image an area and calculate the amount of the targeted material is within the scan coordinates. The imagery is reflecting information to a depth manageable for mining the target material. Perhaps for better understanding, it is well established in the field of astronomy that different elements reflect visible light with differing signature thereby allowing the astronomer to know definitely the gas make-up of the planet's atmosphere which is now calculable and with remarkable precision. Our scan system is no different in end results.

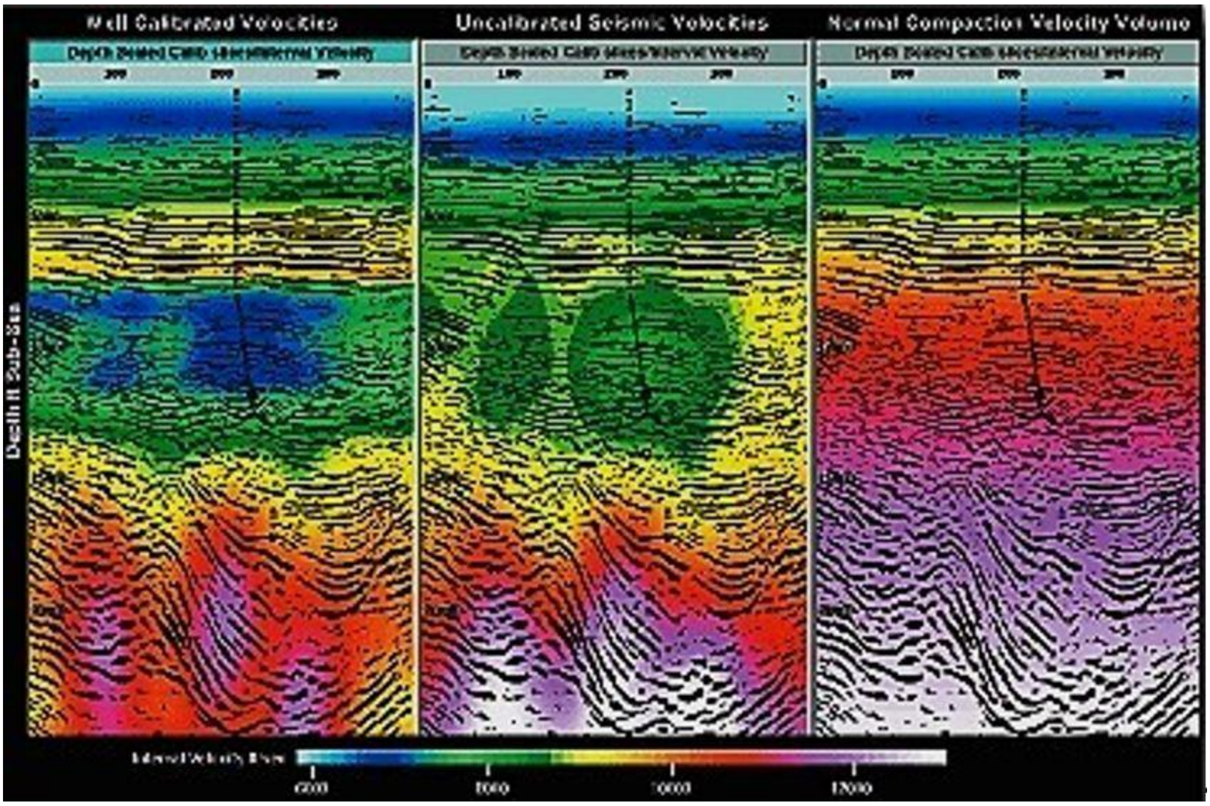
The following is the actual wave forms identifying structure and mass from scan data from the scanning system:

