ENGEBØFJELLET

NORDIC MINING ASA

RESOURCE ESTIMATION

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1 SUMMARY

1.1 Work Completed

This report describes a resource estimation study for the Engebøfjellet rutile deposit.
All of the estimation work in the current study pertains to topographic and sample data available up to the end of March, 2008, and used the Datamine mining software system. Adam Wheeler visited the site during April 17th-18th, along with the principal NGU geologist who had formerly worked on the project. The work completed in this resource study can be summarised as follows:

- Collation and import of all drillhole, tunnel and surface sample data.
- Interpretation of principal rutile zones, to as to create a coherent set of three-dimensional envelopes around the principal mineralised zones.
- Geostatistical analysis of the contained sample data, and subsequent sample composites, within the mineralised zones.
- Creation of a geological block model, which was then used as the basis of a resource estimate.

1.2 Conclusions

1. JORC Compliance

The resource estimate described in this report has been undertaken to a standard equivalent to that required by the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code), 2004 Edition. However, a number of specific recommendations have been made in connection with JORC compliance issues, in order to enhance subsequent resource estimation work.

2. Resource Estimate

Based on a cut-off grade of 3% total TiO_2, the following resource estimate was determined.

Resource Class	Tonnes Mt	Total TiO_2 %	Fe_2O_3 %
Indicated	31.7	3.77	17.3
Inferred	122.6	3.75	17.4

Notes

. 3% TiO2 Cut-Off

. Cut-off applied to 20m x 20m x 10m model blocks

. Resources below sea-level limited to a boundary 90m from edge of fjord

. Laboratory analysis indicates 94% of total TiO2 is contained in rutile

1.3 Recommendations

1. Check Assaying

In order to be fully JORC compliant, the following steps need to be taken:

a) At the present time most of the available analytical data has stemmed from work completed by or with the assistance of the NGU. It would also be useful to send some check samples to external laboratories.

2. Sampling

a) The road tunnel that passes through the deposit (at an elevation of approximately 60mRL) provides an extremely useful exposure of the central part of the rutile mineralisation. It would be extremely beneficial to obtain better quality sample data from this tunnel, primarily in terms of samples taken directly from the walls.

b) Further drilling would enable an enhancement of the resource base, in particular at the eastern end of the deposit as well as to the north. Preliminary pit optimisation can also be done so as to indicate areas where further drilling would most likely have the direct economic impact on the project.

c) In order to convert some of the inferred resource base into indicated resources, further drilling is required, on at least a 60m W-E spacing and a 40m N-S spacing.

d) In order to convert some of the indicated resource base into measured resources, further drilling is required, to get at a drillhole spacing on at least a 30m W-E spacing and a 20m N-S spacing.

e) Bulk sampling for preliminary processing testwork. Even just for resource estimation, this could be important, in order to highlight what other quantities might need to be analysed in more detail, because of potential impact on titanium dioxide pigment production. (Such bulk sampling work has already started).

f) Implementation of a specific QA/QC program for all subsequent sampling and analytical testwork.

3. Survey Measurements

a) Along with the sampling in the road tunnel, a check survey should be made of the start and end points of the tunnel, to get its position corrected more accurately.

2 BACKGROUND

2.1 Previous Work

Engebøfjellet was first recognised as a possible rutile deposit in the 1970s, after development of a local road tunnel. DuPont started a search for rutile deposits in Norway during the 1990s, in conjunction with NGU, the Geological Survey of Norway (NGU). This led to samples being taken from the road tunnel, followed by a drilling campaign from 1995-97. DuPont completed their own resource estimation work using this data. However, in 1998 DuPont divested its interests in Engebøfjellet to Conoco, due to changes in corporate strategy. Conoco subsequently sold its interests in Engebøfjellet in 2007. No further appreciable sampling or subsequent resource estimation work was completed during the Conoco ownership period, although an information memorandum was prepared in 2000 by CIBC World Markets, summarizing the information available at that time.

2.2 Terms of Reference

Adam Wheeler has been retained by Nordic Mining ASA (Nordic) to undertake a resource estimation study for Engebøfjellet. The resource estimation was undertaken to a standard equivalent to that required by the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code), 2004 Edition.

This study is based on data supplied by Nordic. Although a visit was made to the deposit area, the work carried out by Adam Wheeler is based solely on the information provided and no due diligence of this data has been undertaken. An assessment of the data has been used to guide resource classification and make recommendations for further work, but detailed data verification exercises have not formed part of the terms of reference for this study.

The exploration and geological descriptions contained in this report are summarised from documentation previously prepared by DuPont, Conoco and NGU. This documentation has been accepted "as is", without further due diligence.

Consideration of land tenure and exploration/mining rights for the property does not form part of this study.

3 GEOLOGICAL SETTING

The Engebo-Vevring area is located on the northern side of the Førde fjord, and is characterized by a series of mafic rocks, intercalated with gray gneisses. The mafic rocks are predominantly eclogites and amphibolites.

The Engebøfjellet forms a 2.5m km long E-W trending lenticular body. The body is believed to originally represent a Proterozoic gabbroic intrusion that was transformed to eclogites during high pressure Caledonian metamorphism, approximately 400 million years ago. During this episode, the ilmenite in the protolith was transformed to rutile, and so the titanium-rich parts are now contained in rutile.

During the previous exploration work carried out by NGU, three main types of eclogites were distinguished, depending primarily on iron and titanium content:

- **Ferro-eclogite**, which generally contain >14%Fe_2O_3 and >3% TiO_2, with >25% garnet (by volume). This has a more massive character than the other eclogite types, can show banding and extensive folding.

- **Leuco-eclogite,** which generally contains <14% Fe_2O_3 and <3% TiO_2 and less garnet. The ophitic gabbro protolith texture may be preserved locally.

- **Transitional-eclogite.** The contact between the leuco and ferro eclogites is gradational, and may extend over several metres of intermediate composition, which has therefore been demarcated as transitional.

There is also some retrograde metamorphism of eclogite, which can cause rutile TiO2 to convert back to ilmenite $FeTiO_3$ and occasionally $CaTiOSiO_4$. This reduces the quality of the rutile ore and the recoverability of the Ti-content. In this study there have been additional laboratory measurements of acid-soluble TiO_2 to allow an estimation of the proportion of ilmenite (and therefore rutile) present.

The rutile from Engebøfjellet is practically free of uranium, generally less than 1ppm.

4 SAMPLING AND DATA VERIFICATION

4.1 Previous Exploration

The previous exploration history can be summarised as follows:

- **1970s and mid-1980s.** The Engebøfjellet was recognised as a rutile deposit by Elkem. Additional sampling was done by collaboration between Elkem and NGU on various rutile-bearing eclogites in the area.

- **1989.** DuPont and NGU started an evaluation of Norwegian rutile projects, aimed at deposits suitable for DuPont's chlorination process pigment plants. Engebøfjellet was identified as the most favourable.

- **1995-97.** DuPont/Conoco (then a DuPont subsidiary) and local Fjord Blokk made a joint sampling and mapping exercise, with additional core drilling and beneficiation testing. NGU was involved as an external consultant. DuPont discontinued the project after 1997 due to a change in company strategy. Conoco – now part of ConocoPhillips, maintained the mineral rights

- 2005-06. A number of mining companies visited Engebøfjellet, partly organised by "Rutilnett", an informal working group organised through Naustdal municipality. Attention for the deposit re-emerged, and in 2006 several parties indicated their interest to purchase the Engebøfjellet deposit from ConocoPhillips. Nordic Mining successfully was the most successful and initiated further development of the Engebøfjellet deposit.

NGU has been involved in most core drilling, sampling and geological investigations, and has done extensive analytical and mineralogical assessment of the core materials. All information is available from NGU and Nordic Mining. Cores are stored at NGUs core storehouse at Løkken near Trondheim.

