Preliminary Economic Assessment
NI 43-101 Technical Report for the
Norra Kärr (REE -Y-Zr) Deposit
Gränna, Sweden

Prepared for

Tasman Metals Limited

May 11, 2012

DE-00215

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1.0 SUMMARY

1.1 *Property*

Located in south-central Sweden, approximately 300 km southwest of Stockholm the Project lays approximately 15 km northeast of the small town of Gränna in a rural agrarian setting. The Norra Kärr Project consists of four claims, Norra Kärr No. 1, Norra Kärr No. 2, Norra Kärr No. 3 and Norra Kärr No. 4, comprising approximately 5,079 hectares.

The Project occurs along the border of two counties (Län), the Jönköpings Län in the south and the Östergötlans Län in the north. The Norra Kärr property is an intermediate stage exploration project whose surface has been disturbed only by exploration drilling, trenching and sampling.

Tasman holds its mineral properties indirectly through its 100 percent owned subsidiary, Tasmet AB. Tasmet AB holds a 100 percent interest in the four exploration claims that together form the Norra Kärr Project.

1.2 *Geology*

The Norra Kärr peralkaline nepheline-syenite complex is N-S elongated, approximately 1,300 m long and up to 460 m wide with a total surface area of approximately 380,000 m^2 (38 hectares). It intrudes a suite of Proterozoic gneisses and granites referred to as the Växjö Granite which belongs to the Trans Scandinavian Igneous belt (1.85-1.65 Ga).

The contacts between the Norra Kärr intrusive and the surrounding Växjö Granite are west dipping. Tasman's diamond drilling has shown that the contact dips west at 35-45˚ except in the southernmost part where the dip is steeper.

1.3 *REE-Zr Mineralization*

Collectively the Norra Kärr intrusive complex is classified as a nepheline syenite, Nepheline belongs to the feldspathoid mineral group which is lacking in silica and often occurs in undersaturated alkaline intrusions. Mineralization is associated with several textural types of grennaite that range from non-migmatitic to migmatitic. The highest TREO and Zr grades are associated with increasing proportions of pegmatitic material that has invaded the grennaite. Typical grades (ZrO_2% : %TREO) in drill core for these lithologies are: Grennaite (GT), fine-grained (0.48% : 0.278%); Grennaite, migmatitic (GTM) (1.58% : 0.494%); Grennaite, pegmatitic (PGT) (2.2% : 0.663%) and nepheline. syenite (2.02% : 0.617%).

The rock units comprising the Norra Kärr peralkaline intrusion are uncommon on a global scale, and include minerals that are composed of or associated with REE's, Zr, Nb, Y and Hf.

While previous academic work at Norra Kärr has reported other accessory minerals which potentially carry REE's, mineral liberation analyses and microprobe studies have demonstrated that a majority of the REE's are contained in eudialyte, a zirconosilicate which is consistently present in the mineralized rock units. The dominant zirconium bearing minerals at Norra Kärr are catapleiite and eudialyte both of which are abundant in grennaites on the property,

1.4 *Project History*

The first exploration permit was applied on June 12, 2009 and granted on August 31, 2009. Prior to staking claims, Tasman had re-sampled reference samples from the Boliden trenches stored at the Swedish Geological Survey (SGU) archive in Malå, Sweden.

The recent diamond drilling in combination with earlier work has shown that about 85 percent of the surface area is composed of varieties of a green grey, aegirine-eudialyte-catapleite bearing nepheline syenite named by earlier workers Grennaite in reference to the local village. The remaining 15 percent is occupied by coarser grained alkaline rocks which previously were named Kaxtorpite, Lakarpite and Pulaskite.

In November 2009, Mr. John Nebocat of Pacific Geological Services prepared an NI 43-101 field report summarizing the exploration potential of Norra Kärr. On the basis of this report, Tasman decided to commence diamond drilling in December 2009. A total of 26 diamond drill holes totaling 3275.7m were drilled between December 2009 and May 2010.

PAH reviewed documentation for the sampling procedures, preparation, analysis, and security of Tasman's work during their site visit in September 2010. From the review of the literature and documentation on the project, PAH finds acceptable the results from analytical work completed by the current and previous operators who collected their samples according to high standards and accepted practices at the time of the campaigns.

Data has been reviewed by PAH by visiting 23 of the drilled locations in the field, relogging and resampling drill core, and evaluating the reported results against the mineralized rock observed in the field and core. PAH accepts that the work carried out by Tasman meets acceptable resource evaluation and due diligence standards for international mining ventures under NI 43-101 Technical Standards.

1.5 *Exploration*

At the beginning of Tasman's exploration program in 2009, the Company selected various samples for assay from a suite of rock specimens collected and archived by Boliden in the 1970s.

Of the 30 samples analyzed by Tasman, 27 came from Norra Kärr intrusion. The total rare earth oxide values (TREO) for these 27 samples ranged from 0.09 per cent to 0.70 per cent, and the percentage of the heavy rare earth oxide (HREO) contained within these samples ranged from 20 to 69 per cent, averaging 54 per cent. This is a high ratio of HREO to LREO; most REE deposits contain 1 to 3 per cent HREO in the TREO.

As referenced above, in 2009 Tasman also contracted Mr. John Nebocat of Pacific Geological Services to prepare an NI 43-101 technical report. This report summarized the pre-drilling history of the property, recommended further exploration, and encouraged Tasman to continue advancement of the Project.

In keeping with the recommendations of Mr. Nebocat, Tasman initiated drilling at the Project site during the winter of 2009 continuing until spring 2010. Tasman drilled 26 diamond drill holes totaling 3,275.74 m in five E-W orientated profiles across the Norra Kärr intrusion. These 26 holes were used within the first Mineral Resource calculation completed by Mr. Geoff Reed of PAH in November 2011. From January 2011 to August 2011, an additional 23 diamond holes were drilled for a total of 4,100.6 meters.

1.6 *Drilling*

Tasman's 2011 drilling program further confirmed the grade and continuity of the REE-Zr mineralization in the Norra Kärr peralkaline intrusive complex. A total of 7,376 m in 49 holes have now been completed and were available to support the new resource estimate of April 2012. Drilling sections are on east-west sections were completed on intervals of 100 meters.

From the drilling perspective, PAH believes that the drilling density, core recovery, and drill hole location surveying are industry standard and acceptable for use in resource estimation.

1.7 *Sample Quality*

PAH believes that the sampling methods and approach employed by Tasman are reasonable for this style of mineralization and consistent with industry standards. The samples are representative and there appears to be no discernible sample biases introduced during sampling.

All drilling samples were prepared by ALS Chemex in Öjebyn and analyzed by ALS Chemex in Vancouver, Canada. This laboratory is ISO accredited (ISO/IEC 17025) and, in addition, has been accredited by Standards Council of Canada as a proficiency testing provider for specific mineral analysis parameters by successful participation in proficiency tests.

All samples taken during Tasman's 2009 – 2011 diamond drilling programs at Norra Kärr were analyzed at ALS Chemex in Vancouver, Canada, by inductively coupled plasma - mass spectrometry for which the internal Chemex code is ME-MS81. In this method a sample (0.2 gr) is fused with a lithium metaborate flux after which the resulting bead is dissolved in a weak hydrochloric: nitric acid solution before being analyzed in the ICP-MS. Zirconium rich samples that exceeded the reporting limit of the ME-MS81 method (> 1 percent) were assayed by XRF method (ME-XRF10). About 55 percent of the samples were re-analyzed for Zr.

Analysis of certified standards by ALS-Chemex allowed Tasman to monitor the quality of assays during the drilling program. PAH graphically reviewed the standard data from 2009 – 2011 drilling. Plots of the data show that the accuracy and precision of data were adequate during the drilling programs and that no regular bias is present in the data. Any slight assay bias suggests an under reporting of grade rather than over reporting.

In addition, ALS Chemex routinely inserts standard and blank samples into every sample batch. This QC data was supplied to Tasman, and subsequently to PAH. PAH reviewed the blank sample analyses by ALS-Chemex and did not observe any sample cross contamination issues or inconsistency in sample quality.

PAH has discussed core and sample handling procedures with key geological and technical personnel. On the basis of these discussions, PAH believes that all split core was well and securely packed and stored prior to transportation to the laboratory for processing. As a result PAH considers sample security to be adequate.

PAH also understands that at no time was an officer, director or associate of Tasman involved in the sample preparation or analytical work and an independent laboratory was employed for sample preparation and analysis. It is therefore PAH's belief that it is highly unlikely that an officer, director or associate would have had the opportunity to manipulate the samples.

All QA/QC data for this Project has been deemed acceptable for the purposes of the Mineral Resource estimation.

1.8 *Data Verification*

Mr. Geoff Reed, Senior Consulting Geologist with PAH and QP under NI 43-101, travelled to the Norra Kärr Project with representatives from Tasman in September 2010. During this visit, a thorough validation of 23 hole collar positions was undertaken using GPS. Key geological features were surveyed during this visit such as a eudialyte-rich outcrop and grennaite outcrop.

Mr. Reed of PAH also travelled to the core archive facilities of the Swedish Geological Survey where Tasman's core is securely stored. Six holes were selected by PAH for re-logging, which were laid out in their entirety and logged. The re-logging of these holes confirmed the correlation of the higher grade zones with zones of stronger eudialyte mineralization which subsequently assisted in the interpretation of the high-grade domains within the broader resource area. PAH checked a random amount of printed logsheets against the data provided in the database. These did not indicate any issue with data integrity.

PAH completed a full review of Tasman's drill hole database which included a review of all available assay certificates, drill logs, samples books and historical database. PAH found robust records allowing easy data auditing. A comparison was made between assay certificates for the 26 holes available at the time of the site visit.

During this review and audit by PAH, a number of observations were noted, these include:

- Field checking of drill holes locations demonstrated accuracy in all cases;
- At the time of the visit, down hole survey certificates were not available, as holes had not been surveyed. Field checking, original drill logs, and database were all consistent with appropriate angle and inclination of the drill holes. Since the site visit 46 of the 49 holes have been re-entered, surveyed and the results correctly entered into the data base.
- Sample intervals were correct for assays entered. PAH noted only one error in the updated database caused by typographical error;
- The assay certificates, drill logs and sample sheets were available for all drill holes;
- Loading of assay data from laboratory certificates was correct;
- During the 2009 - 2011 drilling program, Tasman assayed all intervals for REE and Zr by the same analytical methods at the same laboratory;
- During the 2009 – 2011 drilling programs approximately 356 m out of the total 7,374 m of the drilling was not sampled, as they were drilled into the host granite;
- During this audit, no issues with the conversion of the database were identified.
- Tasman has documented its duplicate-assay and analytical control program and demonstrated that there is no evidence of major systematic errors or bias in that data.

1.9 *Assessment of Project Database*

The audit of Tasman's data collection procedures and resultant database by PAH has resulted in a digital database that is supported by verified certified assay certificates, original drill logs and sample books. PAH has high confidence that the REE and Zr assays used in the Mineral Resource Calculation are consistent with information in drill logs and sample books. A comparison of the assay certificates and drill hole logs show consistency for the 2009 - 2011 drill holes, PAH believes there is sufficient data to enable their use in a Mineral Resource estimate and resultant classification following NI 43-101.

Based on data supplied, PAH believes that the analytical data has sufficient accuracy for use in resource estimation for the Norra Kärr deposit.

1.10 *Check Sampling by PAH*

PAH independently checked 51 sample assays by directly acquiring previously prepared residue samples from the ALS Chemex preparation laboratory in Piteå, and resubmitted them as check assays using the sample analytical methods as Tasman. Final results were received on November 4, 2010. A scatter plot showed excellent correlation of original and check assays for Zr and Y as evidenced by the high correlation coefficients posted to the plots.

All QA/QC data for this project has been deemed acceptable for the purposes of estimation.

1.11 *Mineral Processing and Metallurgical Testing*

This conceptual process and flowsheet for the Norra Kärr Project was developed by J.E. Litz and Associates, LLC of Golden, Colorado, USA, based, in part, on test work completed by SGS-Lakefield of Ontario, Canada, the Geological Survey of Finland (GTK) and Mr. Litz's own bench test work.

In early 2011, Lakefield conducted the first leach tests on samples of whole ore. Their test work was subsequently stopped to allow the beneficiation work to proceed, as this work directly impacts leaching and acid consumption.

The beneficiation portion of the flow sheet, encompassing flotation and magnetic separation, was developed during five months of test work later in 2011 by the GTK. The results of the GTK test work are given in an internal report to Tasman entitled *Metallurgical Tests on the Norra Kärr Ore* by T. Maksimainen, dated 12 January 2012.

In February 2012, J.E. Litz and Associates began investigating the response of various minerals in the deposit to the acid addition.

1.11.1 Metallurgical Sample

Beneficiation and leaching test work performed by the GTK in 2011 utilized a large composite sample of drill core, of approximately 100 kg, provided by Tasman. GTK prepared the metallurgical samples, apportioned them into 1.5 kg and 5 kg process samples. The head composition was determined by the average of three samples. Portions of the material prepared by the GTK was distributed to J.E. Litz and Associates for use in test work.

To evaluate the representivity of the composited bulk sample used in the metallurgical testing, PAH compared the average grades of the metallurgical sample to grades reported from the Block Model Mineral Inventory at a cutoff grade of 0.4 percent TREO. PAH observed a high degree of correlation between the analyses of metallurgical samples with the estimated block grades in the model (R-squared = 0.998). PAH believes that the core samples composited by Tasman and prepared into metallurgical samples by GTK are reasonably representative of the deposit and therefore suitable for the on-going metallurgical test work.

1.11.2 Deleterious Elements

The analysis of the bulk sample by the GTK did not provide analyses of other elements that might be considered deleterious, except for uranium and thorium which occur at very low levels at Norra Kärr. Mineralogical analysis of the bulk sample by GTK reported only trace amount of galena and no other sulfide minerals (Table 13-2). Geochemical analyses on 4,706 core samples representing all logged rock types returned low levels of uranium and thorium. Lead shows a more complex pattern with multiple populations related to the various rock types that were sampled in the core.

- Uranium (U): Average: 18 ppm; Min: 0.06 ppm; Max: 676 ppm
- Thorium (Th): Average: 26 ppm; Min: 0.16 ppm; Max: 1000 ppm
- Lead (Pb): Average: 241 ppm; Min: 0.01 ppm; Max: 8360 ppm; Median: 135 ppm

1.11.3 SGS-Lakefield Test Work

In 2011, Lakefield conducted the first leach tests on samples of whole ore from the Project. Recent beneficiation test work indicates that a magnetic concentrate will be the preferred leach feed rather than ground ore as was used in the SGS test work.

Although the SGS work showed high extractions, the required acid additions were excessive and the probable high sodium dissolutions would present downstream processing problems. For example two tests were leached with 600 kg/t acid and resulted in extractions of 90 – 95 percent for Ce, Dy, Y and Zr.

1.11.4 GTK Test Work

The GTK investigated the beneficiation portion of the flowsheet, encompassing flotation, magnetic separation and two leach tests.

Eudialyte, the principal REE-bearing mineral at Norra Kärr, can be recovered using either magnetic separation or flotation. However, the GTK concluded that combining both processes in the flowsheet achieved operational efficiencies. In the GTK test work, the highest grade concentrate (0.65% Y) containing over 30 percent eudialyte was produced by flotation of aegirine (sodic clinopyroxene) followed by high gradient magnetic separation which resulted in an overall yttrium recovery of 80 percent.

Combining flotation and magnetic separation during the beneficiation stage has the objective of removing sodium-bearing silicate gangue minerals from the magnetic concentrate which would otherwise increase acid consumption during the leach stage.

The following are salient observations and conclusions from the GTK test work in 2011.

- Magnetic separation appears to be more efficient than flotation in separation of eudialyte from feldspars owing to the fine grain size of the minerals and the loss of REEs to the slime fraction.

- Attempts to float eudialyte using several reagents were unsuccessful.
- Efficient flotation of aegirine requires desliming and conditioning in high pulp density.
- Finer grinding improves the REE grade in magnetic concentrate while decreasing the iron content of the non-magnetitic product.
- The non-magnetic product might also be a salable product because it contains mostly the aluminosilicate, nepheline, and has low iron content.
- Separating the fines from the aegirine flotation product and re-directing them to the magnetic separator can prevent one third of the REE losses to the aegirine product. This may increase overall recovery 1-2 percent.

The GTK performed two leach tests on concentrates produced in their beneficiation studies. The tests were done on magnetic concentrates produced without the benefit of the flotation step. The concentrates represented about a 50 percent weight reduction with about 90 percent recovery of the rare earth values.

1.11.5 J.E. Litz and Associates Test Work

At the conclusion of the GTK beneficiation program, J.E. Litz and Associates began a series of leaching studies on magnetic concentrates that did incorporate the flotation step. The concentrates used in this test work were obtained from the GTK which were prepared from representative composited core samples supplied by Tasman as described above.

In this case the concentrate weight was 29 percent of the ore with recoveries of 60 percent Zr, 85 percent Y, 79 percent Ce, 76 percent La were achieved. These leaches had retention times of 3 to 6 hours. Intent of the tests was to investigate the conditions under which the various minerals in the concentrate reacted and what acid additions were required to achieve greater than 80 percent dissolution of the rare earths.

The leaching data indicate that a significant addition of acid is required for the rare earths extraction to exceed 80 percent. Ongoing studies are evaluating the effect of leaching time and temperature at the higher acid additions.

1.12 *Mineral Resource Estimate*

This Technical Report includes a new mineral resource estimate and preliminary economic assessment (PEA) for the Project. The Project consists of an exploration property and it does not contain Mineral Reserves as defined by CIM standards.

As the mining concept for the Norra Kärr Deposit is surface mining, the current Mineral Resource estimate is reported from a conceptual pit shell generated using the Whittle® software.

1.12.1 Conceptual Economic Basis of Mineral Resource Estimate

- Construction of a shallow open pit mine having an annual ore production rate of 1.5 Mt.

- Processing of mined material on site to produce two salable intermediate products: mixed REO-Y concentrate and a zirconium concentrate.

Conceptual economic parameters required for preparation of Whittle® shells were compiled from several sources including mining industry cost guides. Processing plant operating costs were estimated from preliminary plant design criteria developed by Tasman and its metallurgical consultants.

As the rare earth elements are not openly traded on international commodity markets, Tasman and PAH considered several sources of pricing information to develop a “Basket Price” for the REOs contained in the Norra Kärr deposit. The Basket Price is discounted by 38 percent as the REEs are contained in a mixed REO-Y carbonate concentrate which requires additional, off-site separation and refining to yield individual REE metals.

The Basket Price used in this PEA was developed from the three-year averages for Dy and Tb and peer group reports for La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, and Y. Although Ho, Tm, Er, Yb and Lu are present in the Norra Kärr deposit, these elements were not included in the Basket Price due to the lack of reliable historical pricing information.

PAH considers that REE mineralization in the Norra Kärr deposit is amenable to surface mining and has not considered other mining methods.

1.12.2 Mineral Resource Statement

Current Indicated and Inferred Mineral Resources compliant under NI 43-101 are presented on Table 1-1.

Mineral Resources at Norra Kärr are classified according to the CIM-code on the basis of the density of drilling, checked grades, and inter-hole continuity.

It is the opinion of PAH that the Norra Kärr Mineral Resource estimate satisfies the definitions of Inferred and Indicated Mineral Resources as per the CIM Definition Standards of November 22, 2005.

TABLE 1-1
Tasman Metals Limited
Norra Kärr Project – PEA
NI 43-101 Compliant Mineral Resource Estimate (March 2012)

Resource Classification	Tonnes Mt	TREO %	LREO %	HREO %	HREO/ TREO %	ZrO_2 %	Contained TREO
Indicated	41.6	0.57	0.28	0.29	0.51	1.7	237,120
Inferred	16.5	0.64	0.33	0.31	0.49	1.7	94,050

1) Mineral resources that are not mineral reserves do not have demonstrated economic viability. Mineral resource estimates do not account for mineability, selectivity, mining loss and dilution. The Preliminary Economic Assessment includes inferred mineral resources which are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves. There is no certainty that the results projected in the preliminary Economic Assessment will be realized and actual results may vary substantially.

2) Total Rare Earth Oxides (TREO) includes: La_2O_3, Ce_2O_3, Pr_2O_3, Nd_2O_3, Sm_2O_3, Eu_2O_3, Gd_2O_3, Tb_2O_3, Dy_2O_3, Ho_2O_3, Er_2O_3, Tm_2O_3, Yb_2O_3, Lu_2O_3, Y_2O_3

3) Heavy Rare Earth Oxides (HREO) includes Eu_2O_3, Gd_2O_3, Tb_2O_3, Dy_2O_3, Ho_2O_3, Er_2O_3, Tm_2O_3, Yb_2O_3, Lu_2O_3,Y_2O_3

4) "In-pit" Mineral Resources were estimated using the Whittle pit optimization software and scoping level economic parameters for commodity prices, metal recoveries and current operating expenses as presented in the PEA and summarized in this press release.

5) Mineral Resources are reported at a marginal cutoff grade of 0.17% TREO.

6) Resource estimate assumes mining recovery 95%, dilution 5%.

1.13 *Mining Methods*

Annual production estimates are based on a surface mining rate of 1.5 million tonnes of mineralized material delivered to the processing plant which on a daily production basis, is 4,100 tonnes per day.

Dilution and mining losses were included in the Whittle® analysis using factors of 5 percent for mining loss and 5 percent for mining dilution.

The estimated discounted basket price for total rare earth oxides (TREO) used for the Whittle® analysis is US$31.60 per kilogram (kg) and a zirconia price of $3.77 per kg. Two concentrates will be produced and sold from the Norra Kärr processing plant: a mixed REO+Y carbonate and a zirconium carbonate concentrate.

1.13.1 Resource Pit Shell

PAH investigated Whittle pit shells in revenue factor increments between 0.2 and 1.0. This analysis produced a series of nine nested pit shells that varied in size from 16 million tonnes to 88 million tonnes of mineralized material, respectively.

For reporting Mineral Resources during the current period of high REE prices, PAH used a lower revenue factor of 0.43 to generate a pit shell that contains 58 million tonnes of mineralized material at a marginal cutoff grade of 0.17 percent TREO. This amount is approximately 40 years of production at the current proposed mining rate.

1.13.2 Proposed Mining Method

Conceptual surface mine is planned as a single open pit accessed by one haul road.

Topsoil on the surface of the deposit is typically less than 1 meter in depth and no significant pre-stripping of overburden is required. Topsoil will be removed from the project site and stockpiled for mine reclamation at the end of the mine life.

The mine will be a conventional drilling and blasting operation with excavation and removal of the blasted material with small excavators and trucks. Mining will be carried out using one hydraulic excavator and one front-end wheel loader, loading 40 tonne rear dump haulage trucks.

A two year ramp-up period is anticipated before the mine and processing plant reach full production. The life of mine, open pit strip ratio is estimated to be 0.85:1 (waste: ore) with a mine life of 40 years. Total waste rock mined over the life of the mine will be 49.5 million tonnes.

1.14 *Capital Costs*

A summary of the initial capital costs of $290 Million is shown on Table 21-1. The capital cost includes $66.8 million for contingencies for Mining (10%), Processing (20%) and overall Project contingency (20%). The total life of mine (LOM) capital requirements for the Norra Kärr Project is $507.1 million. This includes $75 million for the expansion of the tailings facility that will be required midway through the mine's 40 year LOM with sustaining capital of $142.1 million.

The initial mining capital cost is estimated to be $18.2 million. Total processing and infrastructure capital is $229 million of which $144 million is for processing and $85 million is for the tailings facility and infrastructure capital.

The exchange rate used in this study for USD and CND is $1 CND to $1 USD. Since the exchange rate is at par, no conversion is applied.

1.15 *Operating Costs*

The cost of power, water and chemical reagents used in this study are believed to reasonably reflect current local costs in Sweden. All processing cost are estimated and reported in 2012 USD$. Total costs for the project average USD $10.93 per kilogram of TREO concentrate.

Mining operating cost is estimated at $3.80 per tonne mined or $7.04 per tonne processed. Processing cost comprise 81 percent of the total operating costs at $41.5 per tonne TREO processed. General and administrative costs of $2.5 per tonne are 4.8 percent of the total project cost.

Preliminary estimated processing plant operating cost is $41.48 per tonne milled. The annual cost of water and chemical reagents comprise approximately 93 percent of the annual Opex for the processing plant of which the costs for sulfuric acid and sodium carbonate comprise approximately 50 percent of that cost.

1.16 *Economic Analysis*

1.16.1 Assumptions

Pincock, Allen and Holt prepared the economic assumption for the Norra Kärr project based on a pre-tax financial model and the following assumptions:

- 40 year life of mine.
- Long-term estimate of the exchange rate between the Canadian and US dollar at a CND$1.00 to USD$1.00 ratio. Constant currency relative to the Canadian dollar, US dollar and Swedish Krona.
- $290 million in initial capital expenditure.
- A discounted selling price of 38 percent relative to the pure oxide for selling in a concentrate form.

In the development of the price deck for this PEA, much effort was expended by Tasman and PAH to ensure the price forecast was realistic and conservative. Price forecasts were compiled and studied from industry groups including Roskill and IMCOA, as well as financial analysts including Dundee Securities, Cormark Securities, Euro Pacific Canada, CIBC World Markets, and Global Hunter Securities. Also taken into consideration were previously published PEA and PFS studies from competing REE projects including, Avalon Rare Metals, Quest Rare Mineral, Hudson Resources, Matamec and Frontier Rare Earths. The three year trailing price average for China FOB pricing from Asian Metals was also reviewed.

Price forecasts between the various analysts and competing REE projects differ substantially, with particular divergence in the forecast for cerium and lanthanum. The Norra Kärr deposit provides little exposure to cerium and lanthanum (approximately 3 percent of annual revenue), and this divergence plays only a minor role in the financial modeling within. The majority of industry analysts expect an increase in consumption of rare earth elements, particularly those considered to be in the critical rare earth oxide (CREO) category as defined in the August 2011 report issued by Technology Metals Research. These CREO elements include Tasman's major revenue drivers of dysprosium, yttrium, terbium, neodymium, and europium.

This PEA is based upon the production of a mixed REE concentrate, as modeling of separation of this concentrate into individual rare earth oxides was considered beyond the scope of the study. For the scope of this report, modeled pricing is at a discount of 38 percent to the final separated oxide selling price given in Table 22-1 to account for the cost of separation by a third party. The undiscounted REE basket price used in the PEA analysis was US$51.00 and, therefore, the corresponding long term discounted basket price was US$31.60.

According to data published by independent consulting firm TZ Minerals International, the zirconium chemicals market is the fastest growing segment of the zirconium market and is estimated to account for 18 percent of the zirconium market in 2012 or approximately 250,000 tonnes. Price forecasts and current spot pricing for zirconium carbonate was not available and as such, the price of zirconia or zirconium oxide has been used as a proxy. As a result, a conservative price forecast of $3.77 per kg was used in the model, in line with competitor PEA pricing.

1.16.2 Economic Results

Total estimated revenue from the project over the 40 year life of mine is $10.9 billion or $5.3 billion during the first 20 years. This is based on a sale price of $31.60 per kg of TREO produced (FOB mine), which is derived from discounting the REO basket price of $51.00 per kg by 38 percent.

Before-tax NPV's are positive for the 20 and 40 year cash flows demonstrating a robust and favorable discounted value. Based on the before-tax cash flow, the payback period for the initial capital investment of $290 million is 2.6 years. Sensitivity analyses were performed on the economic model to assess the impact for changes in the REE price deck, as well as changes to operational costs. That the economic model is most sensitive to changes in the REO basket prices followed by initial capital expenditures and finally increases or decreases in operational costs.

1.17 *Interpretations and Conclusions*

The following interpretations and conclusions have been made on the Norra Kärr Project from the findings of the Technical Report:

- Tasman’s 2011 drilling program further confirmed the grade and continuity of the REE-Zr mineralization in the Norra Kärr peralkaline intrusive complex, Sweden. A total of 7,376 m in 49 holes have now been completed and were available to support the new resource estimate of April 2012. The Project is a promising REE project and has resources of sufficient quality and quantity that warrant additional investigation.

- A new Mineral Resource has been estimated using conceptual economic and technical parameters consistent with development of the property as a surface mine and processing plant which would produce two concentrates: a mixed REO-Y carbonate and a Zr carbonate concentrate. These intermediate products would be sold to third-parties for conversion to REE metals.

- The new Mineral Resource is spatially constrained to the interpreted mineralized domains within the intrusive complex and to a conceptual pit shell developed in the Whittle® mining software. Pit shells were calculated using conceptual economic and technical parameters for metal recovery, REO prices and operating expenses. The resources reported include mining loss (5%) and dilution (5%) with a cutoff grade of 0.170 percent TREO.

- The in-pit Mineral Resources at Norra Kärr are summarized below.

  - Indicated Mineral Resource: 41.6 million tonnes, 0.57% TREO, 1.70% ZrO_2

  - Inferred Mineral Resource: 16.5 million tonnes, 0.64% TREO, 1.70% ZrO_2

- PAH considers the estimated Mineral Resource to be in accordance with NI 43-101 Guidelines for Resource Estimates. There are no Mining Reserves on the property.

- Process metallurgists engaged by Tasman have developed a conceptual flowsheet for recovery of rare earth elements, yttrium, and zirconium from the deposit. Based on early test-work, the flow sheet envisions communition of the ore by crushing and grinding, beneficiation of the ground feed to remove acid consuming gangue minerals and hydrometallurgy to separate and extract the values. Test work is underway to improve beneficiation methods that would up-grade the quality of the feed material going into the acid leach, to this end flotation and high gradient magnetic separation techniques are being tested.

- Tasman's environmental consultants have completed the initial base-line investigations, studies related to the local flora and fauna and archeology. The Environmental Impact Assessment (EIA), tailings and waste rock characterization studies and hydrological studies are advanced and on-going as of April 2012.

- The financial model of the project assumes a two year start-up period before full production is reached. The production model used the estimated annual mining rate of approximately 1.5 million tonnes of ore for a total LOM production of 58.1 million tonnes, which is the current "in-pit" Mineral Resource.

- Total estimated revenue from the project over the 40 year life of mine is $10.9 billion or $5.3 billion during the first 20 years. This is based on a sale price of $31.60 per kg of TREO produced (FOB mine), which is derived from discounting the REO basket price of $51.00 per kg by 38 percent. A summary of the results of the financial analysis is presented in Table 22-4.

1.18 *Recommendations*

The very positive financial analysis presented in this PEA combined with the current strong demand for the heavy rare earth metals and the strategic need to diversify international supply, indicate that the Norra Kärr project should advance to the pre-feasibility stage for which the following recommendations are made.

1.18.1 Geology and Mineral Resources

- In-fill drilling should continue in the in-pit Mineral Resource Area, as delimited in this PEA. Drilling on a tighter grid is recommended in order to up-grade a proportion of the resource to the measured class, using a 50 m x 40 m, diamond pattern with drill sections on 50m line spacing with drill holes and holes on 40 m centers.

- As larger metallurgical samples are required in 2012 and beyond, it is recommended that at least 5 met holes be twined with holes that penetrated the principal mineralized domains in the GTC, PGT and GTM rock units.

- Continue the practice of collecting high quality geotechnical (RQD) data for eventual mine planning and pit slope stability studies.

1.18.2 Mining

- Continue the process of developing more refined mining and processing cost for opex and capex estimates.

- Investigate the parameters required to increase the tailings storage facility capacity to 40 years of production based on the 58 Mt in-pit Mineral Resources.

- Continue the tailings and waste rock characterization study.

1.18.3 Metallurgy

- Tasman's metallurgical consultants continue to conduct test work on samples from the Norra Kärr deposit. New test work that is on-going or pending includes the following:

  - Magnetic separation testing to improve rejection of the sodium-rich minerals nepheline and natrolite from the magnetic concentrate;

  - Pilot stage magnetic concentration testing to demonstrate the best beneficiation process and to produce sufficient concentrate for laboratory and pilot testing;

  - Laboratory leaching testing on concentrate to maximize dissolution of REE values; and

  - Laboratory testing to evaluate recovery of REEs, Y and Zr from the leachate.

- As more mineralized bulk test will be required, proposed new test work will need 100 kg of additional metallurgical samples obtained from representative core samples in the deposit.

1.18.4 Environmental

The environmental studies have advanced quickly with local consultants in Sweden as the various studies are completed over the next 2-3 years, Tasman will be well positioned to apply for their main environmental permit which will grant them the right to mine and process the ores.

1.18.5 Financial

Tasman should continue to monitor and assess the international REE markets to keep abreast of prices and marker drivers, Chinese political and economic trends.

2.0 INTRODUCTION

2.1 *Background*

Pincock, Allen and Holt ("PAH"), a division of Runge, was requested by Tasman Metals Ltd. ("Tasman") to provide a Technical Report that meets the requirements of Canadian National Instrument 43-101 Technical Report ("NI-43101"), for the Norra Kärr Project ("the Project") in the vicinity of the village of Gränna, southern Sweden. This report has been prepared in accordance with the guidelines provided in NI 43-101, Standards of Disclosure for Mineral Projects, dated June 30th 2011. The Qualified Person responsible for this report is Mr. Craig Horlacher ("Author"), Principal Geologist for PAH. Mr. Geoff Reed, Senior Consulting Geologist and Qualified Person completed a site visit the week of September 27, 2010, to review existing geology, core logging and the project setting.

Tasman holds its mineral properties indirectly through its 100 percent owned subsidiary, Tasmet AB. Tasmet AB holds a 100 percent interest in four mineral claims that forms the Norra Kärr Property.

This Technical Report includes a Mineral Resource estimate for the Project.

2.2 *Terms of Reference*

The following terms of reference are used in the Technical Report:

- Tasman refers to Tasman Metals Ltd.
- PAH refers to Pincock, Allen and Holt and its representatives.
- Project refers to the Norra Kärr deposit located near Gränna, Sweden.
- Zirconium, yttrium and other rare earth element grades are described in terms of percentage (%), with tonnage stated in dry metric tonnes.
- Resource and Reserve definitions are as set forth in the "Canadian Institute of Mining, Metallurgy and Petroleum, CIM Standards on Mineral Resource and Mineral Reserves – Definitions and Guidelines" adopted by CIM Counsel on December 11, 2005.

2.3 *Source of Information*

The primary source documents for this report are:

- Norra Kärr Project, NI 43-101 "Report on the Geology, Mineralization and Exploration Potential of Norra Kärr" prepared by Mr. John Nebocat of PGS Pacific Geological Services, November 2009.

- Norra Kärr Project, NI 43-101 “Report on Norra Kärr REE - Zirconium Deposit” prepared by Mr. Geoff Reed of PAH, January 2011.

2.4 *Participants*

The Norra Kärr Project was visited by Mr. Geoff Reed, Senior Consultant Geologist of PAH, from September 27-28, 2010. Mr. Reed compiled Sections 4.0 through 12.0 and prepared the Block Model and Mineral Inventory for this report and is a Qualified Person under National Instrument 43-101 (NI 43-101).

Other project participants included:

- Paul Gates, P.E., Principal Mining Engineer, PAH, Denver, USA.
- John Litz, Principal Metallurgist, PAH, Denver, USA.
- Jim Powell P.Eng, P.E., CFA , Tasman Metals Ltd, Ontario, CA.
- Henning Holmstrom, Ph.D. (Applied Geology) Project Development Manager, Tasman Metals Ltd., former Project Development Manager, Golder Associates AB, Sweden.
- Erick Karlsson Ph.D. (Geochemistry) Senior Consultant (Mining),Golder Associates AB, Sweden.

Table 2-1 lists the Technical report section contributions by the respective participants.

TABLE 2-1
Tasman Metals Limited
Norra Kärr Project – PEA
Report Contribution Responsibility

Participants	Contribution Section of Report	Comment
Paul Gates, PE.,MBA QP	14,16,21,22, parts of 25 and 26	Mining Cost,Whittle Pit Shell, Economic Analysis
Craig Horlacher, QP	1,2,3,13,14,17, 23,24,25,26	Geology, Mineral Resources, Data Verification, and Report preperation
Geoff Reed, QP	4,5,6,7,8,9, 10,11,12	Geology,Exploration Drilling, Sample Preparation,Data Verification, Mineral Resource Estimate
John Litz, MSc., Met.Eng., MSc. Indust. Mgmt.	13, 17, 21	Extraction of REEs and other rare metals
Erick Karlsson, PhD (Geochemisty)	2.6, 18	Infrastructure, Permitting, Waste rock and Tailing Charactarization, Geohydrologic studies
Henning Holmstrom, PhD (Applied Geology)	18, 20	Legislative, Environmental
Jim Powell P.Eng, CFA, MBA	19, 22	7 yrs equity research, 8 yr ind. Engineering, Marketing study

2.5 *Qualified Persons and Responsibilities*

The estimation and reporting of Mineral Resources in this Technical Report complies with the requirements of the Canadian National Instrument 43-101 of the Canadian Securities Administrators. Therefore, it is suitable for public reporting.

The information in this report that relates to the Block Model Mineral Inventory is based on information compiled by Mr. Geoff Reed who during the time of the site visit and during the preparation of the block model was a full time employee of PAH and a Member of the Australian Institute of Mining and Metallurgy ("AusIMM"). Mr. Reed has sufficient experience, which is relevant to the style of mineralization and type of deposit under consideration, as well as the work he has undertaken, to qualify as a Qualified Person as defined by NI 43-101.

The information in this report that relates to the Mineral Resource was prepared by Mr. Paul Gates, who is a full time employee of PAH – Denver and Professional Engineer (Colorado). Mr. Gates has sufficient experience, which is relevant to the style of mineralization and type of deposit under consideration, as well as the work he has undertaken, to qualify as a Qualified Person as defined by NI 43-101.

Mr. Craig Horlacher, Principal Geologist of PAH, supervised the work of the PAH staff and edited all portions of the final report. He is a Qualified Person under NI 43-101. Table 2-2 lists the Project participants for this report.

TABLE 2-2
Tasman Metals Limited
Norra Kärr Project – PEA
Project Participants

Projct Participants	Position	Employer	Professional Area	Contribution Section of Report	Comment
Paul Gates, PE.,MBA, QP	Principal Mining Engineer	Pincock Allen & Holt	Mining Eng. Economic Analysis	14,16,21,22, parts of 25 and 26	Mining Cost,Whittle Pit Shell, Economic Analysis
Craig Horlacher, QP	Principal Geologist, Project Manager	Pincock Allen & Holt	Geology	1,2,3,13,14,17, 23,24,25,26	Geology, Exploration, Data Verification,Mineral Resources, Technical Report Editor
Geoff Reed, QP	Senior Consultant Geologist	Runge / PAH	Geology, Block Modeling	4,5,6,7,8,9, 10,11,12	Site Visit, Geology,Exploration Drilling, Sample Preparation,Data Verification, Mineral Resource Estimate

2.6 *Limitations and Exclusions*

The Technical Report is based on various reports, plans and tabulations provided by Tasman either directly from the exploration offices, or from reports by other organisations whose work is the property of Tasman. PAH has not been advised of any material change, or event likely to cause material change, to the operations or forecasts since the date of asset inspections. PAH has no reason to believe that the information provided is inaccurate or misleading.

The work undertaken for this report is that required for the preparation of a Technical Report including reviews of technical information, coupled with such inspections as PAH considered appropriate to prepare this report. It specifically excludes all aspects of legal issues, commercial and financing matters, land titles and agreements.

PAH has specifically excluded making any comments on the competitive position of the Project compared with other similar and competing REE producers around the world. PAH strongly advises that any potential investors make their own comprehensive assessment of both the competitive position of the Project in the market, and the fundamentals of the market at large.

2.7 *Cautionary Statement*

This report is intended to be used by Tasman Metals subject to the terms and conditions of its contract with Pincock, Allen and Holt. That contract permits Tasman Metals to file this report as a Technical Report with Canadian Securities Regulatory Authorities pursuant to provincial securities legislation. Except for the purposes legislated under provincial securities laws, any other use of this report by any third party is at that party's sole risk.

2.8 *Capability and Independence*

PAH provides advisory services to the mining and finance sectors. Within its core expertise it provides independent technical reviews, resource evaluation, mining engineering and mine valuation services to the resources and financial services industries.

All opinions, findings and conclusions expressed in this Technical Report are those of PAH and its specialist advisors as outlined under Participants.

Drafts of this report were provided to Tasman, but only for the purpose of confirming the accuracy of factual material and the reasonableness of assumptions relied upon in this Technical Report.

PAH has been paid, and has agreed to be paid, professional fees for its preparation of this Report. None of PAH or its directors, staff or specialists who contributed to this report have any interest or entitlement, direct or indirect, in:

- Tasman, securities of Tasman or companies associated with Tasman; or
- The Project.

This Technical Report was prepared on behalf of Tasman by the signatory to this Technical Report. The specialists who contributed to the findings within this Technical Report have each consented to the matters based on their information in the form and context in which it appears. Details of the specialist's qualifications and experience are set out in Section 28.

2.9 *Units*

All units are carried in metric units, also unless otherwise noted. Grades are described in terms of percent (%) or grams per metric tonne (gptonne or g/tonne), with tonnages stated in metric tonnes. Salable metals are described in terms of tonnes, or troy ounces (precious metals) and percent weight.

Unless otherwise stated, Dollars are US Dollars. The following abbreviations are used in this report:

Abbreviation	Unit or Term
HREO	heavy rare earth oxides
kg	Kilograms
km	Kilometer
k	Thousands
LOM	Life of Mine
LREO	light rare earth oxides
m	Meters
masl	Meters Above Sea Level
M	Million
Mt	Million Tonnes
NPV	Net Present Value
Oz (oz/t)	Ounces (ounce/tonne)
ppm	parts per million
REE	rare earth elements
REO	rare earth oxides
SGU	Swedish Geological Survey
SEK	Swedish Krone
tpa	Tonnes per annum
tpy	Tonnes per year
tpd	Tonnes per day
TREO	total rare earth oxides
USGS	United States Geological Survey
US$	United States Dollars
CDN$	Canadian Dollars

3.0 RELIANCE ON OTHER EXPERTS

This Technical Report was prepared for Tasman by PAH and is based on information prepared by other parties with the exception of Section 17, 18, 19 and 20. PAH has relied on information provided as follows:

- "Norra Karr REE Project, NI 43-101 Report on Geology, Mineralization and Exploration Potential, Gränna, Sweden, November 2009," Prepared for Tasman Metals, by PGS Pacific Geological Services.
- Golder and Associates AB, Sweden.
- ALS Chemix, Vancouver, Canada and Ojebyn, Sweden.

Mineral law information and claim documentation was provided by Tasman staff, and confirmed via the Mining Inspectorate of Sweden website (www.bergsstaten.se). PAH believes that this information is reliable for use in this report, without a need to further independently verify its accuracy. PAH has not conducted land status evaluations, and has relied upon Tasman's and PGS's statements regarding property status, legal title, and environmental compliance for the Project.

Table 3-1 shows the project participants and other experts.

TABLE 3-1
Tasman Metals Limited
Norra Kärr Project – PEA
Project Participants - Other Experts

Other Expert	Position	Employer	Professional Area	Contribution Section of Report	Comment
John Litz, MSc., Met.Eng., MSc. Indust.	Principal Metallurgist	J.E. Litz & Assoc.	Metallurgical Engineer	13, 17,21	Extraction of REEs and other rare metals
Jim Powell P.Eng, CFA,	VP Corporate Develop.	Tasman Metals	Equity research, engineering	19, 22	7 yrs equity research, 8 yr ind.
Henning Holmstrom, PhD (Applied Geology)	Proj. Development Mgr.	Tasman Metals	legislative and environmental aspects of mining	20	legislative, environmental
Erick Karlsson, PhD (Geochemisty)	Senior Consultant Mining	Golder Associates AB	Environmental aspects of mining, mine permitting	18	Infrastructure, permitting

Jim Powell P.Eng, CFA. Prior to joining Tasman Metals in the position of Vice President, Corporate Development, Mr. Powell spent over 7 years in equity research Toronto covering a variety of industries including specialty metals and rare earths. He worked for eight years in various process engineering, management, and supply chain purchasing and planning positions in a global electronics manufacturing company. Mr. Powell graduated from the University of Toronto in 1998 with a Bachelor of Applied Science in Mechanical and Metallurgical Engineering, as well as graduating from York University's Schulich School of Business in 2004 with a Master of Business Administration. Mr. Powell is also a licensed professional engineer (2000) and a CFA charter holder (2007).

John Litz, Principal Metallurgist. Mr. Litz has over 50 years experience in mineral, chemical, and related industries specializing in process design and development, process modeling, waste reduction and reprocessing, groundwater and waste water treatment, hydrometallurgy (leaching, solvent extraction, ion exchange, crystallization, precipitation and electrolysis), inorganic chemistry, pyrometallurgy (roasting and smelting), operations research, pilot plant design and operation, economic analysis, process consulting and project management. Mr. Litz has Shared laboratory space with rare earth separations in small-scale mixer mixer-settler units and learned the complexities of separating the individual rare earths. He has conducted project on the extraction of thorium and rare earths from samples from Lemhi Pass, Idaho, a project to recover yttrium and rare earths from Mineville, New York tailings and a project including small pilot plant to process material from Thor Lake.

Henning Holmstrom, Mining Engineer. Henning Holmström is a Swedish mining engineer (M.Sc. in Geotechnology) from Luleå University of Technology. Henning has a Ph.D. in Applied Geology. Henning has also taught geochemistry and geology at Luleå University of Technology and guided several M.Sc-students. Henning has approximately 17 years experience from different mining projects varying from assignments during start-up of operation (permitting, baselines etc.) to rehabilitation and mine-water treatment. Henning has also been working for Golder Associates as the Client Sector Leader Mining Scandinavia (2008-2011) and is presently working for Tasman Metals Ltd (Project Development Manager) and Flinders Resources Ltd (Manager Environment).

Erick Karlsson. Erik Karlsson has a Ph.D. in Geochemistry. His Ph.D. studies involved geochemical characterization of tailings and oxygen penetration through soil covered tailings. He has also taught geochemistry and geology at Luleå University of Technology and has 13 years experience. Erik has been involved in approximately 50 projects. Almost all of them have been various mine projects mostly concerning geochemistry and environmental aspects (EIA, permitting etc).

4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 *Property Ownership*

PAH has not reviewed any claim records or any agreements regarding mineral claims of the Norra Kärr Project. The information here presented is based on reports provided by Tasman, information contained with the November 2009 NI 43-101 Technical Report authored by PGS, and information contained on the website of the Mining Inspectorate of Sweden (www.bergsstaten.se). The location of the project area in southern Sweden is shown on Figure 4-1.

The Norra Kärr Project consists of four claims, Norra Kärr No. 1, Norra Kärr No. 2, Norra Kärr No. 3 and Norra Kärr No. 4, together covering just in excess of 5,079 hectares. A map of the four exploration claims is given on Figure 4-2 whilst the coordinates of the respective claim vertices are summarized on Table 4-1.

Norra Kärr No. 1 is the claim of interest as it contains the REE mineral resources that are the subject of this report and shown on Figure 4-3.

The Project is located approximately 15 km northeast of the small town of Gränna and is centered at coordinate 1426900mE by 6442800mN by the Swedish coordinate system (RT90 2.5g N). The Swedish coordinate system corresponds to 58^{o} 6.239280' North and 14^{o} 34.227180' East based on the WGS 84 datum.

The Project occurs along the border of two counties (Län), the Jönköpings Län in the south and the Östergötlans Län in the north. About 75 percent of the intrusive is located in Jönköping County and all recent Tasman drilling has been conducted here.

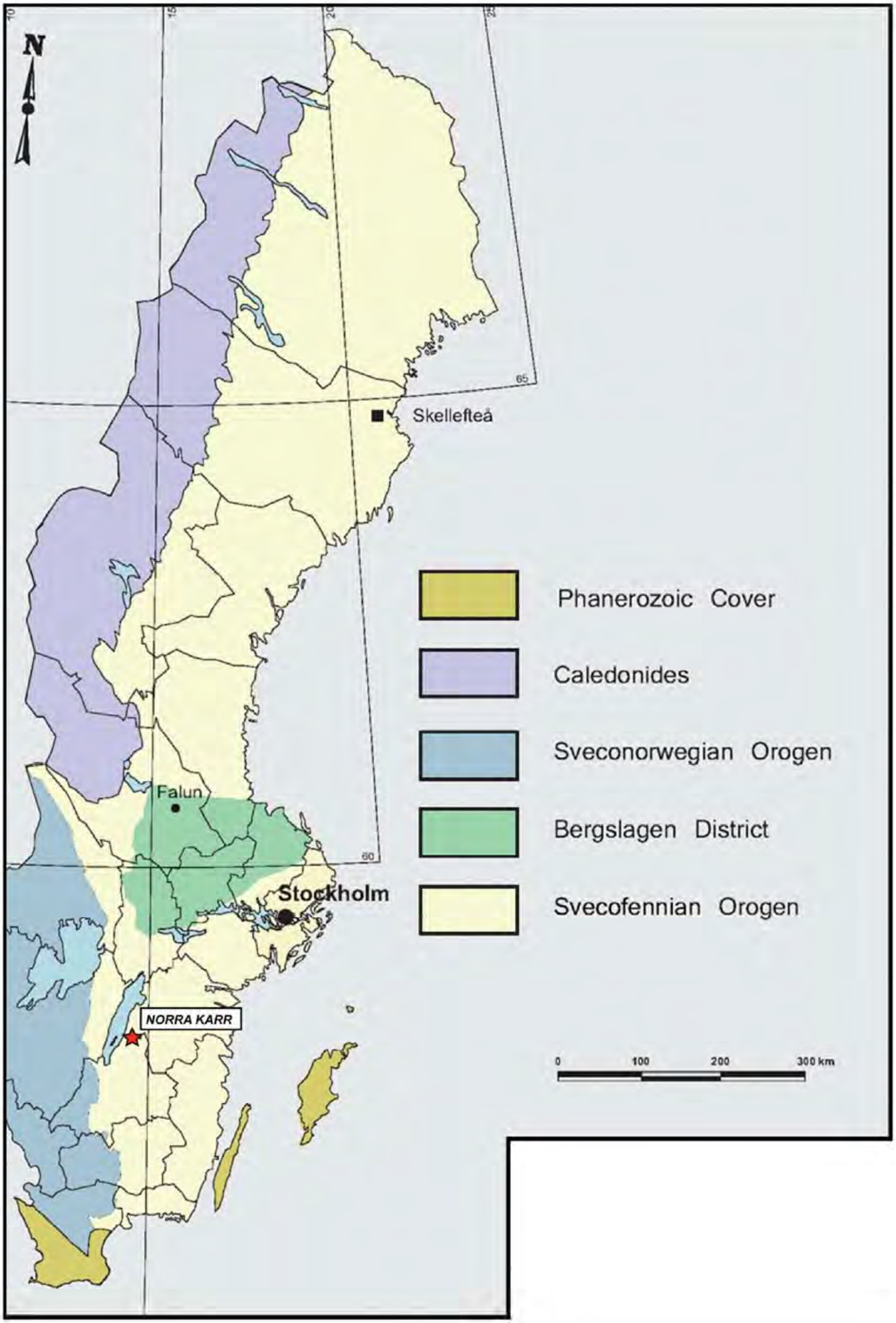
4.2 *Swedish Mining Act*

Swedish mining laws pertaining to mineral exploration changed profoundly in 1992 when the Minerals Act of 1991 (effective July 1 1992) for the first time allowed foreign ownership of mineral title in Sweden. The right of the Swedish state to acquire 50 per cent of a mine was repealed a year later. Exploration permits and mining licences approved before July 1, 1992, are governed by the Minerals Act of 1974 that does not permit foreign ownership of mineral title or surface rights.