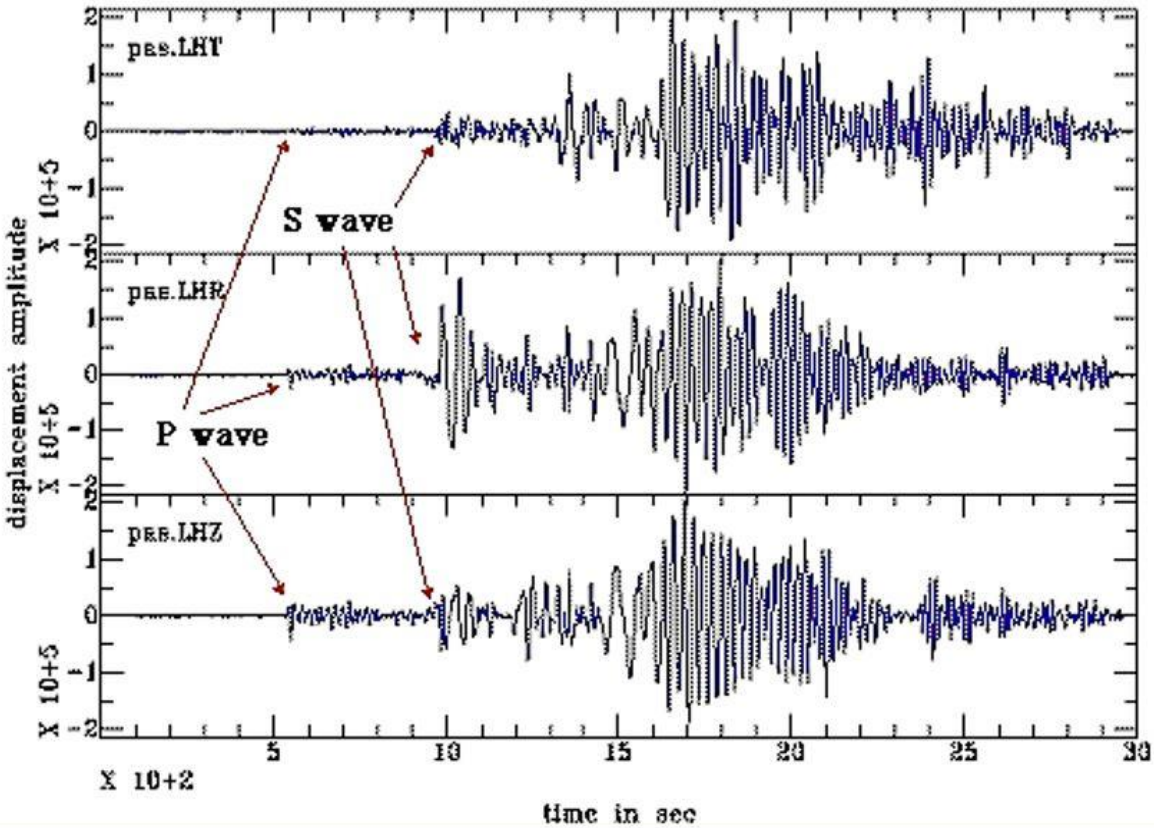

A.
B.
C.
D.
X
Y
0
1 km
High
Porosity
Low
Low
AI
High

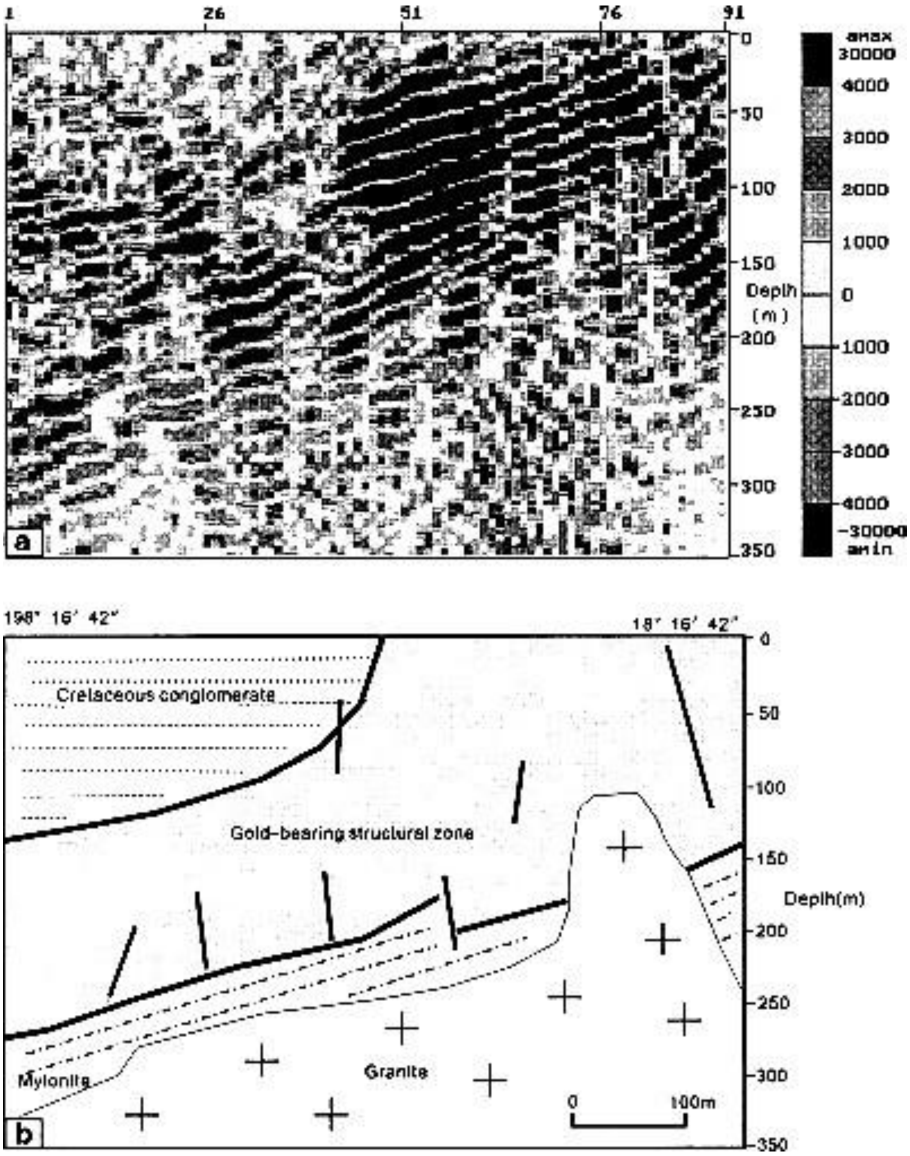



4 KM
MT Model Resistivity
Log10 Ohm-meters