Although some computer modelling work was done previously by DuPont, although the modelling work involved in the current study was done completely anew, starting from master database files (in Access) that were provided by NGU.

4.2 Sample Preparation and Analyses

In terms of principal measurements from drill core, of total TiO_2 and Fe_2O_3, there are three different sets of measurements:

- **Engebø X-Met.** These measurements were taken directly in the field, generally at points along each hole spaced at 0.25m, using an Outokumpo X-Met potable XRF instrument.

- **Løkken X-Met.** As with the Engebø measurements, a portable XRF measurement was made at points generally spaced at 0.25m.

- **Lab Composites.** At the Løkken NGU laboratory, a number of core composites were prepared and analysed using laboratory XRF equipment. These composites generally represented 10m of core length. These results were then used to calculate instrumental correction factors, which were subsequently applied to both the Engebø X-Met and Løkken X-Met analyses. Of the 49 holes drilled, 34 were used to create laboratory composites, and on average there were over 3 composites per drillhole.

The X-Met core measurements were taken in different ways – sometimes as an average of 3 measurements taken at 120 degree intervals around the core, and at other times from the flat surface on cut core. There was also some variation whether these measurements were taken wet or dry. For subsequent sampling work, the methods used take X-Met samples should be more thoroughly recorded and collated.

Additional measurements of total TiO_2 and Fe_2O_3 were obtained from samples taken from the side-walls of the road tunnel approximately through the middle of the deposit. These were taken by chip sampling or by obtaining the drill cuttings from small holes drilled into the walls, less than 1 inch deep. In both cases, the cuttings were reduced to flour with a small portable grinder, and then the X-Met instrument was used to get a measurement. Samples were taken in this way approximately every 20m down the tunnel, which is approximately 660m long.

Surface samples for measurement of total TiO_2 and Fe_2O_3 were also taken, by either chip sampling, drill dust sampling or direct X-Met measurement on the ground. In the case of the chip and drill dust sampling, the X-Met measurements were taken from dust, ground from these samples.

A summary of the number of these total TiO_2 and Fe_2O_3 samples is shown in Table 1.

Table 1. Sample Summary – For Total TiO_2 and Fe_2O_3 Measurements

TYPE	DESCRIPTION		HOLES	LENGTH	NUMBER SAMPLES
Drillholes	**Total Drilled**		49	15,198	
	X-Met Measurements	Lokken TIO2	29	6,033	24,133
		Lokken FE2O3	29	6,045	24,180
		Engebo TIO2	30	4,306	17,225
		Engebo FE2O3	27	3,714	14,855
		Either TIO2 measurement	49	9,431	37,726
		Either FE2O3 measurement	48	9,070	36,279
	Lab Composite XRF		34	952	116
Tunnel				660	34
Surface Samples	**Chip samples**	Chip97-NGU			229
		chip96-NGU			44
	Drilldust samples	dd95-NGU			108
		dd96-DuPont			118
		dd96-NGU			76
	Direct X-Met	xmet96-NGU			680
		xmet97-DP			104

Additional procedures and measurements applied at Løkken include:

- **Photo-documentation** of each complete core.
- **Magnetic susceptibility** measurements, using a portable instrument. This provides a useful assessment of the degree of retrogradation.
- **Rutile content** was also determined for each lob composite, by additional measurement of acid-soluble TiO_2 by ICP-AES. Wt% Rutile=bulk wt% TiO_2 – acid soluble wt% TiO_2.

The laboratory analyses included a range of measurements. As well as most metallic elements, these measurements also included:

- SiO2
- Al2O3
- Fe2O3
- TiO2
- MgO
- CaO
- Na2O
- K2O
- MnO
- P2O5

4.3 Review of Quality Control

Detailed core logs were prepared for each hole, recording the features which include the following:

- Quartz %
- Garnet occurrence and size
- Carbonate cavities
- Foliation
- Magnetic susceptibility
- Retrogression
- Lithology coding

Although there was no specific QA/QC program in place, the procedures followed did include the following aspects:

- Check sampling between X-Met samples taken both at Løkken and in the field at Engebø.
- Check sampling by detailed XRF laboratory analysis taken at Løkken of 5m composites.

The results from these analyses are described in more detail in section 5.2.

Drillhole recovery?

4.4 Sample Location

All drillhole collars were surveyed, and coordinates were collated in the UTM coordinate system (WGS84). The downhole surveys were measured by a company called Devico, who used an optical instrument.

4.5 Bulk Density

A number of density measurements, taken from a number of the earlier drillhole samples were obtained, as shown below in Table 2 . These were measured by conventional immersion.

Table 2. Summary of Density Measurements

			Source	
Rock Type	**Mean (t/m^3)**	**Standard Deviation**	**Samples**	**Drillholes**
Eclogite	3.38	0.19	330	11
Amphibolite	3.05	0.16	55	7
Gneiss	2.88	0.13	43	7

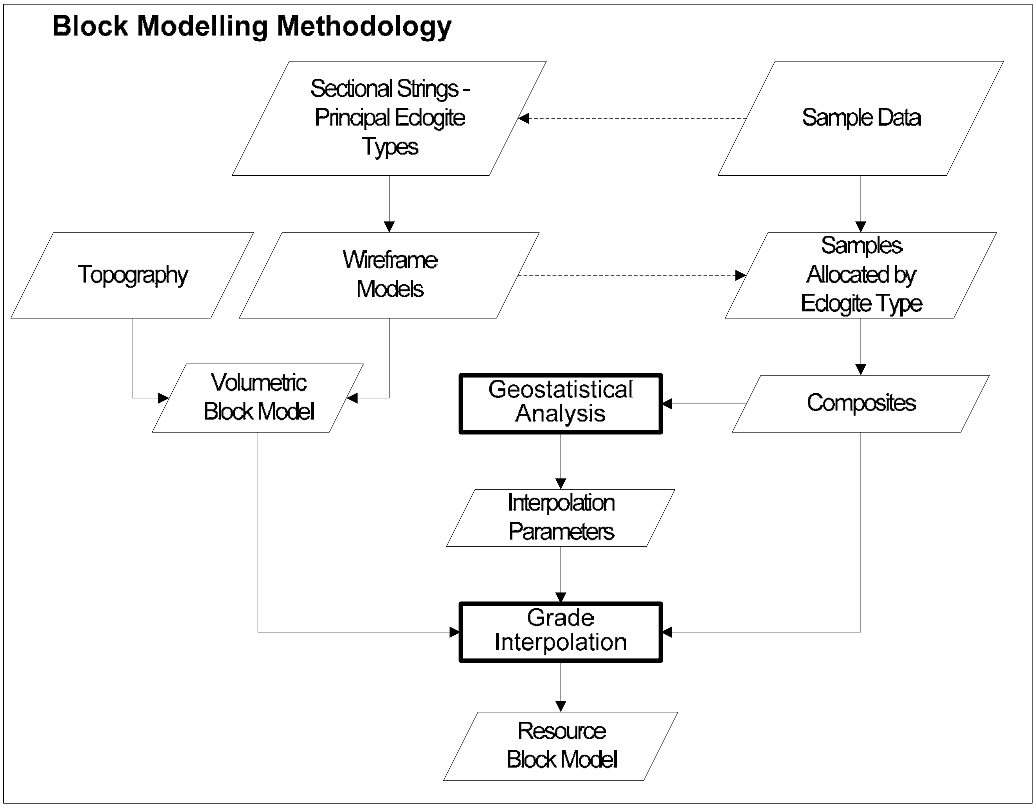
5 MINERAL RESOURCE ESTIMATION

5.1 General Methodology

This mineral resource estimation was completed using a three-dimensional block modelling approach, with the application of Datamine software. The overall methodology used is depicted diagrammatically in the flowsheet below.