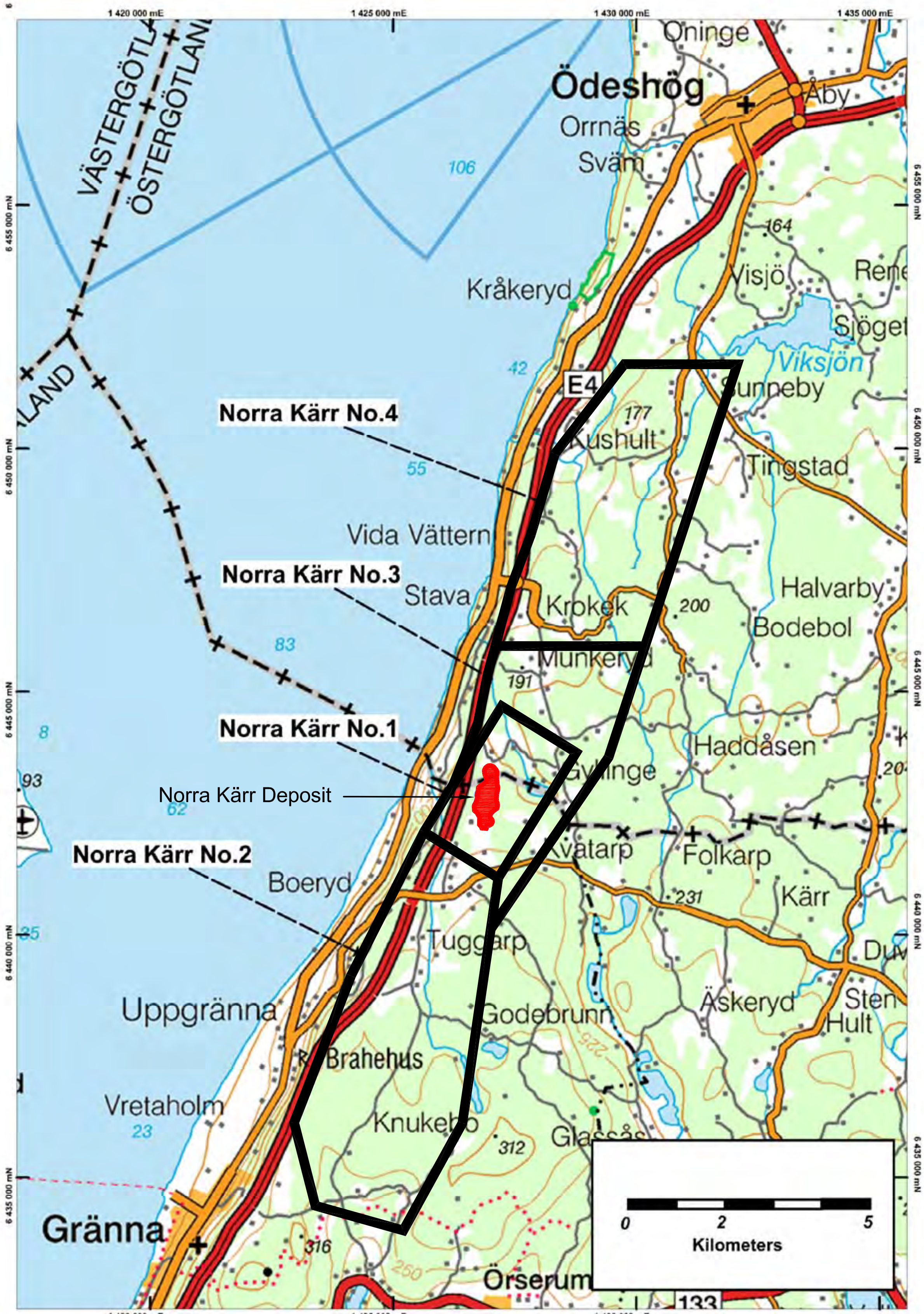
Further amendments were enacted in 1998 that include the requirement that the results of subsequent exploration work had to be reported upon surrender of the claims. However, upon request, these submissions were subject to a confidentiality period of up to four years. As a result of these changes, there are little or no exploration data in the public domain on claims that were worked in the years 1992 to 1998.

TABLE 4-1
Tasman Metals Limited
Norra Kärr Project – PEA
Claim Details

Norra Kärr nr1	**Granted:**	31-Aug-09
	Valid to:	31-Aug-12
	Area:	549.40 Ha
Corner Points: 1	6,444,699 N	1,427,228 E
2	6,443,750 N	1,428,763 E
3	6,441,160 N	1,427,163 E
4	6,442,108 N	1,425,628 E
Norra Kärr nr2	**Application:**	10-Oct-10
	Valid to:	NA
	Area:	2,033.59 Ha
Corner Points: 1	6,441,160 N	1,427,163 E
2	6,436,125 N	1,426,410 E
3	6,433,910 N	1,425,215 E
4	6,434,415 N	1,423,395 E
5	6,436,120 N	1,422,960 E
6	6,439,145 N	1,424,130 E
7	6,442,108 N	1,425,628 E
Norra Kärr nr3	**Application:**	11-Nov-10
	Valid to:	NA
	Area:	752.06 Ha
Corner Points: 1	6,445,933 N	1,430,179 E
2	6,443,650 N	1,429,430 E
3	6,440,140 N	1,427,015 E
4	6,441,160 N	1,427,163 E
5	6,443,750 N	1,428,763 E
6	6,444,699 N	1,427,228 E
7	6,443,150 N	1,426,265 E
8	6,444,345 N	1,426,735 E
9	6,445,360 N	1,426,945 E
10	6,445,933 N	1,427,092 E
Norra Kärr nr4	**Application:**	8-Dec-10
	Valid to:	NA
	Area:	1,744.14 Ha
Corner Points: 1	6,451,730 N	1,432,080 E
2	6,445,933 N	1,430,179 E
3	6,445,933 N	1,427,092 E
4	6,446,940 N	1,427,350 E
5	6,448,230 N	1,427,820 E
6	6,449,890 N	1,428,325 E
7	6,451,730 N	1,429,740 E

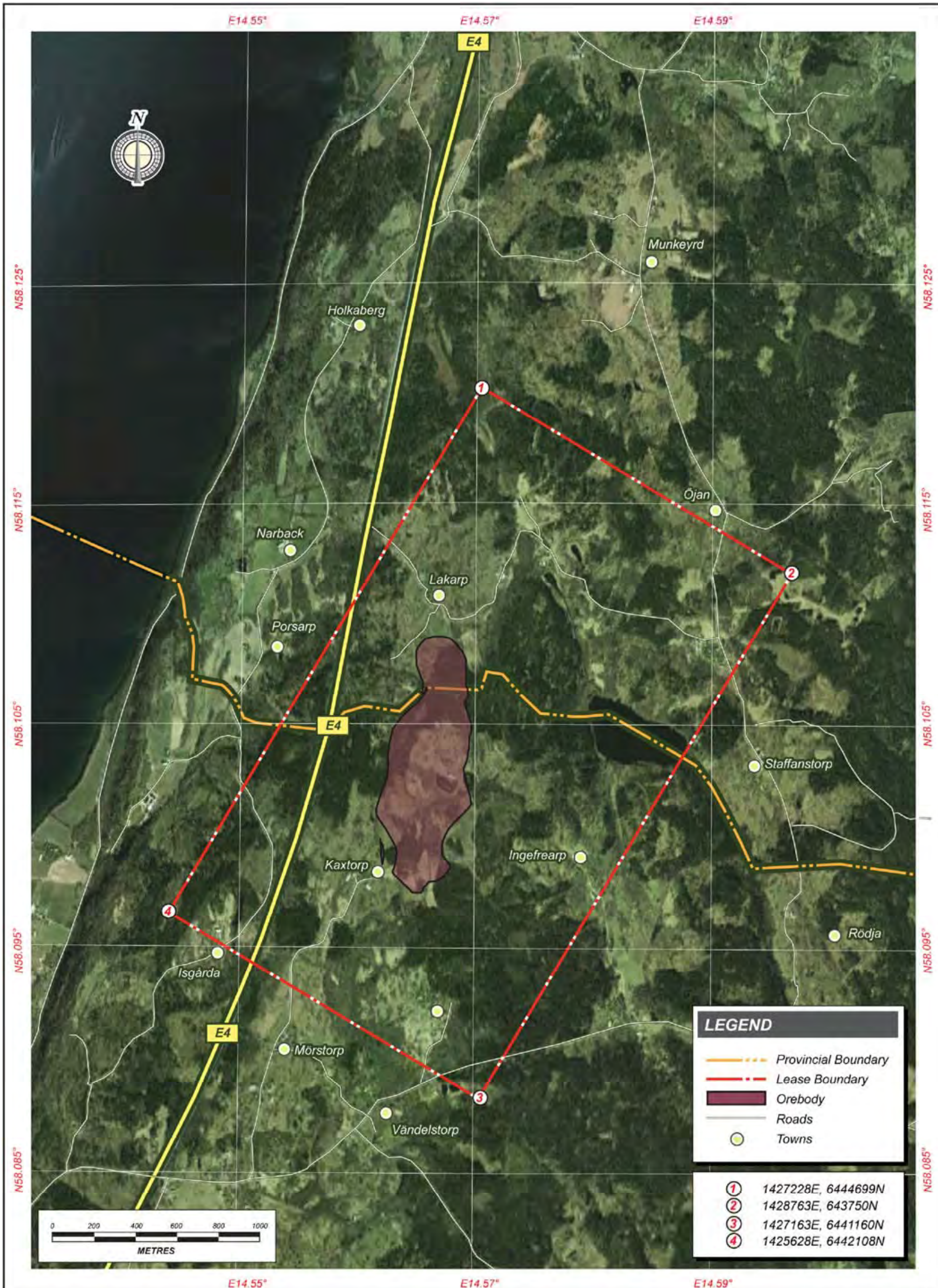


Prepared by	Drawing Provided by/Prepared for		Date of Issue
pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	Tasman Metals Ltd.	FIGURE 4-1 Regional Location Map	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.4-1.dwg



Jönköpings and Östergötlans Counties, Sweden

Prepared by	Drawing Provided by/Prepared for		Date of Issue
pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 4-2 Exploration Claim Map for Norra Kärr No.1, 2, 3 and 4	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.4-2.dwg



Prepared by	Drawing Provided by/Prepared for		Date of Issue
pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 4-3 Norra Kärr No.1 Exploration Claim Map	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.4-3.dwg

Rules and regulations pertaining to mining exploration in Sweden are clearly outlined in the "Guide to Mineral Legislation and Regulations in Sweden" (2000) available from the offices or the website of the Geological Survey (www.sgu.se). The Mining Inspectorate of Sweden provides clear directives, available from the Inspectorate website (www.bergsstaten.se), for conducting exploration. Another useful link that summarizes these laws and guidelines is *A Guide to Mineral Legislation and Regulations in Sweden:* (http://www.geonord.org/law/minlageng.html).

Tasman has, or will address all requirements before undertaking any exploration activities. Tasman has the rights to access the property, and no restrictions or limitations as defined for work on the projects are evident. Tasman has the obligation to outline a work program and gain permission from landholders prior to accessing the properties, and to provide compensation for any ground-disturbing work conducted.

Exploration permits are granted for specified areas that are judged by the Mining Inspectorate to be of suitable shape and size that they are capable of being explored in "an appropriate manner." The current rules do not require annual minimum expenditures on claims, but a land fee is due upon first application for an exploration permit in the amount of SEK20/hectare, covering an initial period of three years. If a claim or part of a claim is abandoned within 11 or 23 months of its granting date SEK16 or SEK10, respectively (of the original SEK20 fee) per abandoned hectare become refundable.

It is possible to extend the time a claim is held to a total of 15 years after the date of the original granting, but the annual fees per hectare increase substantially: SEK21/year/hectare for years four to six, SEK50/year/hectare for years seven to ten, and SEK100/year/hectare for years eleven to fifteen. No further extension of mineral exploration permits is allowed after year 15. The high fees in the later years discourage excessive claim holdings deemed to be of little value by the holder. An exploitation concession (mining permit) can be applied for at any time while a claim is in good standing, and may be granted for a period of up to 25 years.

An exploration report, with results (raw data), must be submitted to the Mining Inspector.

An exploration permit (undersökningstillstånd) gives access to the land and an exclusive right to explore within the permit area. It does not entitle the holder to undertake exploration work in contravention of any environmental regulations that apply to the area. Applications for exemptions are normally made to the County Administrative Board.

An exploration permit is granted for a specific area where a successful discovery is likely to be made. It should be of a suitable shape and size and no larger than may be expected to be explored by the permit holder in an appropriate manner. Normally, permits for areas larger than a total of 100 hectares are not granted to private individuals. A permit is to be granted if there is reason to assume that exploration in the area may lead to the discovery of a concession mineral.

Compensation must be paid by the permit holder for damage or encroachment caused by exploration work.

When an exploration permit expires without an exploitation concession being granted, the results of the exploration work undertaken must be reported to the Mining Inspector. Exploration permits are applied for in paper to the mining inspector, using a map and list of coordinates that define the boundaries of the area in question; the metal being sought must also be stated.

An exploitation concession (bearbetningskoncession) gives the holder the right to exploit a proven, extractable mineral deposit for a period of 25 years, which may be prolonged. Permits and concessions under the Minerals Act may be transferred with the permission of the Mining Inspector.

An exploitation concession relates to a distinct area, designated on the basis of the location and extent of a proven mineral deposit, and is normally valid for 25 years. A concession may be granted when a mineral deposit is discovered which is probably technically and economically recoverable during the period of the concession, and if the nature and position of the deposit does not make it inappropriate to grant a concession. Special provisions apply to concessions relating to oil and gaseous hydrocarbons.

Under the provisions of the Environmental Code, an application for an exploitation concession is to be accompanied by an environmental impact assessment. Applications are considered in consultation with the County Administrative Board, taking into account whether the site is acceptable from an environmental point of view.

Under the rules of the Environmental Code, a special environmental impact assessment for the mining operation must always be submitted to the Environmental Court, which examines the impact of the operation on the environment in a broad sense. The Court also stipulates the conditions which the operation is to meet.

Land needed for exploitation is normally acquired by the mining company through contracts of sale or leases. If there is a contract of sale, a property registration procedure must generally be undertaken through the Land Survey authority in order for registration of title to be granted.

Before any land, inside or outside the concession area, may be used it has to be designated by the Mining Inspector (markanvisning). This procedure usually regulates the compensation etc., to be paid to affected landowners, normally on the basis of an agreement between the company and the landowners, together with any other parties whose rights may be affected.

Mining companies (limited companies) pay corporations tax at a rate of 28 percent under the same rules as every other company. Accordingly, there are no special taxation rules for such companies. A royalty is paid on the value of minerals produced at a rate of 0.2 percent, which is shared between the landholder and the State, each receiving 0.15 percent and 0.05 percent, respectively.

The application fee for an exploration permit is SEK500 for each area of 2,000 hectares or part thereof. The exploration fee varies for different concession minerals and for different periods of validity. The application fee for an exploitation concession is SEK 6,000 per area.

4.3 *Environmental Liability and Permitting*

There are no known outstanding environmental liabilities on any of the licenses and, as required by Swedish law, all landowners identified by Tasman have been informed by the Swedish Inspectorate of Mines (Bergsstaten) that an exploration license has been applied for in accordance with Chapters 1.1 and 2 of the Mineral Act. Such permits have been granted as required. Environmental studies, community engagement and permitting are further addressed in Section 20 of this report.

No environmental or planning permitting is required for geological mapping, rock chip sampling or soil sampling. Permits are required from district authorities for systematic till sampling, trenching and drilling programs. A nominal environmental bond is held by the Bergstaten in the name of Tasmet AB against future disturbance that is not rectified.

PAH's consideration of the environmental and permitting aspects of the Norra Kärr Project is based on discussions with representatives of Tasman, reports provided by Tasman and observations made during the site visit.

The Norra Kärr property is an intermediate stage exploration project whose surface has been disturbed by exploration drilling, trenching and sampling and may not attract severe environmental penalties. The Project is located in a farming area 3 hours drive south of Stockholm, 1 kilometer from a major motorway.

Such permits have been granted as required. Environmental studies, community engagement and permitting are further addressed in Section 20 of this report.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The Norra Kärr property has a very gentle terrain at an average elevation of about 200 m ASL. Vegetation consists of a mixture of conifers (dominantly spruce) and deciduous trees like birch, alder and oak. Minor amounts of shrubby undergrowth occur along with sphagnum moss. Outcroppings are sparse, and small ponds are common throughout the countryside (Figure 5-1).

The climate is similar to arboreal forest found in southern Canada with warm pleasant summers and moderately cold winters. Winters are variable in southern Sweden with snowfall depending on the particular year. Scandinavia, like the rest of northwestern Europe, is influenced by the Gulf Stream which moderates the climate; the winter climate at this latitude is roughly similar to that in North America at about 5 to 10 degrees latitude further south. Except during periods of extreme winter conditions, the author is of the opinion that work could be carried out on this property on a year-round basis.

The property is accessible by road from Stockholm on highway E4 about 290 km southwesterly to the town of Gränna which lies on the eastern shore of Lake Vättern. From Gränna a secondary road heads northerly and then easterly under the E4, linking it with a gravel road that accesses the center of the property, a distance of just over 11 km.

Norra Kärr is very accessible to infrastructure, services, electricity, supplies and a skilled and educated labor force. The city of Jönköping lies about 30 km south of Gränna and has a population in excess of 84,000. The city is also the seat of Jönköping Kommun (municipality) hosting a population of over 122,000 and is also the seat of the larger Jönköping Län (county) which contains a population in excess of 330,000. The city is accessible by either highway or rail.

Northeast of Gränna, about 90 km along highway E4, lays the city of Linköping, having a population of around 100,000. This city dates back 700 years and is known for its university and high tech industries, including the SAAB aircraft plant.

There appears to be adequate space to construct a mining operation on the property. Current and former mining occurs 80 km NNE at Zinkgruvan and 50 km WNW at Ranstad, respectively.

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pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 5-1 Project Site and Access	April 2012
Project No. DE-00215	Project Name Norra Karr Project		Drawing Name Fig.5-1.dwg

6.0 HISTORY

The Norra Kärr property has not been the subject of significant historic exploration. It was a recent find by Swedish historical standards, and the metals present at the site have not been in great demand for exploitation until recent years. The earliest documentation relates to geological bulletins, petrographic and mineralogic studies of the unusual rocks present.

The Norra Kärr alkaline complex was discovered around 1906 when geological mapping was conducted in the area by the Swedish Geological Survey (SGU). Some “strange” green, fine-grained rocks were discovered which were subsequently investigated by Professor A. Törnebohm. Törnebohm’s investigation showed that the rock was composed of a large portion of nepheline and also the rare zirconosilicates eudialyte and catapleiite. Further field studies in the area showed that other alkaline rock types were also present. Törnebohm called the fine-grained, green rock “Catapleiite-Syenite” but later workers decided to give this rock type the more local name “Grennaite” after the town Gränna situated some 15 km south of the complex. Törnebohm published a brief geological description of Norra Kärr in 1906, which included a sketch map and a number of chemical analyses.

The most extensive scientific investigation of Norra Kärr was conducted by O.J. Adamsson (1944). The study comprises very detailed petrographical descriptions of the different rock types, as well as additional geochemical data. No drilling and very limited trenching had been conducted when Adamsson’s work was undertaken, and only a very small percentage of the surface of the intrusion was known.

During and immediately subsequent to the Second World War, the area was investigated and bulk sampled by Swedish mining company Boliden AB. Boliden was at this time mainly interested in the zirconium and to a lesser degree nepheline. In 1948, Boliden came to an agreement with the landowners at Norra Kärr regarding the mining rights and in 1949 some bulk sampling and concentration tests were performed. The results showed difficulty in separating nepheline and feldspar from the pyroxene aegirine, which resulted in elevated Fe values in the final concentrate. The market prices for zirconium dropped during this period due to the discovery and mining of large placer deposits containing zircons and monazite (especially in Brazil). The bulk sampling was subsequently suspended and research halted. Small blast pits remain from this period and only very small quantities is thought to have been mined.

In 1974, Boliden returned to the area to conduct further exploration. The main focus this time was been nepheline but it was concluded that economic extraction not was possible. Boliden excavated two large trenches, roughly east-west near the central part of the complex and separated by about 400 m on average (Figure 6-1). Archival data shows Boliden took up to 30 channel samples per interval along the northern trench. The intervals appear to have been chosen based largely on geological/mineralogical variations within the complex. The northern trench consists of 151 samples taken from 8 zones over an aggregate length of 398 m. The southern trench consists of a total of 169 samples taken from 8 zones over an aggregate 382 m.

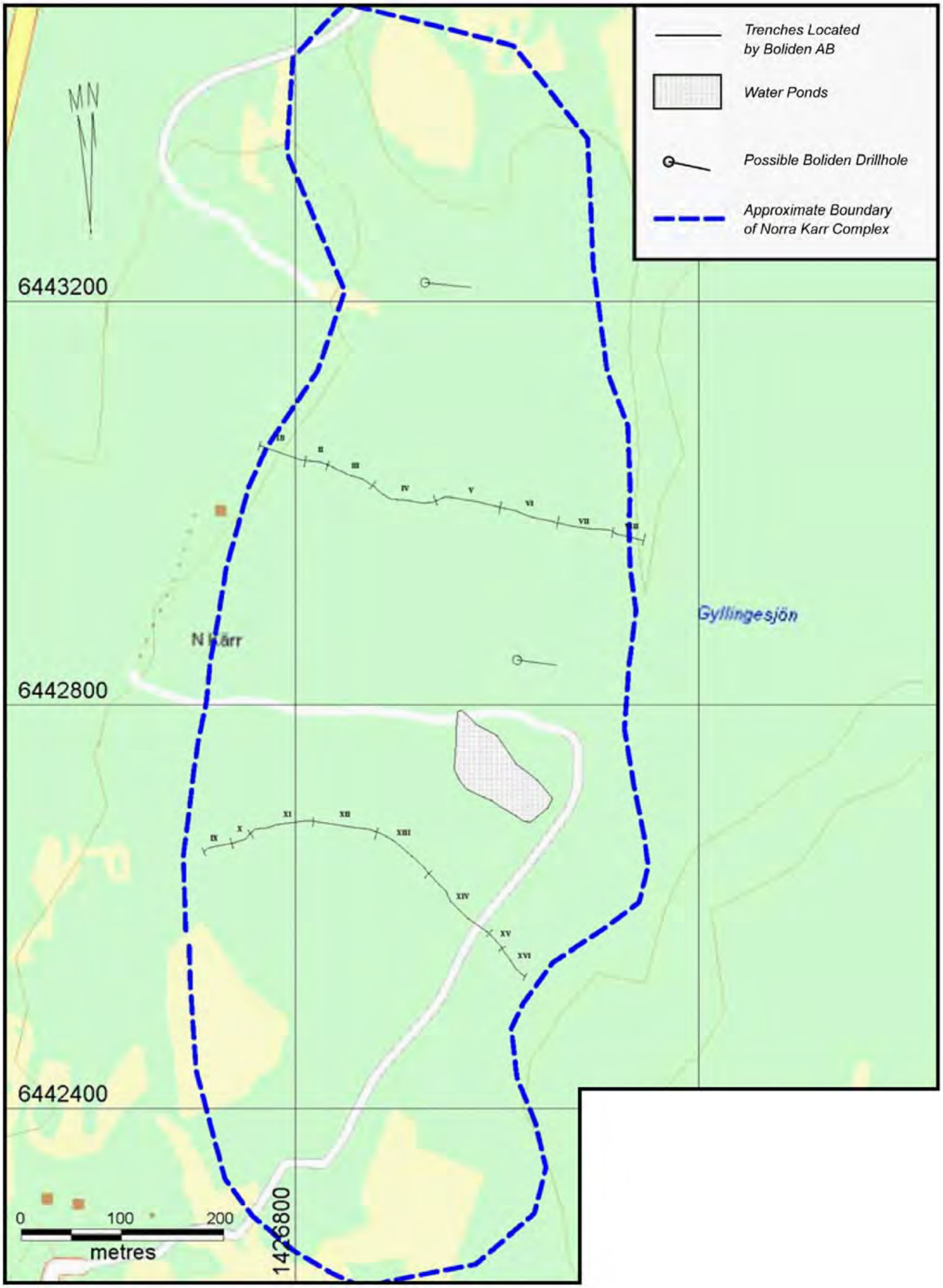

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FIGURE 6-1
Location of Historic Trenches by Boliden

Date of Issue April 2012

Drawing Name Fig.6-1.dwg

A calculation of the composited Boliden samples produced the following weighted averages:

North Trench: 244 m @ 1.92 percent zirconium oxide, 0.37 percent TREO

South Trench: 149 m @ 1.51 percent zirconium oxide, 0.50 percent TREO, and

52 m @ 1.47 percent zirconium oxide, 0.44 percent TREO

Although TREO are quoted above, the samples taken by Boliden were not assayed for six of the nine higher-value, heavy rare earth elements.

Tables 6-1 and 6-2 summarize the results obtained by Boliden from the two aforementioned trenches.

TABLE 6-1
Tasman Metals Limited
Norra Kärr Project – PEA
North Trench Results, Boliden, 1974

Interval	IB	II	III	IV	V	VI	VII	VIII
Samples	4	8	16	30	30	30	28	5
Length (m)	47	22	53	67.5	60.5	60	56	32
ZrO_2 (%)	0.17	0.59	0.48	2.15	2	1.94	1.52	0.55
Hf (%)	0.004	0.014	0.01	0.04	0.043	0.049	0.031	0.009
TREO (%)	0.06	0.13	0.16	0.35	0.4	0.45	0.28	0.1

TABLE 6-2
Tasman Metals Limited
Norra Kärr Project – PEA
South Trench Results, Boliden, 1974

Interval	IX	X	XI	XII	XIII	XIV	XV	XVI
Samples	11	10	29	28	33	34	8	16
Length (m)	25	21.5	63.5	64	66	90	17	35
ZrO2 (%)	0.9	1.4	1.66	1.4	0.47	0.35	1.47	1.47
Hf (%)	0.017	0.026	0.028	0.02	0.008	0.006	0.02	0.027
TREO (%)	0.07	0.22	0.42	0.67	0.38	0.24	0.71	0.31

Except for Boliden's test sampling, there are no records of any mineral resources, reserves or production from the Norra Kärr Project area.

7.0 GEOLOGICAL SETTING AND MINERALIZATION

7.1 *Regional Geology*

The Norra Kärr peralkaline nepheline-syenite complex is located is south central Sweden about 15 km NNE of the town of Gränna and near the eastern shore of Lake Vättern. The complex was discovered around 1906.

The intrusive is N-S elongated, close to 1,300 m long and up to 460 m wide with a total surface area of approximately 380,000 m^2 (38 hectares). It intrudes a suite of Proterozoic gneisses and granites referred to as the Växjö Granite which belongs to the Trans Scandinavian Igneous belt (1.85-1.65 Ga). The Vaxjo Granite is a red colored, biotite granite that is generally coarse-grained and massive, but along Lake Vättern it has a marked cataclastic schistosity in a north-south direction (Adamsson, 1944).

The contacts between the Norra Kärr intrusive and the surrounding Växjö Granite are west dipping. Tasman's diamond drilling has shown that the contact dips around 35-45˚ to the west except in the southernmost part where the dip appears steeper. The eastern contact is also at least in part clearly fractured and possibly step faulted.

The emplacement age of the Norra Kärr intrusive is not well established but the most recent dating suggests a Rb-Sr age of 1545 +/- 61 Ma (Blaxland 1977, recalculated by Welin 1980).

7.2 *Local Geology*

Collectively the Norra Kärr intrusive complex is classified as a nepheline syenite. Nepheline belongs to the feldspathoid mineral group which is lacking in silica and often occurs in undersaturated alkaline intrusions. However, Norra Kärr is more complex than a simple nepheline syenite, such that field classifications by previous researchers and explorers have divided the complex into a suite of rock types, many given names of local derivation.

7.2.1 Major Rock Types

The recent diamond drilling in combination with earlier work has shown that about 85 percent of the surface area is composed of varieties of "grennaite" a green grey, often fine-grained but in part recrystallised rock consisting of alkali feldspar, nepheline, aegirine, eudialyte and catapleiite. The remaining 15 percent is composed of coarser-grained alkaline rocks of different composition and texture which earlier workers have called kaxtorpite, lakarpite and pulaskite. A fine- to medium-grained alkaline rock with a dark, amphibolite appearance has also been encountered during drilling that was previously undescribed.

Grennaite is a variable unit, but is much higher in zirconium and rare earth element content than the other alkaline rocks. Consequently the Mineral Resource is to a large extent found within this group of rocks, in particular pegmatitic and migmatitic varieties.

The pulaskite is a medium- to coarse-grained alkaline rock occurring mainly along the western flank of the intrusive. The pulaskite is composed of albite, microcline, aegirine, Na-amphibole, and minor biotite and nepheline. The microcline is often occurring as large, semi-translucent, rounded augen. Rosenbuschite, apatite, titanite and fluorite occur as accessories. Not uncommon are areas with alternating zones of aphanitic grennaite and coarser darker pulaskite. In places textures have been observed suggesting that the grennaite is intruding and hydrothermally brecciating the pulaskite.

The kaxtorpite is a zirconium poor, coarse-grained, often foliated-sheared, dark alkaline rock commonly with larger microcline augen in a groundmass of dark alkali-amphibole, aegirine, pectolite and nepheline. Several of varieties of kaxtorpite exist within the intrusive. The most extensive area of kaxtorpite is found in the central core of the intrusive where a 200 x 110 m large often intensely crenulated folded body is present. Towards the outer contacts of the central kaxtorpite, zones/bands of fine-grained grennaite have been observed interfolded with the darker kaxtorpite.

The Lakarpite is an often medium-grained, albite-arfvedsonite-nepheline dominated rock with some microcline-rosenbuschite and minor titanite-apatite-fluorite. Both massive and schistose varieties are present. Diamond drilling has shown that the rock type is rare and only local, small pods have been encountered.

Tasman has developed a lithocoding system to subdivide the different rock types and varieties, where 27 rock types have been defined. Except for summarizing larger lithological units during logging every sample taken has also been characterized according to the same code system. Table 7-1 gives the distribution of the different rock types/codes. For modeling purposes GTM lithology code was added to GTE lithology code based on average ZrO_2 percent.

7.2.2 Distribution and Description of Grennaite Units

Drilling suggests that the nepheline syenite complex is zoned in a roughly concentric fashion, surrounding the core of poorly mineralized kaxtorpite. The mineralized grennaite shows a general trend away from the host granite contacts where the grain size of the grennaite ground-mass becomes coarser-grained and/or recrystallised, and schlieren of medium-grained pegmatoidal “veins” are developed.

“Migmatitic” Grennaite (GTM)

In the central part of the intrusive surrounding the core of kaxtorpite the grennaite shows an almost “migmatitic,” recrystallized texture and also often a crenulated foliation (rock codes *GTM* and *GTMi*) (Figure 7-1). The extent of the recrystallization varies from a slight coarsening of the texture (*GTMi*) further away from the central kaxtorpite to a gneissic/migmatitic, blurry medium-grained texture proximal to the kaxtorpite (GTM Lithology zone). The bands are of a different less mineralogical complex nature

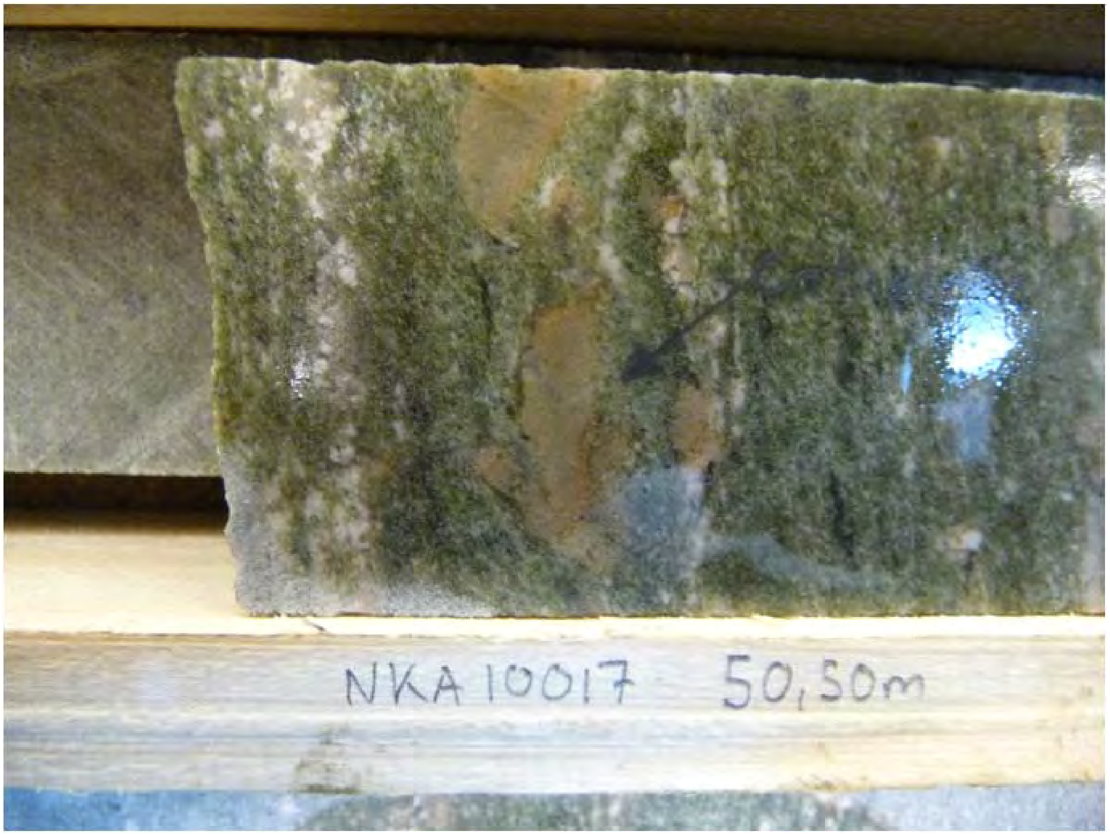
TABLE 7-1
Tasman Metals Limited
Norra Kärr Project – PEA
Geological Logging Codes, Average Grades, Number of Assay Samples

Lithology Zone	Logging Code	Short Description	Average ZrO_2%	Average TREO%	Number of Samples in DataBase
	GT	Grennaite. Fine grained with no or low amount of larger Catapleiite grains and with less than 5% pegmatoidal schlieren. Very fine grained to fine-grained ground-mass.	0.48	0.287	451
	GTC	Grennaite with more than 3% larger catapleiite laths/needles. Schistose. Very fine grained ground-mass.	1.33	0.248	775
GTC	GTCE	Grennaite with both catapleiite and eudialyte porph.	1.09	0.138	31
	GT1	Grennaite with 5-10% pegmatoidal schlieren or zones.	1.76	0.489	251
	GT2	Grennaite with 10-30% pegmatoidal schlieren or zones.	1.87	0.566	377
	GT3	Grennaite with 30-50% pegmatoidal schlieren and/or zones.	2.05	0.598	336
	GTP	Grennaite with 50-70% coarser, pegmatoidal zones and schlieren.	2.13	0.630	221
	PGT	70-90% Pegmatitic Grennaite with 10-30% fine-grained Grennaite zones/slabs.	2.19	0.663	142
	NEP	Nepheline-syenite (Grennaitic) pegmatite >90%.	2.02	0.617	181
PGT	GTR	Evenly medium grained "Grennaite" . Only in part coarser pegmatoidal.	1.99	0.668	98
	GTM	"Migmatitic", possibly re-crystallized Grennaite.	1.58	0.494	301
GTM	GTMi	Slightly re-crystallized Grennaite. In part showing crenulated folding.	1.61	0.455	325
	PUL	Pulaskite. Coarse-medium grained. Microcline augen in Alb-Aegirine-Amph ground-mass. Minor Nepheline-Biotite.	0.35	0.086	66
	PULF	Pulaskite? or possibly strongly fenitizied granitoid.	0.70	0.240	8
PUL	PULG	Pulaskite with Grennaite zones/bands.	0.51	0.161	63
	KAX	Kaxtorpite. Microcline-Eckermannite-Aegirine +- Nepheline-Pectolite-Natrolite. Often strongly folded (in part isoclina).	0.27	0.199	51
	KAG	Kaxtorpite with some Grennaite bands. Often intensely folded.	0.36	0.201	123
KAX	GTK	Grennaite with Kaxtorpite bands	0.72	0.271	38
	MAF	Mafic dike. 10-100 cm wide, very fine grained, sometimes Amph porphyritic.	0.11	0.097	52
MAF	MAA	Mafic, probably alkaline, fine to medium grained, dark, amphibole-rich, intrusive rock.	0.21	0.168	24
	MHYB	Mafic rock. Infiltrated by/brecciated by alkaline (fsp-eudialyte) veining	1.33	0.541	8
LAK	LAK	Lakarpite - albite-arfvedsonite-nepheline- dominated medium grained.	1.02	0.417	38
AUN	AUN	Alkaline rock, undifferentiated. Often pale, feldspar-dominated.	0.79	0.225	109
FEN	FEN	Fenite. Strongly bleached, Albite rich, very fine grained.	0.30	0.135	25
MYL	MYL	Mylonite	0.22	0.096	15
PEG	PEG	Granite pegmatite.	0.34	0.260	5
GR	GR	Granitoide. In general very coarse grained. Often "fenitizied".	0.09	0.059	90

Data compiled from Tasman 2009 - 2011 drilling programs.
Minor lithologies not shown: AEG, ELAK,FAU,GTMC,KAX2,LAKM,SYE,SYP (N=152)

GTM - "Migmatitic" grennaite medium-grained with rounded, catapleiite grains (arrow)

A



GTM - "Migmatitic" grennaite medium-grained

B

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pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 7-1 Grennaite - Lithologic Textures	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.7-1.dwg

than the pegmatoidal schlieren in the PGT domain. Some pegmatoidal schlieren are, however, locally present and the contact between the two domains GTM-PGT are gradual.

Catapleiite is often present in the GTM-GTMi type as pinkish or beige, somewhat elongated, corroded anhedral, grains quite different looking from the euhedral style in the GTC. The mineral is tricky to identify by naked eye but easily shown under short wave UV light. Eudialyte is only occasionally observed by naked eye and then mainly in sporadic pegmatitic schlieren.

Pegmatoidal Grennaite (GPG)

Surrounding the migmatitic zone, a wide zone of partly pegmatoidal grennaite occurs, summarized as the *GPG* zone but subdivided into seven zones based on the degree of pegmatitization (*GT1-GT3, GTP, PGT, NEP* and *GTR*). This unit is inhomogeneous, ranging from zones with 5-10 percent of cm wide, medium-grained, leucocratic schlieren in finer-grained grennaite, to several meter wide zones of very coarse-grained nepheline-syenite pegmatite (Figure 7-2). The pegmatitic zones and schlieren consist of the same minerals as the fine-grained grennaite, though typically poorer in aegirine and richer in feldspar-nepheline and eudialyte.

As described, there are often gradual transitions between the different varieties of grennaite. The grain size of the minerals in the thinner schlieren is around 5 mm and thus sensu stricto not pegmatitic. Zones of very coarse-grained (up to 5 m wide) true nepheline syenite pegmatite are also present near the central part of the complex. The most extensive areas of pegmatoidal material have been encountered on sections D and F about 100 m south and north of the central kaxtorpite.

The pegmatitic schlieren and zones generally contain the same main minerals as the fine-grained grennaite, but in different proportions. There is also a large variation in mineral composition and grain size between different pegmatitic schlieren and zones within the complex. Most commonly, the zones are dominated by microcline-albite and nepheline though darker aegirine rich varieties locally have been observed. Compared to the fine-grained grennaite, mineralogy is more variable, including small amounts of galena, fluorite, natrolite, amphibole and apatite.

The distribution of eudialyte and catapleiite are variable but geochemical analyses, as well as visual observations suggest that both minerals are more abundant in the pegmatitic facies than elsewhere. The amount of eudialyte is seldom greater than ten volume percent though short intervals can be richer. Eudialyte occur as rounded to subhedral up to a 2 cm size grains are quite variable in color from relatively dark brown-red to clear red to pale pink. In places the eudialyte is pink reddish, semi-translucent in bands, veins or patches.

The coarser-grained varieties are sometimes slightly weathered/altered and partial breakdown of nepheline, feldspar and also eudialyte forming natrolite and white-grey micaeous soft secondary minerals along fissures and grain boundaries.

PGT - Pegmatitic schlieren/veining in grennaite, with elongated crystals of catapleiite

A

NEP - Nepheline syenite pegmatite, microcline and eudialyte

B

Prepared by **pincock, allen & holt** 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	Drawing Provided by/Prepared for ***Tasman Metals Ltd.***	FIGURE 7-2 Pegmatoidal Grennaite	Date of Issue April 2012
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Catapleiite Porphyritic Grennaite (GTC)

Outside of the "GPG" zone and closer to the granite contact, the grennaite ground-mass becomes gradually finer-grained to aphanitic and the rock is often consequently schistose. Typically this zone (GTC lithology zone) is porphyritic in appearance, with several percent, 1-30 mm long, lath like, elongated to needle shaped grains of the zirconosilicate mineral catapleiite (code GTC). The catapleiite porphyritic variety of the grennaite is occupies a large volume along the flanks of the intrusive, where the color varies between general grayish green to light green or medium grey (Figure 7-3). The lighter variations are often found towards the granite contacts. The green color arises from the presence of the sodium rich pyroxene aegerine in the groundmass. The groundmass is normally very fine-grained to aphanitic though a slight gradual coarsening is quite apparent as you move towards the central parts of the complex.

The same zone locally shows zones of grennaite where both catapleiite and eudialyte occur as larger grains (code GTCE). The pink-red eudialyte grains make up a few percent of the rock volume are often very rounded and up to several millimeters in size.

Where the grennaite is less clearly catapleiite and/or eudialyte porphyritic the logging code GT has been used and this variety is mainly present in the GTC lithology zone. The code GTC is used where the catapleiite grains are well defined and easily spotted by naked eye which is the case where the ground mass is very fine-grained. In slightly coarser-grained recrystallized grennaite, larger grains of catapleiite are also present but with often diffuse corroded/rounded boundaries and are tricky to spot by naked eye. Since the mineral fluoresces bright green in short waive UV light, its presence can be easily detected.

The grennaite in the GTC zone commonly shows a clear and relatively consequent schistosity or preferred orientation which sometimes is characterized by smeared, band-like catapleiite laths. Natrolite is sometimes seen, as diffuse veins/pods and locally as translucent small crystals in occasional open vugs. The natrolite is probably formed after breakdown of nepheline and possibly feldspar.

Even though texture and composition varies within the different varieties of grennaite, it is thought that the sub units have a common origin as a gradual transition between the varieties is often apparent.

7.2.3 Distribution and Description of Other Alkaline Rocks

Pulaskite (PUL)

Pulaskite is the only rock name which is not locally derived. The name originates from a nepheline syenite in Pulaski County, Magnet Cove, Arkansas (USA). Due to the similar mineralogy and chemistry to pulaskite at the type locality, Adamsson (1944) used the name for one of the coarser-grained alkaline rocks at Norra Kärr.

Microcline is by far the most important mineral in the pulaskite, often occurring as up to several cm large, augen like, semi-translucent grains (Figure 7-4). Albite, microcline, aegirine, amphibole and some biotite

GTC - Very fine-grained grennaite with bluish white elongated catapleiite grains

A

GTC - Very fine-grained grennaite bluish catapleiite grains and some small, rounded, feldspar crystals/inclusion

B

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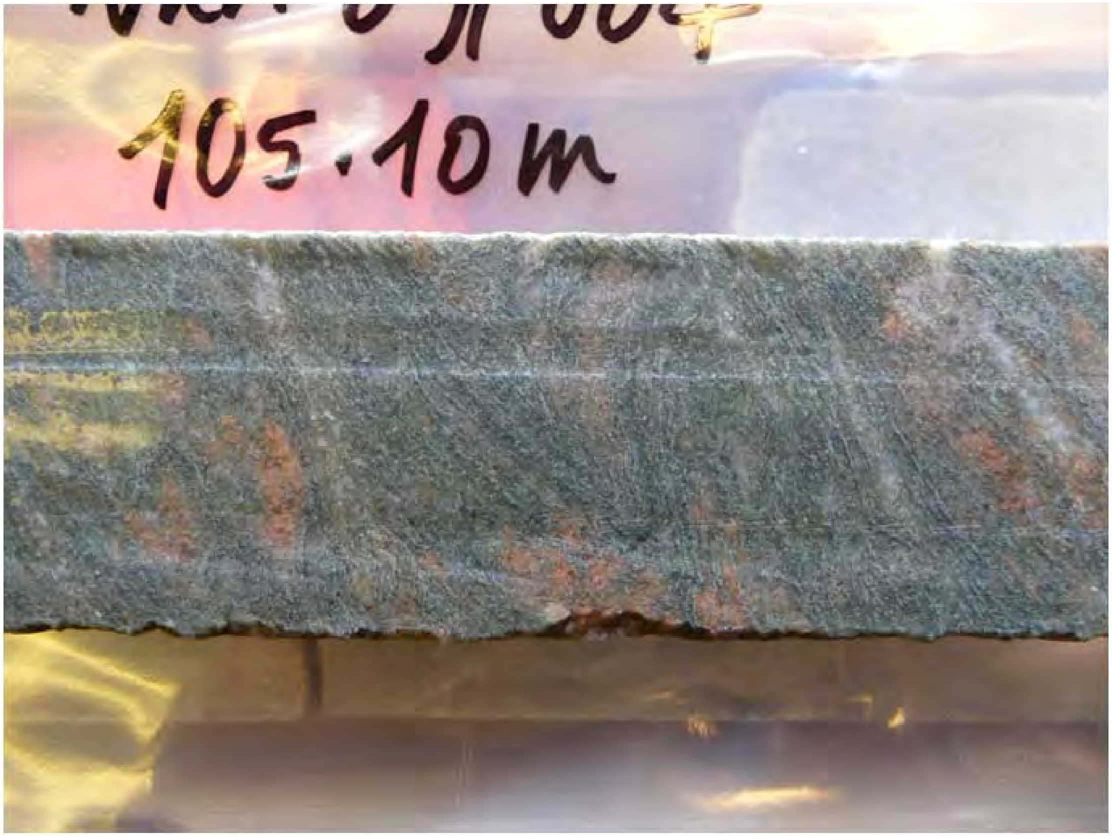
pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 7-3 Grennaite - LithologicTextures	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.7-3.dwg

GTMi - Slightly "recrystallized" grennaite with crenulated folding

A



PUL - Coarse-grained pulaskite zone with large microcline augen

B

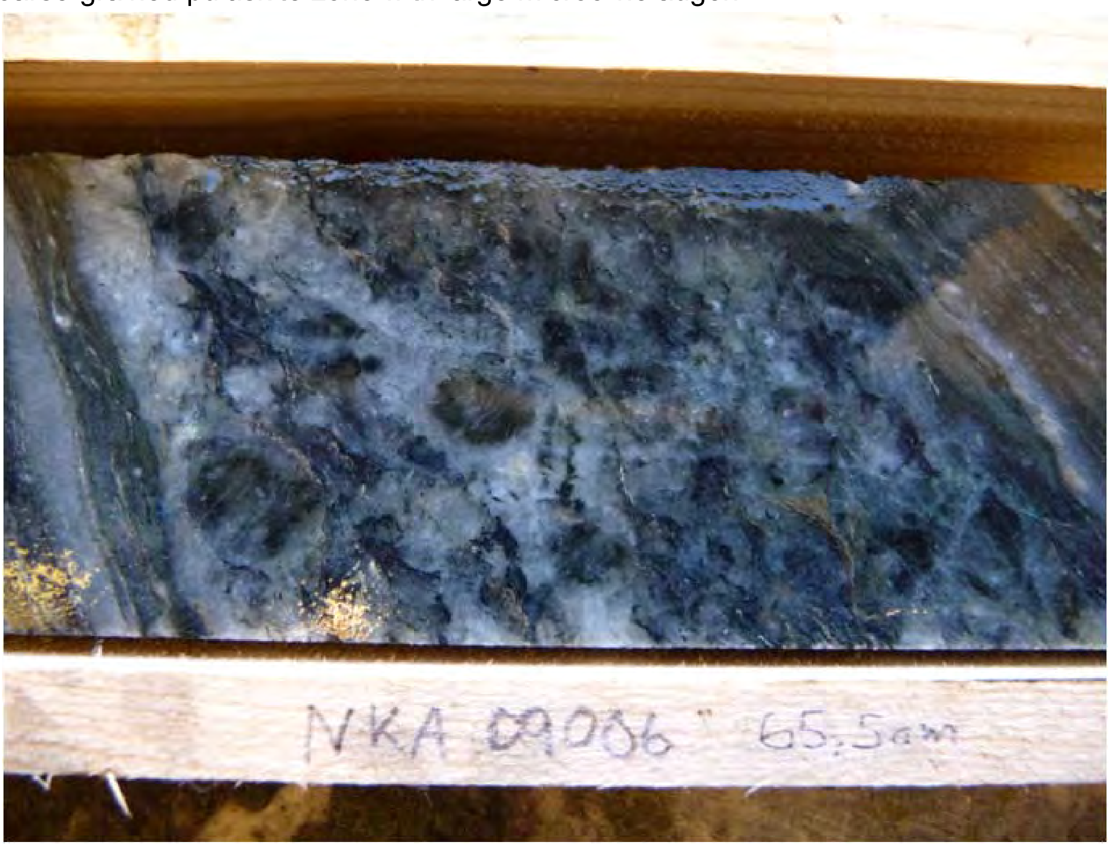


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FIGURE 7-4
Grennaite and Pulaskite Lithologic Textures

Date of Issue April 2012

Drawing Name Fig.7-4.dwg

and nepheline makes up the ground mass. Rosenbuschite, apatite, titanite and fluorite occur as accessories.

The pulaskite at Norra Kärr occupies a significant volume along the western flank of the intrusive and often lies in contact with granite. In some drill holes through the western contact it has been difficult to discriminate the pulaskite from fenitizied granite.

Kaxtorpite (KAX)

The name kaxtorpite, derived from the village just SW of the intrusive has been used by Adamsson (1944) for dark, medium to coarse-grained alkaline rocks containing the alkali amphibole eckermannite. Earlier mapping and present drilling have encountered two larger areas of rocks defined as kaxtorpite, one 200 by 120 m large body in the central part of the intrusive and one 80 by 35 m area in the northern part. Some small pods of rock of similar appearance have also been encountered at a couple of other places.

The two larger areas of kaxtorpite differ in texture, mineralogy and also chemistry but Adamsson (1944) still placed them into the group mainly due to the eckermannite content. Both kaxtorpite bodies are poor in Zr and REE's.

The northern kaxtorpite is located on the northernmost drilled section is surrounded by catapleiite porphyritic grennaite (GTC) with lower grade REE mineralization which fall well below the 0.4ppm TREO percent cutoff. The central kaxtorpite is, however, as described earlier surrounded by the moderately mineralized GTM domain (about 0.5 percent TREO and 1.5 percent ZrO2).

The central kaxtorpite is often isoclinally folded and showing a crenulated folding. Less strongly folded parts are often carrying 0.5-3cm large, semi-translucent, rounded microcline augen in a matrix (according to Adamsson) composed of albite, eckermannite, aegirine, pectolite some nepheline and natrolite (Figure 7-5). Traces of fluorite, titanite and an unidentified elongated, rosenbuschite resembling, yellowish mineral have also been observed. Towards the outer contacts wider zones and intensely interfolded thin bands of green, fine-grained grennaite are present within the kaxtorpite.

Mafic Alkaline Rock (MAF)

On one of the drilled sections (section F) a dark, fine- to fine-medium-grained, amphibole dominated rock (code MAA) was encountered in three of the holes (NKA10011-013). In NKA 012 a 25 m wide zone, dominated by the mafic rock was intersected (Figure 7-6B). Except for dark amphibole, pale feldspar and minor fluorite have been observed in the matrix where the rock is coarser-grained.

Close to the contacts eudialyte rich pegmatoidal veining has been introduced into the mafic rock, and it appears fluids have reacted and almost totally replaced the original rock (Figure 7-6A, C). This hybrid rock (coded MHYB) contains often high REO and Zr values while these elements are very low in the unaffected variety. Two whole rock samples taken in relatively unaffected MAA return very high alkali

KAX - Foliated, kaxtorpite

A

KAG - Dark kaxtorpite intensely folded with thin bands of green, fine-grained grennaitic material

B

Prepared by **pincock, allen & holt** 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	Drawing Provided by/Prepared for ***Tasman Metals Ltd.***	FIGURE 7-5 Kaxtorpite Deformation Textures	Date of Issue April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.7-5.dwg

NEP - nepheline syenite pegmatite very rich in pink eudialyte

A

MAA - Probable mafic alkaline rock

B

Eudialyte in retrogressively-altered grennaite

C

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Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.7-6.dwg

content, Na_2O, 8.6 percent and 9.1 percent, respectively and K_2O, 2.8 percent and 3.0 percent, respectively, suggesting that the rock is belonging to the alkaline suite.

Lakarpite (LAK)

The name lakarpite is derived from a farm just north of the intrusive, used by Adamsson (1944) to describe a medium-grained, pale rock consisting essentially of albite,-arfedsonite-nepheline with some microcline-rosenbuschite and minor fluorite-titanite-apatite. Drilling has shown that the rock type is rare and only local, small pods have been encountered thus far.

Field relationships between the alkaline rocks described above and Tasman's drilling are shown on the geological map of the Norra Kärr igneous complex (Figure 7-7).

Origin

Debate continues as to the origin, timing and mode of emplacement of the Norra Kärr igneous complex into the surrounding granites and gneisses. One school of thought believes that the peralkaline rocks of Norra Kärr are part of a volcanic neck or plug and that the coarse-grained components may be early crystallizing fractions that have been disrupted and included in the grennaitic magma. The contacts with the granite are generally sharp where observed. Fenitization (alkali metasomatic alteration) occurs along the margins of the contact, and fenitized xenoliths of the host rock occur within the Norra Kärr intrusive itself. Foliations found within the peralkaline rocks have been interpreted as protoclastic (primary, at the time of emplacement) exhibiting flow structures and primary crystallization features conformable to the outer contact of the body.