0.6
0.9
1.2
1.5
1.8
2.1
2.5
2.8
3.1
3.4

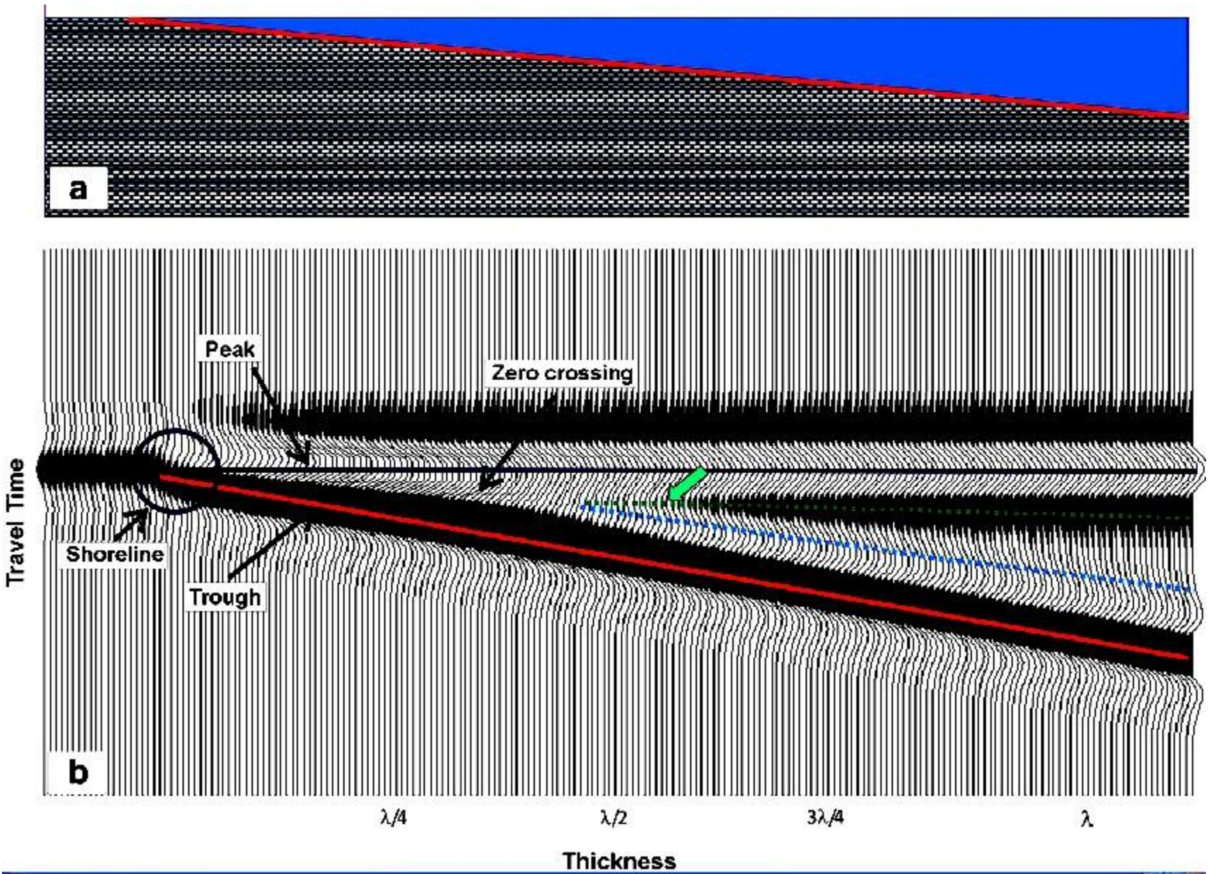

DEM
Calculated response
of Susceptibility
Voxel
Gridded
Observed
Data
Modelled
Susceptibility
Voxel