As mentioned previously, three different principal types of eclogite were coded with the drillhole data. For each of these principal zones, sectional strings and perimeters were defined, based on all available lithological and sample data. Where possible, these perimeters were then converted into three-dimensional wireframe envelopes. Along with topographical data, this wireframe data was used to create volumetric block models.

Samples associated with these overall interpreted zones were assigned logical codes, corresponding with the defined eclogite wireframe models. These sample data were then converted into approximately 5m composites. The composite TiO_2 and Fe_2O_3 grade values were then used to interpolate grades into the block model, according to the parent eclogite type to which they belonged. Geostatistical analysis was used to assist in the selection of interpolation parameters, as well with subsequent resource classification.



5.2 Sample Data Processing

All available sample data was obtained from NGU. Data was available from surface drillholes, road tunnel samples and surface samples. A summary of the sample data used in the current estimation is shown in Table 1.

As described in section 4.2, there are 3 types of TiO_2 and Fe_2O_3 sample data available. The Løkken laboratory data is the highest quality, but is only applicable to 10m composites. These values have been used, however, to assign correction factors to both the Engebø and Løkken 2,5m spaced measurements. Of these two types of X-Met measurements, it has been assumed the Løkken derived data is more reliable. Table 3 shows a comparison between the different sample types. It can be seen that there is rather a poor correlation between the different X-Met measurements, on a sample-by-sample basis. However, when considering the averages of these measurements over the same composite intervals as the laboratory composites, the correlations are extremely good.

Table 3. Comparison of Different Sample Types.

Corelation Between Direct X-Met Measurements Lokken vs Engebo

	TiO_2		Fe_2O_3	
	Correlation Coefficient	Number of Pairs	Correlation Coefficient	Number of Pairs
Leuco-Eclogite	0.44	233	0.61	597
Tran-Eclogite	0.50	189	0.43	1,418
Ferro-Eclogite	0.68	2,165	0.43	1,565

Correlation Between XRF Sample Averages and Laboratory 10m Composites

	TiO_2		Fe_2O_3	
	Correlation Coefficient	Number of Pairs	Correlation Coefficient	Number of Pairs
Lokken X-Met	0.95	45	0.80	45
Engebo X-Met	0.93	75	0.73	61

The following procedure has therefore been applied to get the 'best' overall TiO_2 and Fe_2O_3 values for each sample:

1. The Løkken laboratory composite has been used to apply correction factors to both the Engebø and Løkken X-Met measurements.
2. If a corrected Løkken X-Met measurement is available, then this is taken as the accepted value.
3. If there is no corrected Løkken X-Met measurement, but these is a corrected Engebø X-Met measurement, then this is taken as the accepted value.

All of the available sample data was imported into Datamine, and the procedure described in above was applied to get a final accepted value of total TiO_2 and Fe_2O_3 for each sample. Along with these values, the drillhole data contained:

- Lithological codes, primarily for eclogite type.
- An index of magnetic susceptibility.
- %rutile (corresponding to the 10m composites)

5.3 Interpretation

The UTM coordinate system (WGS84) has been used for all modelling work. For convenience, a value of 6,000,000 has been deducted from all Y (northing) coordinates.

A plan of the drillhole data is shown in Figure 1 and a plan showing both the drillhole and surface sample data is shown in Figure 2. A set of orthogonal N-S section lines were defined as a reference system for section generation and subsequent interpretation. These are shown in a plan in Figure 3 . The area of the resource estimate has been restricted to approximately west of 310,600m, as there are only two holes east of this line, and these holes are spaced 500m from the other data.

West of 310,200m, most of the sections are spaced 60m apart (with the exception of one displaced section to the extreme west). To the east of 310,200m, the sections are mostly spaced at 80m. Sections were then prepared, coloured according to eclogite type, but with bars of length proportional to the grade of TiO_2. These sections were then used as the basis for interpretation of overall eclogite zones. The extent of the modelled eclogite has not been extended more than 120m beyond available drillhole data. These sections, with the interpreted zone limits, are shown in Appendix C. The three principal types of eclogite were converted into three-dimensional wireframe models. There are still some isolated intersections, particularly to the east where the drillholes are more widely spaced. These intersections were still modelled, but were applied as perimeters with a thickness corresponding to the section spacing.

These interpreted structures were then used as the basis of sample allocation. A summary of the resultant intersections is shown below in Table 4.

Table 4. Summary of Intersections

Type	Number of Samples	Intersected Length (m)	Number of Holes
Drillholes	32,410	12,525	46
Surface	551		
Tunnel	27	540	

5.4 Geostatistics

A statistical summary of the sample data is shown in Table 5. Histograms and probability plots of the selected data sets are shown in Appendix B. These are divided up by sample type, as well as by eclogite type. Features apparent from these plots include:

- Most of the samples within the separately modelled eclogite structures form single, approximately normal, populations.
- Plots comparing the populations split from the originally assigned lithological codes, as compared with the populations split by the physically defined envelopes, are extremely similar. This indicates that the modelling is reflecting these original codings fairly closely.
- For any particular eclogite type, quite similar populations are evident when comparing the drillhole samples versus the surface samples. This supports the use of the surface samples in the resource estimation.

Table 5. Statistical Summary of Samples In Mineralised Envelopes

				NUMBER	NUMBER > TRACE	MINIMUM	MAXIMUM	MEAN	VARIANCE	STANDARD DEVIATION	COEFF. OF VARIATION
TiO_2	Samples Split By Surface/ Drillholes	Leuco-Eclogite	Drillholes	4,126	4,112	1.00E-30	9.22	1.02	0.48	0.69	0.68
		Leuco-Eclogite	Surface	126	126	0.39	6.20	1.46	1.04	1.02	0.70
		Leuco-Eclogite	Tunnel	8	8	0.49	1.44	0.68	0.09	0.29	0.43
		Leuco-Eclogite	All	4,260	4,246	1.00E-30	9.22	1.04	0.50	0.71	0.68
		Tran-Eclogite	Drillholes	5,734	5,720	1.00E-30	10.56	2.37	0.91	0.95	0.40
		Tran-Eclogite	Surface	77	77	0.5	5.70	2.49	2.04	1.43	0.57
		Tran-Eclogite	Tunnel	3	3	2.04	3.17	2.54	0.22	0.47	0.19
		Tran-Eclogite	All	5,814	5,800	1.00E-30	10.56	2.37	0.92	0.96	0.41
		Ferro-Eclogite	Drillholes	22,627	22,578	1.00E-30	13.13	3.74	2.07	1.44	0.38
		Ferro-Eclogite	Surface	348	348	0.6	7.40	3.29	2.28	1.51	0.46
		Ferro-Eclogite	Tunnel	16	16	2.87	6.74	4.29	1.38	1.18	0.27
		Ferro-Eclogite	All	22,991	22,942	1.00E-30	13.13	3.74	2.08	1.44	0.39
	Comparison of Alternative Measurements	Leuco-Eclogite	Lokken	2,673	2,659	1.00E-30	9.22	1.06	0.59	0.77	0.73
		Leuco-Eclogite	Engebo	1,688	1,688	0.009	5.04	0.95	0.27	0.52	0.54
		Tran-Eclogite	Lokken	4,572	4,558	1.00E-30	10.56	2.38	0.81	0.90	0.38
		Tran-Eclogite	Engebo	1,354	1,354	0.0082	8.91	2.32	1.27	1.13	0.49
		Ferro-Eclogite	Lokken	12,233	12,184	1.00E-30	13.13	3.82	2.20	1.48	0.39
		Ferro-Eclogite	Engebo	12,558	12,558	0.0082	11.24	3.68	1.87	1.37	0.37
Fe_2O_3	Samples Split By Surface/ Drillholes	Leuco-Eclogite	Drillholes	4,054	4,042	1.00E-30	29.0	11.1	14.3	3.8	0.34
		Leuco-Eclogite	Surface	126	126	5.4	21.2	11.9	14.5	3.8	0.32
		Leuco-Eclogite	Tunnel	8	8	6.47	12.7	8.7	5.3	2.3	0.26
		Leuco-Eclogite	All	4,188	4,176	1.00E-30	29.0	11.2	14.3	3.8	0.34
		Tran-Eclogite	Drillholes	5,582	5,572	1.00E-30	36.1	16.0	17.8	4.2	0.26
		Tran-Eclogite	Surface	77	77	6.7	21.2	13.7	7.8	2.8	0.20
		Tran-Eclogite	Tunnel	3	3	12.9	18.7	16.1	5.7	2.4	0.15
		Tran-Eclogite	All	5,662	5,652	1.00E-30	36.1	15.9	17.7	4.2	0.26
		Ferro-Eclogite	Drillholes	21,564	21,537	1.00E-30	47.7	17.5	15.2	3.9	0.22
		Ferro-Eclogite	Surface	348	347	0	26.3	14.6	10.5	3.2	0.22
		Ferro-Eclogite	Tunnel	16	16	13.8	20.9	18.1	2.7	1.6	0.09
		Ferro-Eclogite	All	21,928	21,900	0	47.7	17.5	15.3	3.9	0.22
	Comparison of Alternative Measurements	Leuco-Eclogite	Lokken	2,673	2,661	1.00E-30	29.0	11.1	16.4	4.0	0.36
		Leuco-Eclogite	Engebo	1,527	1,527	0.116	23.7	11.2	10.4	3.2	0.29
		Tran-Eclogite	Lokken	4,572	4,562	1.00E-30	36.1	16.2	17.1	4.1	0.26
		Tran-Eclogite	Engebo	1,175	1,175	0.116	28.2	15.2	20.1	4.5	0.30
		Ferro-Eclogite	Lokken	12,233	12,206	1.00E-30	31.8	17.7	17.0	4.1	0.23
		Ferro-Eclogite	Engebo	10,753	10,753	0.11	47.7	17.3	12.8	3.6	0.21