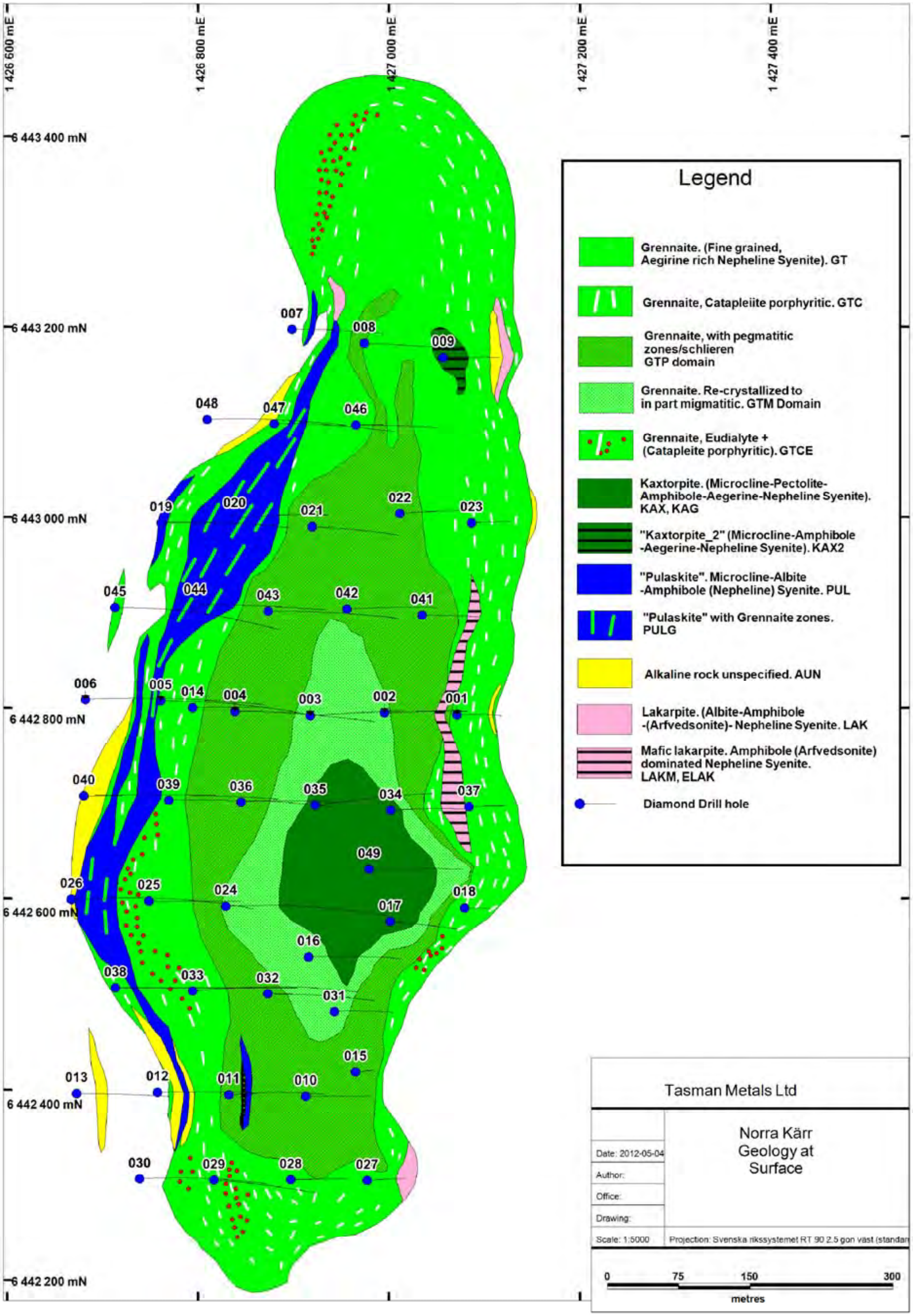
Most examiners subscribe to the primary magmatic origin scenario, but Koark (1960, 1969) disputes this model. He proposes a metamorphic origin, claiming that the immediate country rock is a series of granitic, quartz dioritic and schistose gneisses which in places are intruded by the Växjö granite, thus placing the relative contact/intrusive relationship between the granite and the peralkaline rocks in question. Koark also maintained that the foliation he studied is best explained in terms of metamorphic schistosity.

7.2.4 Mineralization

The rock units comprising the Norra Kärr peralkaline (agpaitic) intrusion are uncommon on a global scale, and include minerals that are composed of or associated with REE's, Zr, Nb, Y and Hf.

Distribution of Rare Earth Elements at Norra Kärr

While previous academic work at Norra Kärr has reported other accessory minerals which potentially carry REE's, mineral liberation analyses and microprobe studies have demonstrated that a majority of the REE's are contained in eudialyte, a zirconosilicate which is consistently present in the mineralized rock units.



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pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 7-7 Generalized Deposit Geology and Drill Hole Location Map (2011)	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.7-7.dwg

Earlier workers have reported the following potential REE-bearing minerals from the deposit.

Rinkite-Mosandrite	[$(Ca,Ce)_4Na(Na,Ca)_2Ti(Si_2O_7)_2F_2(O,F)_2$]
Britholite-Y	[$(Y,Ca)_5(SiO_4,PO_4)_3(OH,F)$]
Lessingite	[$(Ca,Ce,La,Nd)_5(O,OH,F)(SiO_4)_3$]
Apatite	[$Ca_5(PO_4)_3F$]
Tritomite-(Ce)	[$(Ce,La,Y,Th)_5(Si,B)_3(O,OH,F)_{13}$] and a

REE-bearing Rosenbuschite - resembling mineral.

Minerals in the eudialyte group are sodium rich, zirconosilicates with a complex structure which can accommodate varying amounts of the cations: Ca, Fe, Mn, REE, Sr, Nb, Ta, K, Y, Ti, W and H (Johnsen et al., 2003). Today there are approximately 20 different minerals belonging to the eudialyte group. Modern detailed mineralogical studies have found that many previously-reported eudialyte occurrences are not true eudialyte, but one or several minerals in the eudialyte group.

The complex structure of eudialyte allows substitution of various cations, including REE's, so a definitive percentage for zirconium (Zr) and REE's are not reliable. The chemical formula of eudialyte can be expressed in several ways, a common representation being:

Eudialyte $Na_4(Ca,Ce)_2(Fe,Mn,Y)ZrSi_8O_{22}(OH,Cl)_2$

The physical properties of minerals in the eudialyte group are often similar making visual identification difficult. The crystal structure and exact chemical composition of the eudialyte at Norra Kärr is not known but wide color variation suggests several minerals belonging to the eudialyte group may be present.

A chemical analysis of eudialyte from pegmatititic schlieren was completed by Mauzelius in 1906 and reported in Adamsson (1944) (Table 7-2). They reported the TREO + Y content at 6.87 percent, 57 percent of which is attributed to yttrium.

More recently, Fryer and Edgar (1977) prepared three eudialyte concentrates from Norra Kärr samples which showed a TREO content between 3.91 and 4.63 percent of which about 57-59 percent constitutes of Y+HREO (Table 7-3). Work in progress by Tasman includes the separation and microprobing of individual grains of eudialyte from various rock types and locations across the intrusion. This has shown REE content to vary between 5% and 10%

The average REO and zirconium concentrations of 4,706 core samples of the peralkaline rocks from Norra Kärr are given on Figure 7-8. The REO content is highest in the pegmatoidal grennaite, where a higher percentage of pegmatoidal material in the rock corresponds to higher REO content. The non-pegmatitic, re-crystallized to migmatitic grennaites in the central part of the intrusive (GTM and GTMi) have a lower REO content than the pegmatitic types but almost double the concentrations compared of the fine-grained, porphyritic varieties of catapleiite found towards the outer contacts of the deposit (GTC, GTCE and GT). The distribution of Zr in the logged lithologies closely parallels that the REOs.

TABLE 7-2
Tasman Metals Limited
Norra Kärr Project – PEA
Chemical Analyses of Eudialyte from a Pegmatitic Schlieren

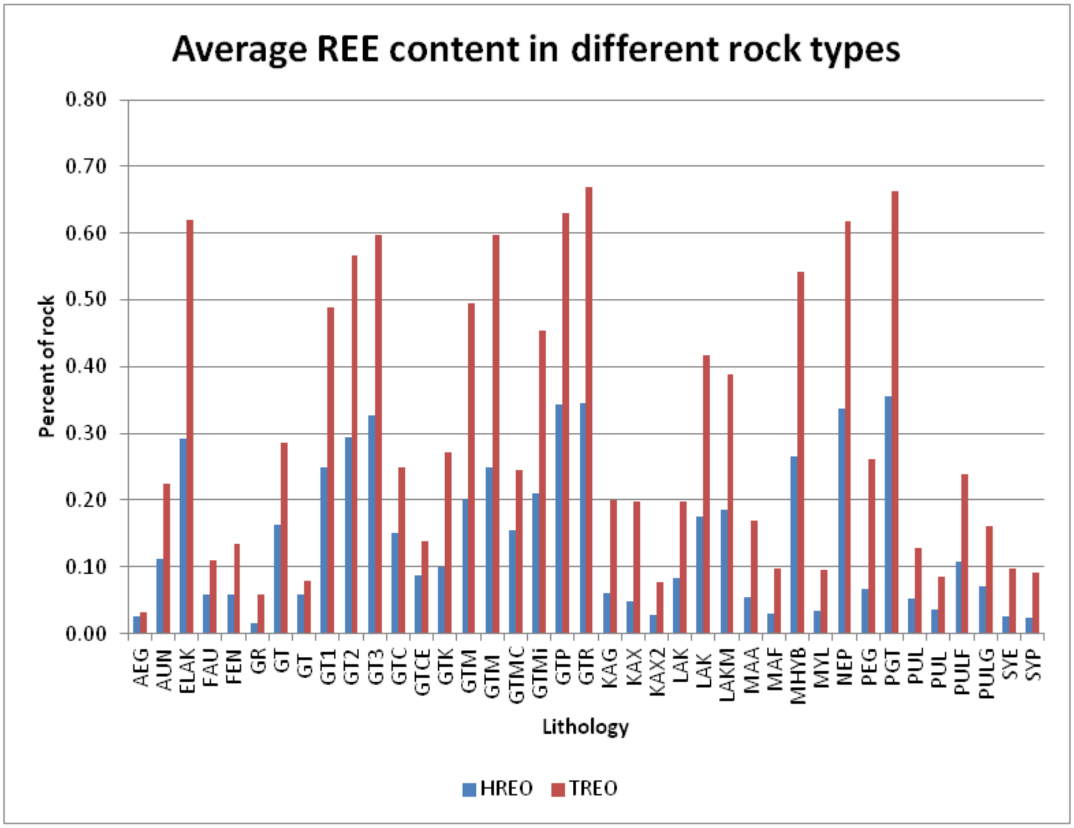
SiO_2%	47.85	**ZrO_2%**	13.39
Na_2O%	13.19	**CaO%**	7.63
FeO%	2.92	**MnO%**	2.69
MgO%	0.08	**K_2O%**	0.51
H_2O%	2.64	**TiO_2%**	0.11
Ta_2O_5%*	1.22		
F%	0.32	**Cl%**	0.43
Sum Ce_2O_3	2.97		
Sum Y_2O_3	3.90		
Total REO	6.87		

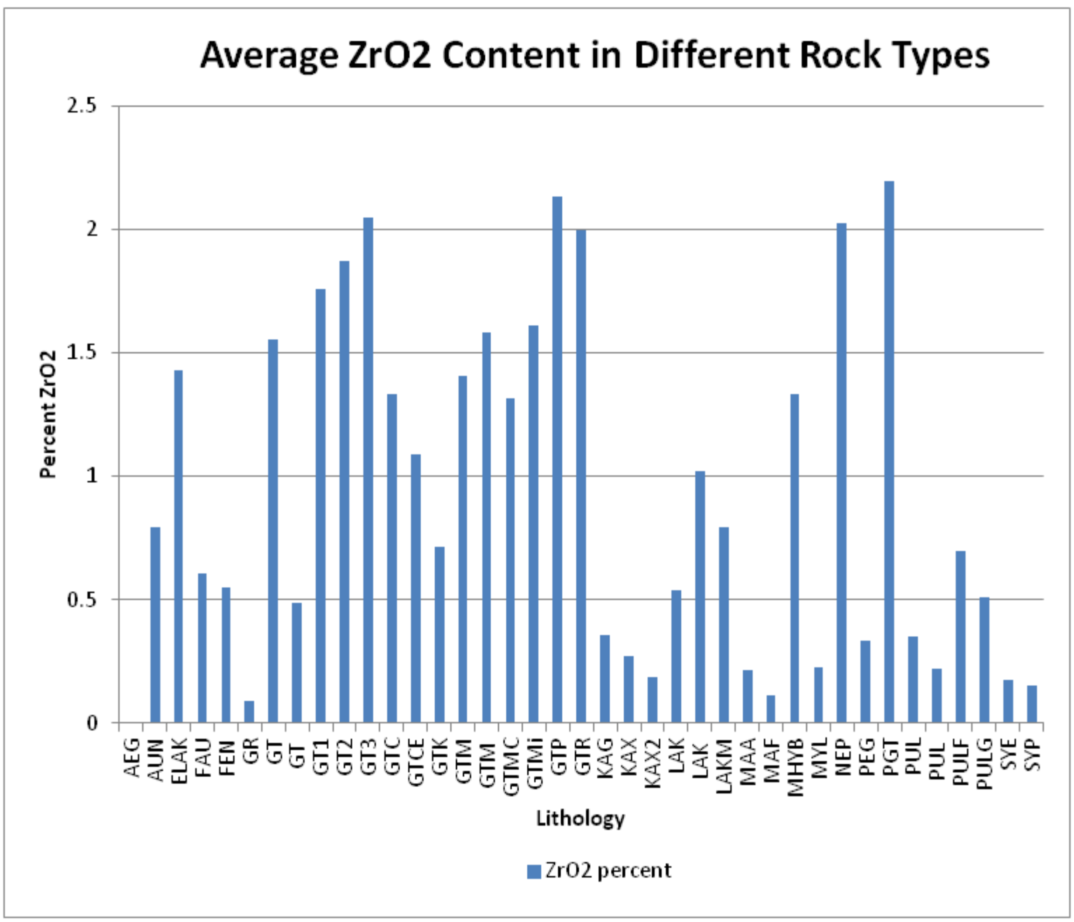
From: Adamsson (1944)

TABLE 7-3
Tasman Metals Limited
Norra Kärr Project – PEA
X-ray Fluorescence Analyses of Eudialyte Concentrate from Norra Kärr

	Eudialyte from Porphyritic Grennaite (GTCE)	**Eudialyte from Pegmatitic Zone/Vein (PGT)**	**Eudialyte from Pegmatitic Zone/Vein (PGT)**
La2O3_ppm	3,307	4,128	4,140
Ce2O3_ppm	7,051	8,269	8,422
Pr2O3_ppm	902	1,038	1,065
Nd2O3_ppm	3,569	4,047	4,176
Sm2O3_ppm	1,129	1,264	1,310
Eu2O3_ppm	147	155	179
Gd2O3_ppm	1,429	1,579	1,671
Tb2O3_ppm	NA	NA	NA
Dy2O3_ppm	2,089	2,410	2,525
Ho2O3_ppm	NA	NA	NA
Er2O3_ppm	1,544	1,738	1,875
Tm2O3_ppm	NA	NA	NA
Yb2O3_ppm	1,662	1,947	2,004
Lu2O3_ppm	262	266	272
Y2O3_ppm	16,001	16,509	18,668
TREO%	**3.91**	**4.34**	**4.63**
HREO%	2.31	2.46	2.72
LREO%	1.60	1.87	1.91
%HREO	59.20	56.80	58.70
%LREO	40.80	43.20	41.30

Modified from Fryer, B.J. and Edgar, A.D. (1977)





Note: Drilling data from 2009-2011.

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pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 7-8 Average REO and ZrO2 Content in Peralkaline Rocks Norra Kärr	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.7-8.dwg

Chondrite-normalized plots of peralkaline rocks from Norra Kärr, including analyses from the 2009-2010 drilling program show that the heavier REE's are relatively depleted in the GTM/GTMi varieties of grennaite from the central part of the intrusive (Figure 7-9). PAH noted that the pegmatitic grennaite furthest from the central kaxtorpite zone have a higher HREO/TREO ratio.

Distribution of Zirconium and Hafnium at Norra Kärr

The dominant zirconium bearing minerals at Norra Kärr are catapleiite and eudialyte both of which are abundant in varieties of grennaite described previously. A number of other rare zirconosilicates have been reported by earlier workers and are listed below. Of these only rosenbuschite have been positively identified by Tasman in a small amounts in coarse-grained pulaskite and lakarpite.

Rosenbuschite	$[(Ca,Na)_3(Zr,Ti)Si_2O_8F]$,
Låvenite	$[(Na,Ca)_2(Mn_2+,Fe_2+)(Zr,Ti)Si_2O_7(O,OH,F)]$ and
Hiortdahlite	$[(Ca, Na)_3(Zr,Ti)Si_2O_7(O,F)_2]$ plus
Zircon	$(ZrSiO_4)$

The zirconium content of eudialyte can vary due to the complex structure of the mineral, but averages approximately 12 percent ZrO_2. Catapleiite, a hydrous cyclosilicate, has the following chemical formula.

Catapleiite $Ca/Na_2ZrSi_3O_9{\bullet}{}_2H_2O$

The distribution of calcium and sodium in catapleiite varies. Adamsson (1944) suggested that the bluish catapleiite is more sodium rich while the brown-red variety is more calcium rich. The zirconium oxide content of the mineral is around 30 percent which is almost three times higher than for eudialyte.

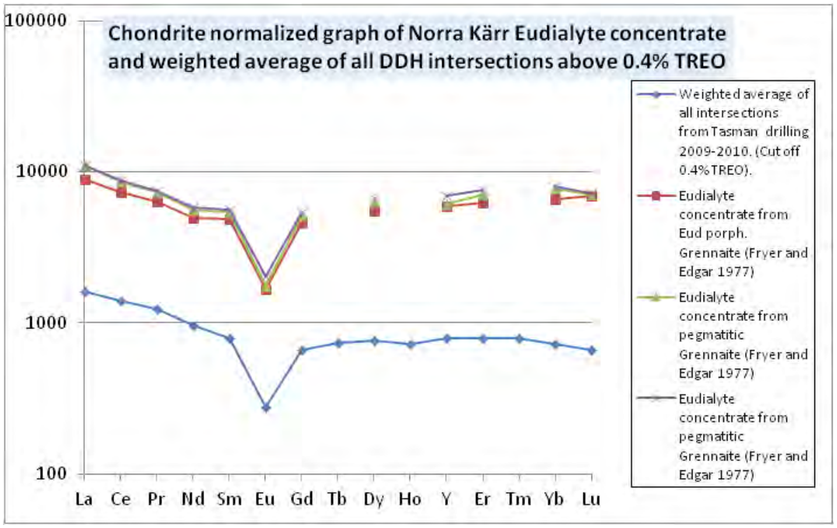
In Table 7-4, two mineral analyses of catapleiite from Norra Kärr are given (Adamsson 1944). The analytical method used in Adamsson's report is not known.

TABLE 7-4
Tasman Metals Limited
Norra Kärr Project – PEA
Chemical Analyses of Catapleiite

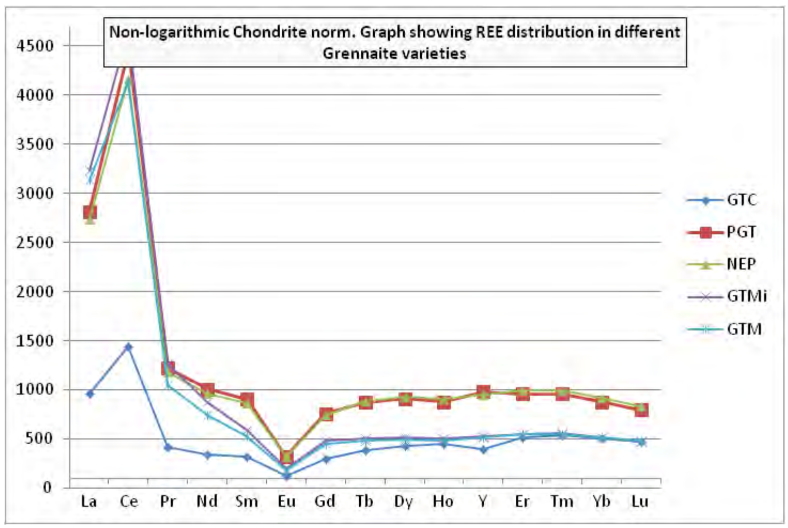
	1	2
SiO_2%	43.44	43.69
ZrO_2%	26.98	32.00
Al_2O_3%	2.89	----
FeO%	0.55	0.27
Na_2O%	6.49	12.62
CaO%	8.47	3.12
K_2O%	0.10	0.24
H_2O%	11.08	8.63
Total	100.00	100.57

1. Decomposed brick red Catapleiite. Analyzed by A. Bygden, 1943.
2. Brownish red Catapleiite from a pegmatitic schlieren. Analyzed by Mauzelius, 1906.

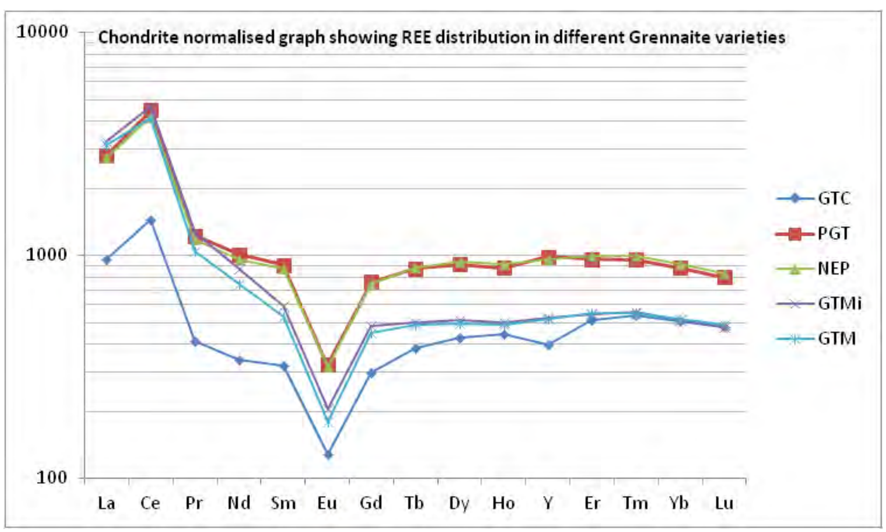
Eudialyte concentrates



REE - Distribution in various grennaite types



REE - Distribution in various grennaite types



Note: Drilling data 2009-2010

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pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 7-9 REE Distribution in Grennaite and Concentrate	April 2012
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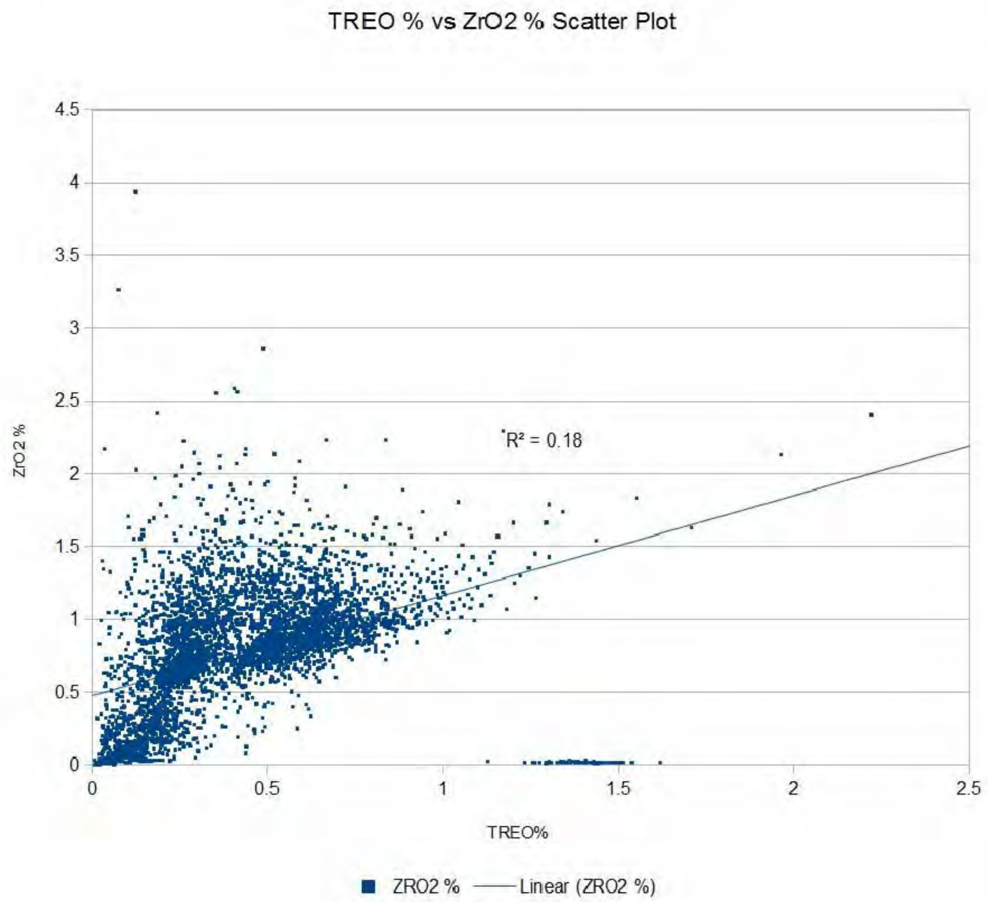
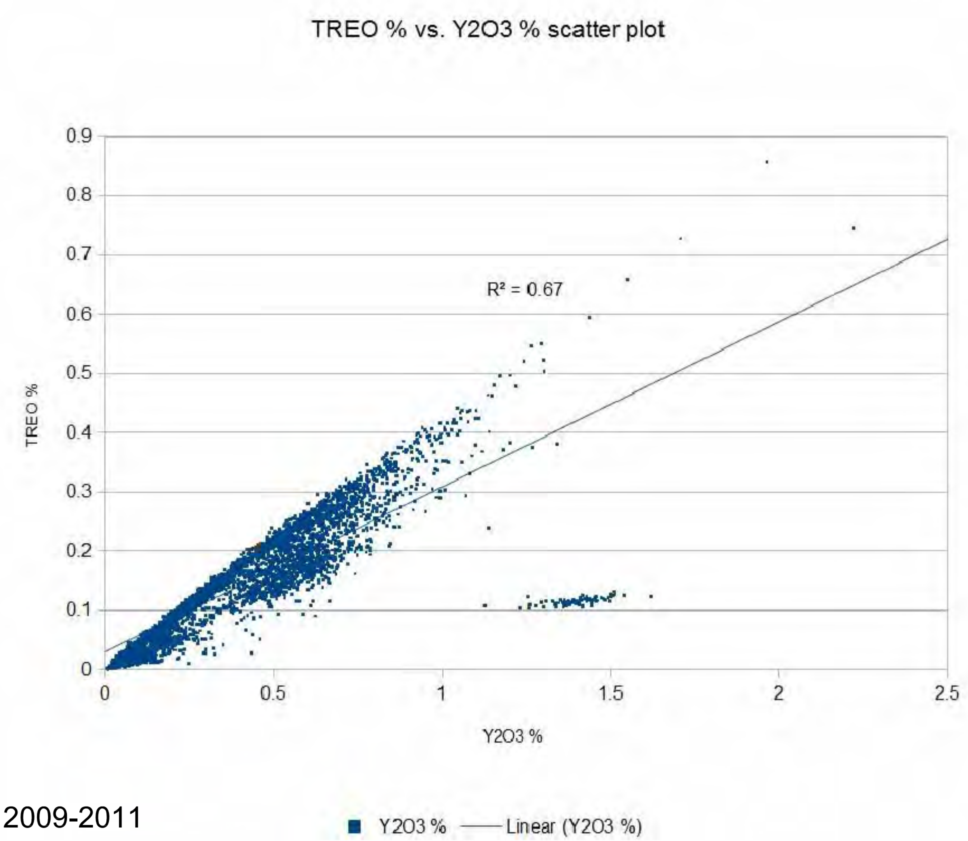
Figure 7-10 is a scatter plot of %TREO versus %ZrO_2 that suggests the presence of two distinct mineralogical populations. The first population shows a scattered distribution that generally parallels the correlation line, suggesting that the samples are mixtures of varying proportions of grennaite and pegmatite (nepheline syenite). A second distinctive population characterized by very low zircon and high TREO and yttrium suggests more mafic lithologies like MAF, KAX, PUL. The plot of TREO – Y has less scatter and more tightly parallels the correlation line, again suggesting that the samples are mixtures of grennaite – pegmatite. The higher correlation coefficient of the TREO – Y plot suggests that Y is more evenly distributed in the samples possibly due to mineralogical and/or grain-size differences in the Y-bearing minerals.

The whole rock geochemistry of selected peralkaline lithologies rock from the Project is given on Table 7-5. Typical characteristics of this suite of rocks are noted in the analyses, mainly very high sodium and alumina and moderate silica. PAH has noted that scatter plots Si/Al versus zircon or yttrium may better discriminate the different rock types in the complex.





Note: Drilling data 2009-2011

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pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 7-10 Correlation Plots for %ZrO2, %TREO and Y2O3	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.7-10.dwg

TABLE 7-5
Tasman Metals Limited
Norra Kärr Project – PEA
Whole Rock Analyses of Major Rock Types

Logging code		GTC	GTR	NEP	NEP	PGT	GTM	PUL	KAX	MAA	MAA
Drill Hole Interval	Analyses Type	NKA09001 24.8-26.8m	NKA09004 43.4-45.4m	NKA09005 46.45-47.88m	NKA10016 112.6-114.25m	NKA09006 125.4-127.4m	NKA10017 47.4-49.4m	NKA09006 46.4-48.17m	NKA10017 12.35-14.35	NKA10012 111.15-113.17m	NKA10012 117.55-118.75m
SiO_2%	XRF06	57.13	54.71	55.2	53.5	56.42	57.63	61.94	57.67	48.31	48.59
Al_2O_3%	XRF06	19.46	19.69	17.77	19.43	17.31	18.14	16	15.46	14.21	14.21
Fe_2O_3%	XRF06	4.41	4.84	4.3	4.35	4.27	5.95	3.48	4.59	8.61	8.66
CaO%	XRF06	0.55	1.02	1.53	1.78	1.86	2.61	2.27	4.37	8.13	7.59
MgO%	XRF06	<0.01	0.14	0.03	0.88	0.56	0.06	0.91	1.7	4.33	4.46
Na_2O%	XRF06	11.59	10.73	8.98	7.69	9.51	8.55	6.74	8.53	8.64	9.06
K_2O%	XRF06	3.63	3.38	5.54	4.8	4.03	4.13	5.31	3.28	2.77	3.02
Cr_2O_3%	XRF06	<0.01	<0.01	<0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
TiO_2%	XRF06	0.01	0.08	0.05	0.04	0.06	0.04	0.43	0.56	0.93	1.06
MnO_2%	XRF06	0.12	0.19	0.16	0.24	0.31	0.19	0.09	0.86	0.27	0.25
P_2O_5%	XRF06	0.008	0.009	0.01	0.009	0.012	0.009	0.142	0.008	0.182	0.247
SrO%	XRF06	0.02	0.03	0.03	0.04	0.04	0.04	0.03	0.05	0.05	0.05
BaO%	XRF06	<0.01	<0.01	<0.01	0.01	0.01	<0.01	0.1	0.07	<0.01	0.02
LOI%	XRF06	1.38	3.86	4.52	5.59	2.98	2.44	0.64	2.29	2.25	1.06
Total%	XRF06	98.31	98.68	98.12	98.37	97.38	99.8	98.09	99.45	98.69	98.3
TREO%	ICP-MS	0.281	0.519	0.576	0.727	1.135	0.463	0.054	0.085	0.112	0.03
HREO%	ICP-MS	0.167	0.249	0.37	0.378	0.644	0.282	0.018	0.038	0.039	0.007
%HREO	ICP-MS	59.2	48	64.2	52	56.8	60.8	33.7	37.7	34.9	24.4
ZrO_2%	ICP-MS	1.58	1.648	2.756	1.445	2.445	1.486	0.125	0.098	0.14	0.034

8.0 DEPOSIT TYPE

The Norra Kärr deposit is most likely hosted in a peralkaline intrusive complex of the “agpaitic” class. The term agpaitic is used to describe peralkaline nepheline syenites and phonolites containing minerals such as eudialyte and rinkite, that is, complex silicates of Zr, Ti, the rare earth elements (REE), F and other volatile elements. There are, however, cases of transition into more common types of nepheline syenites containing zircon, titanite, and ilmenite. The agpaitic rocks are characterized by extremely high contents of rare elements such as Li, Be, Nb, Ta, REE, Zr, Th, etc. and of volatiles, mainly F and Cl (Sorrensen, 1997).

The recent drilling combined with earlier detailed surface mapping performed by Boliden suggests a zoned, or layered pattern to the Norra Kärr complex trending roughly north-south.

A similar geologic setting occurs at the Lovozero massif in northwestern Russia where the Paleozoic massif intrudes Archean garnet-biotite gneisses and has the form of a laccolith with a broad base. The massif is much larger than Norra Kärr, being roughly 25 km in diameter. It consists of eight differentiated ultramafic to peralkaline phases of which the youngest phase is a eudialyte-bearing lujavrite--a nepheline syenite containing amphibole, aegirine nepheline, microcline and eudialyte (Arzamastsev, et al, 2008).

Other deposits with similarities to Norra Kärr include the Kipawa Lake deposit in Ontario being explored by Matamec Explorations Inc. (www.matamec.com); Strange Lake deposit along the northeastern Quebec/northwestern Labrador border being explored by Quest Rare Minerals Ltd (www.questrareminerals.com); Thor Lake, NWT, Canada being explored by Avalon Rare Metals Inc (www.avalonraremetals.com) and Dubbo in Australia, being explored by Alliance Resources Ltd (www.allianceresources.com). Lovozero is currently being mined, while the other deposits are in an advanced state of exploration or development.

The target for potential future mining at Norra Kärr is a bulk-mineable, open pit resource that contains no sulfides, oxides or radioactive minerals. The host rock is a layered peralkaline intrusive, and the commodities sought would be zirconium, yttrium and a suite of rare earth elements associated with certain exotic silicate minerals known to exist at Norra Kärr and at the other deposits cited above.

9.1 EXPLORATION

Prior to the involvement of Tasman Metals Ltd in the Norra Kärr Project, the most significant exploration work was undertaken by the Swedish mining company Boliden AB from 1974 to 1975. Boliden's work on the site was previously discussed in Section 6.0 of this report and shown on Figure 6-1. Several small test pits were also excavated on the property, an historical marker on site suggests that these were completed in the 1940s.

At the beginning of their exploration program in 2009, Tasman selected various samples for assay from a suite of rock specimens collected and archived by Boliden in the 1970s. Tasman geologists chose rocks representative of various lithological units along the two trenches that were excavated and sampled by Boliden. A slab of each specimen was sawn by the Tasman and submitted for analysis. Table 9-1 shows Tasman's results in comparison to Boliden's original composited results obtained from their large sample intervals.

TABLE 9-1
Tasman Metals Limited
Norra Kärr Project – PEA
Comparison of Analyses of Tasman's Samples (2009) to Boliden's Composite Trench Samples (1970s)

Tasman Sample	Boliden Specimen	Interval	Width (m)	Tasman ZrO_2%	Boliden ZrO_2 %	Tasman Hf %	Boliden Hf %	Tasman TREO%	Boliden TREO%
400017	3	I	47.0	0.05	0.17	0.001	0.004	0.04	0.06
400016	9	II	22.0	0.67	0.59	0.014	0.014	0.17	0.13
400015	25	III	53.0	0.56	0.48	0.010	0.010	0.24	0.16
400014	33	IV	67.5	3.26	2.15	0.045	0.040	0.26	0.35
400013	38	IV	67.5	0.97	2.15	0.018	0.040	0.16	0.35
400012	45	IV	67.5	1.63	2.15	0.030	0.040	0.46	0.35
400011	54	IV	67.5	1.84	2.15	0.035	0.040	0.64	0.35
400010	62	V	60.5	1.65	2.00	0.030	0.040	0.33	0.40
400009	70	V	60.5	0.06	2.00	0.001	0.040	0.10	0.40
400008	79	V	60.5	1.69	2.00	0.031	0.040	0.54	0.40
400007	93	V	60.5	1.75	2.00	0.032	0.040	0.70	0.40
400005	117	VI	60.0	1.87	1.94	0.037	0.040	0.43	0.45
400004	122	VII	56.0	1.76	1.52	0.034	0.032	0.27	0.28
400003	129	VII	56.0	1.33	1.52	0.025	0.032	0.19	0.28
400002	136	VII	56.0	4.78	1.52	0.052	0.032	0.35	0.28
400001	152	VIII	32.0	0.05	0.55	0.001	0.012	0.04	0.10
400018	4	IX	25.0	1.11	0.90	0.023	0.017	0.05	0.07
400019	16	X	21.5	1.35	1.40	0.033	0.026	0.21	0.22
400020	20	XI	63.5	1.09	1.66	0.021	0.027	0.18	0.42
400021	41	XI	63.5	1.10	1.66	0.019	0.027	0.49	0.42
400022	59	XII	64.0	1.49	1.40	0.023	0.029	0.57	0.67
400023	73	XII	64.0	1.26	1.40	0.022	0.029	0.46	0.67
400024	86	XIII	66.0	1.43	0.47	0.024	0.011	0.46	0.38
400025	108	XIII	66.0	0.04	0.47	0.001	0.011	0.26	0.38
400026	129	XIV	90.0	0.59	0.35	0.011	0.009	0.24	0.24
400027	139	XIV	90.0	0.02	0.35	0.000	0.009	0.10	0.24
400028	151	XV	17.0	0.82	1.47	0.012	0.029	0.32	0.71
400029	159	XVI	35.0	0.92	1.47	0.020	0.018	0.35	0.31
400030	167	XVI	35.0	1.03	1.47	0.022	0.018	0.32	0.31

Overall, considering that the Boliden specimens were point samples supposed to represent the rock type within the respective sample intervals, many over several tens of meters, the correlation between the hand specimen analyses and the average assay for the trench composites is acceptable. This suggests that within each large sample interval, the mineralization is homogeneous.

Of the 30 samples analyzed by Tasman, 27 came from Norra Kärr intrusion. The total rare earth oxide values (TREO) for these 27 samples ranged from 0.09 per cent to 0.70 per cent, and the percentage of the heavy rare earth oxide (HREO) contained within these samples ranged from 20 to 69 per cent, averaging 54 per cent. This is a high ratio of HREO to LREO; most REE deposits contain 1 to 3 per cent HREO in the TREO.

In 2009, Tasman also submitted five rock specimens for petrographic analysis. The petrographic findings support the observations made by all previous workers at Norra Kärr. The rocks, as a whole, were classified as peralkaline nepheline syenites containing small amounts of eudialyte, catapleiite or rosenbuschite, fluorite and apatite. The feldspars have undergone some retrograde metamorphism manifesting as carbonate along fractures, and as sericite or zeolites in nepheline. Foliation, defined by aligned mineral grains, is attributed to either regional deformation or as a primary magmatic flow texture. The mineral assemblage implies that the magma was quite oxidizing, suitable for enrichment in Zr, Ti, F, Rb, Cs, Sr, Ba and rare earth elements (Ashley, 2009).

As referenced above, in 2009 Tasman also contracted Mr. John Nebocat of Pacific Geological Services to prepare an NI 43-101 technical report. This report summarised the pre-drilling history of the property, recommended further exploration, and encouraged Tasman to continue advancement of the Project.

In keeping with the recommendations of Mr. Nebocat, Tasman initiated drilling at the Project site during winter 2009 continuing until spring 2010. Tasman drilled 26 diamond drill holes totaling 3,275.74 m in five E-W orientated profiles across the Norra Kärr intrusion. Methodology and results of this drilling program are summarized in Section 10 of this report. These 26 holes were used within the first Mineral Resource calculation completed by Mr. Geoff Reed of PAH in November 2011. From January 2011, an additional 23 diamond holes were drilled for a total of 4,100.6 meters.

10.0 DRILLING

10.1 *Activity Prior to Tasman*

Three holes are known to be marked on selected maps sourced from Boliden AB. No supporting data has been found and no field evidence located to confirm that these three short holes were drilled.

10.2 *Tasman's Activity*

During the winter and spring of 2009-2010 Tasman drilled 26 diamond drill holes totaling 3,912.91 m in two continuous phases. Subsequently, during the winter and spring of 2010-2011, Tasman drilled a further 23 diamond drill holes totaling 4,100.66 m. Ten east-west orientated profiles were drilled across the Norra Kärr alkaline intrusion at 100m spacing. Four hundred meter-spaced sections were drilled during the Phase 1 program, the success of which encouraged Tasman to immediately infill on 200 m-spaced sections with Phase 2. During Phase 3, Tasman continued the infill drilling on 100 m spaced sections in 2010-2011.

Of the 8,013.57 m of drilling, 281.11 m was overburden drilling, the remaining 7,732.46 m being core in bedrock. Drilling started on December 10, 2009 and the last hole was completed on May 22, 2011. The drilling was continuous except for a break over Christmas and New Year in 2009-2010 and 2010-2011. The first eleven holes were drilled by contractor North Scandinavian Drilling (NSD) using a Diamec U6 (Atlas Copco) rig and BGM size rods producing core samples with a 42 mm diameter. After the first eleven holes were completed, another sub-contractor, Geo-Gruppen, was engaged to finish the drilling program. Geo-Gruppen used BQTK drill rods which give a slightly smaller core diameter (40.7 mm).

In total, 49 core holes were completed on the Project from 2009 to 2011 and comprise the drilling database for the current mineral resource and PEA (Table 10-1). The effective date of Tasman's ACCESS drilling database (DE00215_Tasman_Metals_drilling_database.accdb) is December 1, 2011, which contains the results for the drill holes completed prior to August 19, 2011. A map showing Tasman's drill hole locations and profiles was presented previously in Section 7.0 (Figure 7-7). Affirmative spot checks of drill hole collar locations were made by Mr. G. Reed, Senior Consulting Geologist with PAH, during the site visit to the Project in September 2010 (Figure 10-1).

TABLE 10-1
Tasman Metals Limited
Norra Kärr Project – PEA
Summary of Exploration Drilling 2009, 2010 and 2011

Year	Number of Holes	Total Length (m)	Core Size	Unsampled Intervals (m)	Drilled By
2009/2010*	26	3,507.6	BGM	251.3	NSD
2010/2011	23	3,867.8	BQTK	105.9	Geo-gruppen

*three drill holes of 2009 w ere extended in 2011, therefore meters are 2011 totals.
**three drill holes of 2010 w ere extended in 2011, therefore meters are 2011 totals.
Surface core drilling, total meterage (2009 - 2011) 7,375 m.

Drill collar in Norra Karr Project area

Mr. G. Reed (PAH) checking drill collar location during site visit, September 2010

Prepared by	Drawing Provided by/Prepared for		Date of Issue
pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 10-1 Site Visit Photos September 2010	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.10-1.dwg

The profile spacing is nominally 100 m while the distance between holes on section is generally 80 m. All holes are oriented along an 090^o azimuth and are inclined -50^o to the East. At the beginning of the program it was decided that the inclined hole length should be approximately 150 m, equivalent to testing a vertical depth of approximately 110 m. During Phase 3, drilling attained a depth of 300 m but the average hole length was approximately 160 m. Several holes are substantially shorter since the contact between the peralkaline intrusion and country rocks was reached earlier. The hole numbering system starts with the abbreviation NKA followed by the year, 09 or 10 or 11, and the sequential hole number from NKA09001 to NKA11049.

Forty four of the forty nine drill holes have now been surveyed for downhole deviation to or near their downhole depth.

10.2.1 Core Orientation

Sixteen of the drill holes used core orientation tools during the drilling process. Three applied the EZYmark technique, and 13 with Reflex ACT II RD. Principal foliation and pegmatite contacts were intersected at high angle to the long core axis in almost all zones drilled, suggesting close correspondence between true thickness and the drilled thickness.

10.2.2 Collar Location Surveys

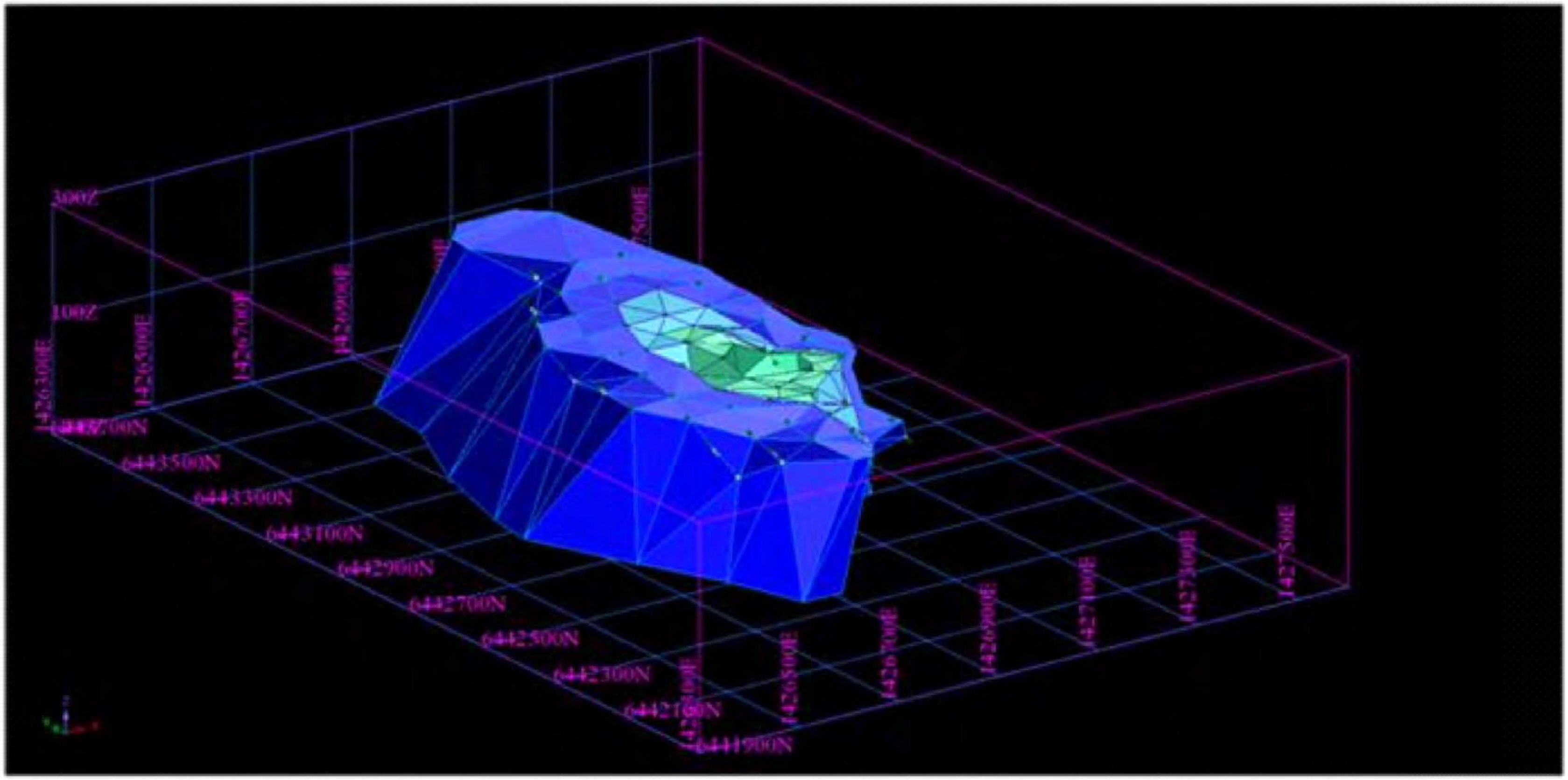
Drill holes were laid out using a GPS device, with hole spacing confirmed by tape and compass. In 2010-2011, the Swedish land survey firm, Metria AB, conducted high precision digital GPS surveys (DGPS) on the site. Drill collar coordinates were surveyed with an accuracy of between 0.01 and 0.2 m (XY-Z). By the end of the 2011 drilling campaign, all 49 drill holes had been surveyed using DGPS methods by Metria AB. Figure 10-2 shows the three dimensional boundary of the peralkaline intrusive body as defined by Tasman’s drilling programs through August 2011.

10.2.3 Core Recovery and Rock Quality

PAH reviewed core recovery and the rock quality designation (RQD) data for 46 holes (7,110 m) provided by Tasman. Core recovery is excellent as the data which were recorded on a meter-by-meter basis show 99.7 percent recovery. During the site visit Mr. Reed reviewed the rock competence which in general was very good. Fractured rock was encountered only locally, close to the eastern contact between the peralkaline intrusion and the country rock. Hole NKA10015 was abandoned due to strong fracturing just above the expected granite contact. In the 46 holes, the RQD index averaged 86 percent. Only 2.6 percent (185 m) of the aggregate meterage (7,110 m) reported RQD values less than 25 percent, reflective of high rock competence.

10.2.4 Quality of Drilling Data

From the drilling perspective, PAH believes that the drilling density, core recovery, and drill hole location surveying are industry standard and acceptable for use in resource estimation.



Legend		
Blue	=	Pegmatitic Grennaite
Lite Blue	=	Migmatitic Grennaite
Lite Green	=	Kaxtorpite

minarco mineconsult

Figure 10.3
Tasman Metals
NORRA KARR PROJECT
Collar Area and Surpac Model

Prepared by	Drawing Provided by/Prepared for		Date of Issue
pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 10-2 3D Image of Geological Domains PGT, GTM and KAX	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.10-2.dwg

11.0 SAMPLE PREPARATION, ANALYSIS, AND SECURITY

11.1 *Surface Sampling*

11.1.1 Sampling Methodology

Tasman geologists have collected a small number of representative surface samples from the Norra Kärr Project, and re-assayed 30 hand specimens collected by Boliden AB that were stored in archives at the Swedish Geological Society (SGU) office and core library in Malå, Sweden. A precise location of the hand samples is not available. These 30 samples are not considered representative, and have now been superseded by Tasman's drilling data.

Mr. John Nebocat of PGS collected five rock samples from various sites within the central part of the Norra Kärr complex as part of his preparation of the first NI 43-101 report on the project. The samples covered an area roughly 600 m NNE-SSW by less than 100 m WNW-ESE and come from two of the phases of the intrusion as classified by Boliden. The analyses and descriptions of these samples are provided in Table 11-1.

TABLE 11-1
Tasman Metals Limited
Norra Kärr Project – PEA
Rock Samples Collected by PGS

Sample	Width (m)	Description	ZrO_2 (%)	HfO_2 (%)	TREO (%)
73885	2	Green, foliated grennaite	0.25	0.004	0.03
73886	1.5	Coarse grained, pegmatitic grennaite	0.53	0.006	0.37
73887	1.6	Green foliated grennaite	1.97	0.033	0.24
73888	0.9	Foliated grennaite	0.12	0.002	0.19
73889	0.8	Banded, coarse grained grennaite	0.89	0.014	0.52

11.2 *Drill Core Handling and Sampling*

11.2.1 Drill Core Logging

Drill core from the 2009-2011 programs was logged close to the Norra Kärr site in a barn rented from a farmer. RQD measurements and core orientation readings (when present) were taken prior to logging or transport. Once geologically logged, core pallets were sent to the Swedish Geological Survey archive in Malå in regular batches via independent contractor. Core was then photographed, and magnetically and radiometrically measured.

11.2.2 Cutting

Tasman geologist Magnus Leijd supervised sampling of all holes drilled from 2009 to 2011.

Sample intervals were emailed to an independent core cutting contractor in Malå where each interval was given a unique sample number. The sample numbers were taken from custom sample ticket booklets made for Tasman. One part of the sample ticket was placed in the bag together with the cut core. The sample numbers are continuous starting with 400,101 and ending at 405,929. A total of 340 standard reference samples were inserted at a rate of approximately 1 in 25, resulting in approximately 4 percent of the submitted samples. Excluding standards, 4,328 samples totaling 7,375.34 m of core was taken. A majority of the samples are 2 meters long in homogeneous units; however, lengths vary from 0.15 to 2.44 m as sampling did not cross lithologic boundaries.

Core was split by diamond saw at the SGU facilities in Malå. One half of the core was placed in a numbered plastic bag together with the corresponding sample ticket and the other half was left in the core tray. The core was cut taking in consideration the main foliation/banding of the rock. When it was possible to reassemble the core, the same half of the core was submitted for assay. The residual half of drill core was viewed by the author in the SGU secure archive. The archive is a key access only facility, and there is no evidence that samples have been disturbed in any way since cutting.

The plastic bags containing samples where then packed in cardboard boxes and sent by bus to the ALS Chemex preparation laboratory in Piteå some 150 km East of Malå.

11.2.3 Sample Quality

PAH believes that the sampling methods and approach employed by Tasman are reasonable for this style of mineralization and consistent with industry standards. The samples are representative and there appears to be no discernible sample biases introduced during sampling.

The rocks on the property are fresh with little or no secondary minerals on the surfaces that would enhance metal values.

Cutting of core and dispatch to the ALS Chemex laboratory in Sweden is in keeping with industry practice, and security of the delivery chain is adequate. All drilling and subsequent sampling and assaying during the 2009 to 2011 drilling programs was completed by independent persons and at no time was an officer, director or associate of Tasman involved.

There are no records available describing the analytical techniques used by Boliden. Some of the assay certificates are on Boliden letterhead, so possibly they were done by their in-house laboratory. A footnote on one certificate indicates that an H_2SO_4/HF digestion was used. Surface sampling by Boliden does not contribute to the Mineral Resource calculation contained within this report.

Surface samples taken by Tasman from the field and from the Boliden archived hand specimens were delivered by one of the Tasman's employees to the ALS Chemex facilities in Piteå laboratory, and assayed at the ALS Chemex facility in Vancouver, Canada. The preparation and analysis of these samples is adequately described by Mr. John Nebocat. Surface sampling by Tasman does not contribute to the Mineral Resource calculation contained within this report.