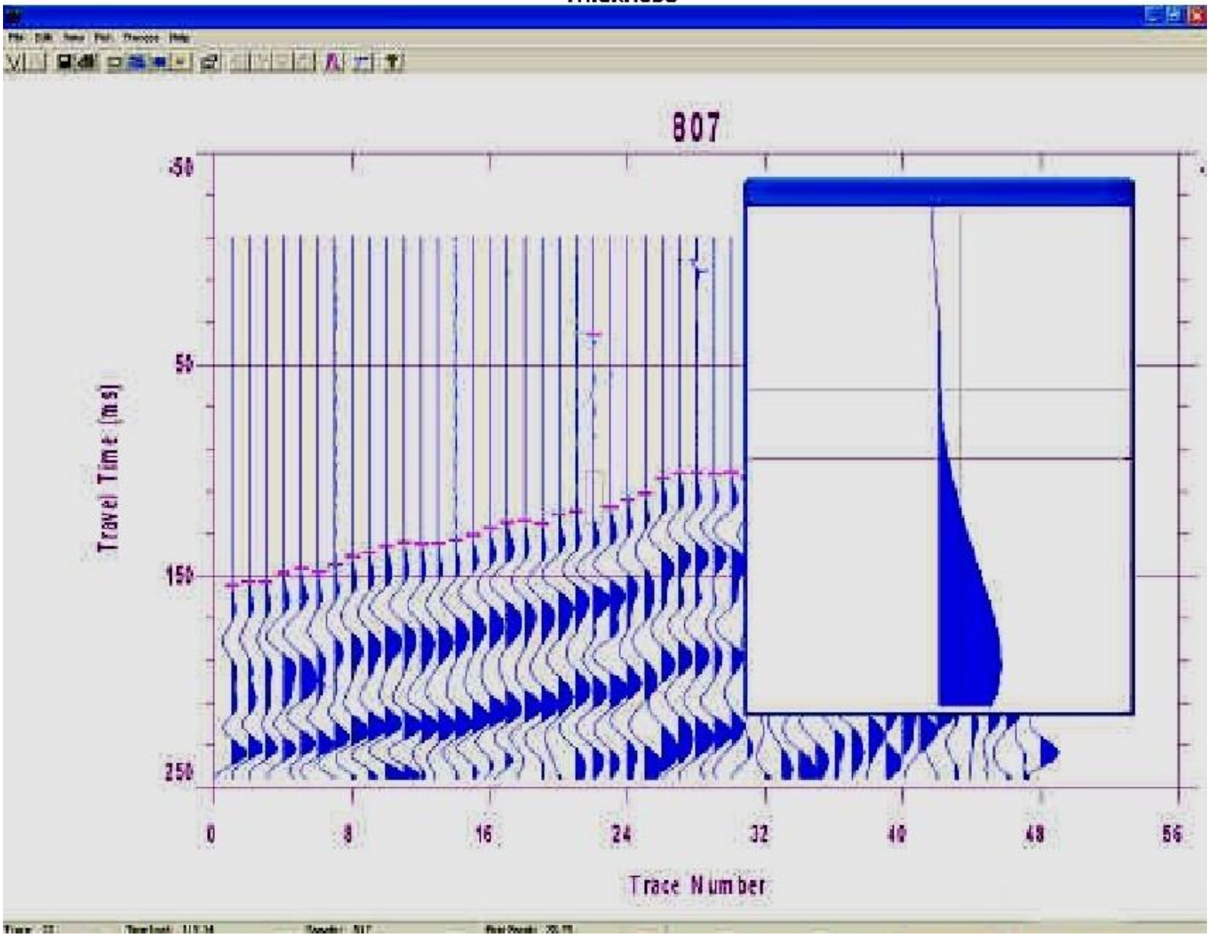

Well Calibrated Velocities
Uncalibrated Seismic Velocities
Normal Compaction Velocity Volume