From the selected sample set, 5m composites were created. A statistical summary of the resultant set of composites is shown in Table 6.

Table 6. Summary of Composite Statistics

	ZONE	NUMBER	MINIMUM	MAXIMUM	MEAN	VARIANCE	STANDARD DEVIATION	COEFF. OF VARIATION
TiO2	Leuco-Eclogite	586	0.38	6.20	1.06	0.40	0.63	0.60
	Tran-Eclogite	460	0.15	5.70	2.36	0.67	0.82	0.35
	Ferro-Eclogite	2,094	0.58	7.40	3.65	1.19	1.09	0.30

	ZONE	NUMBER	MINIMUM	MAXIMUM	MEAN	VARIANCE	STANDARD DEVIATION	COEFF. OF VARIATION
Fe2O3	Leuco-Eclogite	579	5.4	21.4	11.2	8.74	2.96	0.26
	Tran-Eclogite	445	1.5	23.0	15.4	7.96	2.82	0.18
	Ferro-Eclogite	1,990	0.0	48.0	17.0	7.85	2.80	0.16

Experimental variograms of the composited TiO_2 values were generated. From these model variograms were fitted, as shown in Appendix B. The model variograms parameters are summarised in Table 7.

Table 7. Model Variogram Parameters - TiO_2

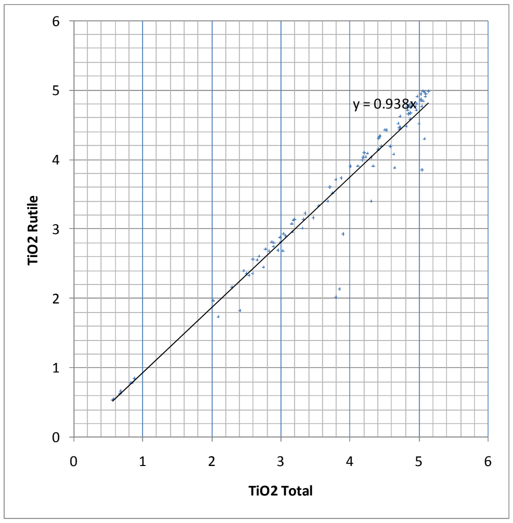
Zone	Nugget Co	a1 (m)			C1	a2 (m)			C2
		X	Y	Z		X	Y	Z	
Leuco-Eclogite	0.06	45	45	45	0.10				
Tran-Eclogite	0.26	127	127	127	1.16				
Ferro-Eclogite	0.09	25	92	37	1.00	70	71	123	0.35

Notes

. For Ferro-Eclogite, axes were rotated 20 degrees about axis 2, then 55 degrees about axis 1

From the 104 composites analysed in the Løkken laboratory, the %rutile was determined. These results are summarized in the chart below, plotted against total TiO_2. A linear regression of this data indicated that the average contained rutile proportion in 94%.

TiO_2 in Rutile v Total TiO_2



5.5 Geological Modelling

The various interpreted three-dimensional wireframe models and perimeters were used to construct separate volumetric block models for each zone. After grade interpolation, these separate block models were then subsequently combined to form an overall volumetric block model for the whole Engebøfjellet area, which was then used for resource estimation.

An additional topographic wireframe model was also used to cut blocks off against the surface. All zones were modelled within the same common model prototype, which is summarised in Table 8.

Table 8. Block Model Prototype

	Min	Max	Range	Size	Number
X	308,840	310,840	2,000	20	100
Y	822,080	823,880	1,800	20	90
Z	-350	450	800	10	80

Notes

. All dimensions in metres
. Coordinates in UTM (WGS84)

The principal parent block size used was 20m x 20m x 10m. Additional sub-blocks with varying sizes were created against zone boundaries, to provide an appropriate volumetric fit, down to a size of 5m x 5m x 5m where required.

In the build-up of the overall model of each zone, separate models were built up of each of the different components. These were then combined, in such a way so that any small intersections of the different structures were resolved.

The modelled eclogite was assigned a density value of 3.38 t/m^3, as determined from the measurements described in Table 2. Modelled material outside of the eclogite zones were assigned simply as waste. These zones are mostly either amphibolite or gneiss, and were assigned an average density value of 3.0 t/m^3.

5.6 Grade Estimation

For each eclogite zone, the separate composite data sets were used to interpolate TiO_2 and Fe_2O_3 grades into the corresponding blocks in each zone. The geostatistical analysis was used to help derive interpolation parameters, which are summarised in Table 9.

Table 9. Estimation Parameters

Zone	Distances X:Y:Z (m)			Search	Minimum Composites	Minimum No. of Drillholes
	1	2	3			
Leuco- and Tran- Eclogites	20	20	20	1st	5	2
	40	40	40	2nd	5	2
	120	120	120	3rd	3	1
Ferro- Eclogite	15	20	25	1st	5	2
	30	40	50	2nd	5	2
	90	120	150	3rd	3	1

Notes:

. For Ferro-Eclogite, axes were rotated 20 degrees about axis 2, then 55 degrees about axis 1
. Max of 3 x 5m composites used per hole
. Maximum number of composites used = 15
. All TiO_2 grades interpolated using ordinary kriging
. All Fe_2O_3 grades interpolated using inverse distance weighting (^2)

When the interpolation procedure took place for each block, a number of progressively larger searches for available composites were attempted, until sufficient composites had been found. This process also recorded which search was successful in locating samples. The initial search ellipse distances stemmed from the approximate 2/3 level of the model variograms. If insufficient samples were found, then a second larger search ellipse was used, at approximately the dimensions of the model variogram ranges. Again, if insufficient samples were found, then a final 3rd search was used with very large distances, to ensure that practically all blocks within the modelled eclogite structures did receive TiO_2 and Fe_2O_3 grades.