Five samples were collected in the field by Mr. John Nebocat, and assayed by IPL International Plasma Laboratory in Richmond, Canada. Surface sampling by Mr. John Nebocat does not contribute to the Mineral Resource calculation contained within this report.

11.3 *Core Sample Preparation*

All drilling samples were prepared and by ALS Chemex in Öjebyn and analyzed by ALS Chemex in Vancouver, Canada. This laboratory is ISO accredited (ISO/IEC 17025) and, in addition, has been accredited by Standards Council of Canada as a proficiency testing provider for specific mineral analysis parameters by successful participation in proficiency tests.

11.3.1 Crushing

On arrival at the ALS Chemex facility in Piteå, Tasman's drill core samples were cross checked with paperwork emailed by Tasman's geological staff, then dried and weighed.

Samples that require crushing are dried at 110-120˚C and then crushed with either an oscillating jaw crusher or a roll crusher. The entire sample is crushed, but depending on the method only a portion of the crushed material may be carried through to the pulverizing stage.

That amount, typically 250 g to 1 kg, is subdivided from the main sample by use of a riffle splitter. If splitting is required, a substantial part of the sample (the "reject" or spare) remains.

11.3.2 Pulverizing

After crushing, 250 g of was subdivided from the main sample by riffle splitter. This 250 g was then pulverized using a ring mill, with a specification that greater than 85 percent of the sample should pass through a 75 micron (200 mesh) screen.

Approximately 10-15 g of the pulverized sample was then shipped to the ALS Chemex assay laboratory in Vancouver, Canada for analysis. The remainder of the crush reject and pulp are stored at ALS Chemex in Piteå.

All sample preparation and assaying during the 2009 to 2010 drilling programs was completed by independent persons and at no time was an officer, director or associate of Tasman involved.

11.3.3 Sample Analysis

All samples taken during Tasman's 2009 – 2011 diamond drilling programs at Norra Kärr were analyzed at ALS Chemex in Vancouver, Canada, using the ME-MS81 method as described below. Zirconium rich samples that exceeded the reporting limit of the ME-MS81 method (> 1 percent) were further assayed by XRF method ME-XRF10. About 55 percent of the samples were re-analyzed for Zr.

The analytical specification for the ME-MS81 method is: *A prepared sample (0.200 g) is added to lithium metaborate flux (0.90 g), mixed well and fused in a furnace at 1000°C. The resulting melt is then cooled and dissolved in 100 mL of 4 percent* HNO_3 */ 2 percent HCl solution. This solution is then analyzed by inductively coupled plasma - mass spectrometry."*

Thirty seven samples, representing all significant rock types, were also analyzed by a multi element ICP-MS method (ALS Chemex method ME-MS61) to gain further trace element data. This method reports 48 different elements of which a number of potentially economic metals not detected by the main assay method are (ex. Li, Be, Sc, Bi, In, Ge, Se, Te) detected. The upper and lower detection limits for the ICP-MS method as published by ALS Chemex in their schedule services (2012) is given in Table 11-2.

TABLE 11-2
Tasman Metals Limited
Norra Kärr Project – PEA
Elements & Detection Ranges (ppm) for ALS Chemex Method ME-MS81

Ag	1-1,000	**Ga**	0.1-1,000	**Pb**	5-10,000	**Tm**	0.01-1,000
Ba	0.5-10,000	**Gd**	0.05-1,000	**Pr**	0.03-1,000	**U**	0.05-1,000
Ce	0.5-10,000	**Hf**	0.2-10,000	**Rb**	0.2-10,000	**V**	5-10,000
Co	0.5-10,000	**Ho**	0.01-1,000	**Sm**	0.03-1,000	**W**	1-10,000
Cr	10-10,000	**La**	0.5-10,000	**Sn**	1-10,000	**Y**	0.5-10,000
Cs	0.01-10,000	**Lu**	0.01-1,000	**Sr**	0.1-10,000	**Yb**	0.03-1,000
Cu	5-10,000	**Mo**	2-10,000	**Ta**	0.1-10,000	**Zn**	5-10,000
Dy	0.05-1,000	**Nb**	0.2-10,000	**Tb**	0.01-1,000	**Zr**	2-10,000
Er	0.03-1,000	**Nd**	0.1-10,000	**Th**	0.05-1,000		
Eu	0.03-1,000	**Ni**	5-10,000	**Tl**	0.5-1,000		

Note: Some base metal oxides and sulphides may not be completely decomposed by the lithium borate fusion. Results for Ag, Co, Cu, Mo, Ni, Pb and Zn will not likely be quantitative by this procedure.

For further details of all the procedures employed by ALS, the reader is referred to the following website: www.alsglobal.com/Regions/Search.aspx. ALS's website cites the following certifications:

".... NATA Accreditation (No. 825) – Accreditation is assessed to ISO/IEC Guide 25 "General Requirements for the Competence of Calibration and Testing Laboratories"*

** ALS has certification to AS/NZS ISO 9001:2000 (No. 6112)*

** ALS has in place a Quality Management System that is structured to conform to the requirements of ISO 9002. This covers aspects such as Contract Review, Document and Data Control, Inspection and Testing, Calibration, Corrective and Preventative Action, Internal Audits and Training."*

PAH considers that sample preparation and analytical procedures for all core samples are of industry standard and should minimize sample error and bias.

11.4 *Tasman QA/QC*

11.4.1 Standards

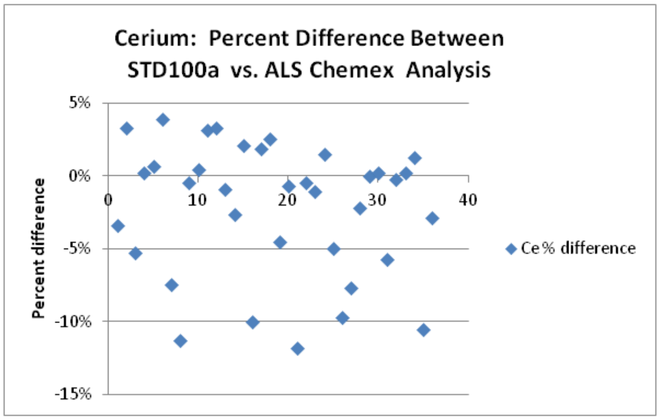
Tasman purchased three registered standards for REE's and Zr from Ore Research and Exploration PL (www.ore.com.au). These standards were inserted to the sample stream at a rate of approximately 1 in 25, resulting in approximately 4 percent of the submitted samples being standards. The Certified Values for the OREAS Standards 100a, 102a and 146 are compared to the results of multiple analyses of the standards by ALS-Chemex (Table 11-3). For the 2011 drilling program, Tasman began using standard OREAS-146, a REE-mineralized ferruginous carbonate-rich rock associated with amphibolites. The accepted values for REEs in this standard are generally within the concentration ranges of mineralized material found in the Project.

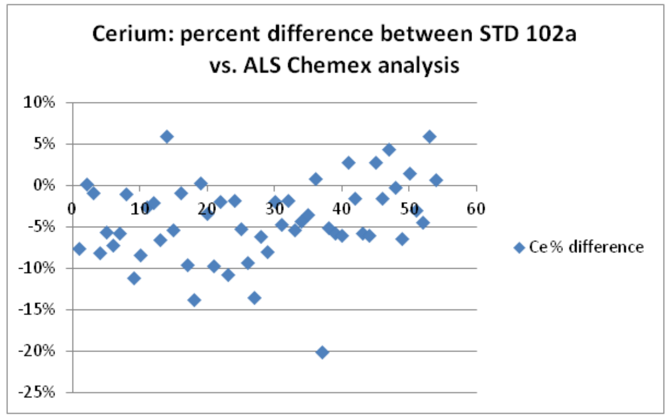
TABLE 11-3
Tasman Metals Limited
Norra Kärr Project – PEA
Certified Values for OREAS Standards 100a, 102a and ALS Chemex Analyses of Standards

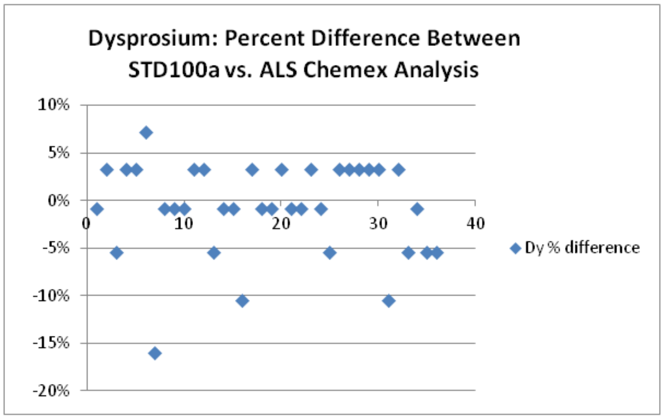
REE	Certified Value 100a	Mean of 36 ALS Chemex Assays	Certified Value 102a	Mean of 54 ALS Chemex Assays	Certified Value OREAS-146	Mean of 85 Assays OREAS #146**
Ce	463.0	453.0	587.0	558.7	4691.0	4640.2
Dy	23.2	23.1	18.1	17.4	224.0	215.3
Gd	23.6	24.9	20.9	22.0	359.0	327.2
La	260.0	255.6	323.0	315.5	2513.0	2444.3
Nd	152.0	149.8	180.0	177.6	2182.0	2109.6
U	135.0	128.9	662.0	612.7	2.7	2.6
Y	142.0	120.5	105.0	101.6	903.0	908.5

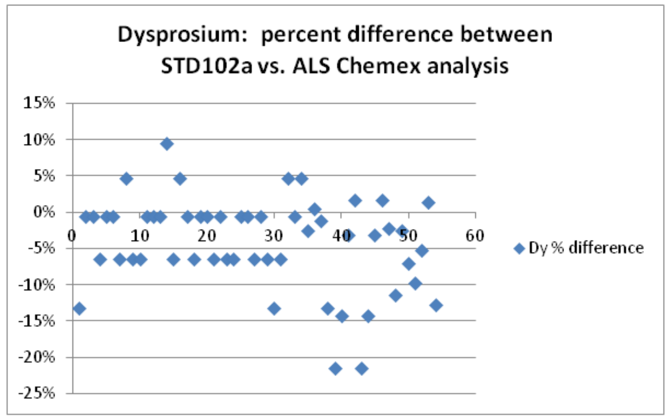
** OREAS #146 This CRM first used in 2011 drilling program.
Lab assays demonstate good accuracy with respect to the accepted values of the respective CRMs.

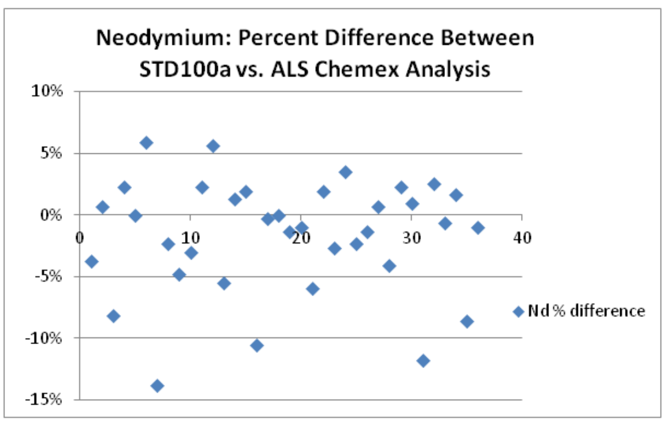
Analysis of certified standards by ALS-Chemex allowed Tasman to monitor the quality of assays during the drilling program. A review of this standard data from 2009 – 2011 drilling was completed by PAH, and summarized on Figure 11-1. The plots show that the accuracy and precision of data were adequate during the drilling programs and that no regular bias is present in the data. Any slight assay bias suggests an under reporting of grade rather than over reporting.

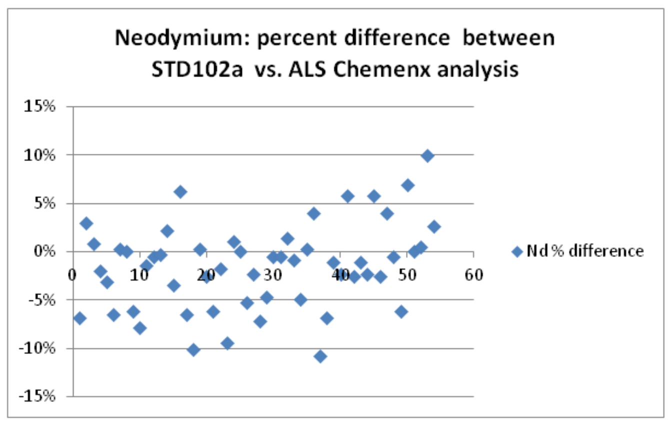


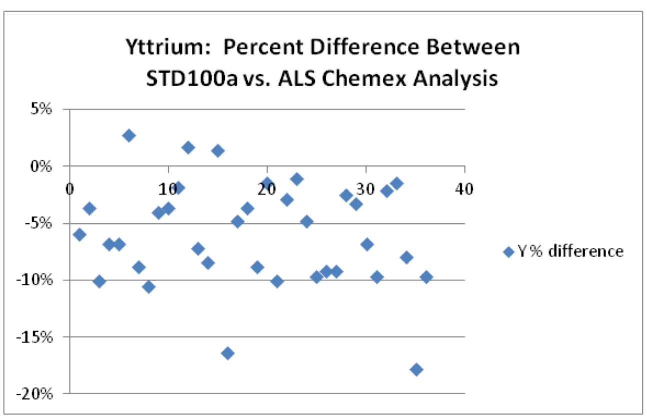


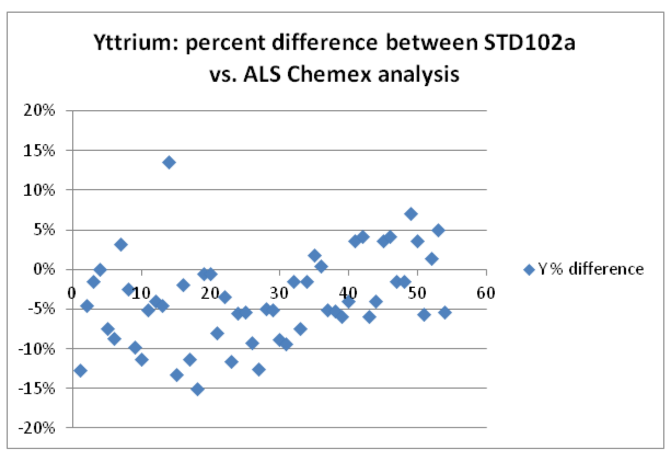












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Project No.
DE-00215

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Tasman Metals Ltd.

Project Name
Norra Kärr Project

FIGURE 11-1
Analyses of Standard Reference Samples by ALS Chemex

Date of Issue
April 2012

Drawing Name
Fig.11-1.dwg

In addition, ALS Chemex routinely inserts standard and blank samples into every sample batch. This QC data was supplied to Tasman, and subsequently to PAH. PAH reviewed the blank sample analyses by ALS-Chemex and did not observe any sample cross contamination issues or inconsistency in sample quality (Table 11-4).

TABLE 11-4
Tasman Metals Limited
Norra Kärr Project – PEA
General Statistics on Blanks for Selected Elements

Blank Berg	No. Samples	Min ppm	Max ppm	Mean ppm	StdDev ppm	Cv
Ce	61	28.50	64.10	42.16	8.177	0.194
Dy	61	2.79	5.57	3.58	0.469	0.131
Gd	61	15.60	18.80	17.36	0.729	0.042
Y	61	15.40	33.90	22.49	3.194	0.142
Blank KLA		**Min**	**Max**	**Mean**	**StdDev**	**Cv**
Ce	21	38.70	175.95	142.88	37.932	0.265
Dy	21	2.97	15.05	13.87	3.731	0.269
Gd	21	2.96	15.05	11.24	3.731	0.332
Y	21	19.60	139.50	108.00	31.060	0.288

Two blanks used by Tasman 2009 - 2011 drilling programs

11.4.2 Check Assays

As part of a quality control process, Tasman submitted 198 check assay to ACME Analytical Laboratories in Vancouver, Canada applying their "Group 4B - Total Trace Elements by ICP-MS" which incorporates lithium metaborate/tetraborate fusion. Check assays were selected to represent a range of grades and rock types, and used existing pulps that had previously been assayed by ALS Chemex. For the range of grades relevant to this resource calculation, no consistent bias is suggested in analytical results by the re-assay data. Field duplicate assays were run where the pulps were assayed twice.

All QA/QC data for this Project has been deemed acceptable for the purposes of the Mineral Resource estimation.

11.5 *Core and Sample Security*

PAH has discussed core and sample handling procedures with key geological and technical personnel. On the basis of these discussions, PAH believes that all split core was well and securely packed and stored prior to transportation to the laboratory for processing. As a result PAH considers sample security to be adequate.

PAH also understands that at no time was an officer, director or associate of Tasman involved in the sample preparation or analytical work and an independent laboratory was employed for sample preparation and analysis. It is therefore PAH's belief that it is highly unlikely that an officer, director or associate would have had the opportunity to manipulate the sample data.

12.0 DATA VERIFICATION

12.1 *Site Visit*

Mr. Geoff Reed of PAH travelled to the Norra Kärr Project with representatives from Tasman in September 2010. During this visit, a thorough validation of hole collar positions was undertaken using GPS. Twenty three drill holes from twenty six drill hole positions were checked and found to be accurately surveyed. Drill collar orientation was also checked, and found to be consistent with the drill database as supplied to PAH. Key geological features were surveyed during this visit such as a eudialyte-rich outcrop and grennaite outcrop. These were later reconciled with the extrapolated positions from the drill hole logging and found to correlate well.

PAH also travelled to the core archive facilities of the Swedish Geological Survey where Tasman's core is securely stored. Six holes were selected by PAH for re-logging, which were laid out in their entirety and logged. The re-logging of these holes confirmed the correlation of the higher grade zones with zones of stronger eudialyte mineralization which subsequently assisted in the interpretation of the high grade domains within the broader resource area. PAH checked a random amount of printed logsheets against the data provided in the database. These did not indicate any issue with data integrity.

12.2 *Database Validation*

Prior to Tasman's diamond drilling in 2009-2011, sampling was minimal on the Norra Kärr Project.

Archived documents from Boliden AB were paper copies that were scanned and saved as PDF files; the documents appear to be originals judging by the type face that pre-dated computer printers. Tasman obtained these data from the SGU. PAH believes that these documents are authentic. Adequate validation of this data was completed by Mr. John Nebocat of PGS. Boliden's data does not form part of the database that contributed to the Mineral Resource calculation contained in this report.

PAH completed a full review of Tasman's drill hole database which included a review of all available assay certificates, drill logs, samples books and historical database. PAH found robust records allowing easy data auditing. A comparison was made between assay certificates for the 26 holes available at the time of the site visit.

During this review and audit by PAH, a number of observations were noted, these include:

- Field checking of drill holes locations demonstrated accuracy in all cases;

- Field checking, original drill logs, and database were all consistent showing the appropriate angle and inclination of the drill holes completed;

- Sample intervals were correct for assays entered. PAH noted only one error in the updated database caused by typographical error;
- The assay certificates, drill logs and sample sheets were available for all drill holes;
- Loading of assay data from laboratory certificates was correct;
- During the 2009 - 2011 drilling program, Tasman assayed all intervals for REE and Zr by the same analytical methods at the same laboratory;
- During the 2009 – 2011 drilling programs approximately 356 m out of the total 7,374 m of the drilling was not sampled, as they were drilled into the host granite;
- During this audit, no issues with the conversion of the database were identified.

12.3 *Quality Control Data*

Assayers ALS Chemex automatically inserts standards and blanks in their normal assay procedure. Tasman included their own standards in the sample stream in addition to ALS Chemex's internal practice.

Tasman has documented its duplicate-assay and analytical control program and demonstrated that there is no evidence of major systematic errors or bias in that data.

12.4 *Assessment of Project Database*

The audit of Tasman's data collection procedures and resultant database by PAH has resulted in a digital database that is supported by verified certified assay certificates, original drill logs and sample books. PAH has high confidence that the REE and Zr assays used in the Mineral Resource Calculation are consistent with information in drill logs and sample books. A comparison of the assay certificates and drill hole logs show consistency for the 2009 - 2011 drill holes, PAH believes there is sufficient data to enable their use in a Mineral Resource estimate and resultant classification following NI 43-101.

The un-sampled zones within the intrusion appear to be insignificant to the deposit, comprising zones of only low grade mineralization. As a result, PAH believes these zones should be classified as internal waste zones of different rock type in any resource calculation.

Based on data supplied, PAH believes that the analytical data has sufficient accuracy for use in resource estimation for the Norra Kärr deposit.

12.5 *Check Sampling by PAH*

PAH independently checked 51 sample assays by directly acquiring previously prepared residue samples from the ALS Chemex preparation laboratory in Piteå, and resubmitted them as check assays the results of which are given on Table 12-1. A range of rare earth elements assay values were selected independently by PAH from borehole intervals to review potential variance over a range of grades. These samples were independently selected and requested by PAH to be dispatched and assayed at ALS-Chemex Pitea. The analytical method applied was ALS Chemex suite ME-MS81, a lithium borate fusion technique which is recommended for REE analysis.

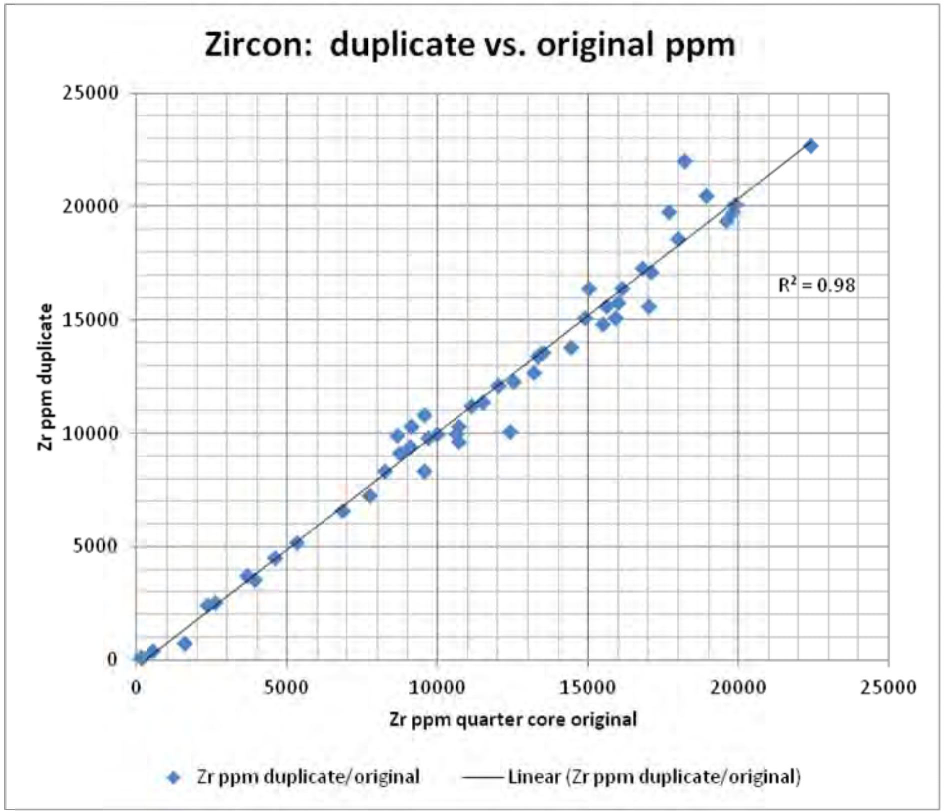
Final results were received by the author via direct email from ALS Chemex on November 4, 2010. The raw data, analysis certificate and supporting QC data were received. Figure 12-1 is a scatter plot that compare the original sample values for Zr and Y versus the check sample value. There is extremely good agreement between the individual samples over a range of grades as evidenced by the high correlation coefficients posted to the plots.

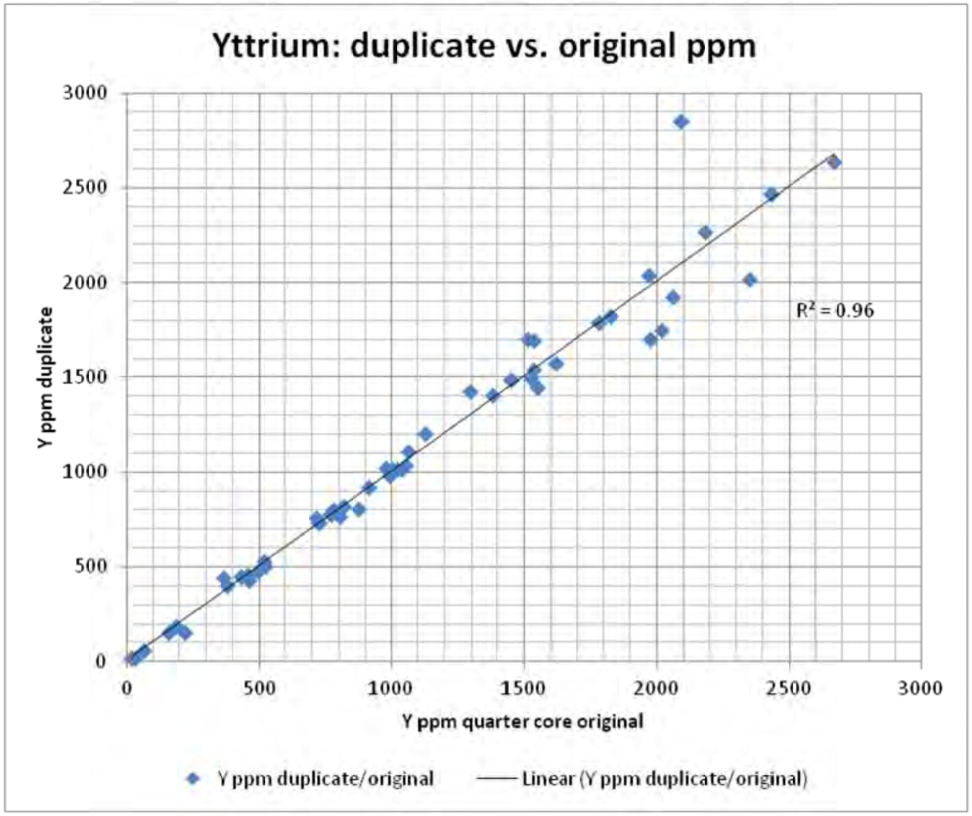
All QAQC data for this project has been deemed acceptable for the purposes of estimation.

TABLE 12-1
Tasman Metals Limited
Norra Kärr Project – PEA
Comparison of PAH Duplicate Samples vs. Original Samples for Various REE's

				Sample	Original Assay			PAH Assay		
DDH	From	To	Length	No.	Ce_ppm	Nd_ppm	Dy_ppm	Ce_ppm	Nd_ppm	Dy_ppm
NKA09004	4.90	6.90	2.00	400284	861.0	487.0	277.0	937.0	513.0	287.0
NKA09004	20.65	22.40	1.75	400292	1,045.0	593.0	312.0	1,080.0	603.0	317.0
NKA09004	86.50	88.50	2.00	400329	1,250.0	562.0	174.0	1,225.0	536.0	162.5
NKA09004	96.50	98.50	2.00	400334	1,630.0	786.0	198.0	1,655.0	740.0	192.0
NKA09005	6.45	8.45	2.00	400368	69.8	38.6	58.0	83.1	44.7	60.3
NKA09005	13.95	14.92	0.97	400372	973.0	512.0	407.0	1,020.0	544.0	403.0
NKA09005	43.30	44.65	1.35	400389	661.0	376.0	263.0	671.0	374.0	252.0
NKA09005	132.65	134.50	1.85	400444	2,100.0	923.0	306.0	2,010.0	1,035.0	338.0
NKA09005	134.50	136.30	1.80	400445	1,605.0	736.0	216.0	1,355.0	719.0	207.0
NKA09005	147.90	150.00	2.10	400455	1,445.0	748.0	223.0	1,475.0	745.0	214.0
NKA10008	38.40	40.40	2.00	400632	433.0	237.0	157.0	439.0	226.0	157.5
NKA10008	57.80	58.80	1.00	400643	133.0	82.0	52.0	118.0	69.4	47.0
NKA10008	64.50	66.50	2.00	400647	303.0	168.0	137.0	315.0	163.5	137.5
NKA10008	82.75	84.75	2.00	400658	355.0	210.0	147.0	362.0	205.0	146.0
NKA10008	123.00	125.00	2.00	400681	403.0	233.0	150.0	404.0	228.0	158.0
NKA10010	12.50	14.35	1.85	400755	1,510.0	808.0	410.0	1,510.0	825.0	436.0
NKA10010	18.35	20.35	2.00	400758	1,700.0	882.0	424.0	1,650.0	877.0	416.0
NKA10010	31.70	33.40	1.70	400765	1,125.0	582.0	277.0	1,150.0	614.0	304.0
NKA10010	35.30	37.20	1.90	400767	1,125.0	628.0	317.0	1,405.0	755.0	370.0
NKA10010	38.85	40.43	1.58	400769	1,715.0	950.0	478.0	1,980.0	1,090.0	544.0
NKA10010	73.55	74.60	1.05	400795	532.0	268.0	142.0	557.0	257.0	156.5
NKA10011	54.70	56.70	2.00	400830	974.0	557.0	309.0	1,070.0	585.0	334.0
NKA10011	73.70	75.70	2.00	400840	1,275.0	724.0	407.0	1,290.0	687.0	417.0
NKA10011	83.45	85.45	2.00	400845	836.0	464.0	257.0	888.0	465.0	266.0
NKA10011	128.45	130.45	2.00	400873	1,475.0	803.0	304.0	1,590.0	853.0	321.0
NKA10011	138.90	140.90	2.00	400880	327.0	174.5	116.0	347.0	179.5	118.5
NKA10011	144.90	146.90	2.00	400883	294.0	159.5	118.0	334.0	174.5	128.0
NKA10016	15.40	16.90	1.50	401120	912.0	409.0	162.0	1,010.0	424.0	173.5
NKA10016	37.25	39.25	2.00	401134	363.0	161.5	38.0	421.0	179.0	46.1
NKA10016	50.95	52.45	1.50	401142	467.0	176.0	50.0	538.0	200.0	56.7
NKA10016	74.45	76.45	2.00	401155	1,645.0	763.0	178.0	1,695.0	758.0	183.0
NKA10016	114.25	116.30	2.05	401179	1,305.0	702.0	334.0	1,315.0	695.0	337.0
NKA10016	144.15	146.15	2.00	401195	304.0	171.5	126.0	328.0	176.0	129.5
NKA10017	10.35	12.35	2.00	401204	357.0	146.0	33.0	445.0	178.5	44.4
NKA10017	16.35	18.35	2.00	401207	347.0	128.5	28.0	329.0	119.5	26.0
NKA10017	29.50	31.00	1.50	401215	972.0	384.0	146.0	1,145.0	431.0	163.0
NKA10017	34.75	36.75	2.00	401218	1,875.0	1,010.0	245.0	2,110.0	1,115.0	252.0
NKA10017	61.40	63.40	2.00	401233	371.0	206.0	137.0	392.0	206.0	138.0
NKA10017	78.32	80.17	1.85	401243	35.2	17.2	4.0	42.8	21.4	6.1
NKA10021	21.30	22.85	1.55	401431	527.0	316.0	192.0	575.0	316.0	211.0
NKA10021	30.75	32.75	2.00	401437	862.0	522.0	308.0	921.0	517.0	337.0
NKA10021	40.80	42.90	2.10	401444	807.0	513.0	258.0	908.0	533.0	295.0
NKA10021	56.30	58.35	2.05	401453	991.0	586.0	357.0	1,065.0	593.0	375.0
NKA10021	60.43	62.45	2.02	401455	731.0	432.0	294.0	741.0	407.0	297.0
NKA10021	66.10	67.70	1.60	401458	590.0	326.0	230.0	585.0	299.0	215.0
NKA10025	18.60	20.60	2.00	401693	335.0	182.5	123.0	352.0	180.0	118.0
NKA10025	43.20	45.20	2.00	401708	633.0	377.0	215.0	716.0	368.0	205.0
NKA10025	55.90	57.90	2.00	401715	1,170.0	683.0	236.0	1,215.0	644.0	221.0
NKA10025	70.20	72.20	2.00	401724	1,265.0	608.0	182.0	1,470.0	647.0	188.5
NKA10025	108.00	110.00	2.00	401747	1,235.0	507.0	182.0	1,205.0	449.0	163.5
NKA10025	132.00	134.00	2.00	401761	402.0	148.5	39.0	390.0	132.0	36.2

				Sample	ORIGINAL ASSAY			PAH ASSAY		
DDH	From	To	Length	No.	Y_ppm	Zr_ppm	Hf_ppm	Y_ppm	Zr_ppm	Hf_ppm
NKA09004	4.90	6.90	2.0	400284	1,750	15,000	309	1,895	16,000	239.4
NKA09004	20.65	22.40	1.8	400292	1,970	13,400	281	2,100	12,700	228.2
NKA09004	86.50	88.50	2.0	400329	1,140	11,500	257	1,155	11,300	308.6
NKA09004	96.50	98.50	2.0	400334	1,340	11,700	270	1,355	11,200	241.6
NKA09005	6.45	8.45	2.0	400368	310	10,100	247	357	11,400	235.9
NKA09005	13.95	14.92	1.0	400372	2,380	18,600	410	2,520	19,500	425.2
NKA09005	43.30	44.65	1.4	400389	1,590	17,400	353	1,640	19,000	251.5
NKA09005	132.65	134.50	1.9	400444	2,520	13,900	257	2,390	13,600	8.0
NKA09005	134.50	136.30	1.8	400445	1,925	13,500	251	1,610	13,400	213.4
NKA09005	147.90	150.00	2.1	400455	1,545	11,400	239	1,575	11,500	235.1
NKA10008	38.40	40.40	2.0	400632	960	14,900	369	985	15,100	210.0
NKA10008	57.80	58.80	1.0	400643	435	17,300	436	393	16,000	217.5
NKA10008	64.50	66.50	2.0	400647	802	14,100	363	792	14,500	383.7
NKA10008	82.75	84.75	2.0	400658	895	8,620	237	885	9,740	548.2
NKA10008	123.00	125.00	2.0	400681	915	8,650	234	933	8,140	261.0
NKA10010	12.50	14.35	1.9	400755	2,890	17,700	373	2,870	17,200	240.0
NKA10010	18.35	20.35	2.0	400758	3,000	13,400	282	2,760	12,700	253.1
NKA10010	31.70	33.40	1.7	400765	1,925	9,520	205	2,010	9,450	333.3
NKA10010	35.30	37.20	1.9	400767	2,080	11,100	236	2,440	13,200	307.8
NKA10010	38.85	40.43	1.6	400769	3,190	15,100	337	3,630	17,000	257.6
NKA10010	73.55	74.60	1.1	400795	800	6,740	178	872	7,050	292.3
NKA10011	54.70	56.70	2.0	400830	2,070	18,300	427	2,170	19,500	218.1
NKA10011	73.70	75.70	2.0	400840	2,630	18,000	397	2,610	16,500	337.6
NKA10011	83.45	85.45	2.0	400845	1,680	13,500	287	1,705	12,200	361.3
NKA10011	128.45	130.45	2.0	400873	1,930	13,700	299	2,100	13,900	21.0
NKA10011	138.90	140.90	2.0	400880	742	16,900	403	768	15,600	319.4
NKA10011	144.90	146.90	2.0	400883	669	7,360	198	745	7,480	366.8
NKA10016	15.40	16.90	1.5	401120	1,030	11,000	262	1,130	11,200	23.0
NKA10016	37.25	39.25	2.0	401134	245	1,740	41	290	2,000	332.2
NKA10016	50.95	52.45	1.5	401142	334	3,370	79	370	3,210	114.3
NKA10016	74.45	76.45	2.0	401155	1,340	10,700	230	1,320	10,800	556.6
NKA10016	114.25	116.30	2.1	401179	2,260	11,500	267	2,250	11,700	295.3
NKA10016	144.15	146.15	2.0	401195	735	8,570	221	766	8,460	258.9
NKA10017	10.35	12.35	2.0	401204	231	1,425	32	288	1,820	225.8
NKA10017	16.35	18.35	2.0	401207	182	741	17	167	732	359.1
NKA10017	29.50	31.00	1.5	401215	964	10,800	241	1,085	11,000	214.6
NKA10017	34.75	36.75	2.0	401218	1,860	10,800	218	1,975	10,600	221.1
NKA10017	61.40	63.40	2.0	401233	834	10,500	249	837	9,620	11.6
NKA10017	78.32	80.17	1.9	401243	23	114	3	33	144	38.4
NKA10021	21.30	22.85	1.6	401431	1,240	14,500	307	1,320	15,500	106.2
NKA10021	30.75	32.75	2.0	401437	1,990	15,800	333	2,090	17,800	244.9
NKA10021	40.80	42.90	2.1	401444	1,720	11,800	256	1,880	11,400	463.9
NKA10021	56.30	58.35	2.1	401453	2,290	13,400	303	2,320	13,400	331.2
NKA10021	60.43	62.45	2.0	401455	1,885	18,500	416	1,780	16,900	293.4
NKA10021	66.10	67.70	1.6	401458	1,440	20,700	457	1,385	18,500	250.0
NKA10025	18.60	20.60	2.0	401693	700	8,680	240	761	9,270	25.9
NKA10025	43.20	45.20	2.0	401708	1,320	11,100	253	1,355	11,900	246.7
NKA10025	55.90	57.90	2.0	401715	1,650	11,500	235	1,685	12,000	339.1
NKA10025	70.20	72.20	2.0	401724	1,230	10,700	244	1,390	12,200	17.9
NKA10025	108.00	110.00	2.0	401747	1,230	12,900	317	1,155	12,700	236.5
NKA10025	132.00	134.00	2.0	401761	253	1,730	45	241	1,930	216.0





Note: Pulp Samples Submitted by PAH Nov. 2010

Prepared by	Drawing Provided by/Prepared for		Date of Issue
pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 12-1 Original and Duplicate Check Samples Correlation Plots	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.12-1.dwg

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

This conceptual process and flowsheet for the Norra Kärr deposit was developed by J.E. Litz and Associates, LLC of Golden, Colorado, USA, based in part on test work completed by SGS-Lakefield of Ontario, Canada, the Geological Survey of Finland (GTK) and Mr. Litz's own bench test work.

In early 2011, Lakefield conducted the first leach tests on samples of whole ore. Their test work was subsequently stopped to allow the beneficiation work to proceed, as this work directly impacts leaching and acid consumption. Their report on the leaching tests is therefore pending at the present time.

The beneficiation portion of the flowsheet, encompassing flotation and magnetic separation, was developed during five months of test work later in 2011 by the GTK. The results of the GTK test work are given in an internal report to Tasman entitled *Metallurgical Tests on the Norra Kärr Ore* by T. Maksimainen, dated 12 January 2012.

In February 2012, J.E. Litz and Associates began investigating the response of various minerals in the deposit to the acid addition.

The conceptual process being evaluated for extracting and recovering the values in the Norra Kärr deposit is based on generally known metallurgical and chemical principles. The process described here, to Tasman's and to the Authors' knowledge, does not infringe on any third-party patented process or system used previously or presently for the recovery of REOs.

13.1 *Metallurgical Samples*

SGS-Lakefield performed the initial leach tests on mineralized core samples from the Norra Kärr Project. As mentioned above, this test work was subsequently stopped to allow for the beneficiation work to proceed, as this work directly impacts leaching and acid consumption. Limited information on this test work is available for PAH review; accordingly, PAH cannot opine on the representivity of the composite core samples used in this early stage work. As the current test work focuses on leaching of magnetic concentrates, the leaching of whole rock to recover RE values is less significant.

Beneficiation and leaching test work performed by the GTK in 2011 utilized a large composite sample of drill core, approximately 100 kg, provided by Tasman. The core sample was crushed and screened to minus 2 mm while oversize was re-crushed with a roller-crushed and circulated back to the screen. After crushing, the sample was homogenized and divided into 30 batches of 1.5 kg. Three 5 kg batches were also divided and the remaining part stored. The average composition of three samples was determined using ICP for the REEs and XRF for zirconium. The results of GTK's analyses of the composite core sample are given on Table 13-1. The modal mineralogy of the feed samples in three size fractions is given of Table 13-2.

TABLE 13-1
Tasman Metals Limited
Norra Kärr Project – PEA
Comparison of Block Model Mineral Inventory Grades
To Grades in GTK Bulk Sample (200 kg) Used in Metallurgical Test Work

REO	Block Model* (ppm)	GTK Bulk Sample (2011) (ppm)
La_2O_3	580	529
Ce_2O_3	1,310	1,265
Nd_2O_3	669	581
Pr_2O_3	167	147
Sm_2O_3	181	145
Eu_2O_3	22	17
Gd_2O_3	194	167
Tb_2O_3	40	33
Dy_2O_3	266	218
Ho_2O_3	60	47
Tm_2O_3	28	22
Yb_2O_3	171	135
Er_2O_3	180	149
Lu_2O_3	23	18
Y_2O_3	2,808	1,815
LREO	2,908	2,667
HREO	3,136	2,620
TREO	6,044	5,287
ZrO_2 %	1.82	1.59
U_3O_8 (ppm) **		14.6
ThO_2 %		8.6

*Block model grades reported at a geological cutoff grade of 0.4% TREO .
A high degree of correlation and sample representivity is indicated betw een the block model values
at a COG of 0.4% TREO and the GTK composite core sample. R-squared factor is 0.988.
**The uranium and thorium concentrations in the bulk sample are very low .
By EU standards the activity-concentration levels for uranium and thorium in this bulk sample
is 6-times below the exclusion threshold. Below the exclusion limit,
naturally occurring radioactive materials (NORM) are not subject to govenment regulation.

TABLE 13-2
Tasman Metals Limited
Norra Kärr Project – PEA
Model Mineralogy of Composite Core Sample

Mineral	-32 µm %	32 - 75 µm %	+75 µm %	Total Feed %
Quartz	0.00	0.00	0.00	0.00
Albite	20.35	21.12	17.63	19.49
Bytownite	0.20	0.21	0.46	0.31
Nepheline	8.04	8.29	13.04	10.17
K_feldspar	17.36	16.72	17.26	17.10
Analcime	14.58	14.49	19.07	16.39
Aegirine	19.47	25.93	19.37	21.61
Alkali-amphibole	2.13	1.81	1.54	1.78
Pectolite	0.55	0.40	0.59	0.51
Muscovite	1.01	1.05	2.59	1.67
Chlorite	0.13	0.03	0.01	0.05
Epidote	0.15	0.19	0.29	0.23
Calcite	0.12	0.06	0.04	0.06
Ankerite	0.04	0.01	0.00	0.01
Apatite	0.02	0.00	0.02	0.01
Corundum	0.01	0.00	0.03	0.01
Zircon	0.06	0.02	0.02	0.03
Eudialyte	10.23	6.92	5.55	7.20
Catapleiite	3.47	2.30	2.12	2.53
Cerite	0.17	0.04	0.04	0.07
Rosenbuschite	0.25	0.09	0.06	0.12
Fe_oxide	0.02	0.02	0.00	0.01
Galena	0.07	0.03	0.00	0.03
Unclassified	1.57	0.26	0.28	0.60
Total	100.00	100.00	100.00	100.00
Mass Distribution %	**25.30**	**33.70**	**40.90**	**100.00**

Source: GTK Report, January 2012.
Mineralogy measured w ith XMOD-sandard method.

To evaluate the representivity of the composited bulk sample used in the metallurgical testing, PAH compared the average grades of the physical composites samples to grades reported from the Block Model Mineral Inventory at a cut-off grade of 0.4 percent TREO (Section 14). There is a high degree of correlation between the analyses of physical composited samples used in metallurgical testing and the estimated block grades (R-squared = 0.998) in the model (Table 13-1). The only anomaly noted was that Yttrium was about 35 percent lower in the bulk sample than in the block model. PAH believes that the bulk sample is composed of mineralized material from the deposit that it is reasonably representative of the bulk composition of the deposit, and is, therefore, suitable for the on-going metallurgical test work.

13.2 *Deleterious Elements*

The analysis of the bulk sample by the GTK provided analyses for uranium and thorium both of which occur at very low levels at Norra Kärr. The GTK did not provide analyses of other potentially deleterious elements. Mineralogical analysis of the bulk sample by GTK reported only trace amount of galena and no other sulfide minerals (Table 13-2). Geochemical analyses on 4,706 core samples representing all logged rock types returned low levels of uranium and thorium. Lead shows a more complex pattern with multiple populations related to the various rock types that were sampled in the core.

- Uranium (U): Average: 18 ppm; Min: 0.06 ppm; Max: 676 ppm
- Thorium (Th): Average: 26 ppm; Min: 0.16 ppm; Max: 1000 ppm
- Lead (Pb): Average: 241 ppm; Min: 0.01 ppm; Max: 8360 ppm; Median: 135 ppm

Golder and Associates AB conducted a waste rock characterization program for which a total of six different rock types were analyzed including syenite, lakarpite, kaxtorpite, grennatite and pulaskite. These were submitted for analysis as discussed in Section 18 of this report. They found that all of their samples had very low sulfide-sulfur content, typically less than 0.1 percent S. Their initial conclusions were that it is unlikely that any acid rock drainage (ARD) issues might be expected on site. Geochemical analysis of the above rock samples was unremarkable except that arsenic and zinc in kaxtorpite were somewhat elevated above Swedish standards for soil contamination.

13.3 *SGS-Lakefield Test Work*

In 2011, Lakefield conducted the first leach tests on samples of whole ore from the Project. Recent beneficiation test work indicates that a magnetic concentrate will be the preferred leach feed rather than ground ore as was used in the SGS test work. Therefore, only a summary of the SGS work is given here.

In the SGS leaching test, ground ore was blended with 200 kg/t ammonium sulfate and 600 or 2,000 kg/t sulfuric acid. The blend then was baked at 200°C for four hours. After the bake the material was water-leached at 90°C for 90 minutes, filtered, and the residue washed. Tests were preceded with a 600 kg/t sulfuric acid leach for 3 hours at 50°C cooling to 30°C.

Although the SGS work showed high extractions, the required acid additions were excessive and the probable high sodium dissolutions would present downstream processing problems. For example two tests were leached with 600 kg/t acid and resulted in extractions of 90 – 95 percent for Ce, Dy, Y and Zr.

13.4 *GTK Test Work*

The GTK investigated the beneficiation portion of the flowsheet, encompassing flotation, magnetic separation and two leach tests.

Eudialyte, the principal REE-bearing mineral at Norra Kärr, can be recovered using either magnetic separation or flotation. However, the GTK concluded that combining both processes in the flowsheet achieved operational efficiencies. In the GTK test work, the highest grade concentrate (0.65% Y) containing over 30 percent eudialyte was produced by flotation of aegirine (sodic clinopyroxene) followed by high gradient magnetic separation which resulted in an overall yttrium recovery of 80 percent.

Combining flotation and magnetic separation during the beneficiation stage has the objective of removing sodium-bearing silicate gangue minerals from the magnetic concentrate which would otherwise increase acid consumption during the leach stage.

The following are salient observations and conclusions from the GTK test work in 2011.

- Magnetic separation appears to be more efficient than flotation in separation of eudialyte from feldspars owing to the fine grain size of the minerals and the loss of REEs to the slime fraction.

- Attempts to float eudialyte using several reagents were unsuccessful.

- Efficient flotation of aegirine requires desliming and conditioning in high pulp density.

- Finer grinding improves the REE grade in magnetic concentrate while decreasing the iron content of the non-magnetitic product.

- The non-magnetic product might also be a salable product because it contains mostly the aluminosilicate, nepheline, and has low iron content.

- Separating the fines from the aegirine flotation product and re-directing them to the magnetic separator can prevent one third of the REE losses to the aegirine product. This may increase overall recovery 1-2 percent.

The GTK performed two leach tests on concentrates produced in their beneficiation studies. The tests were done on magnetic concentrates produced without the benefit of the flotation step. The concentrates represented about a 50 percent weight reduction with about 90 percent recovery of the rare earth values. The tests were done at 50°C and the results are summarized in Table 13-3.

TABLE 13-3
Tasman Metals Limited
Norra Kärr Project – PEA
GTK Acid Leach Test on Magnetic Concentrate

	Sulfuric Acid Addition kg/t		Percent Extraction			
Test No.	Conc	Ore	Ce	La	Y	Zr
GTK-1	400	220	35	33	59	60
GTK-2	500	230	89	88	95	83

13.5 *J.E. Litz and Associates Test Work*

At the conclusion of the GTK beneficiation program, J.E. Litz and Associates began a series of leaching studies on magnetic concentrates that did incorporate the flotation step. The concentrates used in this test work were obtained from the GTK which were prepared from representative composited core samples supplied by Tasman as described above.

In this case the concentrate weight was 29 percent of the ore with recoveries of 60 percent Zr, 85 percent Y, 79 percent Ce, 76 percent La were achieved. These leaches had retention times of 3 to 6 hours. Intent of the tests was to see under what conditions the various minerals in the concentrate reacted and what acid additions were required to achieve greater than 80 percent dissolution of the rare earths. The results of this test work are summarized on Table 13-4.

TABLE 13-4
Tasman Metals Limited
Norra Kärr Project – PEA
Acid Leach Test Results on Magnetic Concentrate*

		Sulfuric Acid Addition kg/t		Percent Extraction								
Test No.	**Temp**	**Conc.**	**Ore**	**Ce**	**Dy**	**La**	**Nd**	**Y**	**Zr**	**Al**	**K**	**Na**
3-6-1	20	150	44	12%	4%	13%		4%		26%	9%	22%
3-6-2	20	200	58	15%	5%	16%		6%		34%	14%	30%
2-20-1	50	250	73	17%	8%	16%	16%	10%	0%	35%	17%	45%
3-6-3	20	250	73	17%	9%	18%		9%		42%	15%	38%
2-20-2	50	400	116	35%	36%	32%	34%	53%	3%	44%	15%	62%
3-26-1	24	400	116	32%	22%	30%		26%		49%	18%	50%
2-20-3	50	494	143	84%	74%	81%	84%	83%	31%	49%	19%	65%
3-26-2	25	500	145	54%	45%	51%		50%		50%	20%	58%
4-12-1	21	600	174	70%	66%	65%	71%	72%	50%	58%	20%	63%
2-20-4	50	630	183	89%	89%	86%	88%	91%	72%	52%	21%	70%
4-12-2	22	700	203	78%	74%	73%	79%	80%	56%	49%	20%	63%

*J.E. Litz and Associates.

The leaching data indicate that a significant addition of acid is required for the rare earths extraction to exceed 80 percent. Ongoing studies are evaluating the effect of leaching time and temperature at the higher acid additions.

13.6 *Future Test Work*

Tasman's metallurgical consultants continue to conduct test work on samples from the Norra Kärr deposit. New test work that is on-going or pending includes the follow:

- Magnetic separation testing to improve rejection of the sodium-rich minerals nepheline and natrolite from the magnetic concentrate;
- Pilot stage magnetic concentration testing to demonstrate the best beneficiation process and to produce sufficient concentrate for laboratory and pilot testing;

- Laboratory leaching testing on concentrate to maximize dissolution of REE values;
- Laboratory testing to evaluate recovery of REEs, Y and Zr from the leachate.

The proposed new test work will require 100 kg of metallurgical samples obtained from representative core samples in the deposit.

14.0 MINERAL RESOURCE ESTIMATES

In this report, the terms "Mineral Resource," "Inferred Mineral Resource," "Indicated Mineral Resource," and "Measured Mineral Resource" have the meanings ascribed to those terms by the Canadian Institute of Mining, Metallurgy and Petroleum, as the CIM Definition Standards on Mineral Resources and Mineral Reserves adopted by the CIM Council. There are no Mineral Reserves disclosed in this report.

The CIM standards explicitly state that a Mineral Resource "is an inventory of mineralization that under realistically assumed and justifiable technical and economic conditions might become economically extractable. These assumptions must be presented explicitly in both public and technical reports."

Tasman's approach to satisfying the CIM standard of the *reasonable prospect of economic extraction* is to further analyze the geological inventory of mineralization generated by the block model and to constrain the reported Mineral Resource estimate to mining shapes. As the current mining concept for the Norra Kärr Deposit is surface mining, the current Mineral Resource estimate is reported from conceptual pit shells generated in the Whittle® software. Tasman believes that incorporation of reasonable, conceptual economic parameters into the Whittle® analysis satisfies the CIM standard of "reasonable prospects" and permits the reporting of Mineral Resources constrained by a conceptual pit shell.

The Block Model used to estimate the Block Model Mineral Inventory (BMMI) for the Norra Kärr Deposit was completed by Mr. Geoff Reed, Senior Consulting Geologist – PAH who is considered to be a Qualified Person under the under NI 43-101 rules as revised on June 30, 2011. A consent form from Mr. Reed is found in Section 28.

The Mineral Resource estimate reported from conceptual pit shells using the Whittle® software was prepared by Mr. Paul Gates, PE and Principal Mining Engineer – PAH who is considered to be a Qualified Person under the under NI 43-101 rules as revised on June 30, 2011. A consent form from Mr. Gates is found in Section 28.

The current resource estimate is based on diamond drilling data as supplied by Tasman, and was generated from a database compiled by Tasman and validated by PAH from the Tasman 2009-2011 drilling programs. An internal PAH audit procedure and itemized checklist was utilized for the assessment of data quality and integrity. A checklist of criteria applied is given later in this Section. Each of these criteria have been elaborated and detailed throughout this Technical Report.