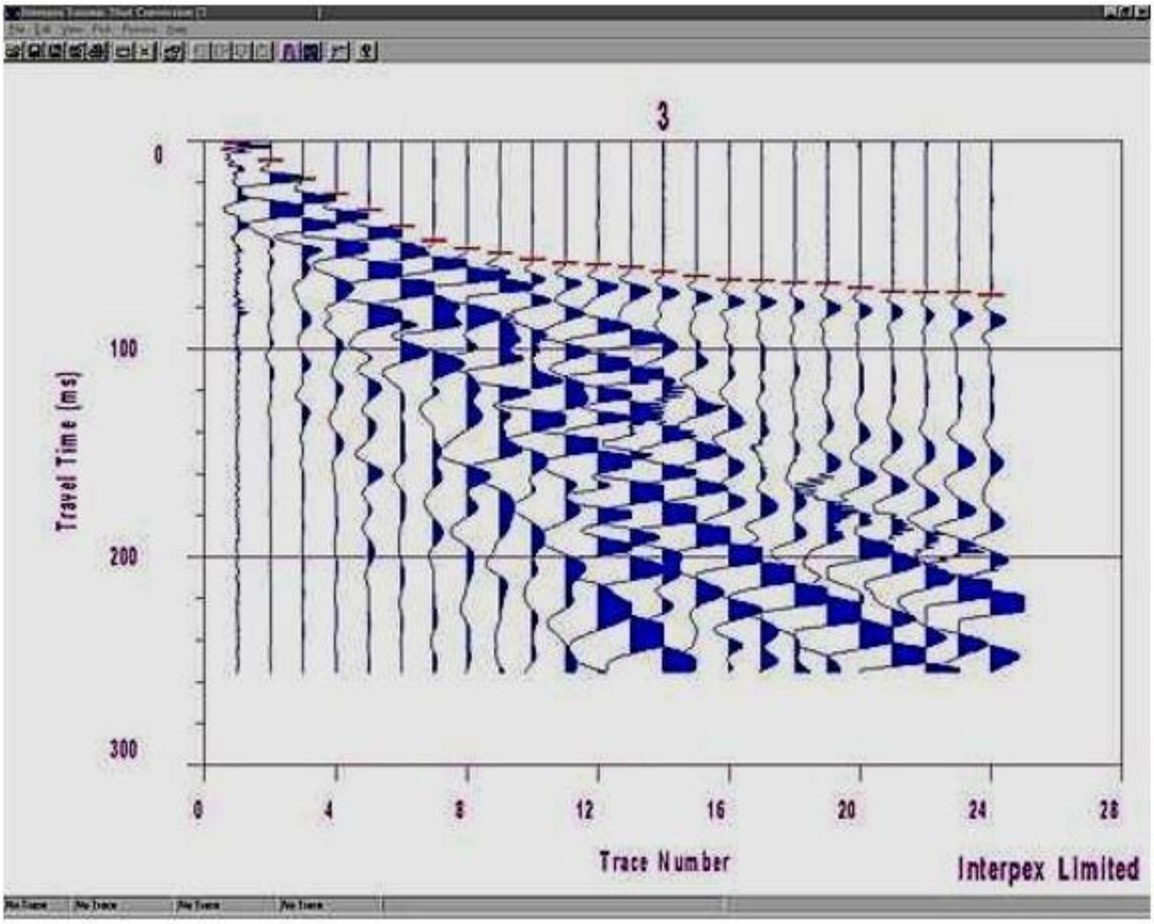

pas.LHT
pas.LHR
pas.LHZ
S wave
P wave
displacement amplitude
X 10+5
X 10+2
time in sec
0
5
10
15
20
25
30

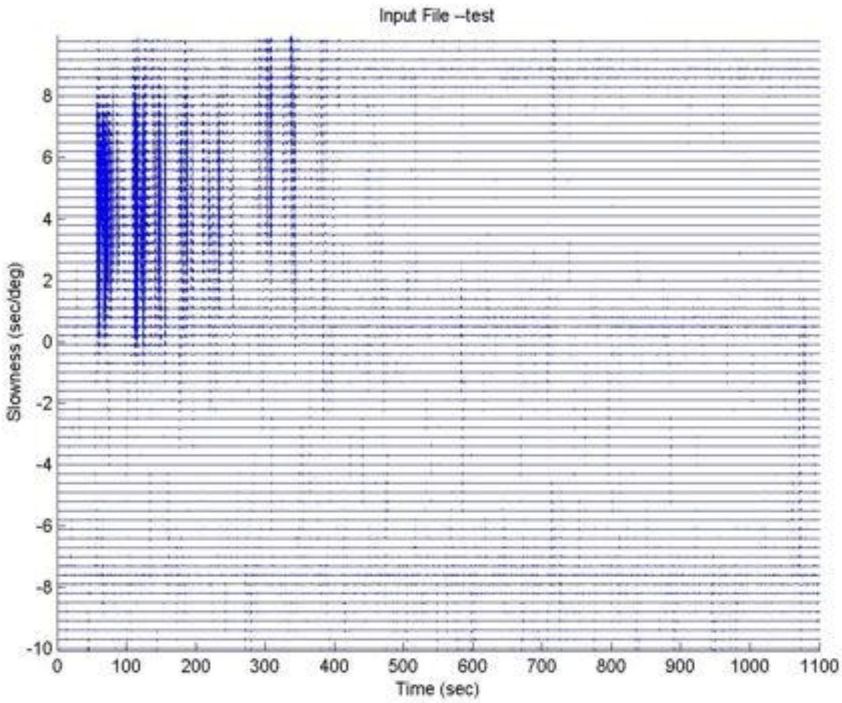


1
26
51
76
91
0
50
100
150
200
250
300
350
Depth (m)
amax 30000
4000
3000
2000
1000
0
-1000
-2000
-3000
-4000
-30000 amin
a
198° 16' 42"
18° 16' 42"
Cretaceous conglomerate
Gold-bearing structural zone
Mylonite
Granite
0
100m
Depth(m)
b


a
Peak
Zero crossing
Travel Time
Shoreline
Trough
b
λ/4
λ/2
3λ/4
λ
Thickness


807
-50
50
150
250
Travel Time (ms)
0
8
16
24
32
40
48
56
Trace Number


3
Travel Time (ms)
0
100
200
300
0
4
8
12
16
20
24
28
Trace Number
Interpex Limited


Input File --test
Slowness (sec/deg)
8
6
4
2
0
-2
-4
-6
-8
-10
0
100
200
300
400
500
600
700
800
900
1000
1100
Time (sec)