An additional control was placed on the first 2 searches, connected with the allocation of indicated resources, which was to only allow this allocation if at least two drillholes were encountered i.e. to prevent the allocation of indicated resources in blocks where grades only stem from one drillhole. During the interpolation of each block, a maximum of 15 composites could be used. From any particular drillhole, only a maximum of three 5m composites could be used, so that other composites thereafter would have to be found from other drillholes. In all cases, grades were only interpolated from composites belong to the same corresponding eclogite type identification.

The principal method of TiO_2 grade interpolation used was ordinary kriging (OK). However, for subsequent testing and validation purposes, alternative TiO_2 grade values were also interpolated using nearest-neighbour and inverse-distance weighting methods. The estimated Fe_2O_3 grades in the block model were estimated using inverse-distance weighting.

As discussed previously, the 1st and 2nd search volumes used broadly corresponded to indicated resources. However, owing to the actual pattern of drillholes intersections, as well as surface and tunnels samples, this could sometimes produce rather a complicated outline of indicated resources. The different cross-sections were therefore examined in detail, and a set of strings defined, stemming from the initial resource demarcation, to break up each section into more logical portions of different resource classes. These limits are depicted in sections shown in Appendix D. The resultant resource classification applied can be summarised as follows:

Indicated	Covered by drillholes spaced at least 60m along–strike (W-E), and at least 40m across-strike (N-S).
Inferred	Covered by drillholes greater than 60m along-strike. These inferred resources have not been extrapolated more than 120m from any drillhole intersection.

No measured resources were defined, principally because hardly any areas have been drilled off with holes at a spacing much less than 60m along strike.

5.7 Model Validation

A **global comparison** was made of the average TiO_2 and Fe_2O_3 model grades, for all resource levels, with the corresponding average sample and composite grades, as summarised below in Table 10. This shows a very close correspondence of average sample, composite and block model grades.

Table 10. Global Comparison of Grades.

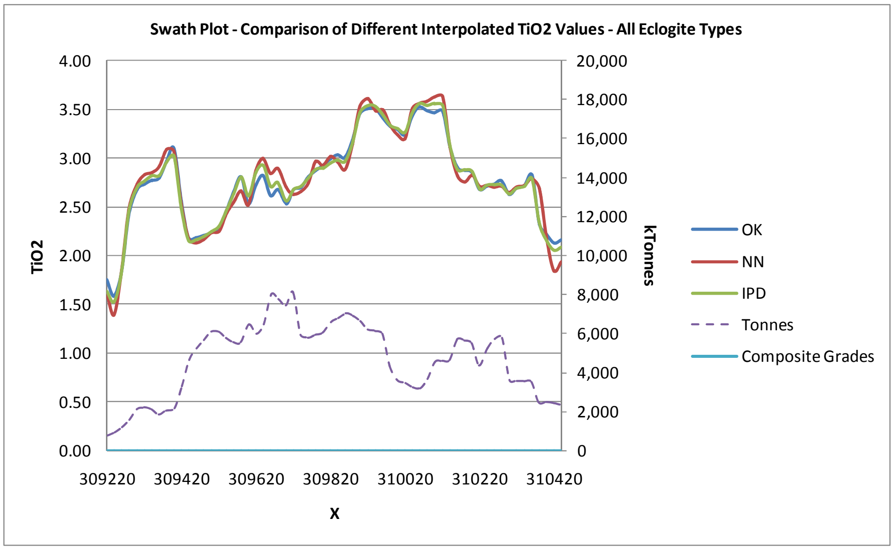
ZONE	TiO_2					Fe_2O_3		
	Mean Grades		Block Model Grades			Mean Grades		Block Model
	Samples	Composites	OK	NN	IPD	Samples	Composites	
Leuco-Eclogite	1.04	1.06	1.09	1.09	1.07	11.2	11.2	11.6
Tran-Eclogite	2.37	2.36	2.34	2.36	2.32	15.9	15.4	15.0
Ferro-Eclogite	3.74	3.65	3.63	3.65	3.66	17.5	17.0	17.2

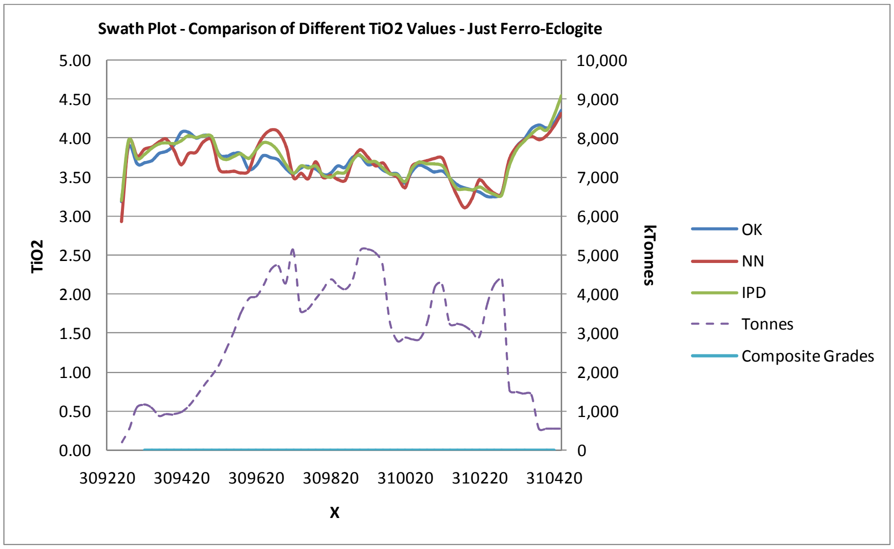
Notes

. TiO_2 grades interpolated using ordinary kriging (OK) were those used for the resource calculations.
. The other TiO_2 grades, interpolated using nearest neighbour (NN) and inverse-distance (IPD), purposes.
were made for comparison purposes.
. All Fe_2O_3 block model grades were interpolated using inverse distance weighting (^2)

A **local comparison** of grades was also made, in the form of swath plots, which compare the average grades on each 20m thick Y-Z slice. Separate plots were generated for all zones, as well as for just the ferro-eclogite zone, as shown overleaf. These plots compare for each slice:

- The average ordinary kriged model grades.
- The average nearest neighbour model grades.
- The average inverse-distance model grades.
- The average (declustered) composite grades.
- For reference, the total (indicated+inferred) tonnage on each slice.





In general all the different types of model grades, as well as the composite grades, correspond very closely, in progressing from the west to the east, indicating an absence of bias.

A **visual comparison** was made, on all principal section, comparing the resultant model grade distribution with that of the composites grades. These sections are shown in Appendix E.

Very few figures are available from previous evaluations. One overall resource evaluation figure produced by DuPont was 383Mt @3.96% TiO_2, at a cut-off of 3% TiO_2. For the current study, however, a total resource figure (indicated + inferred) of 154Mt @ 3.75% TiO_2, at a cut-off of 3% TiO_2, has been determined. However, no details are available are available for the DuPont evaluation, in particular how far resources may have been extrapolated from drillhole or other sample data. It is therefore very difficult to make a comparative analysis with the results from the current study.

5.8 Resource Evaluation

Although the model has in parts been extended to and below and the edge of the fjord, clearly it parts of these sub-sea regions are all to intents and purposes impossible to potentially mine. In communication with Nordic, therefore, it was decided to not evaluate any resources below sea-level, which are nearer than 90m to edge of the fjord. This limit is also depicted in the sections shown in Appendix D.

An overall evaluation summary of the resources, at a cut-off of 3% TiO_2, is shown in Table 11.