14.1 *Resource Data*

14.1.1 Drill Hole Data

All drill hole collar, survey, assay and geology records were supplied to PAH in Excel spreadsheet format by the site geologists and converted into an Access database.

The database contains the records from 49 diamond drill holes for a total of 8,013.57 m. A summary of the drill hole database is shown in Table 14-1. A complete list of the mineralized drill intersections is given on Table A-1 in Appendix A.

TABLE 14-1
Tasman Metals Limited
Norra Kärr Project – PEA
Summary of Exploration Drilling 2009, 2010 and 2011

Year	Number of Holes	Total Length (m)	Core Size	Unsampled Intervals (m)	Drilled By
2009/2010*	26	3,507.6	BGM	251.3	NSD
2010/2011	23	3,867.8	BQTK	105.9	Geo-gruppen

*three drill holes of 2009 w ere extended in 2011, therefore meters are 2011 totals.
**three drill holes of 2010 w ere extended in 2011, therefore meters are 2011 totals.
Surface core drilling, total meterage (2009 - 2011) 7,375 m

The individual REE analyses in the database were converted to RE Oxides (REO) by PAH, using the conversion factors shown in Table 14-2.

TABLE 14-2
Tasman Metals Limited
Norra Kärr Project – PEA
REE to REO Conversion Factors

Element	Conversion	Oxide	Element	Conversion	Oxide
Ce	1.171	Ce_2O_3	**Nd**	1.166	Nd_2O_3
Dy	1.147	Dy_2O_3	**Pr**	1.17	Pr_2O_3
Er	1.143	Er_2O_3	**Sm**	1.159	Sm_2O_3
Eu	1.157	Eu_2O_3	**Tb**	1.151	Tb_2O_3
Gd	1.152	Gd_2O_3	**Tm**	1.142	Tm_2O_3
Ho	1.145	Ho_2O_3	**Y**	1.269	Y_2O_3
La	1.172	La_2O_3	**Yb**	1.138	Yb_2O_3
Lu	1.137	Lu_2O_3			

No data was excluded from the model.

14.1.2 Database Integrity

Digital data were validated principally from the 2009 - 2011 exploration drilling reports. PAH validated this exploration data using Gemcom Surpac© Software. Validation of data by PAH included the following:

- Borehole Locations (Model plot vs. exploration plan),
- Collar Elevations (Model plot vs. topographic contours),
- Lithological logging and intervals (Gemcom© Validation of overlapping or missing intervals),
- Assay values and intervals (Gemcom© Validation of overlapping or missing intervals plus acceptable range), and
- Errors or anomalous values were corrected and saved in the Gemcom©, Access© database.

14.1.3 Bulk Density Data

A total of 579 bulk density determinations have been completed with a range of values from 2.3 t/m^3 to 3.0 t/m^3. The majority of determinations range from 2.6 t/m^3 to 2.8 t/m^3 (Figure 14-1). PAH has also divided the 178 bulk density determination by geological domain which shows that there is little difference in density across the deposit (Figure 14-2). The mafic intrusive domain (MAF) has the highest density while the unaltered granite (GR) has the lowest average density. The important mineralized domains, GTC (2), PGT (3) and GTM (4) all have bulk densities very close to 2.7 t/m^3. The average density value for each domain has been used for all fresh material in the resource estimate. The density determinations were calculated using classical wet and dry weight-volume determinations.

14.1.4 Geological Model and Wireframes

The modeled mineralized envelope was generated from the outline of the main grennaite body using the Gemcom Surpac software©. Polygons were generated across 10 sections on 100 m drill hole spacing, additional constraining polygons were interpreted 100 m to the south and 250 m to the north, past the last drill hole section. This was based on the interpreted surface geology.

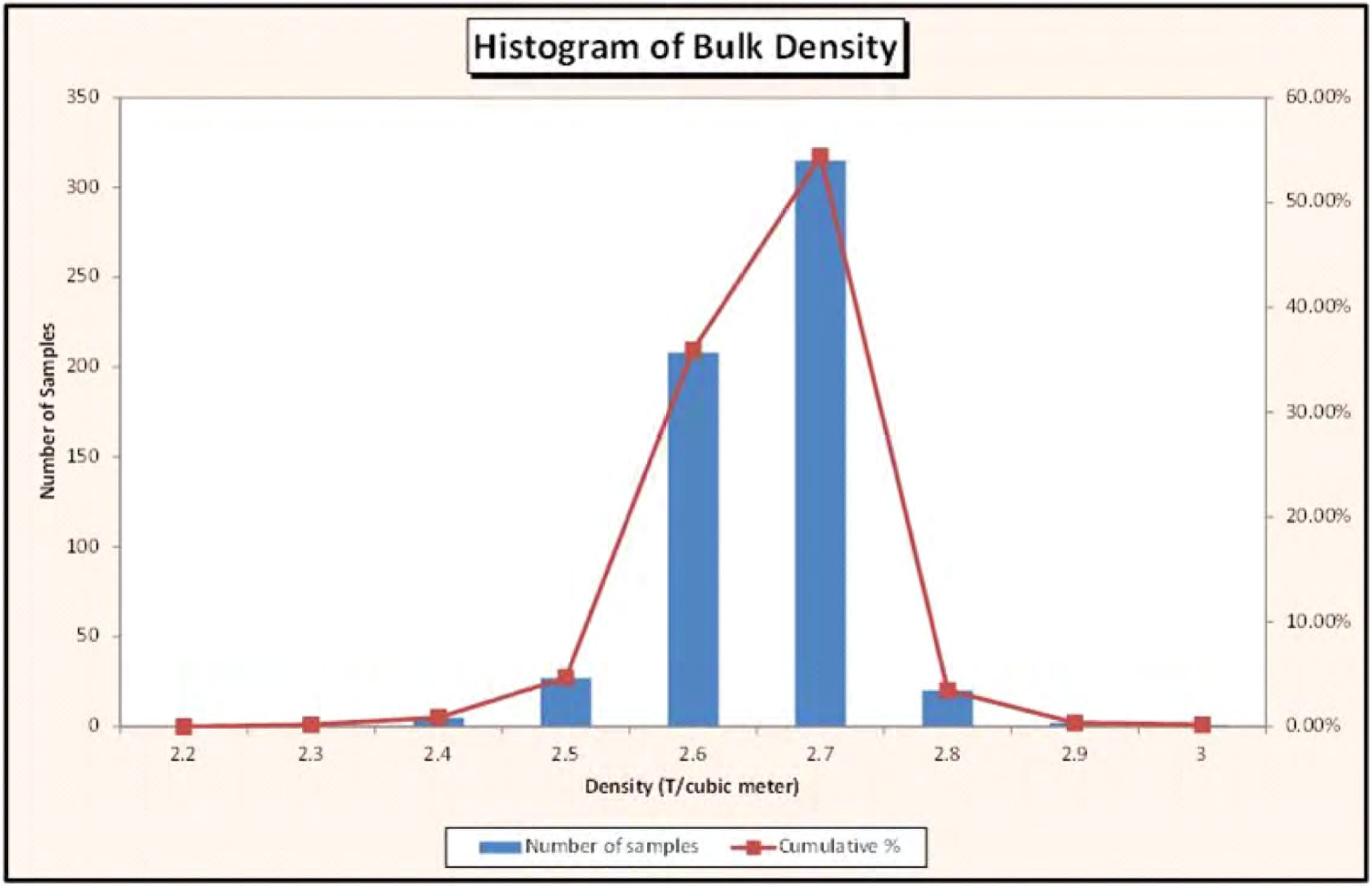
Therefore the total area drilled was approximately 900 meters x 460 meters, whilst the modeled area of the mineralized zone used to calculate this Mineral Resource was 1,250 meters x 570 meters. Distances between drill holes on the same section were 40 meters apart at the surface. The mineralization was intersected on all drilling sections to a depth of 200 meters below the surface. Mineralization remains open at depth.

The following lithologic zones were modeled: granite, grennaite, pegmatitic grennaite, pulaskite, lakarpite, mafic rock and kaxtorpite (Table 14-3).

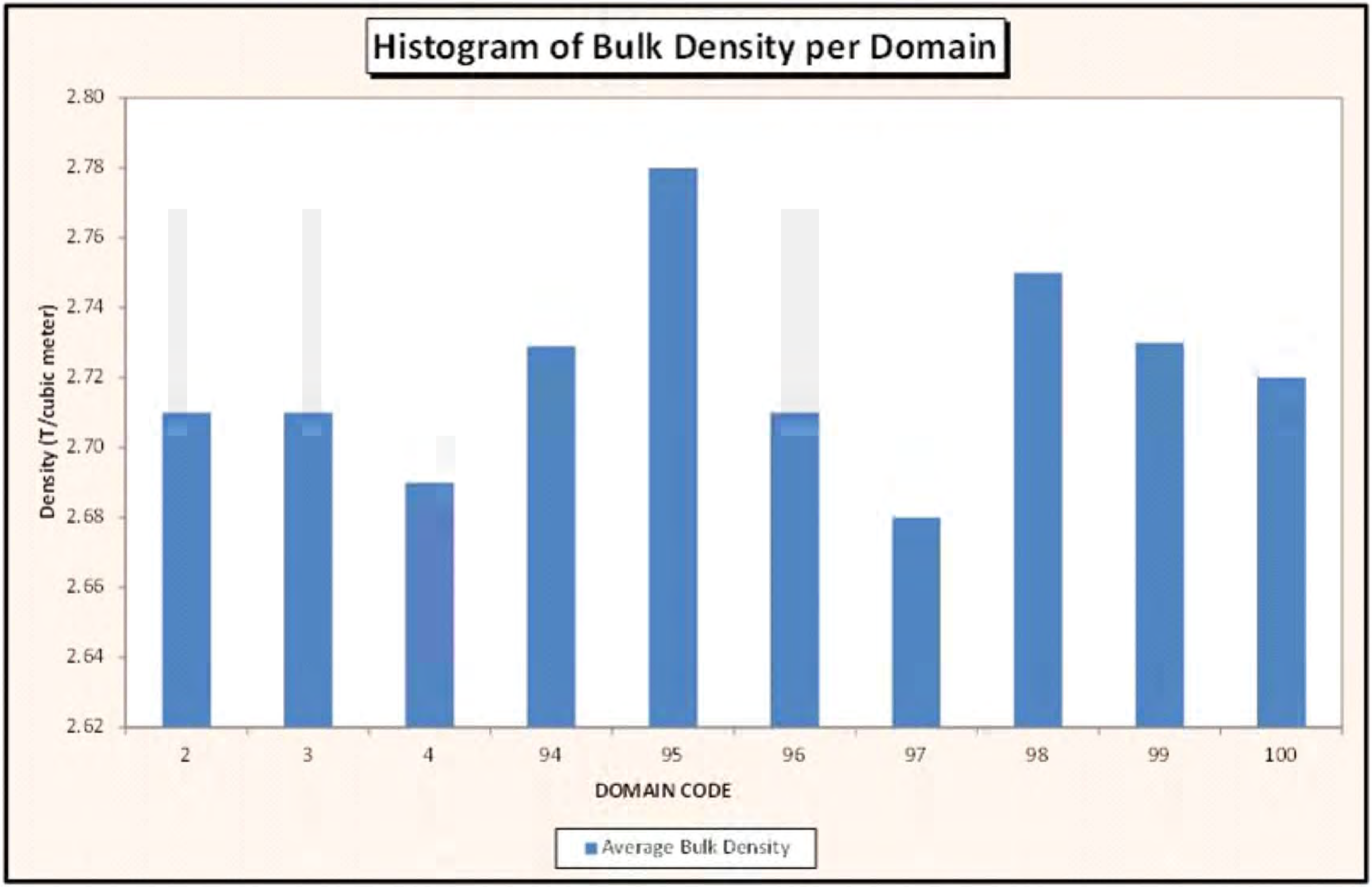
TABLE 14-3
Tasman Metals Limited
Norra Kärr Project – PEA
Geologic Modeling Domains

Lithology	Lithology Zone	Domain	DTM File	Description
Granite	GR	93	tas_2012_granite	All Granite
Grennaite	GTC	2	tas_2012_rsc_all	Outer Grennaite
“PEG” Grennaite	PGT	3	tas_2012_rsc_all	Pegmatitic >1% Zr, 0.4% TREO
“MIG” Grennaite	GTM	4	tas_2012_rsc_all	Migmatitic >1% Zr, 0.4% TREO
Pulaskite	PUL/ MAF	94	tas_2012_intrusives	Pulaskite South
Mafic	MAF	95	tas_2012_intrusives	Mafic South
Pulaskite	PUL	96	tas_2012_intrusives	Pulaskite North
Lakarpite	LAK	97	tas_2012_intrusives	Lakarpite South
Lakarpite	LAK	98	tas_2012_intrusives	Lakarpite North
Kaxtorpite	KAX	99	tas_2012_rsc_all	Kaxtorpite core

Three separate three dimensional DTM wireframes were used to model the mineralization, with 10 separate domains included in the model. All wireframes domains have been snapped to all mineralized



Prepared by	Drawing Provided by/Prepared for		Date of Issue
pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 14-1 Histogram of Bulk Density Data	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.14-1.dwg



Prepared by	Drawing Provided by/Prepared for		Date of Issue
pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 14-2 Histogram of Average Bulk Density per Geological Domain	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.14-2.dwg

drill holes within a +/-50 metre influence on the drilling sections.

An outer grennaite lithology has been interpreted into a separate domain by the amount of pegmatite in the grennaite because the pegmatitic grennaite contains higher grade zirconium and TREO. Within the pegmatitic grennaite lithology is an inner zone of migmatitic grennaite which surrounds the inner most kaxtorporite core. Since there is little significant variation observed in the relative distribution of the individual REOs across the database, a TREO grade model approach was adopted for resource estimation.

The orientation of mineralized blocks was not assumed, and was governed by the geometry of mineralization. Therefore, the interpreted strike of Norra Kärr is 15^o north and dips 60^o to the west as was used in the modeling process.

Intrusive "dykes" were modeled as six separate domains and are contained within the grennaite, pegmatitic grennaite and migmatitic grennaite domains. The geometry of the geological domains used in the modeling process is shown on east-west cross-section 6442600mN (Figure 14-3).

4.2 *Statistics*

14.2.1 Sample Statistics

A review of sample length within the drilling database was conducted to determine the optimal composite length. This review determined that a variety of sample lengths were used during the logging and sampling of the drill core. Interpretation of the sample lengths indicates that the optimum composite length is 2 m (Figure 14-4). The Surpac© Software was then used to extract downhole 2 m-composites within the intervals coded for each geological domain.

The composites were checked for spatial correlation with the surfaces, the location of the rejected composites and zero composite values.

14.2.2 Drill Hole Statistics

All drill hole assay data for the Project were imported into the Surpac© Software for analysis. Table 14-4 provides drill hole statistics set showing the means and median for Zr, selected LREO (Ce and Nd) and selected HREO (Dy and Y).

14.2.3 Composite Statistics

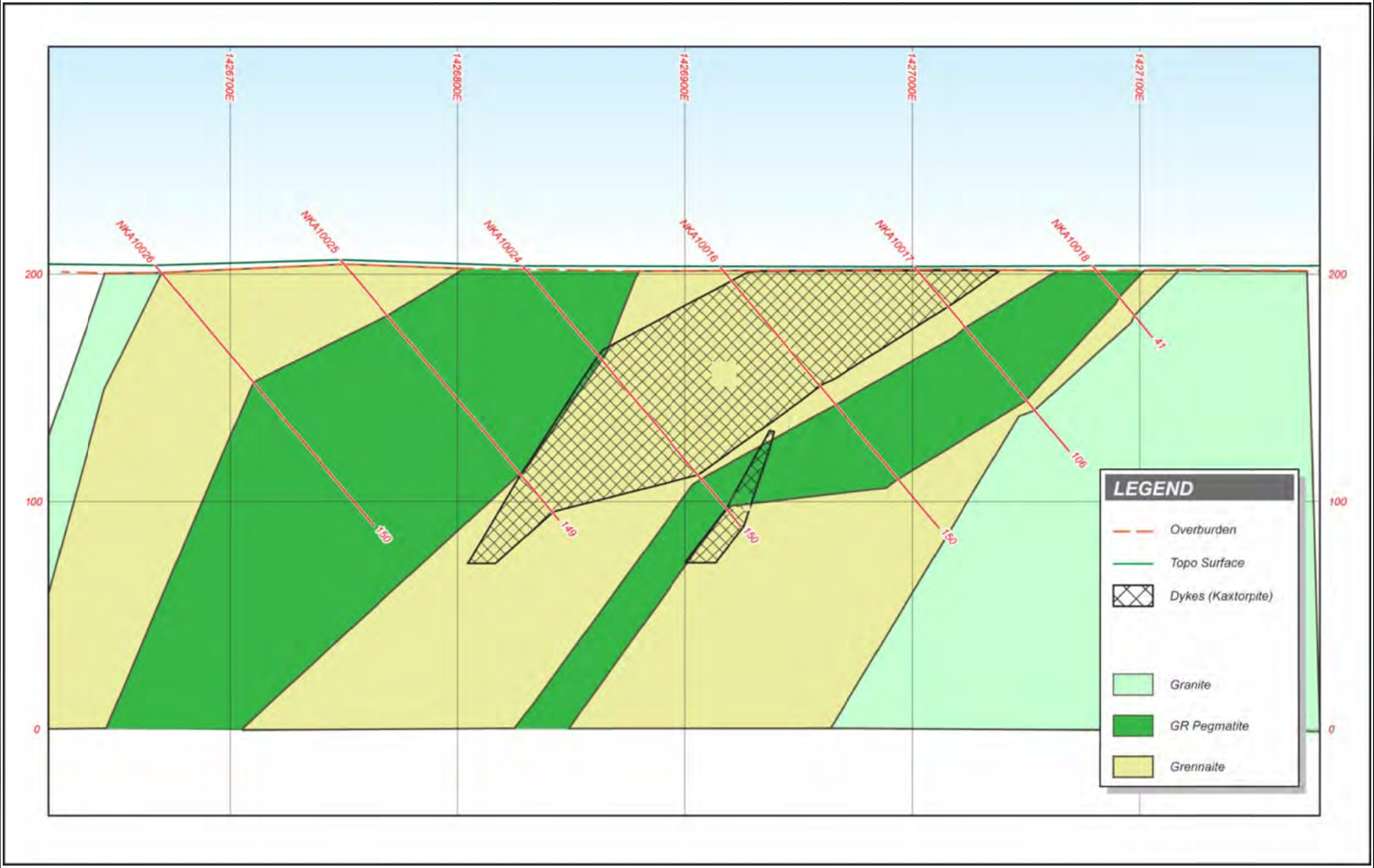
All 2m-composite samples for the Project were imported into the Surpac© Software for analysis. Statistics were produced for Zr, selected LREO (Ce and Nd) and selected HREO (Dy and Y) within the three resource domains grennaite (2), pegmatitic grennaite (3) and migmatitic grennaite (4) (Table 14-5).

TABLE 14-4
Tasman Metals Limited
Norra Kärr Project – PEA
Descriptive Statistics for Drill Hole Assays (ppm) in Resource Wireframes

	Drill Hole Samples				
Statistic	**Zr**	**Ce**	**Nd**	**Dy**	**Y**
Number	3,565	3,565	3,565	3,565	3,565
Minimum	77	8	5	3	16
Maximum	53,200	4,440	2,530	970	6,750
Mean	12,297	812	420	188	1,322
Median	11,900	733	388	172	1,225
Std Dev	4,554	508	251	89	652
Variance	20,740,479	257,695	63,127	7,947	425,267
Coeff Var	0.37	0.63	0.60	0.48	0.49
Percentiles					
10	7,834	260	140	91	588
20	9,200	343	194	126	819
30	10,100	417	234	142	946
40	11,100	508	285	156	1,060
50	11,900	733	388	172	1,225
60	12,900	946	475	194	1,395
70	14,000	1,105	566	223	1,605
80	15,500	1,280	645	258	1,870
90	17,700	1,500	751	299	2,170
95	19,700	1,690	852	338	2,430
97.5	21,990	1,840	950	376	2,750
99	25,608	2,077	1,034	430	3,101

TABLE 14-5
Tasman Metals Limited
Norra Kärr Project – PEA
Statistics for Resource Domain Code 2, 3, 4

	2 m - Composite Samples				
Statistic	**Zr**	**Ce**	**Nd**	**Dy**	**Y**
Number	3,091	3,091	3,091	3,091	3,091
Minimum	316	10	5	5	31
Maximum	38,469	2,603	1,386	860	3,713
Mean	12,322	805	417	187	1,316
Median	11,950	731	389	173	1,221
Std Dev	3,977	481	235	80	590
Variance	15,816,675	231,036	55,360	6,401	348,540
Coeff Var	0.32	0.6	0.56	0.43	0.45
Percentiles					
10	8,268	271	151	103	660
20	9,392	346	197	128	840
30	10,217	419	236	143	951
40	11,150	513	282	156	1,061
50	11,950	731	389	173	1,221
60	12,977	955	478	194	1,397
70	14,081	1,101	568	223	1,608
80	15,383	1,269	643	256	1,846
90	17,236	1,470	737	294	2,129
95	18,835	1,623	815	322	2,363
97.5	20,648	1,767	878	358	2,584
99	23,179	1,957	968	405	2,813



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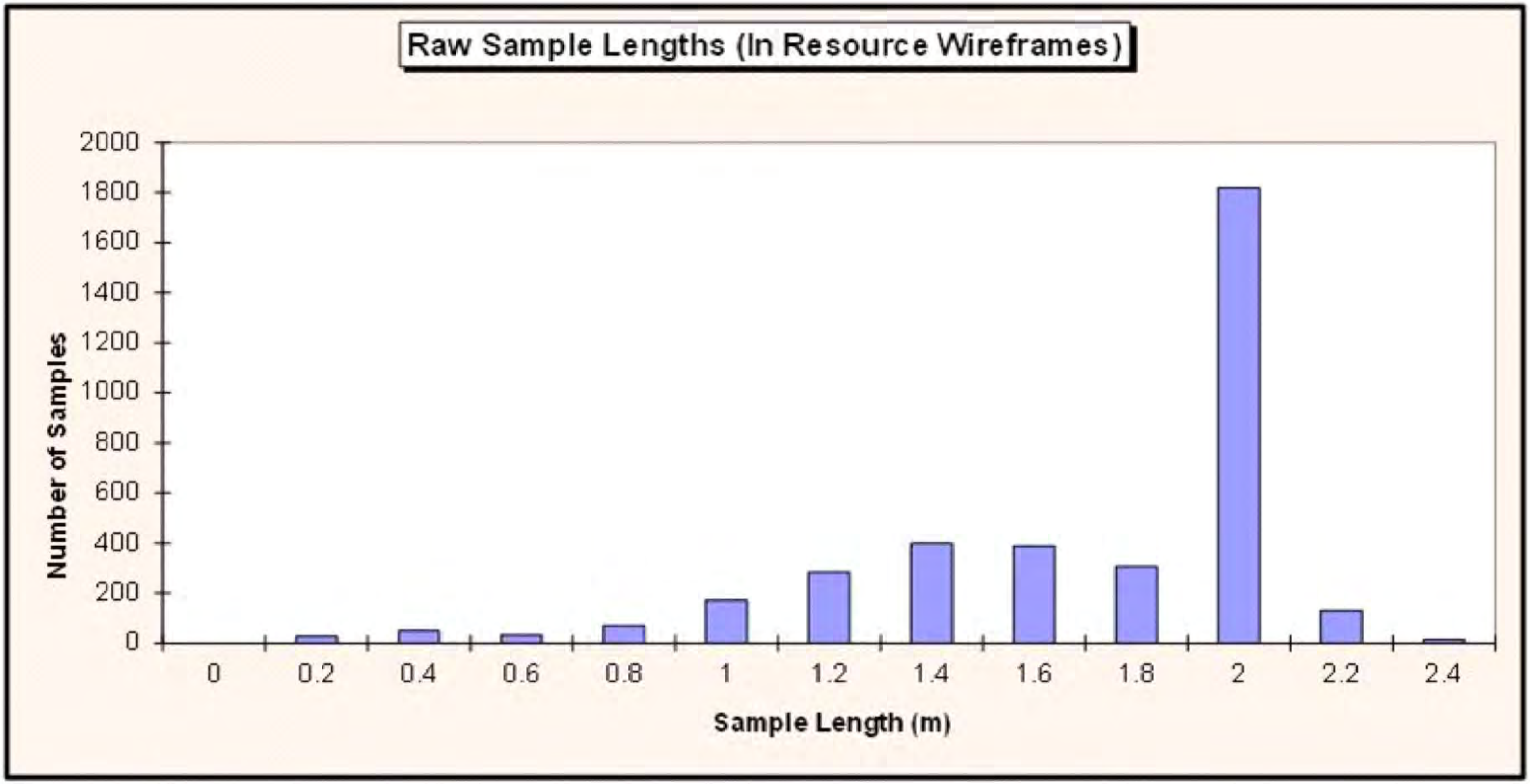
Project Name
Norra Kärr Project

FIGURE 14-3
Cross-Section 6442600mN Looking North
Showing Geological Domains and Drill Holes

Date of Issue
April 2012

Drawing Name
Fig.14-3.dwg



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Project No. DE-00215

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Project Name: Norra Kärr Project

FIGURE 14-4
Histogram of Sample Lengths for Assay Intervals

Date of Issue: April 2012

Drawing Name: Fig.14-4.dwg

14.3 *Geostatistical Analysis*

Variography analysis was carried out using Supervisor© Software with reference to the following points: analysis was only conducted for Zr; variogram parameters were modeled with the Major direction first, Semi-major direction second; and Minor direction last; and omni-directional variogram models were fitted to all other domains due to a lack of clear directional anisotropies.

The short range variability of grade is not well defined across domains. This is due to the fact that the data separation is very similar to the observed variogram ranges. No short-range structures could be visualized.

Listings of the final variogram model parameters are provided in Table 14-6.

TABLE 14-6
Tasman Metals Limited
Norra Kärr Project – PEA
Variogram Model Parameters

		Major			Structure 1 Ranges				Structure 2 Ranges		
Element	**Domain**	**Direction**	**Nugget**	**Sill 1**	**Major**	**Semi**	**Minor**	**Sill2**	**Major**	**Semi**	**Minor**
Zr	2 (GTC)	15	2,217,000	15,000,000	130	150	50				
REE	2(GTC)	15	144,700	625,000	100	80	25				
Zr	3(PGT)	15	2,217,000	1,518,000	90	90	30				
REE	3(PGT)	15	2,217,372	5,518,222	150	130	100				
Zr	4(GTM)	15	2,217,000	15,000,000	130	150	50				
REE	4(GTM)	15	144,700	625,000	100	80	25				

14.4 *Resource Estimation*

14.4.1 Block Model

A Gemcom Surpac© block model was created to encompass the full extent of the mineralization within the Norra Kärr deposit. The block model origin and extents and attributes are listed in Table 14-7. For modeling purposes, where necessary the element yttrium was referenced as Yt instead of Y so not to conflict with the coordinate name Y. An initial Maptek Vulcan© software model was created and later a final, validated, audited Gemcom Surpac© model was used for reporting purposes.

14.4.2 Grade Interpolation

Inverse Distance (ID) was used to estimate Zr and REE's in the mineralized domains constrained by wireframes. Granite (Domain 93) was excluded from the grade interpolation and treated as waste. Estimation was based on a parent block size of 10 m by 50 m by 10 m for all grade domains. Smaller sized sub cells, or daughter blocks (2.5 m by 12.5 m by 2.5 m), were used along the boundaries between the mineralized and waste domains - a practice which more accurately attributes volumes to either waste or ore domains.

Search ellipses were defined by both the variogram ranges and geological trends. The mineralization dips 60 degrees towards the NW. Search ellipses were orientated following this orientation for grennaite

TABLE 14-7
Tasman Metals Limited
Norra Kärr Project – PEA
Block Model Parameters

Model Names	**nkr_october_281010.mdl**		
	Y	**X**	**Z**
Minimum Coordinates	1,426,520	6,442,050	-100
Extent (m)	1500	960	320
Parent Blocks(m) (Daughter Blocks (m))	50(12.5)	10(2.5)	10(2.5)
Rotation (degrees)	0		
Block Attributes:			
Min_ppm	zr,la,ce,pr,nd,sm,eu,gd,tb,dy,ho,er,tm,yb, lu, yt,u,hf,th,nb		
Min_oxide	zro2,la2o3, ce2o3, pr2o3, nd2o3,sm2o3,eu2o3,gd2o3,tb2o3,dy2o3,		
	tm2o3,yb2o3,lu2o3, yt2o3,u3o8,hfo2,tho2,nb2o5		
Lreo	Light Rare earth elements		
Hreo	Heavy Rare earth elements		
Treo	Total Rare earth elements		
class	Resource classification code (measured, indicated, 3 = inferred)		
class_code	Resource classification code (1 = measured, 2 = indicated, 3 = inferred)		
domain	domain (2,3,4 and 93-99)		
bd	bulk density (t/m^3)		
type	Insitu, till,air, ganite,min,intrusive		
min_dis	minimum sample distance		
ave_dis	average sample distance		
num_sam	number of samples		
pass	estimation pass		

(GTC) (domain 2), pegmatitic grennaite (PGT) (domain 3) and migmatitic grennaite (GTM) (domain 4). All other searches were defined as omni-directional. In general, search distances coincide with the variogram ranges, but in some instances the radius along the direction of maximum continuity exceed the modeled variogram range to allow more samples to be included.

Details of the IDW parameters applied to the grade estimate are shown in Table 14-8. In order to take into account the spatial variability and characteristics of each element (Zr and REO) within each domain, different search ellipses were defined. The search radius along the major direction of continuity was set to the variogram range. For domains with less available data, this distance was increased to include a greater number of samples in the estimation. In all instances the search radii along the semi-major and minor directions correspond to the variogram range for pegmatitic grennaite (Domain code 3). The search parameters are shown in Table 14-8.

TABLE 14-8
Tasman Metals Limited
Norra Kärr Project – PEA
Block Model Search Parameters

Parameters	Pass 1	Pass 2	Pass 3
Search Type	Anisotropic	Anisotropic	Anisotropic
Bearing	15	15	15
Dip	-65	-65	-65
Plunge	0	0	0
Search Radius	100	150	300
ID Ratio x y z	2.0:1.0:3.0	2.0:1.0:4	2.0:1.0:5
Minimum Samples	10	2	2
Maximum Samples	40	40	40
Block Discretisation	2:04:02	2:04:02	2:04:02

14.4.3 Dilution and Ore Losses

The block model is undiluted with no ore loss factors applied; as a result appropriate dilution and ore loss factors are applied to the Mineral Resource estimate reported from the Whittle® pit analyses as described in Section 16 of this report.

14.4.4 Resource Classification

The Norra Kärr deposit due to its style of mineralization shows good geological and mineralization continuity at a low grade threshold (>0.5% ZrO_2). Within the low grade grennaite envelope in areas where the drill spacing is 100 m by 80 m, there is a reasonable level of confidence that further drilling will increase the geological confidence in the resource estimate. As discussed previously in Section 14.0, Mineral Resources reported here for the Norra Kärr deposit are constrained to a Whittle® pit shell. Based on the current drilling density, depth of drilling, grade continuity and geological confidence, Mineral Resources have been classified according to elevation in which the Indicated Mineral Resources are constrained to the non-waste domains from the bedrock surface (~200 m RL) to 80 m RL, the nominal elevation which has been drill-tested. The Inferred Mineral Resources are constrained to the non-waste domains from 80 m RL to 0 m RL.

As the current “in-pit” Mineral Resource (March 2012) is reported from a Whittle® pit shell by application of conceptual economic parameters, the above resource classification scheme been applied to the in-pit Mineral Resource and not to the Block Model Mineral Inventory (BMMI) which is reported as grade and tonnes of mineralized material at various geological cutoff grades. Although the current block model terminates at 0 m RL, the Norra Kärr intrusion is apparently open at depth as a deep hole, NKA090008, bottomed in mineralized grennaite at an elevation of -50 degrees RL in the central part of the deposit.

14.4.5 Model Validation

To check that the interpolation of the block model correctly honored the drilling data, PAH carried out a validation of the estimate using the following procedures:

- A comparison of the grade statistics for composite samples and estimated blocks for each domain;
- Comparison of volumes defined by the resource wireframes and the associated block model;
- Visual comparison of drill hole grades vs. estimated block grades in cross sections and
- Spatial comparison of composite grades and block grades by easting and elevation.

Comparison of the grades in estimated blocks and composite samples shows acceptable, close correspondence for all domains as shown in Table 14-9.

TABLE 14-9
Tasman Metals Limited
Norra Kärr Project – PEA
Comparison of Block Estimates and Composites by Domain

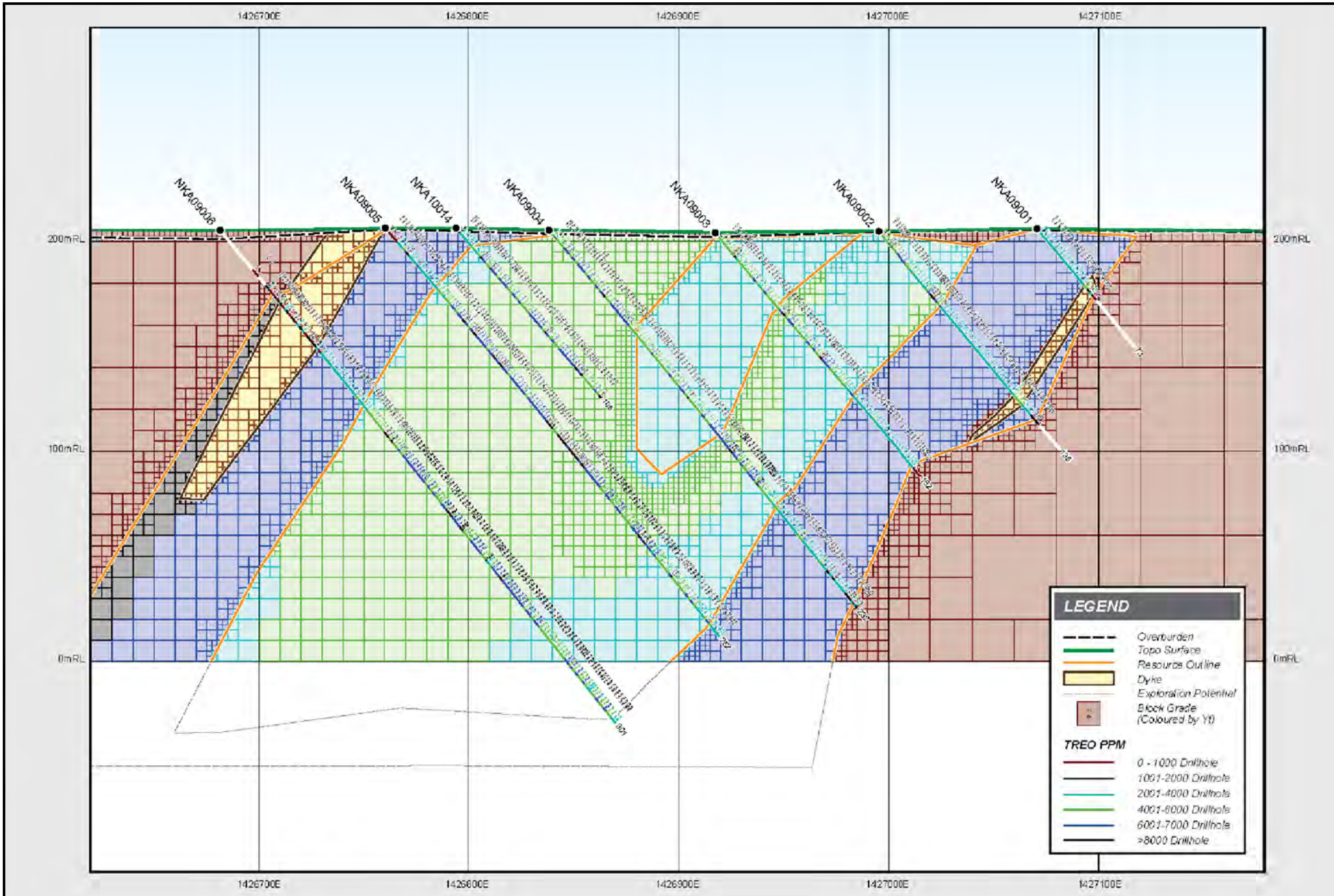
			Block Model			Composites			
Domain No.	**Wireframe Domain Volume**	**Resource Volume**	**Zr ppm**	**Ce ppm**	**Y ppm**	**Number of Comps**	**Zr ppm**	**Ce ppm**	**Y ppm**
2(GTC)	54,638,781	47,130,781	11,107	344	820	1,281	10,883	358	833
3(PGT)	23,574,975	23,512,969	14,501	1,071	1,857	1,323	14,368	1,059	1,812
4(GTM)	5,998,401	5,968,203	10,506	1,280	1,228	487	10,547	1,287	1,237
Total	**84,212,157**	**76,611,953**	**12,102**	**640**	**1,170**	**1,271**	**12,322**	**804**	**1,316**
				84,212,157	6,682,782+	76,611,953	98.91%		

* Discrepancy in volumes caused by intrusive dykes

For zirconium, Domain 2 exhibits the highest difference wherein the block model overestimates the mean grade by approximately 0.5 to 2.1 percent. Other domains present differences within +/- 4 percent. Cerium and neodymium are similar with the highest difference being 4 percent between composites and the block model (Domain 2). The distance between composites and the number of composites may contribute to variations greater than 3 percent. Important Domains 3 and 4 have an average variation of less than 1 percent with highest difference less than 1.5 percent between composite and block model grades for Zr, Ce, Nd, Dy and Y.

Comparison of the wireframe domain volumes to resource volumes reveals an overall small volume difference of approximately 9 percent. The largest difference in volume is noted for Domain 2 where the wireframe volume is 14 percent greater than the associated resource volume. This difference is due to the “intrusive” volume being included in the reported wireframe volume.

A visual comparison of the drill hole grades to the estimated block grades for Y and Dy was made using vertical cross-sections through the deposit (Figures 14-5 and 14-6). By inspection, PAH noted an acceptable correspondence between block and the drill hole grades.



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Project No. DE-00215

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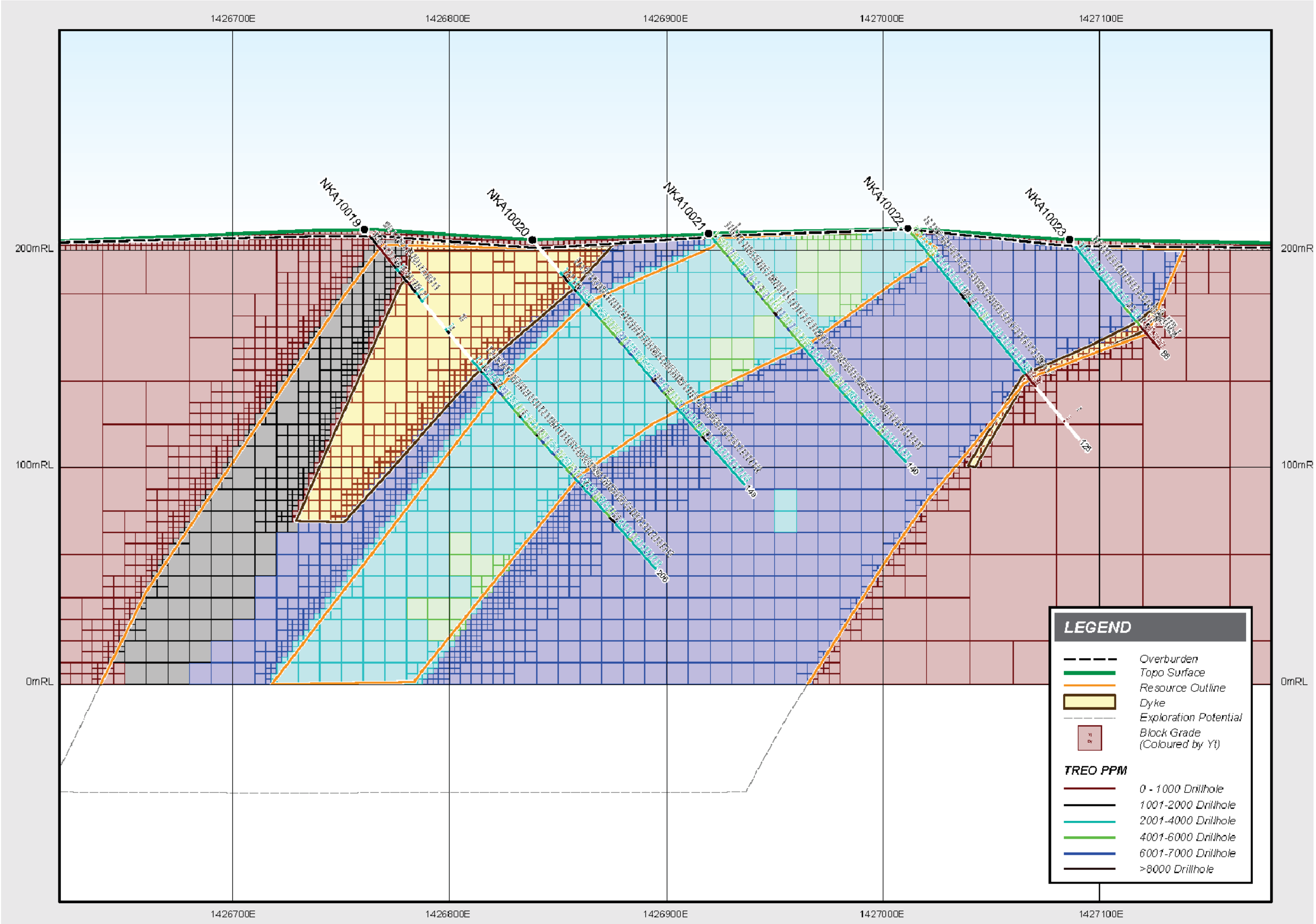
Project Name

Norra Kärr Project

FIGURE 14-5
Resource Cross-Section 6442800mN Looking North
Showing Block Model and Drill Holes

Date of Issue April 2012

Drawing Name Fig.14-5.dwg



Prepared by	Drawing Provided by/Prepared for		Date of Issue
pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	Tasman Metals Ltd.	FIGURE 14-6 Resource Cross-Section 6443000mN Looking North Showing Block Model and Drill Holes	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.14-6.dwg

As another check that the interpolation of the block model correctly honored the drilling data, validation was carried out by comparing the interpolated blocks grades to the sample composites grades for Zr, Ce, Nd, Dy and Y data along eastings, and elevations.

The validation plot by Northing for Zr, Ce, Nd, Dy and Y is shown in Figure 14-7. The validation plot by elevation for Zr, Ce, Nd, Dy and Y is shown in Figure 14-8.

The validation procedures demonstrate that the block model honors the drill hole data and geological constraints applied to the estimate. Clearly the grades from the block model are smoother than the composites. This is expected due to the inherent smoothing effect introduced by ID weighting and the current drilling density. PAH believes the estimate is representative of the composites and is indicative of the known controls of mineralization and the underlying data.

A summary of the data and modeling integrity checks employed by PAH throughout the project are given on Table 14-10.

14.5 *Conceptual Economic Basis of Mineral Resource Estimate*

As stated in Section 14.0, Tasman's approach to satisfying the CIM standard of the *reasonable prospect of economic extraction* is to further analyze the mineral inventory generated by the block model using the Whittle® software.

By specifying conceptual economic parameters that are both reasonable and technically justifiable to define an open pit using the Whittle® software, satisfies the CIM standard and allows reporting of Mineral Resources from Whittle® pit shells.

Salient points in Tasman's conceptual development plan for the Norra Kärr deposit include the following.

- Construction of a shallow open pit mine having an annual ore production rate of 1.5 Mt.

- Processing of mined material on site to produce two salable intermediate products: mixed REO-Y concentrate and a zirconium concentrate.

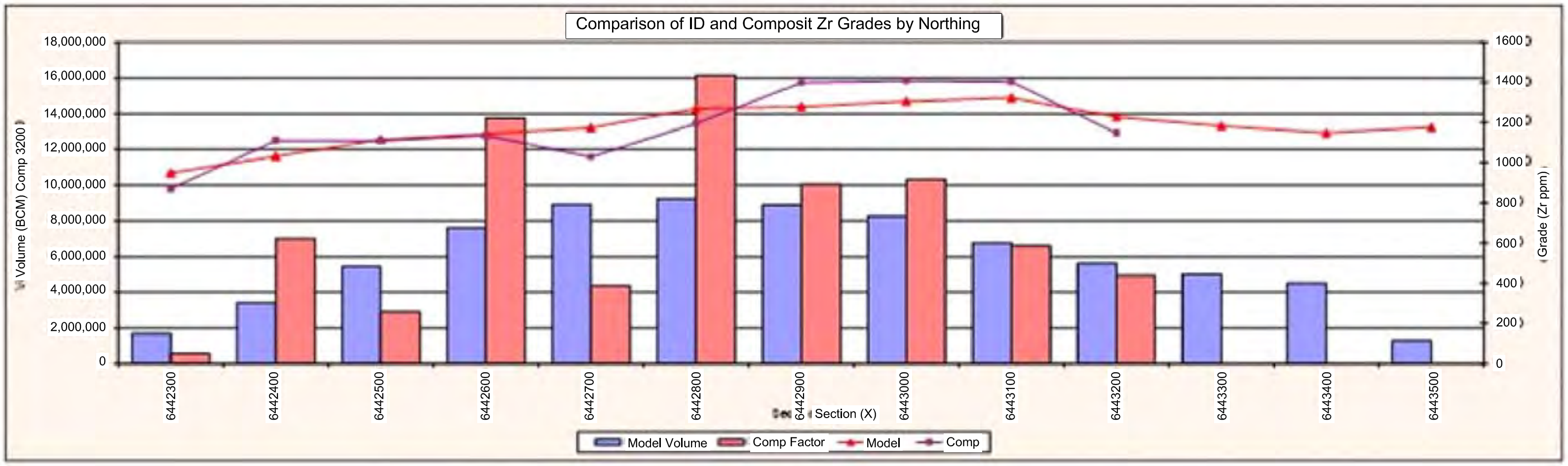
Conceptual economic parameters required for preparation of Whittle® shells were compiled from several sources including mining industry cost guides. Processing plant operating costs were estimated from preliminary plant design criteria developed by Tasman and its metallurgical consultants. More detailed discussion of operating costs, mining methods, metallurgical processing, metal recovery, and metal prices are given in Sections 16, 17, and 22.

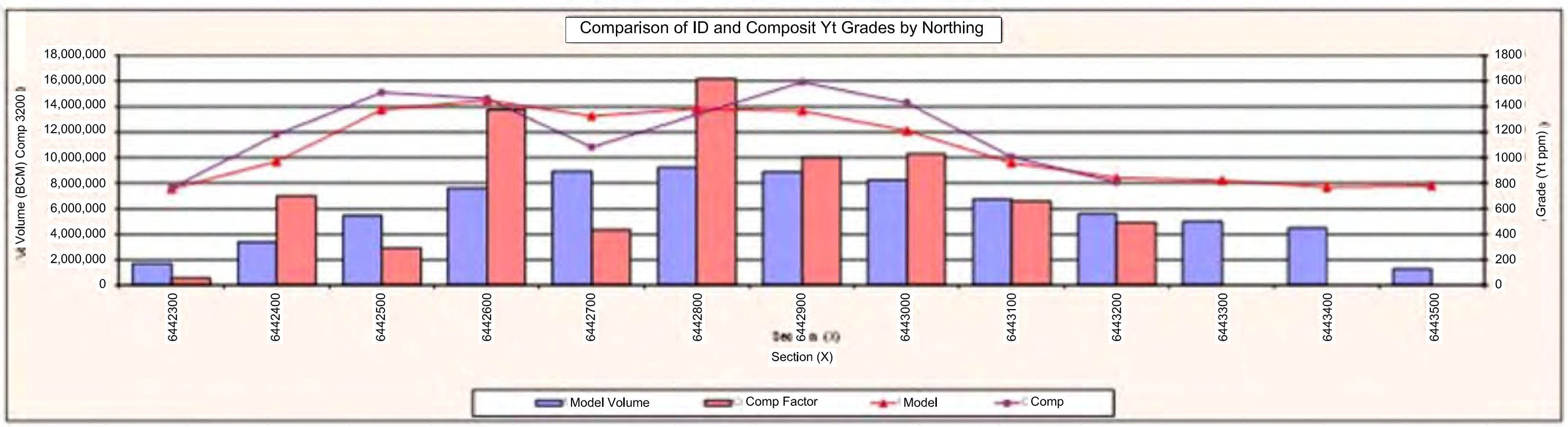
For the reporting of "in-pit" Mineral Resources at Norra Kärr Deposit, the conceptual economic parameters used to prepare the Whittle® pit shells are summarized on Table 14-11.

Norra Karr Block Model Validation by Northing

Section	Block Model						Composites							
Y	Model Volume BCM	Model Zr ppm	Model Ce ppm	Model Nd ppm	Model Dy ppm	Model Yt ppm	Number of Comps All Elements	Comps*factor 24785	Comp Zr ppm	Comp Ce ppm	Comp Nd ppm	Comp Dy ppm	Comp Yt ppm	Sample Ratio BCM/comp
6442300	1,702,031	9,494	304	166	125	795	23	570,066	8,709	318	181	130	763	74,001
6442400	3,405,938	10,330	440	236	154	970	282	6,989,509	11,115	559	302	184	1,181	12,078
6442500	5,446,719	11,154	820	432	169	1,376	118	2,924,688	11,095	1,186	591	197	1,511	46,159
6442600	7,609,766	11,430	999	507	193	1,449	555	13,755,948	11,358	1,080	539	196	1,463	13,711
6442700	8,918,906	11,748	935	469	180	1,326	176	4,362,247	10,294	806	379	151	1,081	50,676
6442800	9244766	12702	820	431	197	1384	452	16,160,141	11962	978	489	188	1338.25	14,179
6442900	8880469	12802	729	395	196	1365	404	10,013,339	13990	831	452	225	1590.53	21,981
6443000	8266094	13060	559	312	177	1211	416	10,310,765	14009	710	393	205	1428.79	19,870
6443100	6,754,141	13236	390	221	143	960	266	6,592,941	14034	401	227	153	1004.90	25,392
6443200	5,606,641	12284	334	187	125	842	199	4,932,313	11473	330	188	131	806.52	28,174
6443300	4,986,016	11842	330	186	129	822								
6443400	4,502,813	11486	306	174	121	769								
6443500	1,287,656	11775	309	176	125	781								
Total	**76,611,956**	**12,102**	**640**	**340**	**168**	**1,170**	**3,091**	**76,611,956**	**12,322**	**805**	**417**	**187**	**1,316**	**24,785**

Note: Calculated validation grades may differ from resource grades due to weighting by volume, not tonnes.