7.2 Solar Scan selection criteria;

Target 1	Gold	Au
	Indicate hot spot and depth, alluvial or veined	
Target 2	Silver	Ag
	Indicate hot spot and depth, alluvial or veined	
Target 3	CopperCu	
	Indicate hot spot and depth, alluvial or veined	
Target 4	Quartz SiO_2	
	Indicate hot spot and depth, alluvial or veined below 36 meters	
Target 5	Water	H_2O
	Indicate hot spot, depth, if potable	
	Indicate hot spot only if above 100gal/min, give flow rate	
	Indicate hot spot only if above 1000 ft. depth in depth	
Target 6	Iron	Fe
	Indicate hot spot and depth, alluvial or veined below 36 meters	
Target 7	Radioactive Minerals to 1-kilometer depth	
	Set computer to 1-kilometer scan depth	

7.3 Summary

The SA Gold Geoscan reported a number of GPS locations for gold accumulation at locations which were set at greater than 1.2 Million ounces. This result of this scan contains a number of significant locations based on the size criteria and Gold occurrence across all of SA however they remain unverified and confidential at this time.

(This data was not submitted to the Department, therefore failed to comply with the requirements of the *Mining Act 1971*, the Mining Regulations and conditions of the Licence.)

A second scan for Gold and partial scan for Iron Ore was later undertaken and completed mainly across the Olary Province. Limited Iron ore (Magnetite) scan data will be made available shortly in another report.

The second and more detailed satellite scan was undertaken for Gold. The criterial for this scan was to report gold accumulations or hotspots that were less than 40 meters in diameter. These locations number in the hundreds but remain confidential to our company and entities.

The location details remain unverified and until further analysis is undertaken, at a cost estimated greater than $10m (work which is currently supported under a Aust Industry RND Grant), this information will remain commercially in confidence and is being retained within our group until further advise.

7.4 Geoscan Result

SA Geoscan Locations: Noone or Redacted

Secondary Report Olary Region Redacted

8 Conclusion & Recommendation

After numerous tests the following problems were apparent

(1) The separation technology was not stable and did not produce repetitive and consistent results

(2) The recovery of magnetite in some area was less than 10% of the potential iron ore contained in the samples

(3) The changes in the iron ore price in late 2014 and the unreliability of the separation technology render the project uneconomical over a large area

(4) The iron ore price needs to increase significantly which is not apparent in the near future.

7.3 Summary

The SA Gold Geoscan reported a number of GPS locations for gold accumulation at locations which were set at greater than 1.2 Million ounces. The result of this scan contains a number of significant locations based on the size criteria and Gold occurrence across all of SA however they remain unverified and confidential at this time.

A second scan for Gold and partial scan for Iron Ore was later undertaken and completed mainly across the Olary Province. The more limited Iron ore (Magnetite) scan data will be made available shortly in another report.

A second and more detailed satellite scan was undertaken for Gold across the Olary Province . The criterial for this scan was to report gold accumulations or hotspots that were smaller and no greater than 40 meters in diameter. These locations number in the hundreds but remain confidential to our company and entities.

The locations and details remain unverified and until further analysis is undertaken, at a cost estimated at greater than $10m (work which is currently supported under a Aust Industry RND Grant), this information will remain commercially in confidence and is being retained within our group until further advise.

7.4 Geoscan Result

SA Geoscan Locations:	[Redacted]
Secondary Report Olary Region	[Redacted]

8 Conclusion & Recommendation

After numerous tests the following problems were apparent

(1) The separation technology was not stable and did not produce repetitive and consistent results

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(3) The changes in the iron ore price in late 2014 and the unreliability of the separation technology render the project uneconomical over a large area

(4) The iron ore price needs to increase significantly which is not apparent in the near future.

(5) Further work is required to verify the results from the Solar Scan Survey

EL 5609

The term of Exploration Licence No (EL) 5609 ceased on 24/11/2017 in accordance with section 30A of the *Mining Act 1971* (SA) (the **Mining Act**).

Thornton Metals Pty Ltd failed to comply with the requirements of the Mining Act, the Regulations and condition of the Licence during the last term of the licence.