Table 11. Resource Evaluation Summary

Resource Class	Tonnes Mt	Total TiO_2 %	Fe_2O_3 %
Indicated	31.7	3.77	17.3
Inferred	122.6	3.75	17.4

Notes

. 3% TiO2 Cut-Off

. Cut-off applied to 20m x 20m x 10m model blocks

. Resources below sea-level limited to a boundary 90m from edge of fjord

. Laboratory analysis indicates 94% of total TiO2 is contained in rutile

Other tables breakdown the resources in the following ways:

- Breakdown by zone in Table 12
- Breakdown by elevation in Table 13
- Grade-tonnage tables and curves in Table 14

Table 12. Resource Breakdown By Eclogite Zone

	Indicated			Inferred			Total		
ZONE	**Tonnes kT**	**Total TiO_2 %**	**Fe_2O_3 %**	**Tonnes kT**	**Total TiO_2 %**	**Fe_2O_3 %**	**Tonnes kT**	**Total TiO_2 %**	**Fe_2O_3 %**
Leuco-Eclogite	7	3.04	13.5	145	3.41	16.7	152	3.39	16.6
Tran-Eclogite	328	3.15	19.0	3,399	3.38	17.0	3,726	3.36	17.1
Ferro-Eclogite	31,343	3.78	17.3	119,076	3.76	17.5	150,418	3.76	17.4
Total	31,677	3.77	17.3	122,620	3.75	17.4	154,297	3.75	17.4

Notes

. 3% TiO2 Cut-Off

. Cut-off applied to 20m x 20m x 10m model blocks

. Resources below sea-level limited to a boundary 90m from edge of fjord

. Laboratory analysis indicates 94% of total TiO2 is contained in rutile

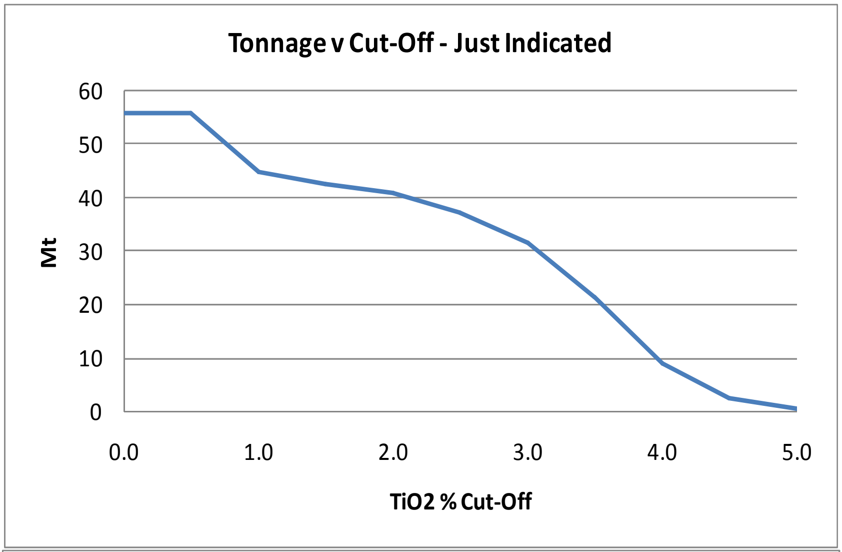
Table 13. Resource Breakdown by Elevation

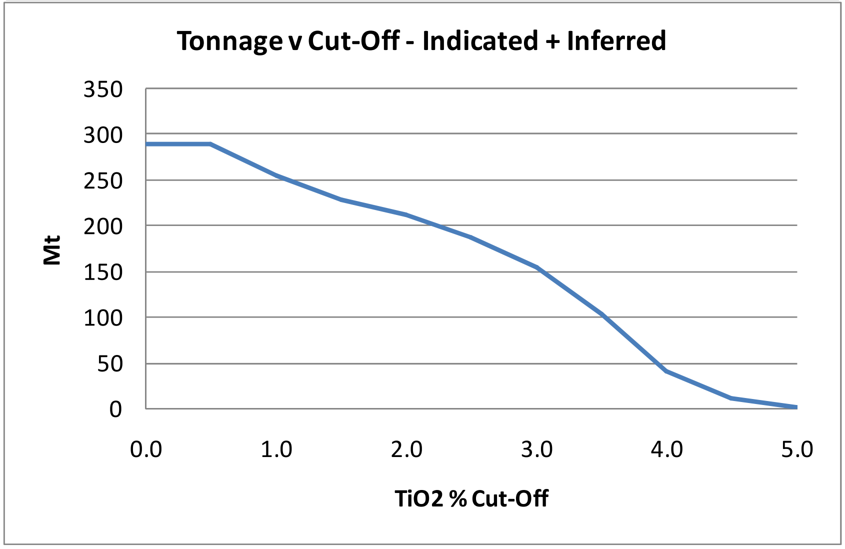
	Indicated			Inferred			Total		
BENCH mRL	Tonnes kT	Total TiO_2 %	Fe_2O_3 %	Tonnes kT	Total TiO_2 %	Fe_2O_3 %	Tonnes kT	Total TiO_2 %	Fe_2O_3 %
300	37	3.74	16.2	71	3.41	17.1	108	3.52	16.8
290	223	4.11	16.1	335	3.87	16.6	558	3.97	16.4
280	254	3.88	16.0	761	4.05	16.6	1,014	4.01	16.5
270	314	3.65	15.7	984	4.06	16.7	1,298	3.96	16.4
260	352	3.67	15.7	1,225	3.96	16.5	1,577	3.90	16.3
250	517	3.53	16.2	1,462	3.92	16.7	1,979	3.81	16.5
240	598	3.60	16.7	1,585	3.90	16.8	2,183	3.82	16.8
230	661	3.60	17.4	1,658	3.87	17.0	2,319	3.79	17.1
220	600	3.59	17.4	1,715	3.80	17.3	2,315	3.75	17.3
210	651	3.58	17.0	1,758	3.70	17.5	2,408	3.67	17.4
200	815	3.50	17.0	1,695	3.68	17.7	2,510	3.62	17.4
190	1,004	3.48	17.3	1,867	3.62	17.6	2,871	3.57	17.5
180	1,061	3.55	17.5	2,224	3.60	17.3	3,285	3.58	17.4
170	1,007	3.63	17.7	2,418	3.61	17.2	3,426	3.62	17.3
160	1,049	3.66	17.7	2,511	3.61	17.2	3,561	3.63	17.4
150	990	3.61	17.6	2,746	3.59	17.2	3,737	3.60	17.3
140	821	3.65	17.7	3,170	3.60	17.2	3,992	3.61	17.3
130	977	3.73	17.6	2,939	3.59	17.2	3,916	3.62	17.3
120	1,107	3.82	17.5	2,809	3.59	17.1	3,916	3.66	17.2
110	1,163	3.90	17.3	2,829	3.62	17.2	3,992	3.70	17.2
100	923	3.89	17.1	2,914	3.66	17.5	3,836	3.72	17.4
90	862	3.83	16.8	2,941	3.69	18.0	3,803	3.72	17.7
80	992	3.86	17.0	2,777	3.69	18.2	3,769	3.73	17.9
70	1,087	3.86	17.2	2,696	3.67	17.9	3,782	3.72	17.7
60	1,095	3.87	17.6	3,015	3.63	17.7	4,110	3.69	17.7
50	1,132	3.81	17.7	3,034	3.64	17.6	4,166	3.69	17.7
40	977	3.79	17.5	3,187	3.70	17.5	4,164	3.72	17.5
30	857	3.96	17.4	3,258	3.76	17.5	4,115	3.80	17.4
20	622	3.95	17.1	3,661	3.77	17.4	4,282	3.80	17.4
10	375	4.26	17.6	3,887	3.76	17.2	4,262	3.80	17.2
0	477	4.04	17.3	3,872	3.78	17.2	4,348	3.81	17.2
-10	230	3.75	17.2	3,099	3.83	17.4	3,329	3.83	17.4
-20	277	3.61	17.3	2,917	3.87	17.4	3,194	3.84	17.3
-30	453	3.63	17.3	2,817	3.88	17.3	3,270	3.84	17.3
-40	642	3.78	17.2	2,765	3.87	17.2	3,407	3.86	17.2
-50	723	4.01	17.2	2,591	3.86	17.1	3,314	3.89	17.1
-60	713	4.08	17.4	2,400	3.85	17.1	3,113	3.90	17.2
-70	730	4.06	17.6	2,261	3.82	17.1	2,991	3.88	17.2
-80	713	3.86	17.3	2,295	3.76	17.0	3,008	3.78	17.1
-90	706	3.77	17.4	2,282	3.69	16.9	2,988	3.71	17.0
-100	646	3.72	17.5	2,067	3.71	17.2	2,712	3.71	17.3
-110	536	3.72	17.3	1,886	3.72	17.5	2,422	3.72	17.4
-120	431	3.72	17.5	1,764	3.81	17.6	2,195	3.80	17.6
-130	324	3.71	17.4	1,818	3.84	17.5	2,143	3.82	17.5
-140	308	3.73	16.7	1,741	3.82	17.6	2,048	3.81	17.5
-150	233	3.82	16.9	1,845	3.72	17.6	2,079	3.73	17.5
-160	162	3.91	17.1	1,734	3.71	17.9	1,896	3.72	17.8
-170	128	3.95	17.0	1,450	3.72	18.2	1,578	3.74	18.1
-180	64	3.87	17.3	1,403	3.71	18.2	1,467	3.72	18.2
-190	30	3.56	17.4	1,338	3.68	18.2	1,369	3.67	18.2
-200	27	3.38	17.5	1,362	3.68	18.2	1,389	3.67	18.2
-210				1,460	3.73	18.2	1,460	3.73	18.2
-220				1,437	3.80	18.1	1,437	3.80	18.1
-230				1,298	3.85	18.1	1,298	3.85	18.1
-240				1,291	3.91	18.3	1,291	3.91	18.3
-250				1,078	4.00	18.3	1,078	4.00	18.3
-260				764	4.08	18.1	764	4.08	18.1
-270				521	4.25	17.9	521	4.25	17.9
-280				331	4.37	17.7	331	4.37	17.7
-290				220	4.39	17.6	220	4.39	17.6
-300				145	4.53	17.5	145	4.53	17.5
-310				118	4.66	17.3	118	4.66	17.3
-320				85	4.69	17.2	85	4.69	17.2
-330				34	4.70	17.1	34	4.70	17.1
TOTAL	**31,677**	**3.77**	**17.3**	**122,620**	**3.75**	**17.4**	**154,297**	**3.75**	**17.4**