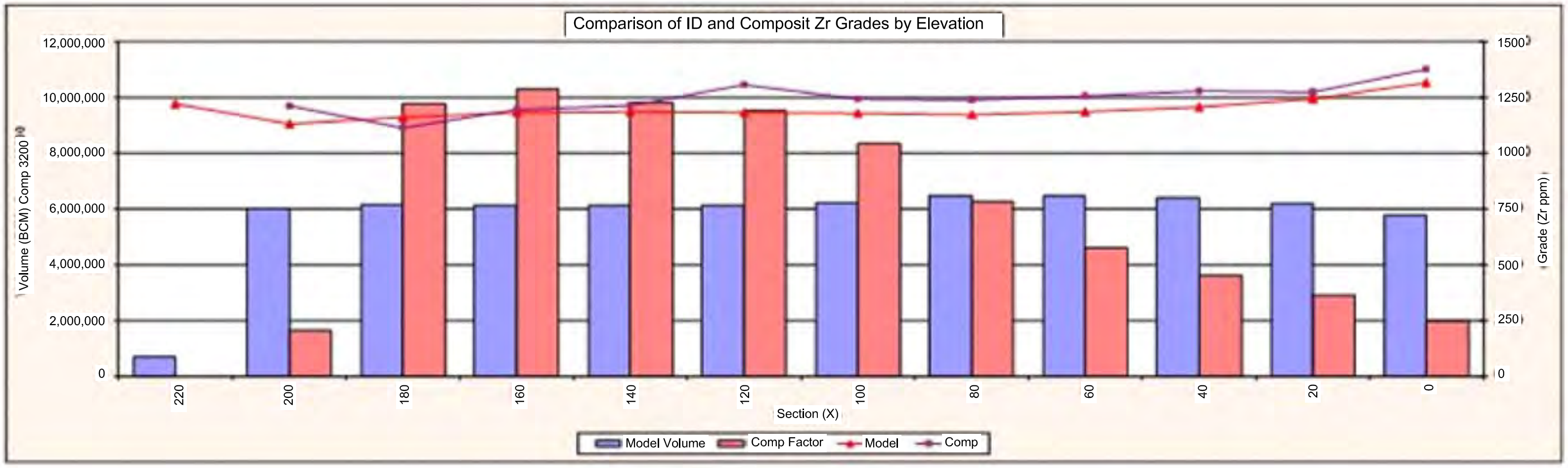


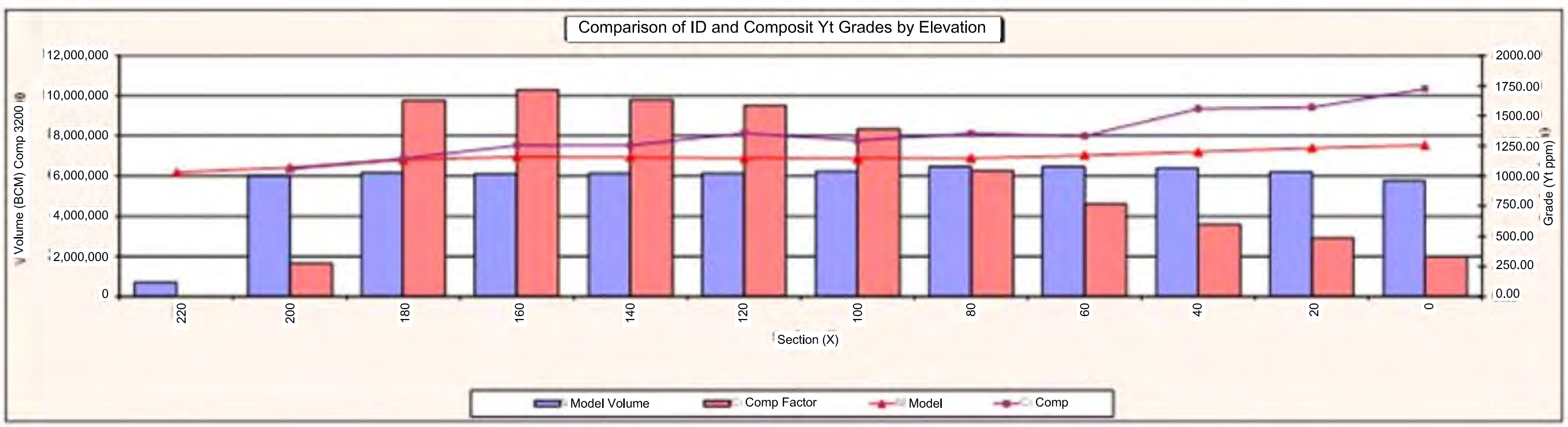
Prepared by **pincock, allen & holt** 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	Drawing Provided by/Prepared for ***Tasman Metals Ltd.***	FIGURE 14-7 Resource Validation by Northing	Date of Issue April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.14-7.dwg

Norra Karr Block Model Validation by Elevation

Section	Block Model						Composites							
Z	Model Volume BCM	Model Zr ppm	Model Ce ppm	Model Nd ppm	Model Dy ppm	Model Yt ppm	Number of Comps All Elements	Comps*factor 22614	Comp Zr ppm	Comp Ce ppm	Comp Nd ppm	Comp Dy ppm	Comp Yt ppm	Sample Ratio BCM/comp
220	698,750	12,219	541	295	157	1,031								
200	6,025,313	11,315	620	325	162	1,071	73	1,650,805	12,127	605	317	155	1,058	82,539
180	6,157,109	11,611	647	342	170	1,134	432	9,769,149	11,108	709	364	172	1,145	14,253
160	6,120,625	11,825	662	349	172	1,161	455	10,289,266	11,950	735	392	187	1,254	13,452
140	6,129,609	11,862	663	345	170	1,156	434	9,814,377	12,144	756	394	183	1,255	14,124
120	6,132,266	11,828	664	342	167	1,148	421	9,520,398	13,063	828	424	195	1,357	14,566
100	6,221,875	11,791	676	348	164	1,146	369	8,344,482	12,428	797	398	184	1,294	16,861
80	6,466,484	11,726	677	353	162	1,150	277	6,264,015	12,383	852	435	187	1,354	23,345
60	6,465,781	11864	657	349	164	1172	204	4,613,209	12562.21	880	452.64	179.95	1332.27	31,695
40	6,394,297	12,068	632	342	168	1,200	160	3,618,203	12784.29	1049	532.72	201.15	1558.79	39,964
20	6,200,625	12437	615	338	173	1234	129	2,917,177	12741.26	969	513.26	212.13	1569.63	48,067
0	5,778,359	13,165	609	336	176	1,256	88	1,990,012	10770.66	921	509.81	230.17	1722.75	65,663
Total	**68,791,093**	**11,950**	**647**	**342**	**168**	**1,165**	**3,042**	**68,791,093**	**12,289**	**804**	**416**	**187**	**1,310**	**22,614**

Note: Calculated validation grades may differ from resource grades due to weighting by volume, not tonnes





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Project Name
Norra Kärr Project

FIGURE 14-8
Resource Validation Chart by Elevation

Date of Issue
April 2012

Drawing Name
Fig.14-8.dwg

TABLE 14-10
Tasman Metals Limited
Norra Kärr Project – PEA
Details of the Criteria and Data Integrity Checks

Drilling Techniques	All BGM or BQTK diameter diamond drill holes
Logging	All drill holes were geologically logged by qualified geologists. The logging was of an appropriate standard for grade estimation.
Drill Sample Recovery	Recoveries are documented in borehole logs for the majority of the drill holes and is greater than 99% within mineralised zones.
Sampling Methods	core samples were collected with an average sample length of 2m. PAH's observations indicated that the routine sampling methods were of a high standard and suitable for evaluation purposes.
Quality of Assay Data and Laboratory Tests	The Norra Karr assay database displays industry standard levels of precision and accuracy and meets the requirements for use in a Mineral Resource estimate. Appendix E contains summaries of QA/QC data
Verification of Sampling and Assaying	Internal data verification is carried out as a standard. An external verification of approximately 10% of the Norra Karr data from drill hole collar positions to assay QA/QC was carried out by PAH.
Location of Data Points	All of the drill hole collars have been surveyed by a qualified surveyor using a differential GPS. All drill holes were downhole-surveyed.
Tonnage Factors (in situ Bulk Densities)	Density determinations were made for drill hole samples. Bulk density values were interpolated into the block model.
Data Density and Distribution	Diamond drill holes were collared on a grid of approximately on a 100 m by 40 m grid. The level of data density, over portions, of the project area is sufficient to assume geological and grade continuity for an Indicated and Inferred Mineral Resource estimate for this type of mineralization.
Database Integrity	Data were stored in an acceptable, relational database. PAH has checked the integrity of the database and considers that the database is an accurate representation of the original data collected.
Statistics and Variography	Anisotropic variograms were used to model the spatial continuity.
Geological Interpretation	There is adequate geological information.
Domains	The deposit has been sub-divided into 10 different domain codes;
Compositing	drill holes were retained at the 2 m length intervals, as appearing in the database.
Dimensions	The Mineral Resource occurs over a length of 1250 m north to south and 570 m east to west. It varies in thickness between 200 m and 570 m. A dip of 65 degrees is determinable as the mineralization. The Mineral Resource occurs from surface and has been constrained by a modelled surface representing an extent of 20m below borehole depths.
Top or Bottom Cuts for Grades	Top cut analysis was completed that indicated that top cutting was not appropriate. No grade caps or cut were applied
Data Clustering	drill holes were drilled on an approximately regular grid and consistent depth of drilling to have no major distributional anomalies
Block Size	50 m N by 10 m E by 10 m RL three dimensional block models.
Grade Estimation	Metal grades were estimated using Inverse distance weightings. Grades were interpolated within a search ellipse representing the ranges of the anisotropic variograms.
Resource Classification	Resource classification incorporates the confidence in the drill hole data, drilling density, depth of drilling , geological interpretation, data distribution, and variogram ranges. Indicated Mineral Resources are constrained to non-waste domains from the bedrock surface (~200m RL) to 80m RL. Inferred Mineral Resources are constrained to non-waste domains from 80m RL to 0m RL. Classification applied to the "in-pit" min. resource.
Cutoff Grades	Marginal cut-off grade from Whittle annalyis for in-pit mineral resources: 0.170% TREO. Block Model Mineral Inventory are variable geological cut-off grades.
Mining Cuts	In-Pit Mineral Resource applied dilution (5%); mining recovery (95%) Block Model Mineral Inventory is undiluted.
Metallurgical Factors or Assump	On site processing to 2 saleable products: mixed REO-Y con and Zr con.
Audits and Reviews	The following audit and review work was completed by PAH: ▪ a review of the database against the original drill hole logs ▪ a review of drill hole data collection protocols and QA/QC systems ▪ a site based review of the drill hole data

Applied and assessed for the Norra Kärr Project, as recommended by CIM (2005).

TABLE 14-11
Tasman Metals Limited
Norra Kärr Project – PEA
Conceptual Economic Parameters Used in the Whittle® Pit Shell Optimization Analysis*

Parameter	Unit	Value
Stripping Cost	$tonne mined	3.66
Mining Cost	$/tonne mined	3.66
Processing Cost	$/tonne ore	41.48
REO Recovery	%	80.0
Zirconia Recovery	%	60.0
Discount to TREO *Basket* Price	%	38.0
Discounted TREO Price	$/kg	31.6
Price Zr	$/kg	3.77

*Whittle® (Ver. 4.3) Pit Optimization Software
Conceptual economic parameters are in 2011 (US$).

As the rare earth elements are not openly traded on international commodity markets, Tasman and PAH considered several sources of pricing information to develop a "Basket Price" for the REOs contained in the Norra Kärr deposit. As shown on Table 14-12, the Basket Price is calculated from market prices that are prorated by the percentage that each REE contributes to TREO in the deposit.

TABLE 14-12
Tasman Metals Limited
Norra Kärr Project – PEA
Economic Assumptions: REO Price Basket

Group	Rare Earth Oxides	Market Prices* (US$/kg)	%TREO in Deposit	Value ($)
LREO	La_2O_3	10.00	22.52%	2.25
	Ce_2O_3	5.00	10.01%	0.50
	Nd_2O_3	75.00	11.31%	8.48
	Pr_2O_3	75.00	2.86%	2.15
	Sm_2O_3	10.00	2.98%	0.30
HREO	Eu_2O_3	500.00	0.37%	1.85
	Gd_2O_3	40.00	3.16%	1.26
	Tb_2O_3	975.00	0.63%	6.14
	Dy_2O_3	520.00	4.25%	22.10
	Ho_2O_3		0.93%	
	Tm_2O_3		0.45%	
	Er_2O_3		2.87%	
	Lu_2O_3		0.37%	
	Y_2O_3	20.00	34.55%	6.91
	TREO Basket Price			**$51.00**
	Discounted TREO Price (38%)			**$31.60**
	ZrO_2	3.77	1.70%	6.41

No value attributed to Ho, Er, Tm, Yb, or Lu due to lack of available historical prices.
* Tasman estimated long term market prices.
** Zirconia price quoted as average price from Industrial Minerals magazine. $3.77/kg

The Basket Price is discounted by 38 percent as the REEs are contained in a mixed REO-Y carbonate concentrate which requires additional, off-site separation and refining to yield individual REE metals.

For this PEA, several REO price indices were considered as published in Metal Pages in July and November 2011. These included the three-year average price (FOB), spot prices (FOB), Chinese domestic, average and peak prices. Also considered were REO prices published in Technical Reports by other public development companies in the REE sector. The Basket Price used in this PEA was developed from the three-year averages for Dy and Tb and peer group reports for La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, and Y. Although Ho, Tm, Er, Yb and Lu are present in the Norra Kärr deposit, these elements were not included in the Basket Price due to the lack of reliable historical pricing information. Additional information on REO pricing is found in Section 22.2 of this PEA.

Metal recoveries used in the Whittle® analysis are based on early-stage metallurgical test work discussed in Section 13 of this report.

14.6 *Mineral Resource Statement*

Mineral Resources are reported in accordance with NI 43-101 and were estimated in conformity with the generally accepted CIM guidelines. Mineral resources are not mineral reserves and may not be economically viable. There is no certainty that all or any part of the mineral resource will be converted into mineral reserves. The audit of this resource estimate was performed by Craig Horlacher, Principal Geologist – PAH, an independent qualified person as this term is defined in NI 43-101 as revised. The effective date of the drilling information used in this resource estimate is December 1, 2011. The mineral resource statement for the Norra Kärr deposit is presented in Table 14-13.

TABLE 14-13
Tasman Metals Limited
Norra Kärr Project – PEA
NI 43-101 Compliant Mineral Resource Estimate (March 2012)

Resource Classification	Tonnes Mt	TREO %	LREO %	HREO %	HREO/ TREO %	ZrO_2 %	Tonnes of Contained TREO
Indicated	41.6	0.57	0.28	0.29	0.51	1.70	237,120
Inferred	16.5	0.64	0.33	0.31	0.49	1.70	94,050

1) Mineral resources that are not mineral reserves do not have demonstrated economic viability. Mineral resource estimates do not account for mineability, selectivity, minin loss and dilution. The Preliminary Economic Assessment includes inferred mineral resources w hich are considered too speculative geologically to have the economic considerations applied to them that w ould enable them to be categorized as Mineral Reserves. There is no certainty that the results projected in the preliminary Economic Assessment w ill be realized and actual results may vary substantially.

2) Total Rare Earth Oxides (TREO) includes: La_2O_3, Ce_2O_3, Pr_2O_3, Nd_2O_3, Sm_2O_3, Eu_2O_3, Gd_2O_3, Tb_2O_3, Dy_2O_3, Ho_2O_3, Er_2O_3, Tm_2O_3, Yb_2O_3, Lu_2O_3, Y_2O_3

3) Heavy Rare Earth Oxides (HREO) includes: Eu_2O_3, Gd_2O_3, Tb_2O_3, Dy_2O_3, Ho_2O_3, Er_2O_3, Tm_2O_3, Yb_2O_3, Lu_2O_3, Y_2O_3

4) "In-pit" Mineral Resources w ere estimated using the Whittle pit optimization softw are and scoping level economic parameters for commodity prices, metal recoveries and current operating expenses as presented in the PEA and summarized in this press release. .

5) Mineral Resources are reported at a marginal cutoff grade of 0.17% TREO.

6) Resource estimate assumes mining recovery 95%, dilution 5%.

The Mineral Resources are reported at a cutoff grade thought to reflect the *reasonable prospects for economic extraction*. PAH considers that REE mineralization in the Norra Kärr deposit is amenable to surface mining and has not considered other mining methods. The Mineral Resource is inclusive within the block model mineral inventory discussed below in Section 14.7.

PAH tested the reasonable prospects for economic extraction requirement by designing conceptual pit shells using the Lerchs-Grossman optimizing algorithm in the Whittle® software and the technical parameters on Table 14-11 and the commodity pricing information given on Table 14-12. PAH cautions that the results from the pit optimization are used solely for the purpose of reporting Mineral Resources that have "reasonable prospects" for economic extraction by surface mining. After carefully considering several sources of REE pricing guidance, a Basket Price of US$51.00 per kg of total rare earth oxides (TREO) was estimated for the specific suite of REEs contained in the deposit.

The Basket Price was discounted by 38 percent to yield a net price of US$31.60 per kg of payable TREO. The discount is applied since the REEs would be contained in a mixed REO-Y carbonate concentrate produced by the conceptual processing plant discussed in this PEA. The discount reflects additional costs that would be required for off-site transportation, separation and refining of Norra Kärr concentrate to yield individual REE metals. In the context of the current strong yet volatile market for REEs, PAH considers Tasman's approach to metal pricing conservative.

The conceptual technical and economic parameters used in the current Mineral Resource estimate represents an optimistic expectation that the resource might be economically extractible in the future.

The Mineral Resource cited above is spatially constrained within the Tasman claim boundaries; the interpreted geologic domains for the mineralized phases of the peralkaline Norra Kärr intrusion; and the optimized pit shell. The relationship of these features to the local terrain is given on Figure 14-9. Notably features are the relatively high grade shell of TREO mineralization that surrounds a barren zone, composed of the kaxtorpite rock-type, in the southern portion of the pit. The vertical extent of the kaxtorpite intrusion is apparent on Figure 14-10. On Section #1, there is a node of highgrade TREO in the central portion of the deposit. The intrusion persists in the sub surface at least another 400m north of the current pit shell where the available drilling data indicates a decrease in the TREO grade.

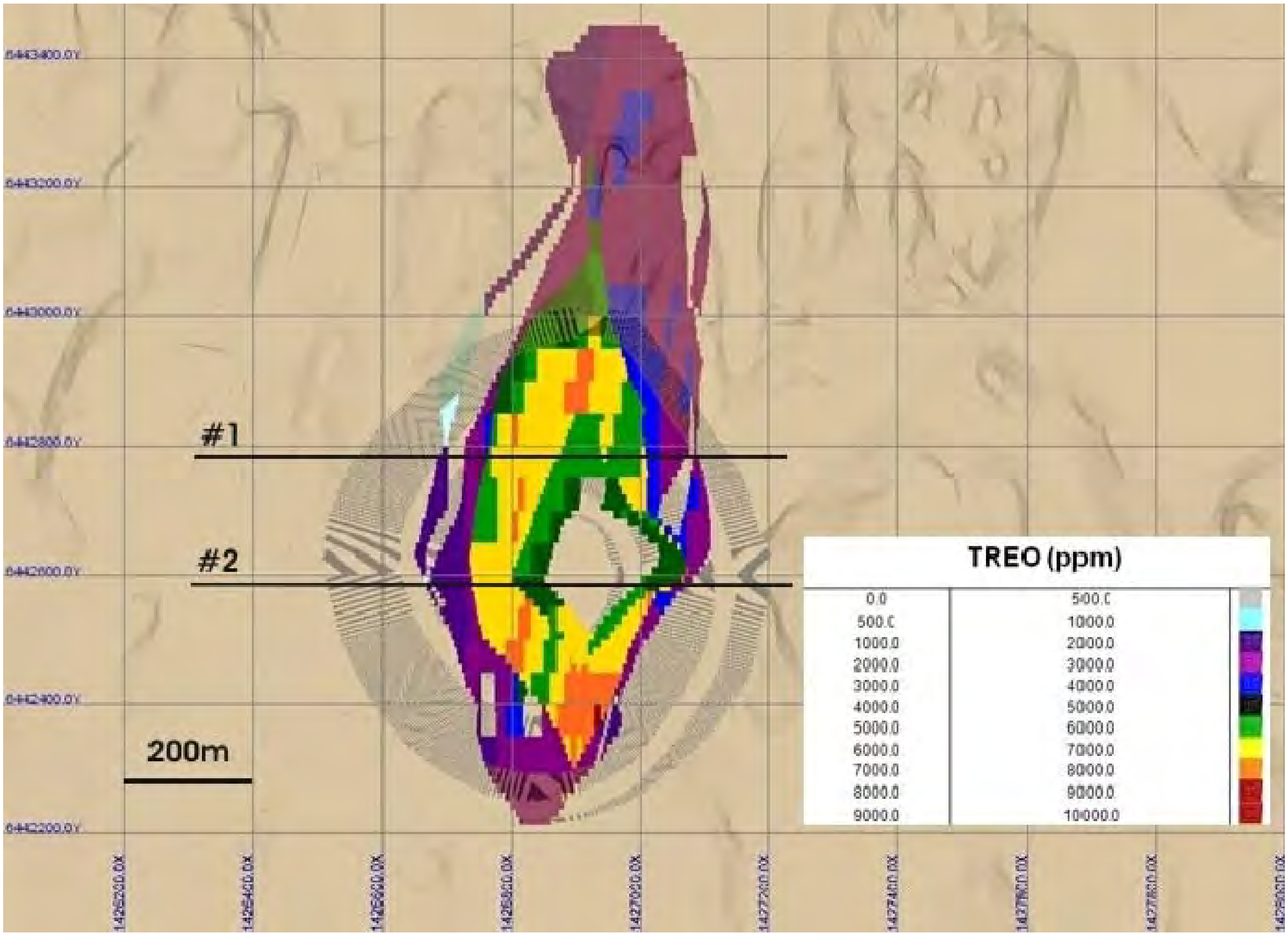
14.7 *Block Model Mineral Inventory*

The geologic basis of Tasman's mineral resource estimate is the Vulcan® block model whose evolution and characteristics have been discussed previously in Section 14-1.

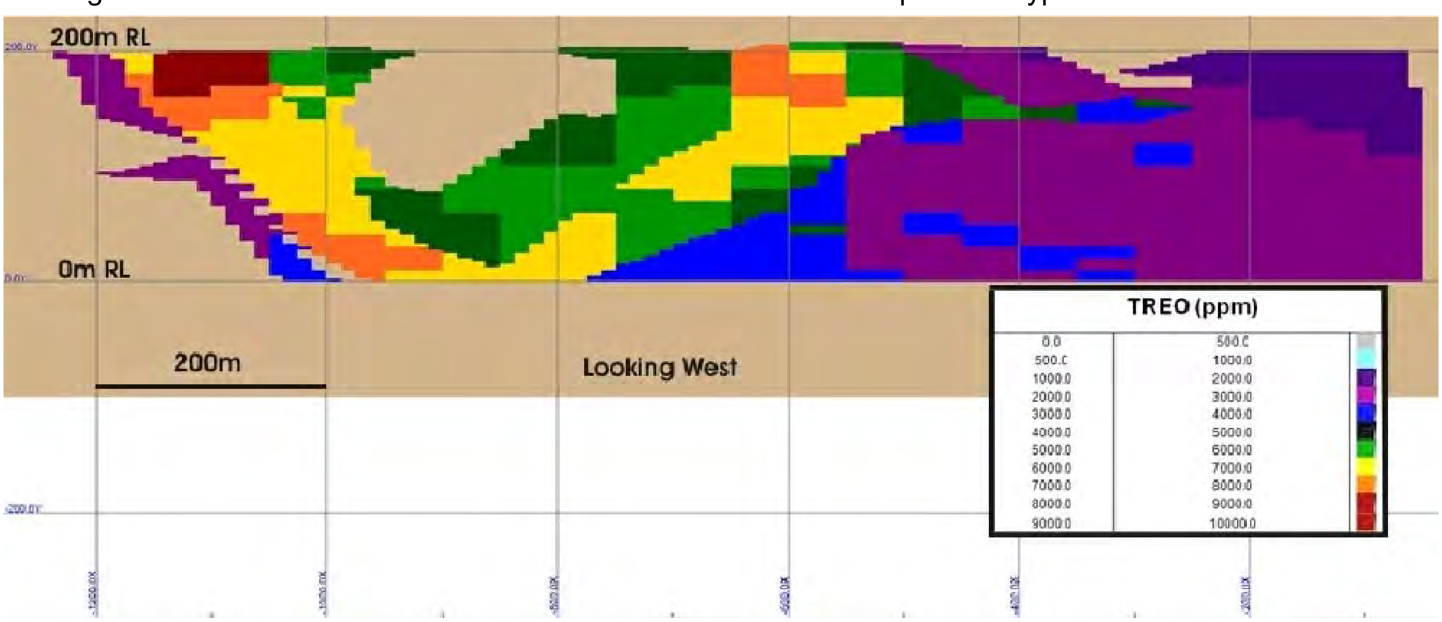
The Mineral Resources reported above are inclusive within a Block Model Mineral Inventory.

For purposes of this Technical Report, the most recent revision of the block model was used to estimate a block model mineral inventory that is the basis of the mineral resource estimate determined in the Whittle® pit optimization.

A. 150m Level Plan of TREO Mineralization, resource pit shell and topography



B. Longitudinal Vertical Section - Note Central Barren Zone of Kaxtorpite rock type



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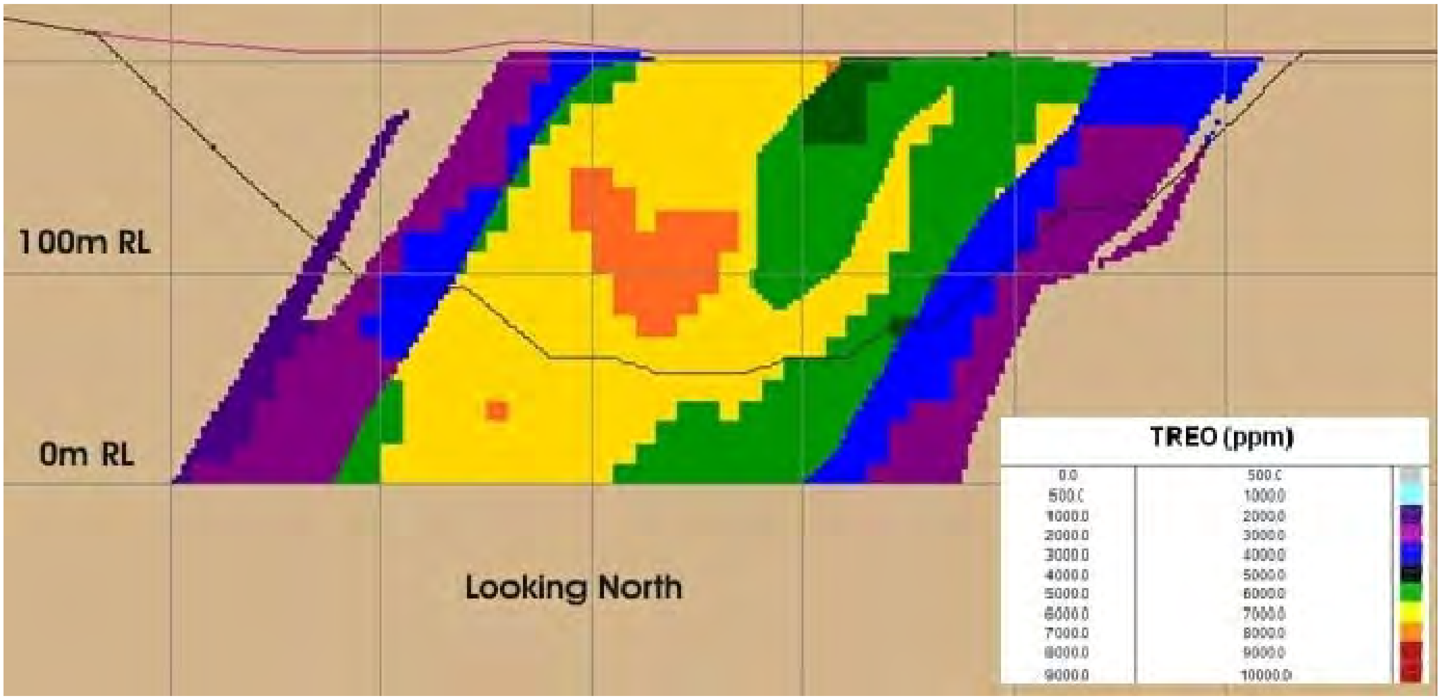
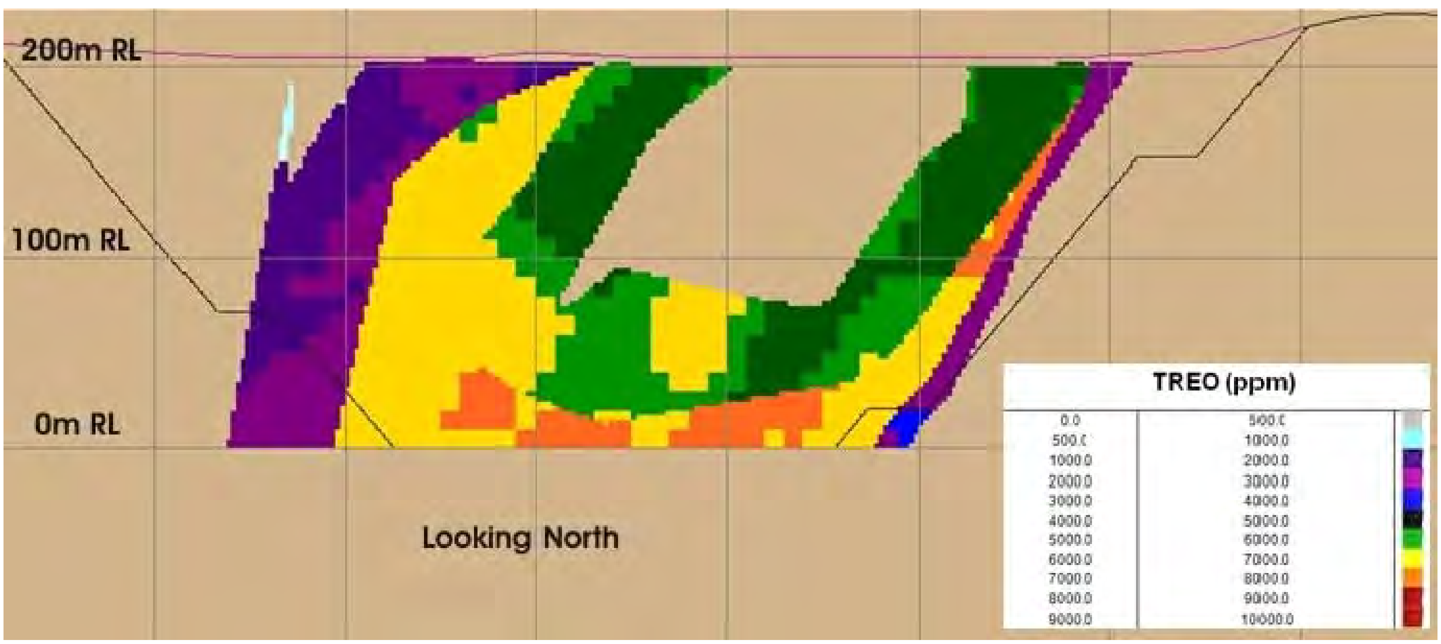
pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 14-9 TREO Grade Distribution in 2012 Block Model Plan and Longitudinal Section Norra Kärr Deposit	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.14-9.dwg

A. #1 Cross Section 6,442,790mN Showing TREO Grade Distribution in Pit Shell



B. #2 Cross Section 6,442,590mN Showing TREO Grade Distribution in Pit Shell



Prepared by	Drawing Provided by/Prepared for		Date of Issue
pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 14-10 TREO Grade Distribution in 2012 Block Model Cross Sections Norra Kärr Deposit	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.14-10.dwg

The Vulcan® block model version used in the present report is designated: dd8_nk8_litho.csv (date January 12, 2011) while the associated updated digital drilling data file is designated DE00215_Tasman_Metals_drilling_database.accdb which contains drilling data up to August 19, 2011.

PAH verified and validated the block model using the procedures given in Section 14.4.5 and found the model acceptable as a basis for resource reporting under NI 43-101 guidelines.

Grade-tonnage relationships of the Block Model Mineral Inventory estimated by Taman's block model are given on Table 14-14 and presented graphically of Figure 14-11. Most notable on the grade-tonnage plots is the sharp decline in tonnage from the 0.2 percent to 0.3 percent TREO cutoff grades, suggesting strong sensitivity to metal prices and increasing cutoff grades.

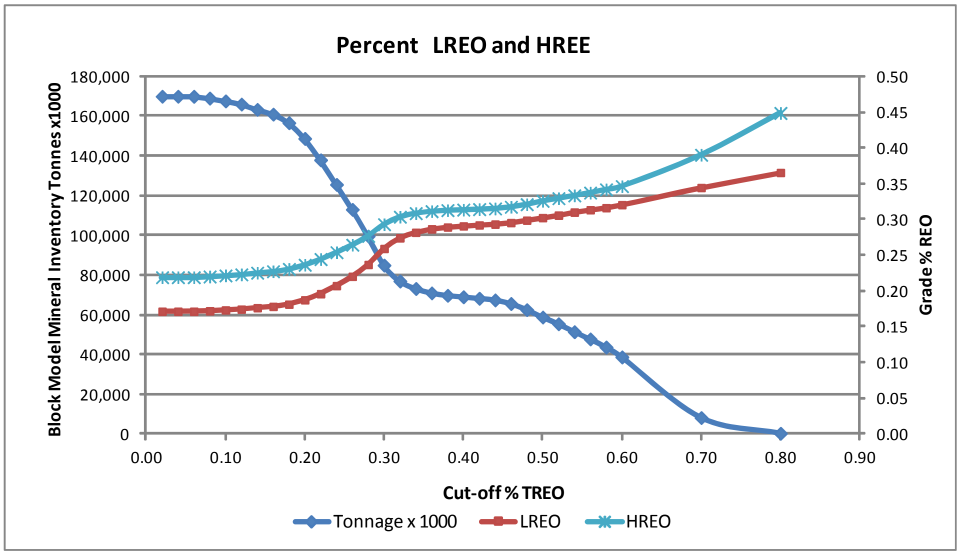
TABLE 14-14
Tasman Metals
Norra Kärr Project – PEA
NI 43-101 Compliant Block Model Mineral Inventory (March 2012) Showing all Rare Earth Oxides and Yttrium Oxide and Zirconia

Cutoff Grade TREO %	Volume CM	Block Model Mineral Inventory																		
		Tonnes MT	La_20_3 %	Ce_20_3 %	Pr_20_3 %	Nd_20_3 %	Sm_20_3 %	Eu_20_3 %	Gd_20_3 %	Tb_20_3 %	Dy_20_3 %	Ho_20_3 %	Er_20_3 %	Tm_20_3 %	Yb_20_3 %	Lu_20_3 %	Y_20_3 %	$Zr0_2$ %	LREO %	HREO %	TREO %
0.20	55,090,861	148.8	0.037	0.083	0.011	0.044	0.012	0.002	0.014	0.003	0.021	0.005	0.015	0.002	0.015	0.002	0.159	1.70	0.19	0.24	0.42
0.30	31,473,361	85.0	0.052	0.116	0.015	0.060	0.016	0.002	0.018	0.004	0.025	0.006	0.017	0.003	0.017	0.002	0.200	1.81	0.26	0.29	0.55
0.40	**25,569,923**	**69.1**	**0.058**	**0.131**	**0.017**	**0.067**	**0.018**	**0.002**	**0.019**	**0.004**	**0.027**	**0.006**	**0.018**	**0.003**	**0.017**	**0.002**	**0.215**	**1.82**	**0.29**	**0.31**	**0.60**
0.50	21,789,532	58.8	0.059	0.136	0.018	0.070	0.019	0.002	0.020	0.004	0.028	0.006	0.018	0.003	0.017	0.002	0.224	1.84	0.30	0.33	0.63
0.60	14,358,829	38.8	0.062	0.144	0.019	0.076	0.021	0.003	0.022	0.004	0.029	0.006	0.019	0.003	0.018	0.002	0.240	1.85	0.32	0.35	0.67

Notes:

1. Total Rare Earth Oxides (TREO) includes: La_2O_3, Ce_2O_3, Pr_2O_3, Nd_2O_3, Sm_2O_3, Eu_2O_3, Gd_2O_3, Tb_2O_3, Dy_2O_3, Ho_2O_3, Er_2O_3, Tm_2O_3, Yb_2O_3, Lu_2O_3, Y_2O_3
2. Heavy Rare Earth Oxides (HREO) includes: Eu_2O_3, Gd_2O_3, Tb_2O_3, Dy_2O_3, Ho_2O_3, Er_2O_3, Tm_2O_3, Yb_2O_3, Lu_2O_3, Y_2O_3
3. The block model mineral inventory was completed by Mr Geoffrey Reed, Senior Consulting Geologist of PAH and is based on geological and geochemical data supplied by Tasman, audited by Mr Reed. Mr Reed is an independent qualified person for the purposes of NI 43-101 standards of disclosure for mineral projects of the Canadian Securities Administrators and has verified the data disclosed in this release.
4. Cutoff grades are geological cutoffs and not based on economics.
5. Block model mineral inventories are not mineral resources because the reasonable prospects of economic extraction standard has not been demonstrated
6. The resource estimate is based on:
   - A database of 49 diamond drill holes completed by the Company since December 2009 to August 2011. Samples were composited on 2m lengths. Assays were completed at ALS Chemex, with check sampling completed by ACME Laboratories Ltd.
   - Specific gravity (SG) used the overall mean of 2.70 g/cc from 179 SG readings.
   - Block model was estimated by inverse distance squared interpolation method on bloc

A



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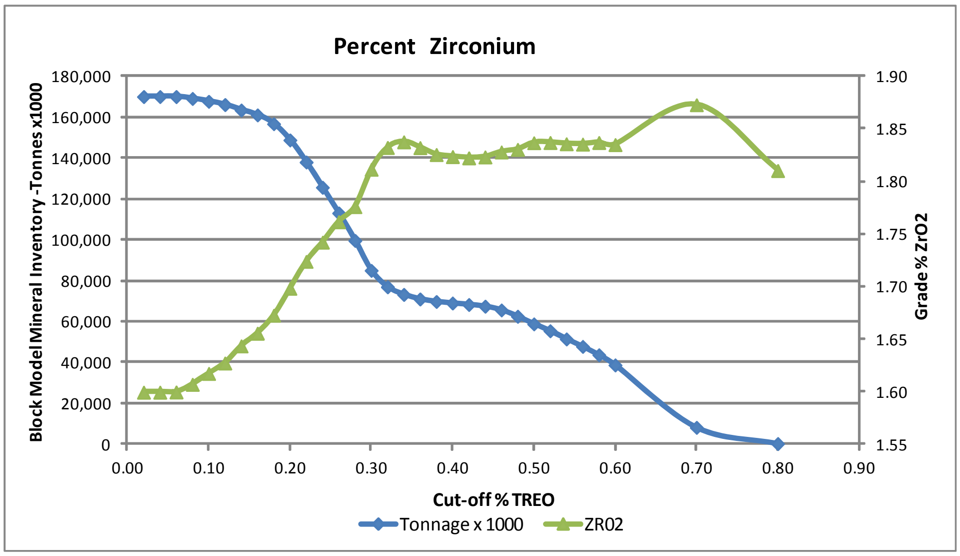

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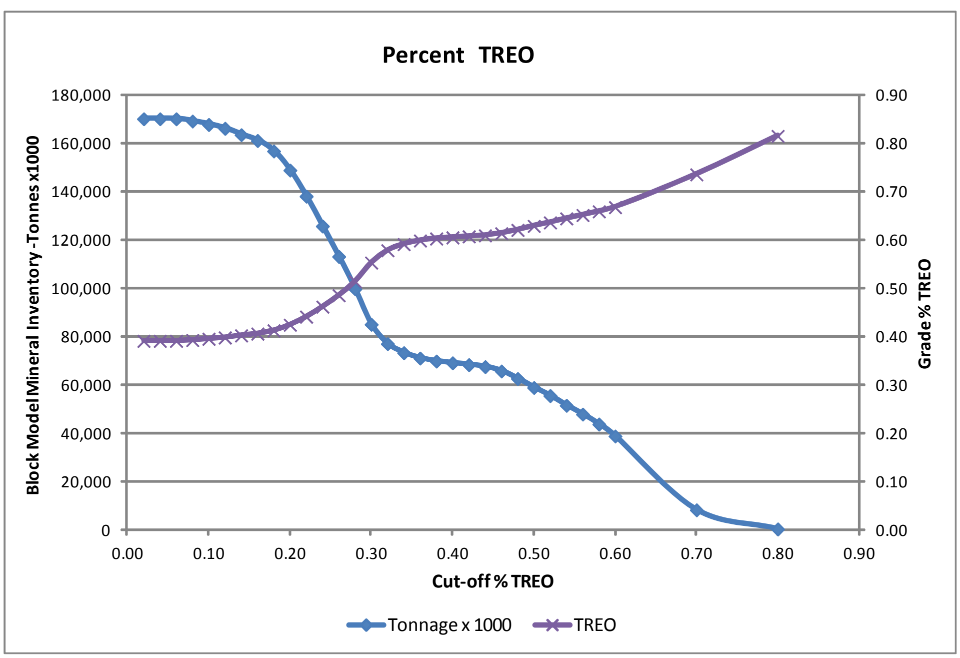

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Project No.
DE-00215

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Tasman Metals Ltd.

Project Name
Norra Kärr Project

FIGURE 14-11
Block Model Mineral Inventory (March 2012)
Norra Kärr Deposit

Date of Issue
April 2012

Drawing Name
Fig.14-11.dwg

15.0 MINERAL RESERVES ESTIMATES

There are no Mineral Reserves reported for the Norra Kärr project.

16.0 MINING METHODS

For this Preliminary Economic Assessment of the Norra Kärr Project, a high level cost evaluation has been completed. Mining operating costs were estimated in 2010 US Dollars using the SHEPRA Mine Cost Guide for which cost estimates have an accuracy of approximately +/- 35 percent.

Annual production estimates are based on a surface mining rate of 1.5 million tonnes of mineralized material delivered to the processing plant which on a daily production basis, is 4,100 tonnes per day. The Whittle® pit analysis shows that to recover the in-pit Mineral Resource equivalent amounts of waste rock will be generated at a waste to ore stripping ratio of 0.85 to 1. Mining at the present economic cutoff grade would produce approximately one tonne of waste rock per tonne of mineralized material.

Whittle® pit analysis was conducted with conceptual economic parameters previously presented in Section 14 on Table 14-11 of this technical report. Dilution and mining losses were included in the Whittle® analysis using factors of 5 percent for mining loss and 5 percent for mining dilution.

The estimated discounted basket price for total rare earth oxides (TREO) used for the Whittle® analysis is USD $31.60 per kilogram (kg) and a zirconia price of $3.77 per kg. Two concentrates will be produced and sold from the Norra Kärr processing plant: a mixed REO+Y carbonate and a zirconium carbonate concentrate. Production of these two concentrates is a basic assumption of the cash flow analysis for determining Project revenues as discussed in Section 22 of this report.

The REO basket price used to estimate in-pit Mineral Resources was reduced by 38 percent. The price reduction is considered a *cost-of-sales* since the two products sold are unrefined, mixtures of REOs, yttrium and zircon. The concentrates are intermediate compounds that will be sold to third-party industrial consumers for separation and refining of the various REEs contained in the concentrate.

16.1 *Resource Pit Shell*

In the Whittle pit analysis, it is possible to vary the value of each block in the resource model by multiplying the discounted, basket price by a revenue factor (RF). A revenue factor of 1.0 is the discounted basket price for TREO. PAH investigated increments of revenue factors between 0.2 and 1.0. This analysis produced a series of nine nested pit shells that varied in size from 16 million tonnes to 88 million tonnes of mineralized material, respectively.

For reporting Mineral Resources during the current period of high REE prices, PAH used a lower revenue factor of 0.43 to generate a pit shell that contains 58 million tonnes of mineralized material at a marginal cutoff grade of 0.17 percent TREO. This amount is approximately 40 years of production at the current proposed mining rate.

However, in periods of declining prices, there is pressure to increase cutoff grades. By increasing the marginal cutoff grade to 0.41 percent TREO, the same pit shell would contains approximately 29 million tonnes of mineralized material. This amount is approximately 20 years of production at the current proposed mining rate.

The 58 million tonne in-pit Mineral Resource that was reported is justified based on current economic factors and the enclosed REO price estimates.

It should be noted that additional mineralized material occurs in a larger pit shell outside of the current 58 Mt mineral resource pit. Using the current discounted basket price for REEs and a revenue factor of 1.0, this larger pit contains approximately 88 Mt of mineralized material which would increase resources by 30 Mt and add 20 years to the mine life. However, PAH believes that projecting economic parameters and RE0 prices 59 years into the future is unwise and inconsistent with good engineering practices, particularly in Greenfield projects like Norra Kärr.

The block model and resource pit shell continue downward to an elevation of 0 m RL. However, evidence from deep holes indicates that the deposit is currently open at depth.

16.2 *Geological Dimensions*

The mineral deposit is elongated in the north and south direction along the strike length for a distance of 1,250 m. In the east to west direction the deposit is 400 m wide. The ore body is steeply dipping to the west, with an apparent dip angle of 60˚. The resource pit is centered on the southern portion of the deposit where higher TREO grades are present. The resource pit is circular in shape having a diameter of 400 m across the pit rim and continues downward from a nominal surface elevation of 200 m RL to 0 m RL. The pit location relative to the deposit is shown in Figure 16-1.

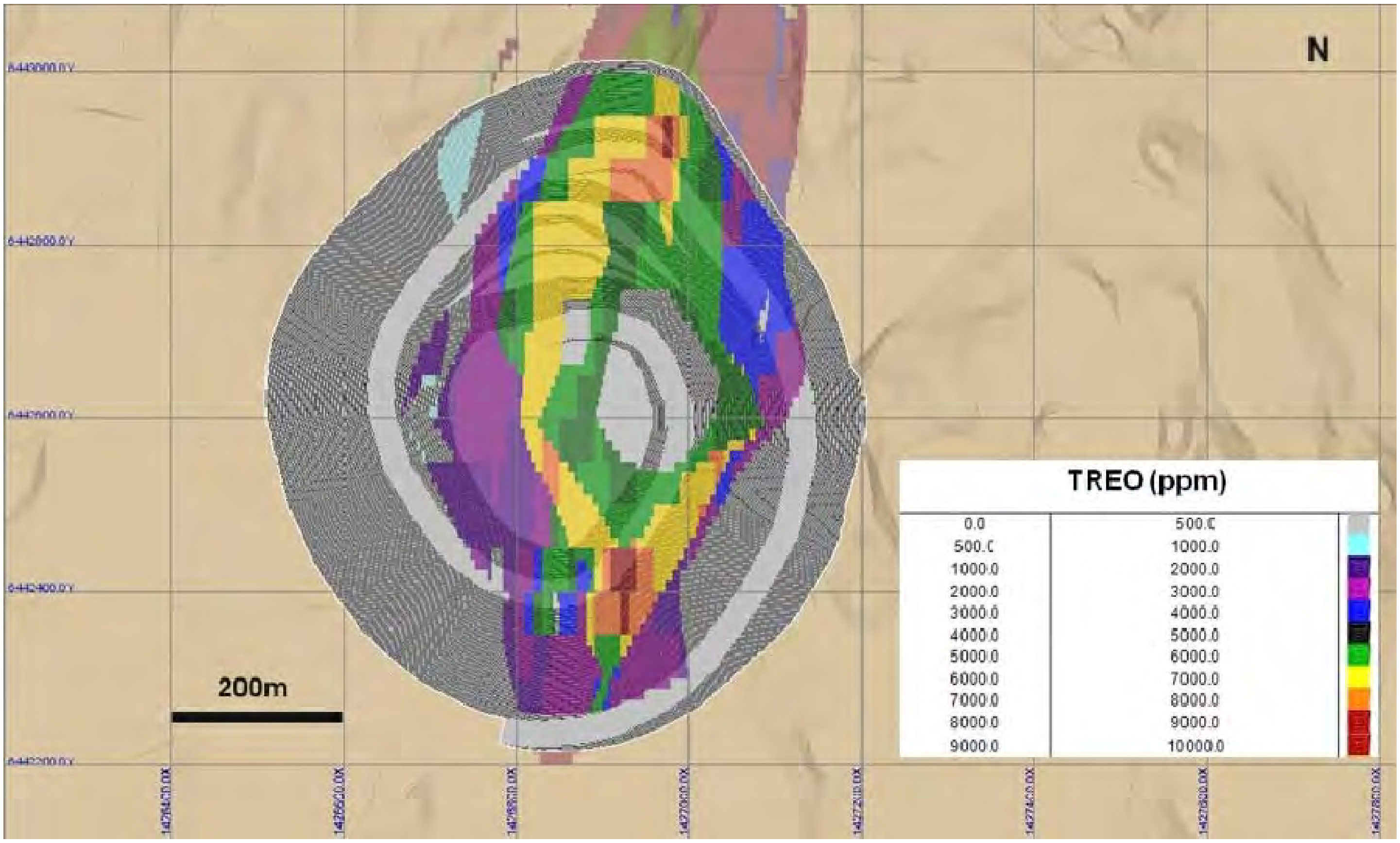
16.3 *Proposed Mining Method*

Mine design and production at the Norra Kärr deposit is planned as a single open pit. The pit will be accessed using a single haul road. Because the deposit is covered by a thin soil layer, typically less than 1 meter, no significant pre-stripping of overburden is required. Topsoil removed from the project site will be stockpiled on site and used for mine reclamation at the end of the mine life. The general project configuration is shown later in Figure 18-1.

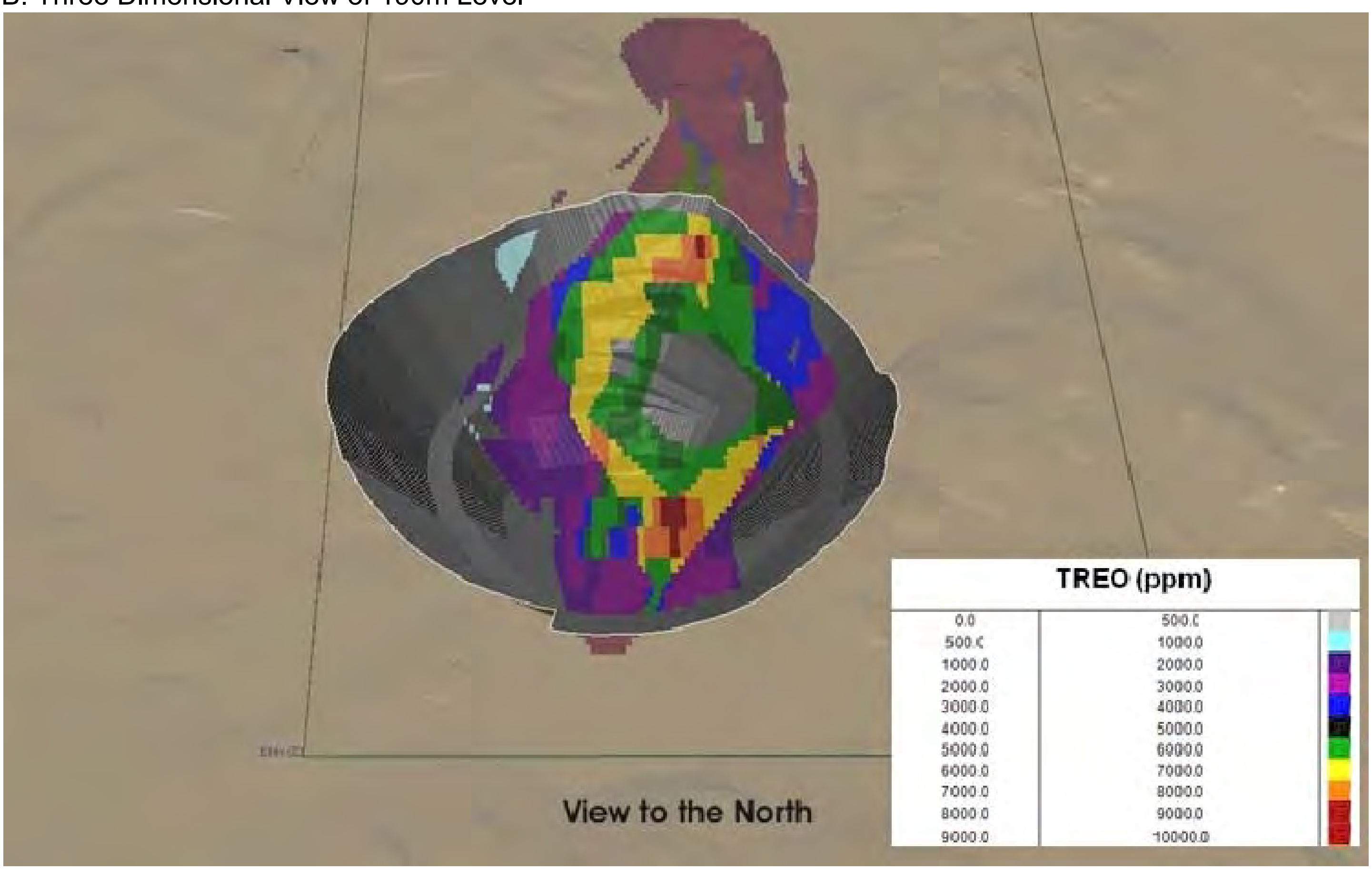
Below the soil layer, the bedrock is un-weathered. The mine will be a conventional drill and blasting operation with excavation and removal of the blasted material with small excavators and trucks. The mine will operate year round on a 24 hour basis.

A two year ramp-up period is anticipated before the mine and processing plant reach full production. Upon reaching designed plant capacity, the open pit will mine and provide ore to the plant for forty years.

A. Plan View of 190m Level



B. Three Dimensional View of 190m Level



Prepared by	Drawing Provided by/Prepared for		Date of Issue
pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 16-1 Resource Pit (March 2012) Norra Kärr Deposit	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.16-1.dwg

Mining will be carried out using one hydraulic excavator and one front-end wheel loader, loading 40 tonne rear dump haulage trucks. Ore will be transported via a single haul road accessing the mine and plant. Waste rock mined from the pit will be hauled to a waste dump facility located east of the pit.

Support equipment needed for the mining operation includes rotary drills, bulldozers, graders, water tankers, and service trucks. Table 16-1 is a preliminary list of mining and support equipment proposed for the Norra Kärr project. Mining in Sweden will require the mine to operate under extreme climatic conditions, therefore; lower operating efficiency and equipment utilization may be expected. The result is higher mining costs and increased capital for road maintenance equipment. The Norra Kärr project is located near a major highway with good access to major cities that will facilitate equipment maintenance and repair at the operation.

16.4 *Geotechnical and Hydrological Issues*

Geotechnical information has been obtained from the exploration drilling completed to date. Core drilling sample recovery is nearly 100 percent with Rock Quality Determination (RQD) data measuring approximately 86 percent. The rock is very competent with local zones of fracturing along contacts between the Norra Kärr intrusion and the granitic country rock.

Hydrological studies have been completed for the Norra Kärr Project site. Work was initiated early on in the exploration stages to collect and analyze hydrological information. Details of the hydrological test work conducted by Golder Associates AB are found in Section 20.6 of this report.

16.5 *Mining Production Rates*

Waste stripping requirements will be higher in the first two years of mine operation. A barren waste zone developed in the Kaxtorpite rock type is present at shallow depth in the center of the pit. In this PEA report, the waste rock has been scheduled with ore production during the ramp up period and during full mine production.