Table 14. Grade-Tonnage Tables

Just Indicated		
TiO_2 Cut-Off %	Tonnes mT	Total TiO_2 %
0.0	56	2.82
0.5	56	2.82
1.0	45	3.31
1.5	43	3.43
2.0	41	3.50
2.5	37	3.62
3.0	32	3.77
3.5	22	4.00
4.0	9	4.38
4.5	3	4.78
5.0	0	5.24

Indicated + Inferred		
TiO_2 Cut-Off %	Tonnes mT	Total TiO_2 %
0.0	289	2.83
0.5	289	2.83
1.0	255	3.09
1.5	230	3.30
2.0	212	3.43
2.5	188	3.57
3.0	154	3.75
3.5	104	3.98
4.0	40	4.37
4.5	11	4.76
5.0	2	5.26





6 STATEMENT OF COMPETENCY

The information in this report that relates to Mineral Resources is based on information compiled by Adam Wheeler, who is a Member of the Institute of Mining, Metallurgy and Materials. He is also a registered Chartered Engineer (C. Eng and Eur. Ing) with the Engineering Council (UK). Reg. no. 371572.

For all of the work done in connection with this report, Adam Wheeler was employed by Nordic Mining ASA.

Adam Wheeler has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he has undertaken to qualify as a Competent Person as defined in the 2004 Edition of the ‘Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves’. Adam Wheeler consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