This PEA contemplates no pre-production mining, although waste rock encountered in the first years of mining can be utilized as construction material on site. The life of mine open pit strip ratio is estimated to be 0.85:1 (waste:ore) with a mine life of 40 years. Total waste rock mined over the life of the mine will be 49.5 million tonnes.

The mill feed at full production levels is 1.5 million tonnes per year for a daily ore production rate of 4,100 tonnes per day. Waste rock would be mined at 1.28 million tonnes per year for a total combined mining rate of 2.8 million tonnes per year. Daily mine production rate for ore and waste is 7,600 tonnes per day.

Over the life of the Project the waste stripping decreases until the the final years of the production only ore material is mined.

16.6 *Mining Equipment Fleet*

The mining equipment fleet will consist of diesel powered mining equipment and auxiliary support equipment. A preliminary list of mining equipment and capacities is given on Table 16-1. Support equipment for the mine will include service trucks, cranes, dozers, graders, water trucks and snow removal equipment.

Normal replacement of this equipment will occur at regular intervals based on the equipment operating hours. Sustaining capital for the mine and process plant of $1.32 per tonne mined is included in the capital cost estimate to provide for multiple equipment replacements and plant maintenance over the life of the mine.

TABLE 16-1
Tasman Metals Limited
Norra Kärr Project – PEA
Mining Equipment

Equipment List	Size	Units
Hydrulic Excavator	3.4 m^3	1
Front End Loader	3.8 m^3	1
Rear-dump Trucks	40 t	6
Rotary Drills	20 cm	2
Bulldozers	D10	4
Graders	16G	1
Water Tankers	9500 Liter	2
Service/Tire Trucks	1800 kg GVW	3
Bulk Trucks		1
Light Plants		4
Pumps		2
Pickup Trucks		5

17.0 RECOVERY METHODS

Tasman has engaged senior process metallurgists to develop a conceptual flowsheet for recovery of rare earth elements, yttrium, and zirconium from the Norra Kärr deposit.

This conceptual process and flowsheet for the Norra Kärr deposit was developed by J.E. Litz and Associates, LLC of Golden, Colorado, USA based, in part, on test work completed by SGS-Lakefield of Ontario, Canada, the Geological Survey of Finland (GTK) and Mr. Litz's own bench test work.

In early 2011, Lakefield conducted the first leach tests on samples of whole ore. Their work was subsequently stopped to allow for the beneficiation work which directly impacts acid leaching, therefore there is no comprehensive report from Lakefield.

The beneficiation portion of the flowsheet, encompassing flotation and magnetic separation, was developed during five months of test work later in 2011 by the GTK. The results of the GTK test work are given in an internal report to Tasman entitled *Metallurgical Tests on the Norra Kärr Ore* by T. Maksimainen, dated 12 January 2012.

In February 2012, J.E. Litz and Associates began investigating the response of different minerals in the deposit to acid addition.

The conceptual process being evaluated for extracting and recovering the values in the Norra Kärr deposit is based on generally known metallurgical and chemical principles. The process described here, to Tasman's and to the Authors' knowledge, does not infringe on any third-party patented process or system used previously or presently for the recovery of REOs.

17.1 *Process Mineralogy*

The peralkaline intrusive rocks which host the REE-Y-Zr mineralization at Norra Kärr are geochemically enriched in sodium, potassium and alumina, primarily contained in the gangue minerals natrolite, nepheline, analcime, sodium amphiboles, plagioclase feldspar, potassium feldspar and acmite. The presence of these readily-acid-soluble sodium silicate gangue minerals at Norra Kärr significantly limits processing options. Therefore, Tasman is investigating beneficiation methods that would improve the quality of the feed material going into the acid leach stage. Flotation is being tested to lower the amount of sodium-bearing aluminosilicates; i.e., feldspar and nepheline. As the primary ore mineral eudialyte is paramagnetic, magnetic separation is being tested to reject the sodium-bearing clinopyroxene, aegirine, before the acid leach stage. The other important REE-bearing mineral, catapleiite, reports to the magnetic concentrate. Test work shows that the tailings generated by flotation and magnetic separation can reduce the original volume of the feed material by 25-35 percent. The float product is rich in Na-K and Al and may provide an alternate feed to ceramic, glass or abrasive manufacturers.

17.2 *Process Flowsheet Description*

The conceptual flowsheet developed for the Norra Kärr Project envisions sequential extraction and recovery of REEs by communition of the ore, beneficiation of the ground feed to remove acid consuming minerals and hydrometallurgy to separate and extract the values (Figure 17-1). At present, two salable products are envisioned: a mixed, rare earth element – yttrium carbonate product, and a zirconium carbonate product. Although it has not been considered in this Technical Report, future test work may evaluate production of yttrium carbonate as a separate, valued-added co-product from the processing circuit. The principal elements of the process design are described below.

The ore is crushed and ground. The ground ore is deslimed at about 25 µm particle size and the coarse fraction is subjected to flotation to remove gangue minerals high in alumina and sodium; i.e., feldspar and nepheline. The flotation tailings and slimes then are subjected to magnetic separation. Test work by the GTK showed that the magnetic fraction contains greater than 80 percent of the rare earth elements, greater than 85 percent of the yttrium, and approximately 60 percent of the zirconium.

The magnetic concentrate is then leached with sulfuric acid. The acid leach dissolves the REE-Y-Zr values concomitantly with major amounts of sodium, iron, and aluminum. The high sulfate level causes the REEs to crystallize as sulfate double salts.

The leach slurry then is diluted with water to dissolve the double salts. The water leach slurry is thickened and filtered. The filter cake reports to solid tailings and the filtrate advances to metals recovery.

The REEs dissolved in the leach filtrate are then precipitated as double salts; i.e., $RE_2(SO_4)_3.Na_2SO_4.H_2O$.

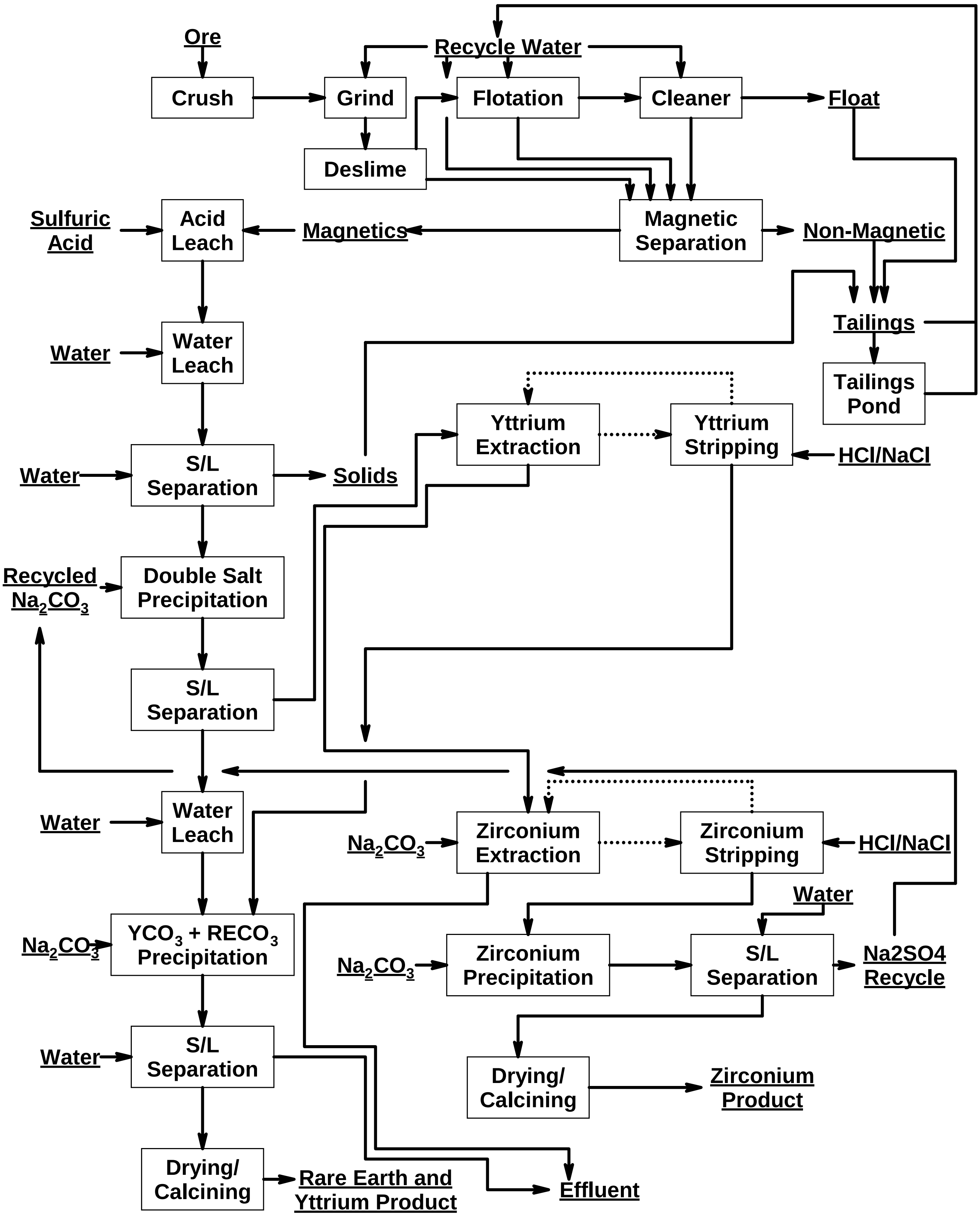
As the rare earth double salts have very low solubility, above approximately 20 g/L concentration of sodium sulfate, additional sodium sulfate is added to about 30 g/L. The double salts are thickened, filtered, and rinsed.

The double salt filter cake then is dissolved in water and sodium carbonate is added to re-precipitate the REEs as carbonates. The carbonates are thickened, filtered, and dried.

The mother liquor from the double salt precipitation advances to an amine solvent extraction to recover the yttrium.

At this stage the mother liquor is still an acidic solution and favors the recovery of yttrium as it has a much higher distribution coefficient into amines at high acid conditions than zirconium. The yttrium-amine then is stripped with a hydrochloric acid and sodium chloride mixture. In the current design, the Y-rich solution then advances to the carbonate reactor where it is mixed with the filtrate from the REE water leach. With addition of Na_2CO_3, a mixed RE+Y carbonate is precipitated.

The mixed RE-yttrium carbonate is thickened, filtered, dried and prepared for shipment.



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Project No. DE-00215

Drawing Provided by/Prepared for
Tasman Metals Ltd.

Project Name
Norra Kärr Project

FIGURE 17-1
Conceptual REE Recovery Flowsheet
Norra Kärr Project

Date of Issue
April 2012

Drawing Name
Fig.17-1.dwg

The raffinate from the yttrium extraction advances to zirconium solvent extraction. The solution pH is raised to about 2.0 by the addition of sodium carbonate and the zirconium is extracted by an amine. The zirconium then is stripped with a hydrochloric acid – sodium chloride mixture. Zirconium then is precipitated from the strip solution by the addition of sodium carbonate. The zirconium carbonate is thickened, filtered, and dried.

It is noteworthy that this flowsheet may be modified to produce a separate Y-carbonate concentrate. Filtrate from the Y-stripping stage would feed a sodium carbonate reactor where Y-carbonate would be precipitated.

As with many hydrometallurgical flowsheets in the conceptual development stage, there is a significant fresh water requirement and a large effluent stream. As process development proceeds, it is reasonable to expect reductions in water requirements and development of methods for recycling some of the effluent. Treatment of the effluent presents the problem of high levels of aluminum, iron, sodium, sulfate, and chloride such that simple lime neutralization will leave sodium and chloride in solution.

The salient stages in the processing flowsheet for the Project are summarized as follows:

- Communition
    - crushing and grinding to approximately 90 microns mills;
- Beneficiation
    - High tension magnetic separation to exclude nepheline and feldspar, from the acid leaching step, two acid consuming aluminosilicates, abundant in the host rock;
    - Flotation to exclude from the acid leaching step, aegirine, a sodium-iron clinopyroxene;
    - Excluded mineral fractions (flotation tailings and non-magnetic tailings) report to the tailings facility;
- Hydrometallurgy
    - Sulfuric acid digestion of the magnetic REE concentrate;
    - Thickening and solid/liquid separation to divert the REE-bearing pregnant solution;
    - Sequential precipitation of REE and Zr carbonate products by addition of sodium carbonate;
    - Calcination to produce salable, mixed REE-carbonate and Zr-carbonate products;

- The leached magnetic concentrate tailings are neutralized with lime and diverted to the tailings facility.

▪ Transport of Final REE and Zr Products

- Salable products are transported to world markets by the existing road and rail systems.

17.3 *Plant Operating Cost*

Scoping level estimates of operating expenses for the conceptual processing plant described above were prepared by Mr. J. Litz with input on local costs provided by Golder and Associates AB in Sweden. Scoping level cost estimates typically carry an uncertainty of +/-35 percent. The cost of power, water and chemical reagents are believed to reasonably reflect current local costs in Sweden. The annual cost of water and chemical reagents comprise approximately 93 percent of the annual Opex for the processing plant of which the costs for sulfuric acid and sodium carbonate comprise approximately 50 percent of that cost.

TABLE 17-1
Tasman Metals Limited
Norra Kärr Project – PEA
Preliminary Estimated Operating Cost - Processing

Cost Center	Annual Cost	Units
Grinding Power	5,478,073	US$
Flotation	5,478,073	US$
Magnetic Separation	833,500	US$
Leach	17,045,400	US$
Rare Earth Recovery	2,557,560	US$
Y Recovery	3,020,826	US$
Zr Recovery	19,346,464	US$
Effluent Treatment	4,517,400	US$
Tailings handling	2,941,600	US$
Analytical Laboratory	1,190,000	US$
TOTAL	62,408,895	US$
Annual Production Rate Ore	1,500,000	Mt/a
Feed Rate	167	tonnes/hr
Annual Operating Hours	8400	hr
Power	100	US$/MkWhr
Process Water	0.25	US$/cubic meter
Unit Operating Cost	**41.48**	**US$/tonne milled**

Estimate of plant operating cost includes applicable rates for labor, pow er, w ater, reagents, maintenance and w ater. Estimates prepared by Mr. J. Litz (February 2012).

TABLE 17-2
Tasman Metals Limited
Norra Kärr Project – PEA
Reagent Consumption and Annual Costs

Reagent	Units	Use/hour	Annual Usage	Unit Cost	Annual Cost
Flotation Reagents					336,000
Flocculants	tn	0.0077	65	3,500	226,380
Sulfuric Acid	tn	14.3	120,120	125	15,015,000
Sodium Carbonate	tn	6.7	56,280	250	14,070,000
Sodium Chloride	tn	0.05	421	40	16,834
Hydrochloric Acid	tn	4.0	33,266	190	6,320,523
Limestone	tn	4.0	33,600	150	5,040,000
Lime	tn	0.50	4,200	300	1,260,000
Water	m3	473	3,969,252	0.25	992,313
Miscellaneous supplies					1,972,000
TOTAL (US$)					**58,089,822**
Reagents: (Cost/1.5 Mt tonne ore milled/year)					**$ 38.73**

Estimate of reagent costs by Mr. J. Litz, February 2012.
Approximately 93% of plant opex per year is for reagents and water.
Mill operation rates: 167 tn/hr, 8,400 tn/yr, 1.5Mt milled ore.

17.4 *Equipment*

A scoping level assessment of processing equipment required for the plant described above consists of the following items. More detailed specifications, capacities and prices will be including in the pending PFS and FS on the Project.

- Primary crusher
- Secondary crusher
- Rod Mill
- Ball Mill
- Flotation Cells, rougher, cleaner
- High tension magnetic separator
- Leaching Reactors (vats)
- Thickeners
- Vacuum Filters
- Dryer/calcining oven

18.0 PROJECT INFRASTRUCTURE

18.1 *Background*

Norra Kärr is very accessible to infrastructure, services, electricity, supplies and a skilled and educated labor force. The city of Jönköping lies about 30 km south of Gränna. The city is also the center of the Jönköping Kommun (municipality) hosting a population of over 128,000 and is also the seat of the larger Jönköping Län (county) which contains a population in excess of 330,000. The city is accessible by either highway or rail. Northeast of Gränna, about 90 km along highway E4, is the city of Linköping (pop. 100,000). This city dates back 700 years and is known for its university and high tech industries, including the SAAB aircraft plant. Both cities have universities and hospitals and a well skilled and educated workforce.

Figure 18-1 shows the schematic layout of the site. The impoundment is shown fully build after 20 years of production. A small industrial area is shown to the west of the impoundment, a clarification pond to the north and the mine and waste-rock storage area to the northwest.

18.2 *Mine-Site Infrastructure*

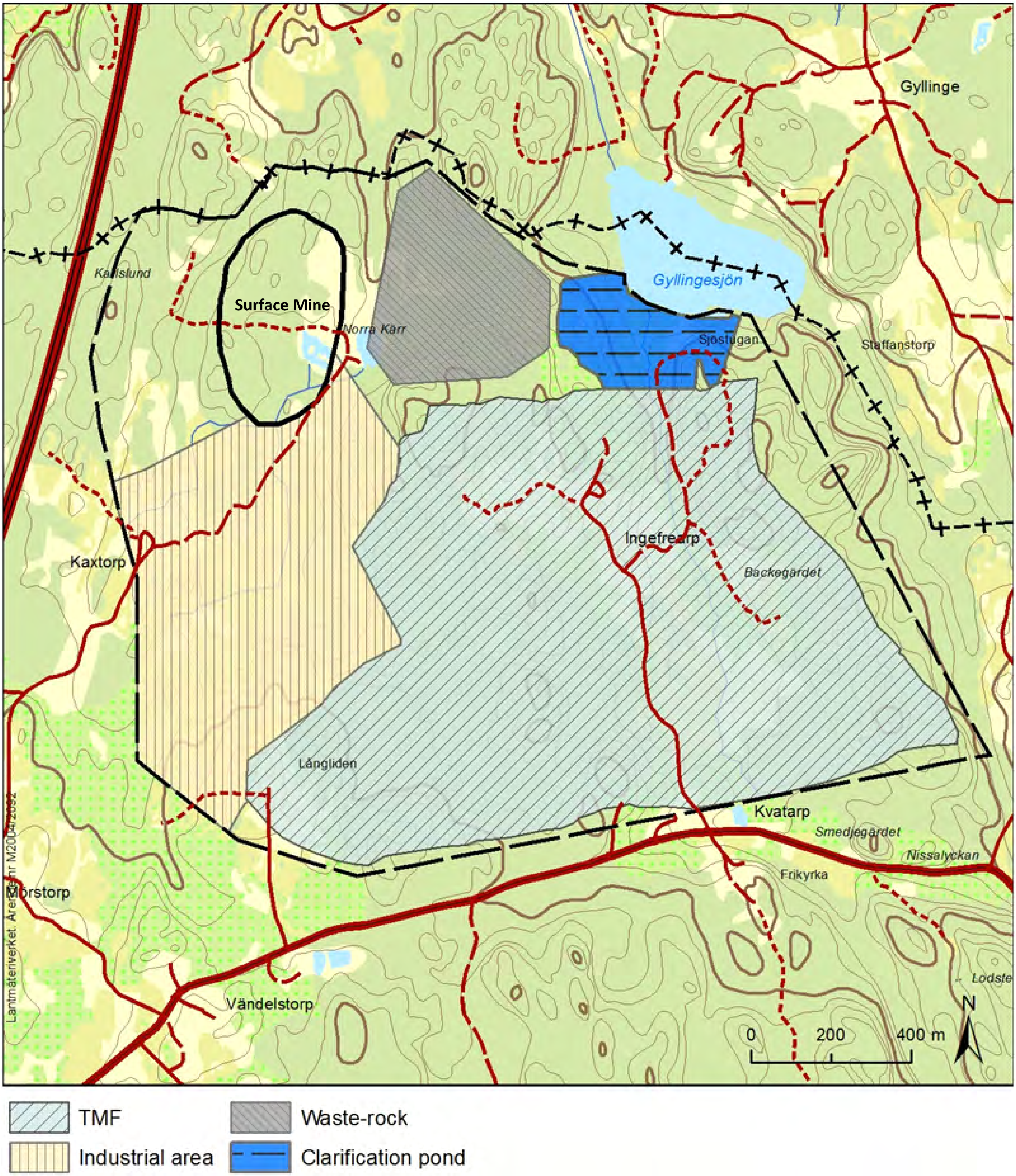
A work and maintenance shop will be on site used for maintenance of all surface and equipment at the site. Offices for staff; e.g. administration, management, mine, process and maintenance personnel will be on site. The onsite offices will likely consist of CRAMO modular units. There will most likely also be offices in the nearby town of Gränna. Mill and leachate plant personnel will have offices in the mill. A parking lot for commuting workers and visitors will be located in the industrial area. Several smaller tanks for diesel fuel or a mobile fuel handler will be on the site. No tank farm is needed.

18.2.1 Primary Crusher

The primary crusher will be installed at the rim of the ROM-pad near the open pit. The crusher will be installed at the top of the bedrock and crushed rock will be fed to an ore storage bin near the mill using conveyor belt. A grizzly and a rock breaker will be used to control the rock size being transported to the ore bin.

18.2.2 Mill, Concentrator and Leaching Plant

The mill, concentrator and the leaching plant will be located to the south of the open pit. The main building will be in steel sheet with insulation following Swedish practice. The leachate vessels will be placed in a separate compartment. The chemicals needed for the extraction of the REEs will be placed inside a compartment outside of the building with a 110 percent capacity of the stored volume. The concentrate will be stored in bins close to the concentrator.



Note: The Impoundment is Shown Fully Built After 20 Years of Production

Prepared by	Drawing Provided by/Prepared for		Date of Issue
pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	Tasman Metals Ltd.	FIGURE 18-1 Schematic Layout of the Norra Kärr Site	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.18-1.dwg

Within the industrial area there will also be a mechanic's shop for routine maintenance of vehicles and equipment and a warehouse. The office will also incorporate dressing rooms, wash-rooms and a canteen.

18.2.3 Explosives

Detonators, primers and stick powder will be stored in separate, approved explosives magazines which will be located outside of the industrial area. Blast holes will be loaded with explosives by a special vehicle.

The main explosive planned for use is ANFO which will be prepared in bulk from the combination of ammonium nitrate and diesel oil in an approved ANFO mixing facility within the mine area. This will likely be operated by a contractor. However, there will still be a requirement for packaged slurry explosives and "stick" powder for wet holes or for boosting the ANFO in some applications. A non-electric detonation system will be used with downhole delays on all detonators.

18.2.4 Sanitary System and Potable Water

Potable water for the mine will be provided in specific containers that will be resupplied regularly from the site potable water supply. Sanitary facilities in the mine will be approved self-contained units.

18.2.5 Road Maintenance

Internal roads will be regularly maintained by a grader. Water to prevent dust will be regularly applied when necessary by a water truck.

18.2.6 Health and Safety

Safety procedures and mine training programs will be developed for all personnel working in the mine. Contractors performing work on site will be required to undergo the Tasman training program or show proof of equal education level prior to commencing any work. Emergency procedures as required under the Swedish law will be prepared and submitted for approval as required. Firefighting equipment will be present on site with personnel trained in handling of the equipment.

18.3 *Waste-Rock Storage Facility*

The development of the mine will generate waste-rock. All of this material will be transported to the waste-rock storage facility located near the open pit by the mine haulage fleet and either used for surface construction; e.g. internal roads, ROM-pads, leveling of the industrial area foundation and used as rock-fill in the tailings storage facility dykes. It is expected that most waste-rock produced the first years will be needed for construction. A more permanent stock-pile will also be placed closed to the mine. This stock-pile will contain both overburden as well as waste-rock.

The initial mine overburden consisting mostly of till will be deposited in the outer area of the waste-rock storage facility and will be stored for future reuse in site remediation.

The total expected amount of waste-rock to be produced is approximately 27 M tonnes corresponding to approximately 16 (M) m^3. The waste-rock storage area footprint is 170,000 m^2 and the waste-rock facility will be constructed in maximum of 4 levels with an ultimate height of 72 m. It is assumed that the full capacity of the waste-rock facility will never be used due to the continuous demand for rock material on site. The designed capacity of the waste-rock stock pile is 5.5 (M) m^3.

The general dimensioning criteria is shown on Figure 18-2. Each lift will have a slope of 1:1.5, and a lift height of 18 m creating an overall slope of 9:25.

Pre-stripping of the foundation of the waste-rock storage facility is not anticipated due to favorable ground conditions which are expected to have a shallow vegetative cover overlying a permeable till. At a later stage in the Project pre-stripping around the perimeter of the waste-rock facility may be necessary. This material will be stored together with the pit overburden in the waste-rock facility and utilized at closure.

Surface run-off collection ditches will be installed around the perimeter of the waste-rock storage facility. Surface water runoff will be collected and pumped to the tailings impoundment/clarification pond for reuse in the processes.

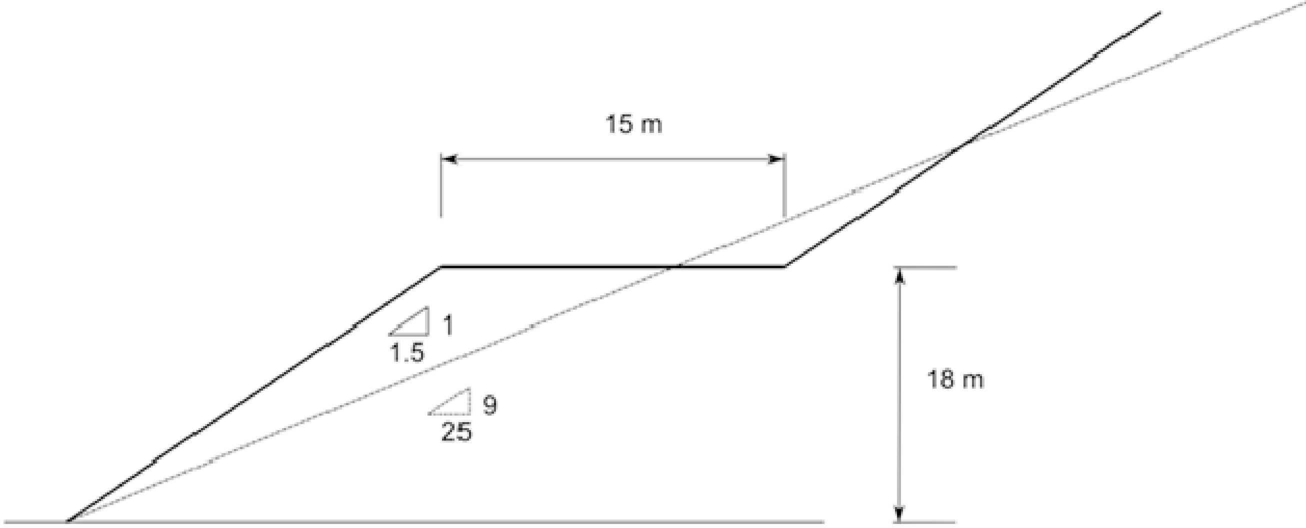
No liner will be placed underneath the waste-rock facility for collecting seepage. Seepage collection ditches will be installed around the perimeter of the waste-rock facility and the collected seepage will be transferred to a sedimentation pond and pumped to the tailings management facility for reuse in the process. Oil filters will be in place.

18.4 *Tailings Storage Facility*

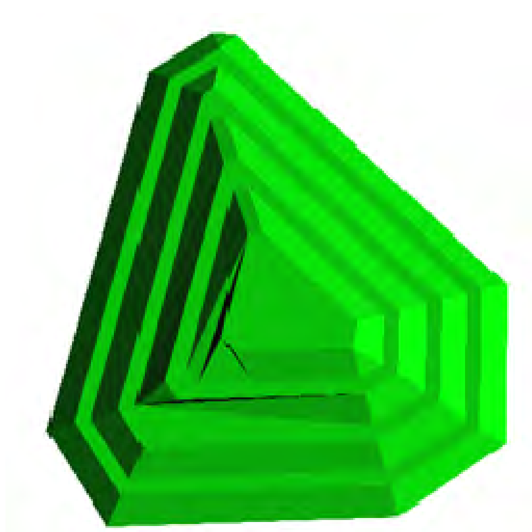
18.4.1 TMF Facility

The TMF design is preliminary and refinements will be made and other options and locations will be considered. Currently only hydraulic deposition (slurry disposal) has been considered, but thickened tailings (TTD), as well as paste and dry stacking will be considered later on with the aim of reducing the environmental impact, simplify the water management of the site (increase re-use of water), as well as minimizing the need of dam walls.

The present design and capacity of the TMF is based on the topographic contours, the embankment configuration and the projected process plant throughput rates. The TMF is designed to contain approximately 21.8 M m^3 with a bulk density of 1.375 t/m^3 over a time of 20 years production. The storage capacity is 28 M m^3 at the freeboard. The freeboard is 3 m in order to comply with the Swedish regulations.



A Cross-Section



B 3D Image Map

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pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 18-2 Conceptual Waste-Rock Storage Facility Design	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.18-2.dwg

The assessment was undertaken assuming the following outline parameters:

- Annual average tailings production 1.5 M tpy
- 20 y of production
- SG of ore 2.5
- Porosity of consolidated tailings 0.5 (m^3/m^3)
- Bulk dry density 1.375 kg/m^3
- Tailings beach slope inclination, 1 percent

The geometry for the main dam used the following constraints:

- 20 m crest width
- 3 m freeboard
- 1V:3H inclination upstream and downstream dam side slopes
- 1.5 m sub-grade strip depth below dam footprint

The clay core:

- 3 m crest width
- 2 m freeboard
- 1V:1H inclination upstream and downstream dam side slopes
- 2 m sub-grade strip depth below footprint

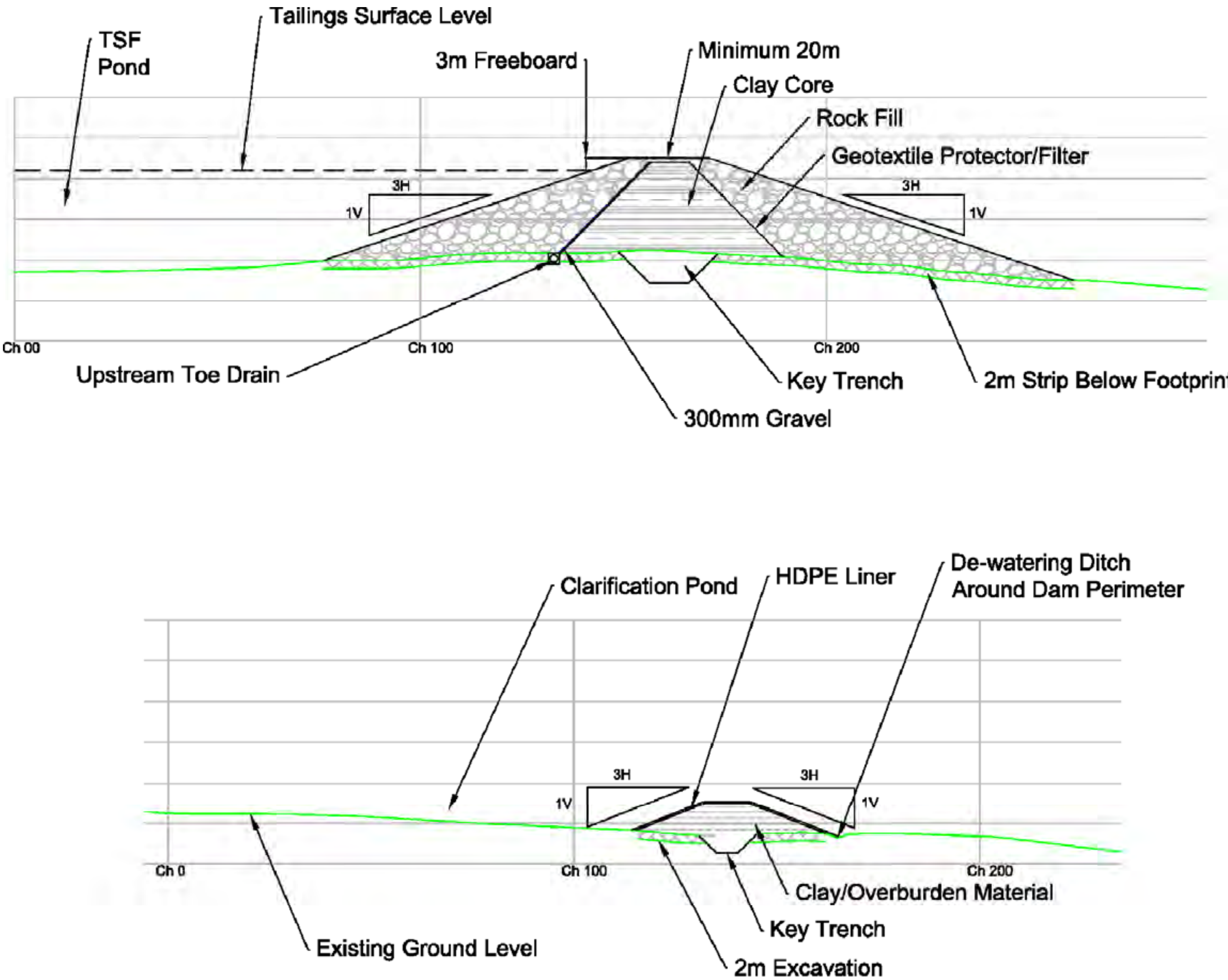
The sub-grade key trench:

- 3 m width
- 3 m depth
- 1V:1H slope inclination

Four slurry pumps will be used and two water return pumps, as well as a tailings barge. The tailings pipes will be 24 inch pipes with 18 inch spigotting pipes.

Figure 18-3 shows the conceptual design of the tailings dam.

Tailings will be pumped from the process plant to the via a tailings delivery pipeline using four slurry pumps. Tailings discharge will be rotated between deposition locations to the south and west to develop a relatively flat tailings beach sloping towards the north and the clarification pond. A clarification pond will be constructed to the north and the final discharge of water will be to the existing lake in the north (Lake Gyllingen).



NORRA KARR REE TAILINGS

Indicative Dam Cross Section

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pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	Tasman Metals Ltd.	FIGURE 18-3 Conceptual Design for the Tailings Dam	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.18-3.dwg

Seepage collection ditches will be installed around the perimeter of the tailings management facility. Collected seepage will be transferred to a sedimentation pond and pumped to the tailings management facility for reuse in the process. Oil filters will be in place here also.

Proper operations, monitoring and record keeping are needed according to Swedish legislation. Before startup, a management plan must be filed and monitoring equipment installed.

18.4.2 Water Management

Tailings will be pumped from the process plant as a slurry and will naturally settle and release the supernatant water that will be released to the clarification pond. Additional water will be released when the tailings consolidate. This water will be treated in a water treatment plant (reverse osmosis, RO-plant) in order to comply with Swedish regulations given in the future environmental permit (extraction permit). Excess water not needed in the processes will finally be discharged to Lake Gyllingen and will eventually end up in Lake Vättern. If needed, water from the open pit as well as the waste-rock dump, will also be treated.

The RO-plant will produce a brine that will be handled separately and transported by a contractor specialized in waste-management to a separate waste-management facility. The brine will not be stored on site.

18.5 *Roads*

The property is accessible by road from Stockholm on highway E4 about 290 km southwesterly to the town of Gränna which lies on the eastern shore of Lake Vättern. From Gränna a secondary road heads northerly and then easterly under the E4, linking it with a gravel road that accesses the centre of the property, a distance of just over 11 km. The major road, the E4 is situated east of the site (approximately 200-300 m) and will be used for all transports to and off the site. However, site roads will be required to access the following locations:

- The industrial area
- The mine
- Tailings management facility
- Waste-rock storage area
- Clarification pond

Site roads will be low speed single lane roads, constructed of waste-rock with turnouts to permit vehicles to meet.

18.6 *Power and Power Distribution*

Power is expected to be supplied by a 40 kV cable from the west (by the company Jönköping Energy owned by the municipality of Jönköping) and/or a 130 kV cable from the east (supplied by the company E.on. or Vattenfall).

Several wind mill parks are planned to be constructed in the area and in order to connect them to the national power grid a 130 kV cable is planned close to the site. The national power grid exists within 15 km of the site and consists of both 220 kV and 400 kV power lines. The power cable ends in a 2 x 40 MVA transformer station approximately 2 km from the actual planned site.

Standby diesel generators for critical mill and leaching plant equipment will be required and will be installed in a separate powerhouse so that a major failure or loss of the main power house does not impact the operation. The actual power will depend on the equipment installed.

Mobile light ramps will be utilized to enable a safe working environment.

Figure 18-4 is a map showing the location of planned windmills in the area and the planned 130 kV cable connecting to the Swedish national grid. Three of the mills are planned to be built close to the site itself.

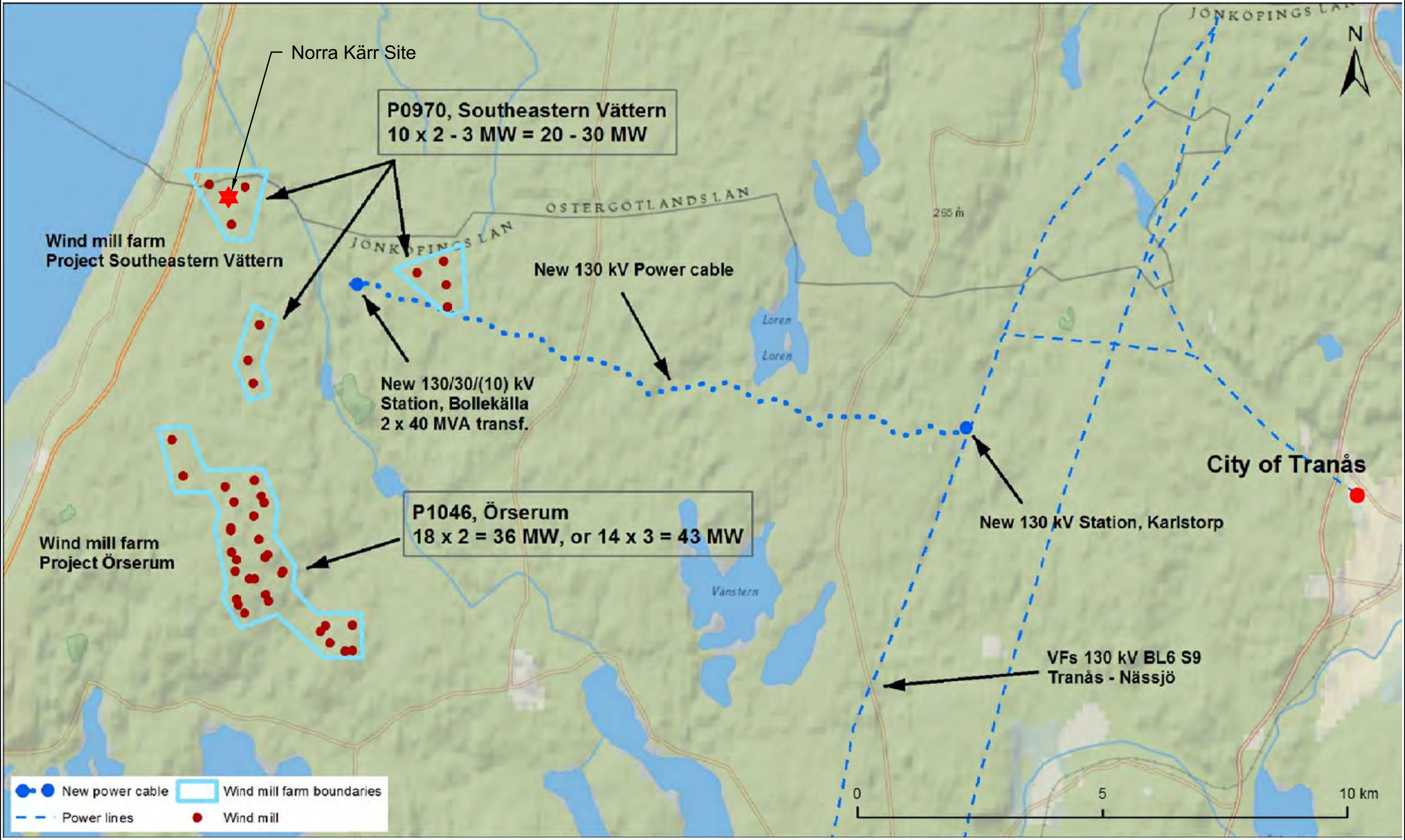
18.7 *Railroad*

Railroad exists within 25 km from the site in the town of Tranås. Tranås is connected close the site by a minor road going in an east-westerly direction. Another railroad junction exists to the north in the town of Boxholm approximately 17 km from the road E4. The railroad is the major railroad through the southern part of Sweden and has double tracks. Both passengers and cargo is transported on the railroad. Chemicals will be rerouted to trucks from train either most likely in Tranås or Boxholm and then trucked to the site.

18.8 *Airport*

The closest airport is the airport of Jönköping and is situated approximately 45 km from the mine-site close the E4 highway. The Airport is only 7 minutes away from the E4 motorway which goes north to Stockholm and south to Malmö/Copenhagen and 3 minutes away from the R40 to Gothenburg. The airport was privatized in January 2010 and is now owned by Jönköping Airport AB which in turn is owned by the municipality of Jönköping.

The airport was built in 1961 and was redeveloped in 1991. The Runway Length is 2,203 m and the width is 45 m. The airport operates various scheduled and charter flights, general and business aviation flights, and cargo. The Cargo terminal is operated as an integrated part of the airport and not a third party handling company, which is unusual in Sweden. This provides several advantages as the airport company is not only a neutral partner but has full control over the entire supply chain, from landside



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Project No. DE-00215

Drawing Provided by/Prepared for
Tasman Metals Ltd.

Project Name
Norra Kärr Project

FIGURE 18-4
Map of Proposed Windmill Farms and 130 kV Transmission Line
Vicinity of Norra Kärr Project

Date of Issue
April 2012

Drawing Name
Fig.18-4.dwg

delivery to aircraft loading. The Jönköping Airport Cargo Terminal can handle cargo aircraft up to and including Boeing 767s and Airbus 330s, with a 24/7 operation.

18.9 *Ports*

Three ports are within 110-150 km from the site. The major port of Norrköping lies approximately 110 km to the northeast, the small port of Västervik is around 120 km to the east and the medium sized port of Oskarhamns hamn lies approximately 150 km to the southeast. The port of Norrköping is connected with the highway E4 which in turn connects to the major road E22 that continues to both Västervik and Oskarhamn. All three ports can be used for the shipping out and in of goods. Most likely the port of Norrköping will be used.

18.10 *Other*

No accommodation is needed at the site or close to the site. It is expected that staff and employees are living in the nearby towns of Gränna, Jönköping, Tranås, Ödeshög or Linköping.

Waste and recyclable materials will be collected according to Swedish legislation and will be picked up by local contractors carrying the necessary permits. No separate waste management site or dump will be established or needed for the long term storage of non-mining waste materials. Sewage and grey water will be handled and treated on site. Solids in the sewage treatment unit will be removed on an annual basis.

18.11 *Tailings and Waste-Rock Characterization*

Tasman has engaged the consulting firm of Golder Associates AB to conduct tailings and waste-rock characterization studies for the Project. Waste materials will undergo static, kinetic and geochemical testing. A total of six different rock types including syenite, lakarpite, kaxtorpite, grennatite and pulaskite and one sample of flotation tailings (feldspar-rich) were submitted for analysis. Samples of the waste-rock types were prepared from representative composite samples taken from representative drill cores.

The following test work has been performed or is on-going.

- Geochemical analysis for major and trace metals
- Shake-flask tests (L/S 2 and 10)
- Acid Base Accounting
- Humidity cells testing (accelerated weathering tests).

The Shake-flask test is a standardized, kinetic analytical method to estimate the rate of sulfide mineral oxidation and release of potentially detrimental elements such as metals.

Acid Base Accounting is a common method for evaluating mine waste to determine if a material has potential to produce acid seepage. Acid Base Accounting is a static test that provides no information on the speed (or kinetic rate) with which acid generation or neutralization will proceed. Acid-producing potential (AP) is determined through a sulfur/sulfide analysis; neutralization potential (NP) balances this and is determined through a titration. These factors are used to calculate the neutralization potential ratio (NPR) using the formula:

Neutralization Potential Ratio (NPR) = Neutralization Potential (NP) / Acid-producing Potential (AP)

Humidity cell testing is a kinetic procedure in which a sample is subjected to cyclic conditions of dry air permeation followed by humid air permeation then water washing and analysis. By accelerated weathering, one may identify whether a sample will form acid drainage with consequent effects on metal seepage.

Humidity cells are thus intended to provide a direct measurement of acid generation and consumption rates under fully oxygenated conditions such as the immediate exposed surface of a tailings deposit. However, they do not provide a simulation of leaching conditions in wastes which may be partially or fully saturated and oxygen-deprived.

18.11.1 Waste-Rock

All waste-rock types that were tested exhibit a Neutralization Potential Ratio (NPR) above 3, ranging from 12 to 155, and sulfide-sulfur content less than 0.1 percent S. These initial results indicate that it is unlikely that any acid rock drainage (ARD) issues might be expected. These initial results suggest that, in the future, the Project waste-rock may be classified as inert according to the EU legislation. Full classification of the Project waste-rock is pending evaluation of the humidity cell test results.

With respect to the Swedish standards for soil contamination for lands with less sensitive uses, designated by the Swedish acronym MKM, only arsenic (As) and zinc (Zn) in Kaxtorpite rock samples exhibited values above the standard (Table 18-1).

TABLE 18-1
Tasman Metals Limited
Norra Kärr Project – PEA
Swedish EPA Standards for General Concentration Levels for
"Sensitive Land Use" (KM) and "Less Sensitive Land Use" (MKM)

Element (ppm)*	KM Land Use	MKM Land Use
Antimony	12	30
Arsenic	10	25
Barium	200	300
Lead	50	400
Cadmium	0.5	15
Cobalt	15	35
Copper	80	200
Chrome	80	150

* 1 ppm = 1 mg/kg
Information Source: Swedish E.P.A. Website
http://www.naturvardsverket.se/Start/Verksamheter-med-miljopaverkan/Fororenade-omraden/Att-utreda-och-efterbehandla-fororenade-omraden/Riktvarden-for-fororenad-mark/Tabell-over-generella-riktvarden

The mobility of these metals will be factored into the proposed waste-rock classification that is submitted with the application for the mining permit. The results of the shake-flask tests show that the apparent leaching from fresh rock is generally low.

18.11.2 Tailings

The conceptual metallurgical process described in Section 17 of this PEA produces three types of tailings. Flotation tailings are non-magnetic waste that is separated prior to concentrate leaching and is composed mainly of sodium aluminosilicates, i.e. feldspar and nephelene. Acid-Base Accounting test work on flotation tailings indicates that it is net neutralizing with an NPR ratio above 3 and a sulfide-sulfur content of less than 0.1 percent S. This material may later be classified as inert, depending on the concentration and leachability of its trace metal content. Analyses of the flotation tailings show that cadmium (Cd) and lead (Pb) are somewhat elevated. However, the apparent leachability of the flotation tailings, based on shake-flask leaching tests is considered low. A final classification of these tailings will be based on the ongoing humidity cell tests.

The second type of tailings is the non-magnetic tailings from the magnetic separator, largely composed of the sodium-iron-rich mineral aegirine. This type of waste has not been tested yet.

A third type of tailings is the leached magnetic concentrate tails produced during the acid-leaching stage. These tailings will be neutralized with lime. This type of waste has not been tested as yet. However, it is assumed to have a non-inert classification and may need special treatment such as blending with the flotation tailings, disposal in a lined cell within the tailings management facility (TMF), or collection and treatment of leachate waters in a plant.

18.12 *Mine Closure and Rehabilitation*

As a result of the implementation of EU Directives into Swedish law pertaining to waste materials from extractive industries, mine operators are required to submit a preliminary mine closure plan with the environmental permit application, including the estimated costs for remediation actions and closure (Directive 2006/21/EC).

This plan should be finalized during operation and needs to be updated every third year as the operation changes over the life of mine.

The mine closure and remediation plan is the basis for the environmental bond (financial guarantee) required for starting the operation. The bond must cover the reclamation and rehabilitation costs in the event the operator does not complete the closure plan. The plan and the associated costs must be approved by the Land and Environment Court and the Country Administrative Board.

Under present Swedish regulations, the following components of the operation will require reclamation on closure:

- Open pit or underground mine
- Mill and concentrator
- Extraction plant
- Waste-rock dumps
- Tailings facility
- Access roads

The mine closure and rehabilitation plan is as yet preliminary and has not been approved by the Swedish Authorities, but is in accordance with best practices in Sweden and Europe.

Elements of the preliminary closure plan include:

- Reduction of slope angles in the open pit and/or access limiting actions
- Removal and recycling of all mining equipment
- The open pit will, in time, be filled with water and a pit lake will form
- The area will be landscaped to resemble the surrounding countryside
- Demolition and removal of the processing plant
- In the industrial area, inert waste such as the concrete foundations for the mill will be broken, covered with topsoil and revegetated.

The slopes of the waste-rock dumps may need to be reduced for stability and covered with till. Excess broken rock might be marketed as construction aggregate or ballast as the physical properties of that material determine. The TMF will be drained, capped with topsoil and revegetated to resemble the surrounding countryside.

As a required part of the closure plan a monitoring program will be in place for a number of years after completed remediation to ensure that the closure complies with legislative demands (normally up to 30 years).

19.0 MARKET STUDIES AND CONTRACTS

19.1 *Market Description and Demand Drivers*

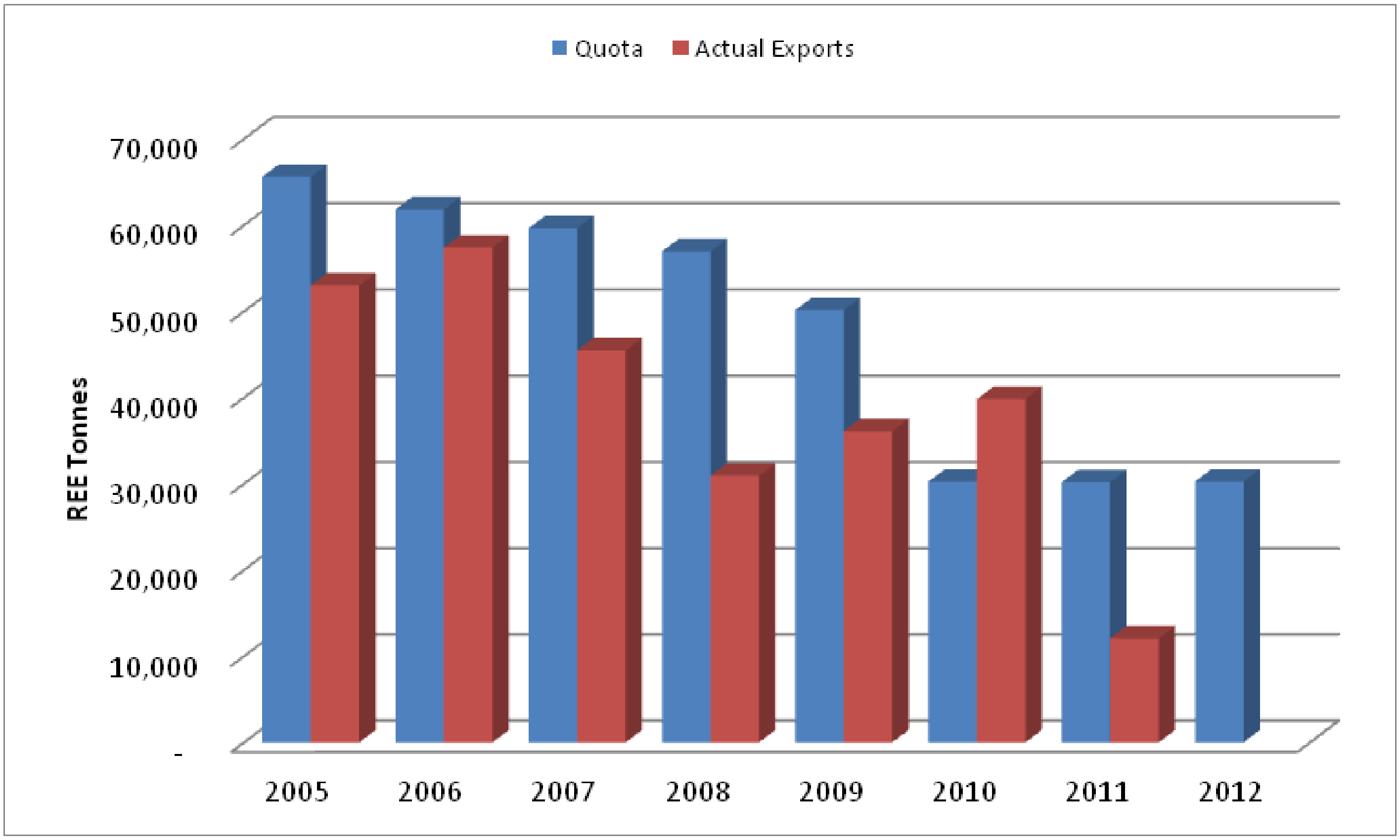
Prices for rare earths have increased significantly over the past 2 years as a result of the recovery from the Global Financial Crisis of 2008-2009, as well as the overall growth in demand for the end markets to which rare earths are sold. China, the world's dominant producer of rare earths, has slowly been decreasing the quantity of rare earths that it exports, as well as consolidating the producing sector within China in order to improve the local environmental conditions.