APPENDIX A

Figures

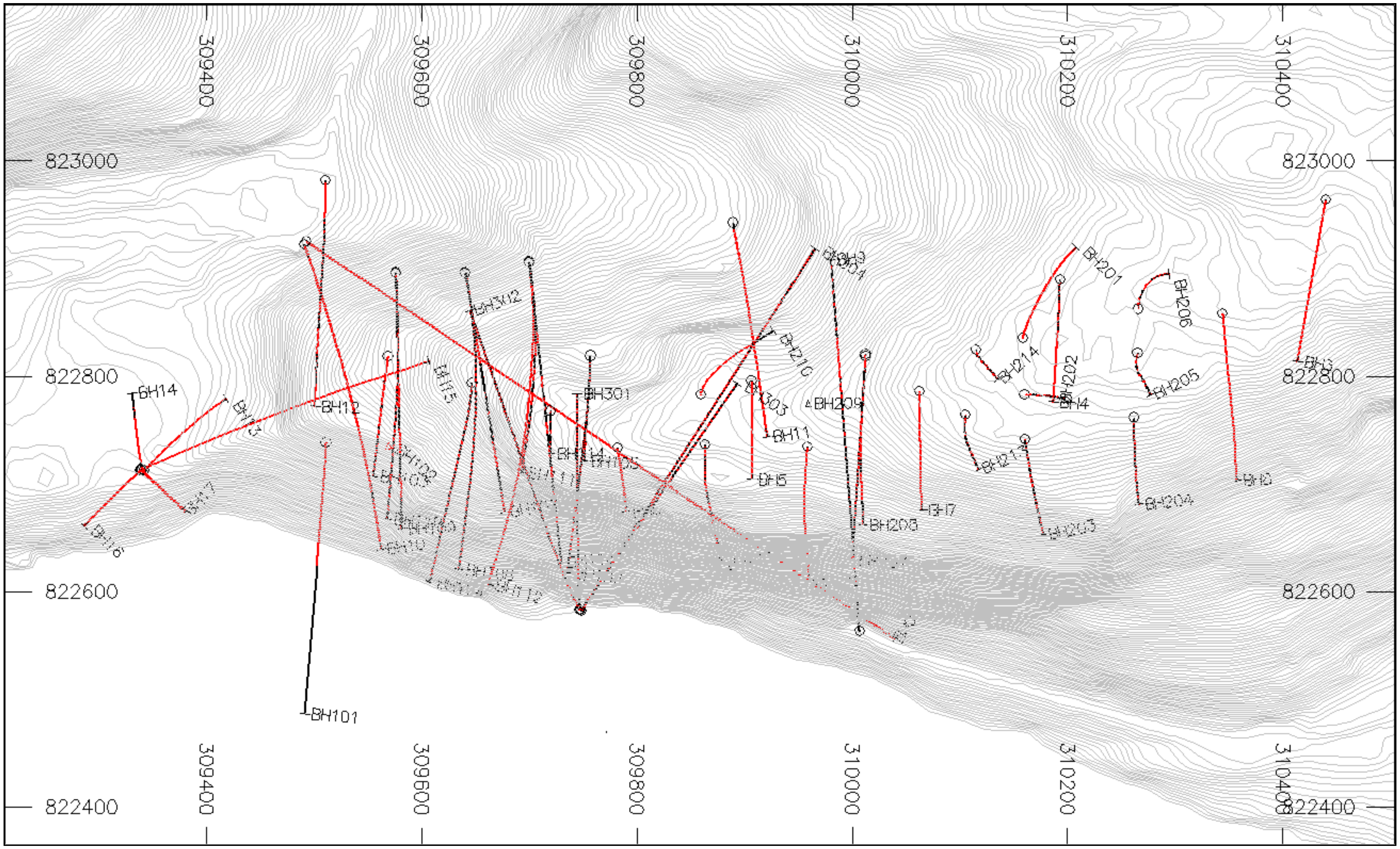


Figure 1. Plan of Drillhole Data

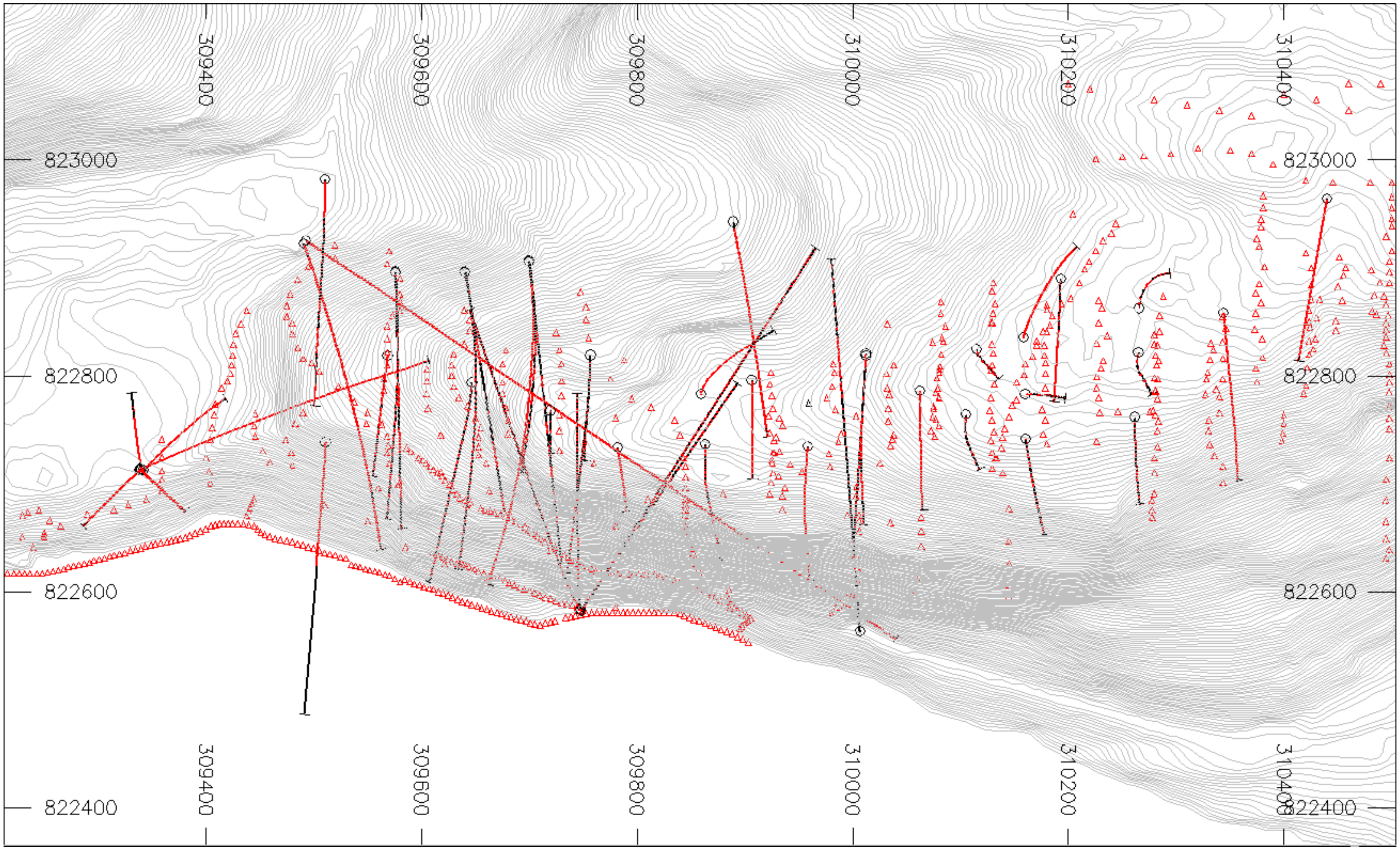


Figure 2. Plan of Drillhole and Surface Sample Data

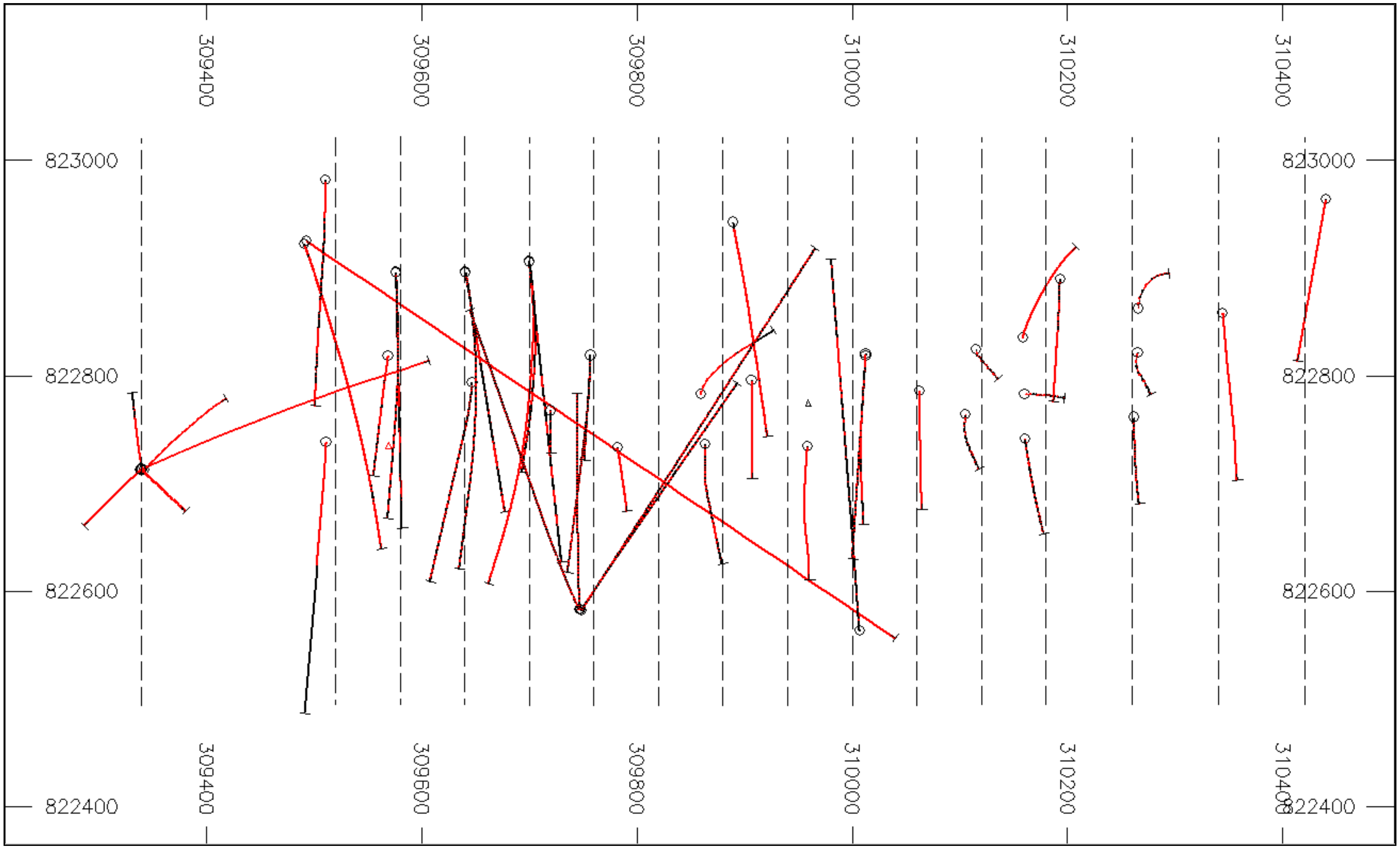


Figure 3. Section Reference System