China has had a policy of imposing export quota limits for rare earths exported in oxide or metal form since 2005. Along with these export quotas, the government also charges an export duty of 15 percent for light rare earths and 25 percent for heavy rare earths. China has been steadily decreasing this export quota limit since it was imposed (Figure 19-1). Up until 2012, the quotas were general and covered all rare earths as a group; however, the government has recently instituted a policy of segregating the heavy rare earths from the light rare earths and currently imposes a limit of 15 percent of the total being of the heavy rare earth group.

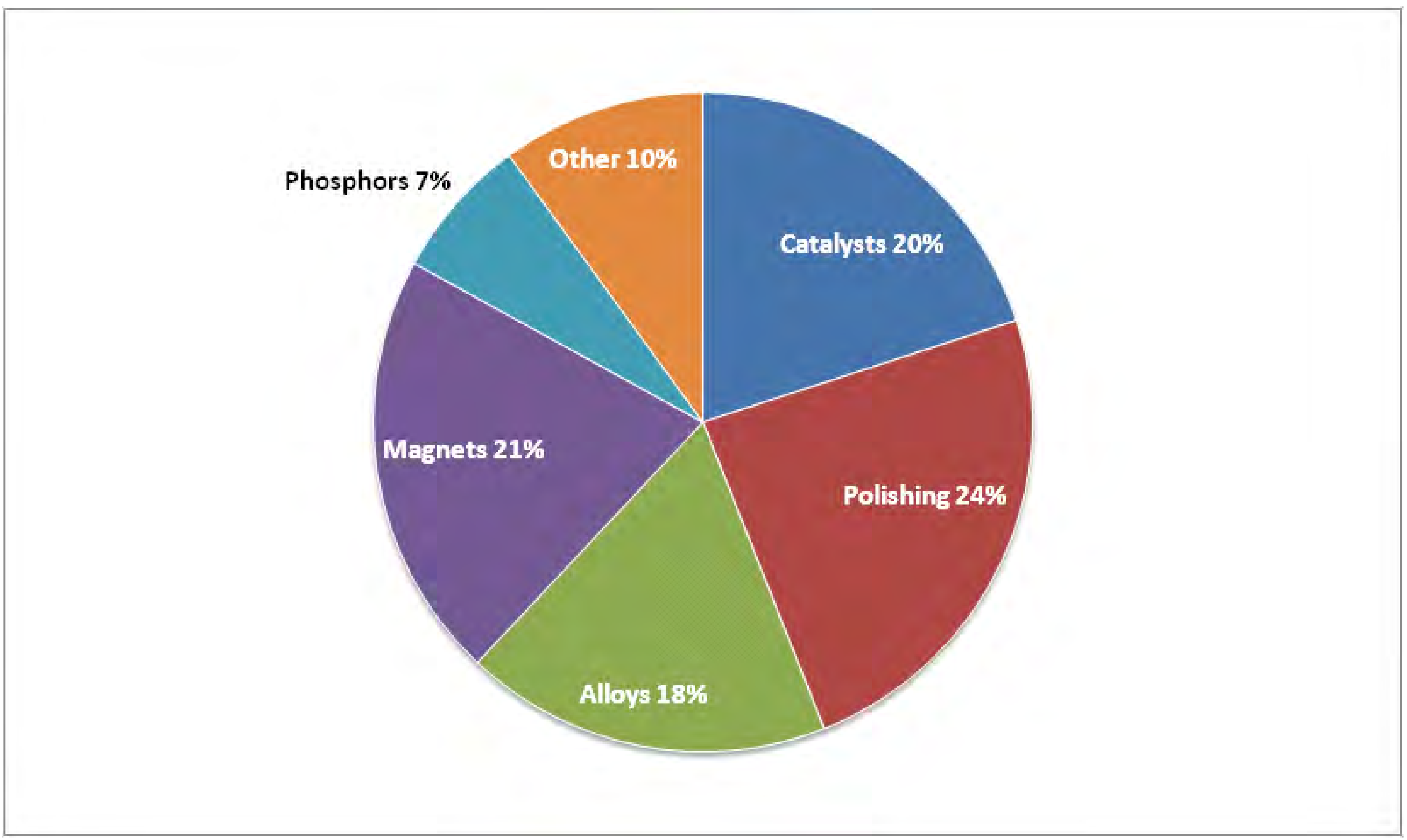
Rare earths have a variety of uses including polishing compounds, catalysts, magnetic applications and phosphor applications as illustrated in Figure 19-1. In general terms, rare earths are used in small quantities within the end markets that they serve. Rare Earths are critical for their properties as it relates to the end application. China is the dominant producer and consumer of rare earths and within China much of the higher level processing of rare earths is processed and exported as assemblies or other finished goods.

It is widely anticipated by a number of industry and financial analysts that over the long term, certain key REO applications will experience stronger growth and have tighter supply constraints then others. In a recent report published by Tech Metals Research titled Critical Rare Earths Global Supply and Demand Projections and the Leading Contenders for New Sources of Supply (August 2011), the author Gareth Hatch subdivides the market in terms of future demand. The report focuses on those elements that are considered as being of critical importance to the future clean-energy economy. The report defines these critical rare earth elements as neodymium, europium, terbium, dysprosium and yttrium. These elements are used almost exclusively for the manufacture of high strength permanent magnets and phosphors used in low power lighting applications.

Since the recovery from the Global Financial Crisis of 2008/2009, rare earth prices across the board have increased several fold as a result of Chinese export quota reductions and increased demand. Most industry analysts expect the price of the light rare earths, particularly cerium and lanthanum to decline in the coming years as a result of new production capacity coming on line from Molycorp in the US and potentially Lynas in Australia. The critical rare earths, which are expected to have improved long-term demand, have also experienced a significant price increase over the past 2 years (Figure 19-2).



Chinese Rare Earth Export Quotas



Global Rare Earth Demand by End Use 2010

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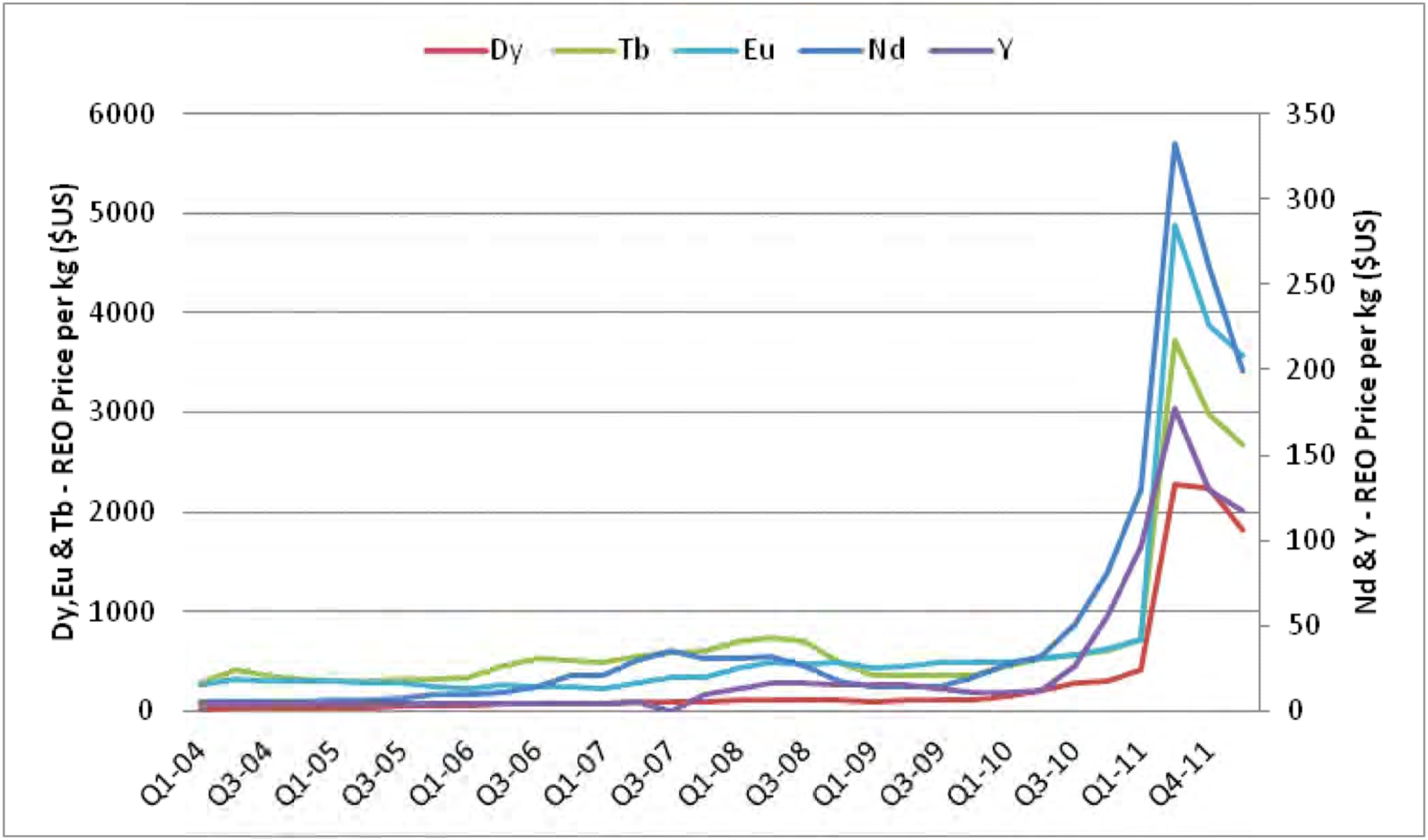
pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	Tasman Metals Ltd.	FIGURE 19-1 REE Markets	April 2012
Project No. DE-00215	Project Name: Norra Kärr Project		Drawing Name: Fig.19-1.dwg



Source: Metal Pages, Asian Metals

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pincock, allen & holt 165 S. Union Boulevard, Suite 950 Lakewood, Colorado 80228 Phone (303) 986-6950	***Tasman Metals Ltd.***	FIGURE 19-2 Long-Term Average Prices for Dy, Tb, Eu, Nd and Y	April 2012
Project No. DE-00215	Project Name Norra Kärr Project		Drawing Name Fig.19-2.dwg

The principal reasons for the more positive long-term outlook on the critical elements is the growth in new clean energy technologies, as well as limited output of heavy rare earths from China.

20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

Environmental studies have been conducted to characterize and anticipate the environmental and social impacts of the Project. Tasman has engaged the following organizations to prepare environmental and social impact studies to satisfy Swedish regulatory requirements for obtaining an Exploitation Concession and later for obtaining the Environmental Permit which will allow extraction of the deposit.

- Golder Associates AB (Environmental Impact Assessment, tailings and waste-rock characterization).
- MIRAB (environmental base-line investigations).
- Pro Natura (flora and fauna).
- Naturvatten i Roslagen AB (water, sediment, flora and fauna).
- County Administrative Board of Jönköping (archaeology).

As of April 2012, the studies by MIRAB, Pro Natura and the County Administrative Board of Jönköping have been completed whilst projects undertaken by Golder Associates AB and Naturvatten i Roslagen are substantially advanced and on-going.

Additional environmental studies the will be required later, prior to issuance of the main environmental permit.

20.1 *National Interests*

National Interests are geographic areas in Sweden having significant natural features of interest on a national level. Regulations on national interests are given in the Environmental Code (SFS 1998:808). National Interests are of importance to insure that any proposed new land-use does not interfere with ongoing land-use. Permission by competent authority is required prior to any land-use changes in areas of National Interest. If the new land-use entails “palpable damage” to a National Interest, a permit will normally not be granted according to the principal rule.

National Interests are designated for both protective and exploitative reasons. Important areas of natural and historical value may be protected as National Interests, whereas roads, energy, fisheries, mining, could be assigned under the National Interest category for their important exploitation values.

In 2000, the area around Norra Kärr was classified as a National Interest with respect to Nature. The area is considered to be under protective status due to the occurrence of alkaline rocks, including nepheline syenite. The area is also considered to have high scientific value.

In May 2011, the Swedish Geological Survey (SGU) designated Norra Kärr as an area of National Interest for mineral extraction of rare earth elements (REE).

Parts of Östra Vätternstranden (The Eastern Shore of Lake Vättern) are classified as National Interest for cultural historical values due to its historical road system and ancient monuments and buildings, such as Brahehus Castle ruin. Östra Vätternstranden covers an area between the shore line and highway E4, from Getingaryd in the north to Gränna in the south.

Lake Vättern and its shores are classified as National Interests with respect to nature conservation values due to high water quality, interesting fauna and fault lake stream ("förkastningsbetingad sjöbäck"). Vättern is the second largest lake in Sweden and is located less than 2 km west of Norra Kärr.

A National Interest area for wind power is located adjacent to the Norra Kärr deposit.

20.2 *Exploration Permits*

An exploration permit is granted by the Mining Inspectorate of Sweden (Bergsstaten), if there is reason to assume that exploration in the area can lead to discovery of what is called a concession mineral. The permit is valid for three years from the date of issue and may be extended for a maximum of three years if suitable exploration work has been conducted in the permit area. In exceptional cases, the exploration permit may be further extended, for another four years, and in unusual cases, by an additional five years maximum.

Before exploration work begins the holder has to set up a work plan, describing the work, the timetable and an assessment of the impact on private rights and public interests. The plan needs to be communicated to all landowners and other parties affected. A work plan will go into effect if there are no objections. Otherwise the plan will be evaluated and approved by the Mining Inspector, who in some cases can set up conditions for the proposed exploration work. Tasman currently has four exploration permits (Table 20-1). PAH has not independently verified the status of exploration permits or other permits and licenses that Tasman may need to conduct exploration activities in Sweden. PAH relies on Tasman's representations that the required permits and licenses are current and in good standing.

TABLE 20-1
Tasman Metals Limited
Norra Kärr Project – PEA
Valid Exploration Permits Currently Held by Tasman Metals Ltd (Tasmet AB)

Permit	ID	Area (ha)	County
Norra Kärr nr 1	2009:139	549.40	Jönköping, Östergötland
Norra Kärr nr 2	2011:02:00	2,033.59	Jönköping
Norra Kärr nr 3	2011:49:00	752.06	Jönköping
Norra Kärr nr 4	2011:26:00	1,744.14	Jönköping

20.3 *Exploitation Concessions and Environmental Permits*

An Exploitation Concession is granted for a defined area covering the extent of a deposit which has been judged to have reasonable prospects for economic extraction. The deposit must be in an area where mining development is not deemed to be in inappropriate.

An exploitation concession ("mining lease") is granted in accordance with the Environmental Code (SFS 1998:808), as well as the Minerals Act (SFS 1991:45). The Minerals Act does not exempt mines from compliance with the Swedish Environmental Code but functions in parallel with the Minerals Act.

The Environmental Code incorporates general requirements for the environment, including land and water use, environmental impact assessments under Swedish law with specific European Directives such as the water frame work directive. The code also regulates areas of national interest including Natura 2000 areas, reindeer herding and mineral deposits. The Code also summarizes the legal requirements for Environmental and Social Impact Assessments (EISA). Swedish Law requires that mining applicants undertake environmental and social assessments, known by the Swedish acronym "MKB," twice during the development of a mining project.

The first MKB filing is submitted to the Mining Inspectorate upon application for an exploitation concession under the Minerals Act (SFS 1194:45). Although the exploitation concession follows the Minerals Act, the MKB filing is prepared according to the requirements of the Swedish Environmental Code (1998:808). The MKB filing is to some extent, simplified as no alternative plans need to be presented or explored. The purpose of the MKB is to demonstrate that there are no obvious conflicts and that a mining operation is possible with minimum impact on the surrounding land. The assessment is based on early project design information such as may be found in Preliminary Economic Assessment (PEA) studies. An exploitation concession grants the applicant an exclusive mineral right to the deposit for 25 years after which the period may be extended. Stakeholders also have the right to appeal to a higher court.

In general, stakeholder consultation is recommended, but not required, with the County Administrative Board, the local municipalities and local environmental authorities who will provide comment on the MKB filing. Approval of the exploitation concession is required prior to submitting to the Land and Environmental Court ("Mark och miljödomstol") an application for an environmental permit to mine, also referred to as the "extraction permit."

Under the terms of the Environment Code (SFS 1998:808), the environmental permit application requires a more extensive MKB filing, based on more advanced technical studies normally conducted at the pre-feasibility (PFS) and feasibility (FS) stages of the project.

This MKB filing describes and evaluates alternatives to proposed mining methods, tailings management facilities (TMF) designs, plant locations, transportation and processing options, noise and vibration abatement. The environmental permit application is then followed by a detailed technical description of future operations. The environmental permit application is evaluated by the Swedish Land and Environmental Court with input from regulatory authorities, the County Administrative Board, local municipalities and the Swedish Environmental Protection Agency ("Naturvårdsverket"). Stakeholder consultation is required during the application process. Once the environmental permit is granted, mining operations may commence. Stakeholders have the right to appeal the environmental permit to a higher court.

Building construction requires a Building Permit ("Bygglov") from the relevant municipality under the terms of the Planning and Building Act (SFS 1987:10). Site preparation, such as roads and other infrastructure, can normally start after the environmental permit is granted. A detailed plan ("detaljplan") needs to be developed by the local Municipality to ensure that mining activity is suitable for the proposed location. A MKB of limited scope is prepared by the municipality for the detailed plan.

20.4 *Land and Water Access Rights*

Prior to submission of the application for the Environmental Permit, the applicant must obtain the water rights necessary to supply the mining operation and water rights in areas impacted by the drawdown of surface or ground waters as a result of the operation. Surface rights and rights of access to the property must be purchased or leased prior to submission of the Environmental Permit Application. Tasman has started this process with local land-owners.

20.5 *The Socio-Economic Setting of the Project Area*

The Project is located near the municipality of Jönköping (pop. 128,000) - one of the ten largest municipalities in Sweden. It is estimated that the Project will bring economic benefits to the northern part of the municipality and the area around the town of Gränna. Benefits include direct and indirect employment opportunities, taxes and revenue for the public sector, and increased availability of goods and services. As mining is not an established industry in this area, new job opportunities will be created. A socio-economic study is on-going that will assess the positive and negative impacts on the municipalities of Jönköping, Ödeshög (pop. 5,200) and Tranås (pop. 14,100).

Tasman Metals has recognized that negative impacts of the Project, such as possible relocations to accommodate mine and infrastructure development, need to be managed sensitively; therefore, Tasman is considering measures to mitigate negative impacts, including:

- Communication via stakeholder meetings and web-based media.
- Dedicated environmental work to minimize the Project's environmental impact.
- Identification of appropriate corporate social investment opportunities in the region.

The Sámi are internationally recognized Indigenous People whose nomadic communities are spread across parts of northern Sweden, Norway, Finland and Russia. The Project area does not lie within or near any Sámi village or reindeer herding areas.

20.6 *Hydrogeology*

Golder Associates AB (Golder) has conducted hydrogeological studies in the Project area. The test work included water table measurements, pump tests and determination of the radius of influence. From these studies Golder has made estimates of the theoretical drawdown and preliminary assessments of possible impacts of groundwater drawdown in the surrounding area.

The transmissivity and conductivity have been estimated from the bore hole pump tests. This resulted in a geometric mean value of $5*10^{-7}$ m/s based on individual conductivities which is believed to represent the mean hydraulic conductivity in the area.

The annual runoff in the area was estimated at 260 mm/year based on climate data in the sub-catchment area. An order-of-magnitude estimate of the groundwater recharge rate is assumed to be, approximately 155 mm/year. The substantial uncertainty in the recharge rate is due to sparse information on local soil horizons and rock conditions which will be addressed in future studies.

The proposed open-pit is located in an area with thin, disconnected soils developed on till. The permeability of the till varies greatly. If the soil layer is thick, the permeability of till is low, and most of the runoff will not reach the bedrock water table. It is assumed that groundwater recharge will increase during mining operations due to the drawdown of the groundwater level, reduced surface runoff and evaporation.

The theoretical area of influence around the open-pit is the area within which groundwater drawdown is considered theoretically plausible. Based on hydraulic conductivity tests and the groundwater recharge rate, the theoretical influence distance is estimated to be around 360 m, 670 m and 960 m when the depth of the mine reaches 40, 80 and 120 m respectively. To reduce uncertainties, additional investigation of hydraulic conductivity and groundwater recharge in the surrounding area is required. Currently, the inflow to the pit is estimated to be 8 l/s (2.4 m^3/year) at 40 m depth, 17 l/s (5.5 m^3/year) at 80 m depth and 30 l/s (9.3 m^3/year) at 120 m depth.

In the preliminary groundwater drawdown assessment, three scenarios were developed for the pit at depths of 40, 80 and 120 meters, respectively.

At 40 m pit depth, the total water flow rate to the sub-catchment of the pit is almost ten times higher than the inflow rate to the pit. The theoretical area of influence in bedrock comprises part of the Kaxtorp and Lakarp communities and part of a National Interest for recreation.

At 80 m pit depth, the theoretical influence area in the bedrock comprises several residential areas (Kaxtorp, Lakarp, Kopparp, Ingefrearp), three wells, Lake Gyllingen, a stream and two marshes. The water inflow to the same sub-catchment is approximately five times higher than its contribution of inflow to the pit. The sub-catchment to the south has 50 times higher water inflow rate, whereas the sub-catchment to the north has 10 times higher water inflow rate, than their respective contribution to the inflow to the pit.

At 120 m pit depth, the theoretical area of influence in bedrock comprises several additional residential areas (Öjan, Gyllinge, Vandelstorp och Lågngliden), seven wells, several smaller wetlands and lakes, as well as the parts of the National Interest for nature conservation (Östra Vätternstranden). The water inflow contribution from the sub-catchment of the pit is a third of the basin's total water flow. The flow in the basin to the south is 19 times higher than its estimated pit inflow contribution. The corresponding proportion is 80 in the basin to the north.

20.7 *Flora and Fauna*

The Norra Kärr site lies along the common border between Jönköping and Östergötland counties. The site has been classified as a National Interest for nature conservation and mineral extraction. Tasman contracted the consulting firm of Pro Natura to investigate the natural and conservation value of the area.

The countryside around Norra Kärr is characterized by narrow rift valleys which cut through the landscape east of Lake Vättern with faults parallel to the lake basin. A deep fault cuts through the area and is the site of the only lake in the study area. The rural landscape surrounding Norra Kärr is one of low relief, well-suited for farming and livestock grazing. Subsequent to Boliden's previous exploration of the Norra Kärr site, the land was sold to private landowners. Grazing has been abandoned and the majority of the farmland has been replanted with spruce. The site also supports many deciduous trees as the soils are relatively alkaline.

There are numerous nature reserves and protected areas in both Jönköping and Östergötland counties which are primarily related to the steep terrain and valleys adjacent to Lake Vättern including the area of National Interest for nature conservation along the eastern shore of Lake Vättern (Östra Vätterstranden) which is near the National Interest for alkaline rocks at Norra Kärr.

ProNatura documented the presence of mature trees, which meet criteria specified by the Action Plan for Trees with High Conservation Values in the Cultural and Urban Landscape (Swedish E.P.A. (Naturvårdsverket), 2004). Breeding raptors, woodpeckers and other bird species included on the EU birds and habitat directive have been noted in the area.

The rural landscape, with grazed, unimproved, pastures and pollarded trees, comprise the largest proportion of conservation value in the area.

Sites with high nature conservation value can be found in the surrounding communities of Kaxtorp, Ingefrearp, Lakarp and Kopparp. Deciduous woodlands with old, hollow trees comprise the most valuable woodland habitats in the study area. Wet woodlands (swamps) where deciduous trees predominate, including black alder (*alder carr*), is another valuable habitat found in riparian environments exemplified by the area between Porsarp and Kopparp. *Alder carr* is the area's most important wetland habitat, followed by the wet meadows at Lake Gyllingesjön. Important species in the area that are on the EU Habitats Directive or the Swedish "Red List" include the following: otter, dormouse, Daubenton's bat, brown long-eared bat, black woodpecker, lesser spotted woodpecker, wryneck, common crane, whooper swan, honey buzzard, linnet, spotted nutcracker, great crested newt, silver spotted skipper, burnet moths (several species), ash, elm, spiked speedwell, rough hawkbit, corn chamomile, green shield moss, the lichens *Gyalecta ulmi* and *Gyalecta flotowii*, the fungi splendid waxcap, salmon bracket and *Hypoxylon howeanum*. The bird species mentioned above breed regularly in the area. Spiked speedwell is neither on the Red List nor the Habitats Directive, but has been chosen as a representative of the rural landscape in the area. Ash and elm have recently been added to the Red List, and are also important for the other red-listed species.

Tasman understands the importance of the natural and conservation values in the Project area and will initiate a dialogue with stakeholders and authorities on how to minimize the impacts.

20.8 *Lake, Streams and Sediments*

Baseline studies of water, sediment quality and aquatic ecology have been carried out in Lake Gyllingesjön and the Narbäcken and Stavabäcken streams. The studies were conducted by Naturvatten i Roslagen AB in 2011 and will be extended through 2013.

Water samples were analyzed for alkalinity, pH, turbidity, phosphorus (P), nitrogen (N), metals and chloride. Lake Gyllingesjön, as well as Stavabäcken and Narbäcken were found to be ion rich. In all investigated water bodies, the turbidity and concentrations of P and N were moderate during most times of the year. However, in July, the turbidity was very high in the bottom section of Gyllingesjön. The metal concentrations in the streams were generally found to be higher in comparison with concentrations in the reference stream. In Gyllingesjön, the metal concentrations were below the relevant Environmental Quality Standards (EQS). The chloride concentrations in streams were elevated in the lower sections of the streams due to proximity to highway E4 and the regular use of salt in the winter. Chlorophyll levels were moderately high in Gyllingesjön.

Fish sampling in Gyllingesjön identified four species, including perch, pike, roach and crucian carp. Roach was found to be the dominant species in Lake Gyllingesjön where the reproduction rate was found to be very good. Fish health assessments included length, weight and analyses for metals. Metal concentrations in livers of perches were comparable to lake fish in the nearby counties of Kalmar and Södermanland. Mercury concentrations in pike exceed National Food Agency's limit for fish sales which is common all over Sweden.

Bottom fauna in the stream Narbäcken's upper section was predominated by diptera (functional feeding group mainly collectors), whereas the lower section of Narbäcken was predominated by mayflies (mainly grazers and scrapers). In the littoral zone of Lake Gyllingesjön, diptera were the predominant species and the predominating feeding group is collectors. In the profundal zone, chaoboridae are predominating. In the central and lower parts of river Stavabäcken, the bottom fauna community was almost entirely predominated by diptera and the family Chironomidae. Collectors were predominating.

Analyses of sediment samples showed that the majority of the 70 analyses were lower than comparable reference levels.

Nine types of aquatic vegetation were identified during the inventory of Gyllingesjön's macrophytes. Statistically the yellow water lily and shining pondweed occurred most frequently.

The surrounding area of Ingefrearpsbäcken stream is characterized by overgrown open fields and arable land. Exclusion zones were identified along two of the mapped sections, whereas riparian zones were rare. Ingefrearpsbäcken stream measures 1,370 m and meanders through the landscape. The substratum is primarily clay with high vegetation cover. Extensive channeling occurs. In total, the investigation identified eight ditches, two migration obstacles and three road passages.

The area surrounding Stavabäcken stream consists mainly of various types of woodland. Protection zones are present in five of the mapped sections, whereas riparian zones are less common. Stavabäcken stream measures 2,900 meters long and meanders through the countryside. The substratum is primarily rock and is highly vegetated. Stavabäcken stream is generally not suitable for trout habitat. In total, the investigation identified two ditches, five migration obstacles and nine road passages.

The surrounding area of Gyllingesjön is predominated by wetlands and various types of woodlands. An exclusion zone was identified along one of the mapped sections and riparian zones were found to be rare. The lake substratum is entirely coarse detritus. In addition, the level of vegetation coverage was high, primarily rooted helophytes. Floating plants grow along the lake shore. There was no dead wood and the majority of the lake bank is considered an inferior crustacean habitat.

A summary of the lake and stream assessments is given in Table 20-2.

TABLE 20-2
Tasman Metals Limited
Norra Kärr Project – PEA
Summary of the Ecological, Chemical and Natural Value Assessment

	Lake	Stavabäcken Stream			Narbäcken Stream	
	Gyllingesjön	Upper	Middle	Lower	Upper	Lower
Ecological status	Moderate		Moderate	Good	Moderate	Good
Chemical status	Good				Good	
Natural value	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate

20.9 *Archeology*

An initial survey of the area was performed by the County Administrative Board of Jönköping in co-operation with the County Administrative Board of Östergötland and the County Administrative Board museum in Jönköping.

This survey indentified twenty-four (24) sites of interest of which the County Administrative Board of Jönköping has stated that the following three sites need to be investigated prior to commencement of mining.

- A farm house ruin, circa 1688, “Grenadjärstorp”
- A farm house ruin, RAÄnr #369, circa 1718, “Jeppahemmet”
- Old farmland, RAÄnr 373

Tasman intends to extend these studies to cover a larger area before applying for the environmental permit.

21.0 CAPITAL AND OPERATING COSTS

21.1 *Capital Costs*

A summary of the initial capital costs of $290 Million is shown on Table 21-1. The capital cost includes $66.8 million for contingencies for Mining (10%), Processing (20%) and overall Project contingency (20%). Project contingency estimates are included to cover unforeseen plant and infrastructure changes that cannot be determined at the PEA level. The Project contingency is $41 million for Processing, Tailings and Infrastructure capital.

The total life of mine (LOM) capital requirements for the Norra Kärr Project is $507.1 million. This includes $75 million for the expansion of the tailings facility that will be required midway through the mine's 40 year LOM with sustaining capital of $142.1 million. The sustaining capital is needed for replacement of mining equipment, repair and maintenance of the processing plant and site infrastructure. The sustaining capital is calculated based on annual mine production which is $1.32 per tonne in the base case.

Capital estimates do not include escalation factors for inflation on future capital goods expenditures. All capital is based on third quarter 2011 US dollars. Using an exchange rate of $1 CND to $1 USD, no conversion is applied to the capital and USD and CND are interchangeable.

TABLE 21-1
Tasman Metals Limited
Norra Kärr Project – PEA
Capital Costs

Capital Cost Items	Cost (MUS$)	Cost (MUS$)
	Intial Yr -1	40 Year LOM
Mining	18.2	18.2
Processing	120.0	120.0
Tailings	75.0	150.0
Other Infrastructure	10.0	10.0
Sustaining Capital		142.1
Mining Contingency (10%)	1.8	1.8
Processing Contingency (20%)	24.0	24.0
Project Contingency (20%)	41.0	41.0
Total Costs	**290.0**	**507.1**

Project Contingency is calculated based on Proces Plant, Tailings and Infrastructure capital.
No contingency is applied to Tailings expansion or Sustaining Capital.

21.1.1 Mining Capital

The initial mining capital cost is estimated to be $18.2 million for the Norra Kärr project. A preliminary estimate of mining capital by category is presented in Table 21-2. The mining cost estimates for this PEA were developed by PAH using the Shepra Mine Costs guide.

TABLE 21-2
Tasman Metals Limited
Norra Kärr Project – PEA
Mining Capital Costs

Capital Cost Items	Initial Capital Cost (M US$)
Mining Equipment	9.33
Site Development	2.73
Buildings	3.07
Electrical System	0.23
Engineering Management	2.84
Total Costs	18.20
Mining Contingency (10%)	1.82
Mining Total	**20.02**

Site development does not include any pre-stripping or pre-production mining. Site development capital is $2.73 million for the mine access, road construction, shop and waste dump site preparation. Capital for buildings and engineering will be $3.3 million. Contingency for mining equipment is estimated at $1.82 million or approximately 10 percent of mine capital.

Assuming that the operating life of mining equipment ranges from 7 to 10 years, then the equipment fleet will require multiple replacements over the LOM. Although the mining equipment capital comprises 51 percent of the total mining cost in the initial mining outlay, additional sustaining capital is needed throughout the LOM. Sustaining capital for mining equipment is included in the project sustaining capital. Mining sustaining capital averages $0.61 per tonne mined.

21.1.2 Processing Plant Capital

Total processing and infrastructure capital is $229 million of which $144 million is for processing and $85 million is for the tailings facility and infrastructure capital. The processing capital was estimated by J.E. Litz and Associates while the capital for the tailings storage facility was estimated by Golder Associates AB (Sweden).

The processing capital includes a 20 percent capital contingency for the processing plant. No process contingency is applied to the tailings or infrastructure. The capital contingency for the tailings and infrastructure is considered in the Project contingency.

The processing plant capital is estimated at $120 million and includes all equipment, delivery, and installation cost as shown in Table 21-3.

Capital for the tailings storage facility is based on capacity of 30 million tonnes of processed material. Initial tailings capital of $75 million will provide for 50 percent of the planned mill throughput. To accommodate additional tailings, an expansion will be required in Year 21 and require an additional $75 million in capital.

TABLE 21-3
Tasman Metals Limited
Norra Kärr Project – PEA
Processing Plant and Infrastructure Capital

Capital Cost Items	Cost (M US$) Initial Capital
Process Plant Capital	68.8
Process Plant Building	25.7
Total Indirect Process Cost	25.5
Process Plant Total	**120.0**
Process Plant Contingency (20%)	24.0
Total Process Plant	**144.0**
Other Infrastructure	
Tailings	75.0
Buildings	10.0
Other Infrastructure Total	**85.0**
Total Process Plant and Infrastructure	**229.0**

Sustaining capital for the process plant is not shown on the table above as initial capital. Sustaining capital for the process plant is $76.4 million and is expended after the process plant is operating. The sustaining capital is based on an annual capital cost for repairs and maintenance of the process plant is $0.71 per mined tonne.

21.2 *Operating Costs*

A summary of the LOM operating costs is given below on Table 21-4. These costs are scoping-level estimates of operating expenses for the conceptual mine and processing plant. Scoping level cost estimates are typically +/- 35 percent. Processing costs were prepared by J.E. Litz and Associates with local cost input was provided by Golder and Associates AB in Sweden.

TABLE 21-4
Tasman Metals Limited
Norra Kärr Project – PEA
Operating Costs

Operating Cost Items	Annual Cost (US$/yr millions)	Cost per Tonne Mined ($/t)	Cost per Tonne TREO Processed ($/t)	Cost per Kg of Mixed TREO Concentrate ($/kg)
Mine Operating Costs	10.224	3.80	7.04	1.52
Processing Costs	60.256		41.48	8.84
Closure Cost	0.272		0.19	0.04
General & Administrative	3.632		2.50	0.53
Total	**74.384**		**51.20**	**10.93**

The cost of power, water and chemical reagents are believed to reasonably reflect current local costs in Sweden. All processing cost are estimated and reported in first quarter, 2012 are in USD$.

Total costs average USD$10.93 per kilogram of TREO concentrate. Taxes and royalties are not included in the operating cost estimates.

The mining operating cost is $3.80 per tonne mined or $7.04 per tonne processed. Processing cost comprise 81 percent of the total operating costs at $41.5 per tonne TREO processed. General and administrative costs of $2.50 per tonne are 4.8 percent of the total operating costs.

22.0 ECONOMIC ANALYSIS

22.1 *Introduction and Assumptions*

Pincock, Allen and Holt prepared the economic assumption for the Norra Kärr project based on a pre-tax financial model and the following assumptions:

- 40 year life of mine.
- Long-term estimate of the exchange rate between the Canadian and US dollar at a CDN$1.00 to US$1.00 ratio.
- $290 million in initial capital expenditure.
- Constant currency relative to the Canadian dollar, US dollar and Swedish Krona.
- A discounted selling price of 38 percent relative to the pure oxide for selling in a concentrate form.

22.2 *Product Pricing*

In the development of the price deck for this PEA, much effort was expended by Tasman and PAH to ensure the price forecast was realistic and conservative. Price forecasts were compiled and studied from industry groups including Roskill and IMCOA, as well as financial analysts including Dundee Securities, Cormark Securities, Euro Pacific Canada, CIBC World Markets, and Global Hunter Securities. Also taken into consideration were previously published PEA and PFS studies from competing REE projects including, Avalon Rare Metals, Quest Rare Mineral, Hudson Resources, Matamec and Frontier Rare Earths. The three year trailing price average for China FOB pricing from Asian Metals was also reviewed.

Price forecasts between the various analysts and competing REE projects differ substantially, with particular divergence in the forecast for cerium and lanthanum. The Norra Kärr deposit provides little exposure to cerium and lanthanum (approximately 3 percent of annual revenue), and this divergence plays only a minor role in the financial modeling within. The majority of industry analysts expect an increase in consumption of rare earth elements, particularly those considered to be in the critical rare earth oxide (CREO) category as defined in the August 2011 report issued by Technology Metals Research. These CREO elements include Tasman's major revenue drivers of dysprosium, yttrium, terbium, neodymium, and europium.

This PEA is based upon the production of a mixed REE concentrate, as modeling of separation of this concentrate into individual rare earth oxides was considered beyond the scope of the study. For separation, Tasman is exploring multiple options, which include outsourcing, partnerships, and new technologies. For the scope of this report, modeled pricing is at a discount of 38 percent to the final separated oxide selling price given in Table 22-1 to account for the cost of separation by a third party.

TABLE 22-1
Tasman Metals Limited
Norra Kärr Project – PEA
Rare Earth Oxide and Zirconia Equivalent "Price Deck" Assumed

		Tasman Estimated Long-term Market Price (US$/kg)	Feb 2012 China FOB Price[1] (US$/kg)	Norra Karr - % of TREO Revenue (Based on Avg. Production)
Lanthanum	La_2O_3	10.00	35.00	1.90%
Cerium	Ce_2O_3	5.00	31.00	2.20%
Neodymium	Nd_2O_3	75.00	165.00	16.60%
Praseodymium	Pr_2O_3	75.00	160.00	4.20%
Samarium	Sm_2O_3	10.00	71.00	0.50%
Europium	Eu_2O_3	500.00	3,375.00	3.60%
Gadolinium	Gd_2O_3	40.00	100.00	1.90%
Terbium	Tb_2O_3	975.00	2,550.00	12.10%
Dysprosium	Dy_2O_3	520.00	1,500.00	43.40%
Yttrium	Y_2O_3	20.00	155.00	13.60%
Norra Karr REE "Basket Price"		51.00	184.85	
Basket Price with 38% Discount		31.60		
Zirconia Equivalent	ZrO_2	3.77	7.15	

Note: no value applied to Ho, Er, Tm, Yb, or Lu due to lack of available historical prices
1. Feb 2012 China FOB price quoted as average prices from Asian Metals.
2. Zirconia prices quoted as average prices from Industrial Minerals

The undiscounted REE basket price used in the PEA analysis was US$51.00 and, therefore, the corresponding long term discounted basket price was US$31.60.

Zirconium carbonate shall be produced with the rare earth products based on the current metallurgical process design. Zirconium carbonate is an important input into the rapidly growing zirconium chemicals industry, with zirconium carbonate being the pre-cursor material from which other zirconium chemicals are manufactured. The end products from zirconium carbonate include: antiperspirant actives, paint driers, leather tanning products, paper coatings and automotive catalysts. Currently, the majority of zirconium carbonate is sourced from zircon, which requires extensive processes and chemical cracking operations to separate zirconium. According to data published by independent consulting firm TZ Minerals International, the zirconium chemicals market is the fastest growing segment of the zirconium market and is estimated to account for 18 percent of the zirconium market in 2012 or approximately 250,000 tonnes. Price forecasts and current spot pricing for zirconium carbonate was not available and as such, the price of zirconia or zirconium oxide has been used as a proxy. As a result, a conservative price forecast of $3.77 per kg was used in the model, in line with competitor PEA pricing.

The price deck used in the PEA is illustrated in Table 22-1.

TABLE 22-2
Tasman Metals Limited
Norra Kärr Project – PEA
Summary of Projected Revenue, Expenditure and NPV

	First 20 Years (C$ M)	40 Year Mine Life (C$ M)
Total Revenue	5,275.30	10,858.50
Initial Capital Expenditures (including contingency)	290.20	290.20
Sustaining Capital Expenditures	74.10	217.10
Royalty Payments	13.20	27.20
Mine Reclamation Costs	10.90	10.90
Total Before-tax Cash Flow (undiscounted)	3,419.40	7,376.10
Before-tax NPV @ 10%	1,214.70	1,464.10
Before-tax NPV @ 12%	1,015.90	1,168.00
Before-tax NPV @ 14%	855.00	949.40
Before-tax IRR (%)	49.60%	49.60%
Before-tax Payback Period (years)	2.6	2.6
Long-term Average REE Basket Price	US$51.00	US$51.00
REE Basket Price Discounted for Refining	US$31.60	US$31.60

22.3 *Financial Analysis*

The financial model of the project assumes a two year start-up period before full production is reached. The cash flow model shows the annual production of TREO and zirconium concentrates and the estimated revenues generated from the sale of these products (Table 22-3). The production model used the estimated annual mining rate of approximately 1.5 million tonnes of ore for a total LOM production of 58.1 million tonnes, which is the current “in-pit” Mineral Resource reported in Section 14 of this PEA.

There are no Mining Reserves reported from the Norra Kärr Project.

Total estimated revenue from the project over the 40 year life of mine is $10.9 billion or $5.3 billion during the first 20 years. This is based on a sale price of $31.60 per kg of TREO produced (FOB mine), which is derived from discounting the REO basket price of $51.00 per kg by 38 percent. A summary of the results of the financial analysis is presented in Table 22-4.

Three discount rates of 10 percent, 12 percent and 14 percent were evaluated including the undiscounted Cash Flow. Before-tax NPV's are positive for the 20 and 40 year cash flows demonstrating a robust and favorable discounted value. Based on the before-tax cash flow, the payback period for the initial capital investment of $290 million is 2.6 years.

TABLE 22-3
Tasman Metals Limited
Norra Kärr Project – PEA
Life of Mine Cash Flow

	INPUTS	YEAR	Total	-1	1	2	3	4	5	6 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40
Waste		000 tonnes	49,511	0	2,154	1,407	1,650	1,580	1,446	5,116	6,929	6,878	6,325	6,325	6,325	3,377
Ore		000 tonnes	58,106	0	752	1,133	1,502	1,500	1,508	7,510	7,529	7,516	7,500	7,500	7,500	6,657
Total		000 tonnes	107,618	0	2,906	2,540	3,152	3,080	2,954	12,626	14,457	14,393	13,825	13,825	13,825	10,034
Stripping Ratio			0.85	0.00	2.86	1.24	1.10	1.05	0.96	0.68	0.92	0.92	0.84	0.84	0.84	0.51
Mill Feed Grade																
TREO + Y		gm/tonne	5,880	0	5,261	5,591	5,688	5,814	5,888	5,899	5,580	5,832	6,005	6,005	6,005	6,005
ZrO2		gm/tonne	17,065	0	16,088	16,027	16,546	16,735	16,870	16,687	15,824	16,644	17,711	17,711	17,711	17,711
Contained REE																
TREO + Y		tonnes	341,662	0	3,957	6,334	8,544	8,723	8,877	44,303	42,008	43,829	45,038	45,038	45,038	39,975
ZrO2		tonnes	991,598	0	12,100	18,155	24,855	25,106	25,435	125,321	119,134	125,094	132,833	132,833	132,833	117,902
Recoverable	Recovery															
TREO + Y	80.00%	tonnes	273,330	0	3,165	5,067	6,836	6,978	7,102	35,442	33,606	35,063	36,030	36,030	36,030	31,980
ZrO2	60.00%	tonnes	594,959	0	7,260	10,893	14,913	15,063	15,261	75,192	71,480	75,056	79,700	79,700	79,700	70,741
Net Value	Price															
TREO + Y	US$ 51.00/kg	000 US$	13,939,816	0	161,439	258,409	348,613	355,880	362,199	1,807,559	1,713,923	1,788,213	1,837,530	1,837,530	1,837,530	1,630,992
ZrO2	US$ 3.77/kg	000 US$	2,242,995	0	27,370	41,066	56,222	56,789	57,533	283,475	269,481	282,962	300,467	300,467	300,467	266,695
Total		000 US$	16,182,811	0	188,809	299,475	404,835	412,669	419,732	2,091,034	1,983,404	2,071,175	2,137,997	2,137,997	2,137,997	1,897,686
Gross Value																
Selling Cost	US$ 19.38/kg	000 US$	5,297,130	0	61,347	98,195	132,473	135,234	137,636	686,872	651,291	679,521	698,261	698,261	698,261	619,777
Royalty	0.25%	000 US$	27,214	0	319	503	681	694	705	3,510	3,330	3,479	3,599	3,599	3,599	3,195
Net Smelter Return		000 US$	10,858,467	0	127,143	200,776	271,681	276,741	281,391	1,400,651	1,328,783	1,388,175	1,436,136	1,436,136	1,436,136	1,274,715
Capital Costs																
Mining		000 US$	18,200	18,200	0	0	0	0	0	0	0	0	0	0	0	0
Processing		000 US$	120,000	120,000	0	0	0	0	0	0	0	0	0	0	0	0
Tailings		000 US$	150,000	75,000	0	0	0	0	0	0	0	0	75,000	0	0	0
Other Infrastructure		000 US$	10,000	10,000	0	0	0	0	0	0	0	0	0	0	0	0
Sustaining Capital	US$ 1.32/rock tonne	000 US$	142,055		3,836	3,352	4,161	4,066	3,899	16,666	19,083	18,999	18,249	18,249	18,249	13,245
Mining Contingency	10.00%	000 US$	1,820	1,820	0	0	0	0	0	0	0	0	0	0	0	0
Processing Contingency	20.00%	000 US$	24,000	24,000	0	0	0	0	0	0	0	0	0	0	0	0
Project Contingency	20.00%	000 US$	41,000	41,000	0	0	0	0	0	0	0	0	0	0	0	0
Total		000 US$	507,075	290,020	3,836	3,352	4,161	4,066	3,899	16,666	19,083	18,999	93,249	18,249	18,249	13,245
Operating Costs																
Mining	US$ 3.80/rock tonne	000 US$	408,947	0	11,044	9,651	11,977	11,706	11,225	47,978	54,937	54,695	52,535	52,535	52,535	38,129
Processing	US$ 41.48/ore tonne	000 US$	2,410,249	0	31,196	46,988	62,311	62,228	62,540	311,515	312,283	311,754	311,100	311,100	311,100	276,132
Closure Cost	US$ 0.19/ore tonne	000 US$	10,867	0	141	212	281	281	282	1,405	1,408	1,406	1,403	1,403	1,403	1,245
G & A	US$ 2.50/ore tonne	000 US$	145,266	0	1,880	2,832	3,755	3,750	3,769	18,775	18,821	18,789	18,750	18,750	18,750	16,643
Total		000 US$	2,975,329	0	44,261	59,682	78,325	77,965	77,816	379,673	387,449	386,644	383,788	383,788	383,788	332,149
Pre-Tax Net Cash Flow		**000 US$**	7,376,063	-290,020	79,046	137,742	189,195	194,710	199,676	1,004,312	922,250	982,532	959,100	1,034,100	1,034,100	929,321
Cumulative Net Cash Flow		**000 US$**		-290,020	-210,974	-73,233	115,963	310,673	510,348	1,514,661	2,436,911	3,419,443	4,378,543	5,412,642	6,446,742	7,376,063

22.4 *Sensitivity Analysis*

Beyond the base case analysis, sensitivity analyses were performed on the economic model to assess the impact for changes in the REE price deck, as well as changes to operational costs. The results of the sensitivity analysis are provided in Tables 22-4, 22-5 and 22-6, which demonstrate that the economic model is most sensitive to changes in the REO basket prices followed by initial capital expenditures and finally increases or decreases in operational costs.

TABLE 22-4
Tasman Metals Limited
Norra Kärr Project – PEA
Sensitivity Analysis of Cost Assumptions under PEA – Change in REO Basket Price

Selling Price of REO Basket		NPV @ 8%	NPV @ 10%	NPV @ 12%	IRR
US$ 66.30/kg	Increase 30%	$2,619,276	$2,062,558	$1,665,924	63.40%
US$ 61.20/kg	Increase 20%	$2,372,801	$1,863,059	$1,499,932	58.90%
US$ 56.10/kg	Increase 10%	$2,126,327	$1,663,560	$1,333,939	54.30%
US$ 51.00/kg	Base Case	$1,879,852	$1,464,060	$1,167,947	49.60%
US$ 45.90/kg	Decrease 10%	$1,633,378	$1,264,561	$1,001,955	44.80%
US$ 40.80/kg	Decrease 20%	$1,386,903	$1,065,062	$835,962	39.90%
US$ 35.70/kg	Decrease 30%	$1,140,429	$865,563	$669,970	34.80%

TABLE 22-5
Tasman Metals Limited
Norra Kärr Project – PEA
Sensitivity Analysis of Cost Assumptions under PEA – Change in Initial Capital Expenditure

Initial Capital Expenditure		NPV @ 8%	NPV @ 10%	NPV @ 12%	IRR
$348,024	Increase 20%	$1,821,848	$1,406,056	$1,109,943	42.70%
$319,022	Increase 10%	$1,850,850	$1,435,058	$1,138,945	45.90%
$290,020	**Base Case**	**$1,879,852**	**$1,464,060**	**$1,167,947**	**49.60%**
$261,018	Decrease 10%	$1,908,854	$1,493,062	$1,196,949	54.10%
$232,016	Decrease 20%	$1,937,856	$1,522,064	$1,225,951	59.60%

TABLE 22-6
Tasman Metals Limited
Norra Kärr Project – PEA
Sensitivity Analysis of Cost Assumptions under PEA – Change in Operational Costs

Operating Costs/kg TREO Output		NPV @ 8%	NPV @ 10%	NPV @ 12%	IRR
$13.12	Increase 20%	$1,705,676	$1,322,431	$1,049,619	46.00%
$12.03	Increase 10%	$1,792,764	$1,393,246	$1,108,783	47.80%
$10.93	Base Case	$1,879,852	$1,464,060	$1,167,947	49.60%
$9.84	Decrease 10%	$1,966,941	$1,534,875	$1,227,111	51.40%
$8.75	Decrease 20%	$2,054,029	$1,605,690	$1,286,275	53.20%

23.0 ADJACENT PROPERTIES

There exist no known adjacent mineral properties to Norra Kärr.

Norra Kärr appears to be an isolated occurrence of a peralkaline intrusion in this part of Sweden, containing elevated levels in rare earth elements, zirconium, yttrium, and hafnium.

24.0 OTHER RELEVANT DATA AND INFORMATION

Tasman provides here background information on the REEs and their geological occurrences.

Rare earths are universally described as those 15 chemically similar elements in the periodic table that range from lanthanum through lutetium, which have atomic numbers 57 through 71, inclusively. Commonly, yttrium is included because it is invariably physically associated with this group. Scandium and thorium are sometimes considered as part of the rare-earth series. Since lanthanum is the first name on the rare-earth list, the whole group is sometimes referred to as the “lanthanides” (the reader is also referred to the periodic table of the elements which is readily available). The upper half of this series is termed the “light” or “cerium” subgroup, and the lower half is called the “heavy” or “yttrium” subgroup (Jackson, et. al., 1993).

Rare earths are mined and treated in their oxide form, known as rare-earth oxides (REO). More than 95 percent of REO occur in deposits of three minerals: bastnaesite ($CeFCO_3$), monazite (Ce,Th,Y) PO_4, and xenotime (YPO4).

Bastnaesite contains about 70 percent REO, mostly the lighter ones, monazite about 70 percent REO, mostly the lighter ones, and xenotime contains about 67 percent REO, mostly the heavier ones. Eudialyte, the zirconium silicate found at Norra Kärr, can contain either the light or heavy REE. Although REEs comprise significant amounts of many minerals, almost all production has come from less than 10 minerals (Castor & Hedrick, 2006).

Economic REE/REOs are found principally in the following types of deposits:

- Iron deposits - the largest known REE resources in the world.
- Carbonatite deposits - common around world, but production has been from only one, the Mountain Pass deposit in California.
- Lateritic deposits - widespread but only two such deposits have been exploited so far, in China.
- Placer deposits - worldwide. In 1980s Australia was third most important producer of REE from paleobeach placers.
- HREE deposits in Peralkaline Igneous Rocks - typically enriched in yttrium, HREEs and zirconium. Mined at the Lovozero massif, Kola Peninsula, Russia. Norra Kärr belongs to this deposit type.
- Vein deposits - generally small, but significant REE sources in China. Maoniuping deposit consists of vein swarms up to 1,000 m long by 20 m wide; it is the second largest source of REE in China (2001).

Marketing and metal pricing for REE is not on an open market, as are base and precious metals, therefore REE metal prices are not as easily obtained. A recent publication by the United States Geological Survey (USGS) documents the annual US consumption of approximately 90 mineral commodities over a period of years. Although the prices are for a domestic US market, they should reflect the global prices somewhat. http://minerals.usgs.gov/minerals/pubs/commodity/rare_earths/mcs-2010-raree.pdf.

The reader is also directed to http://www.metal-pages.com/, widely regarded as a key source of REE price information.

25.0 INTERPRETATION AND CONCLUSIONS

The following interpretations and conclusions have been made on the Norra Kärr Project from the findings of the Technical Report:

- Tasman's 2011 drilling program further confirmed the grade and continuity of the REE-Zr mineralization in the Norra Kärr peralkaline intrusive complex, Sweden. A total of 7,376 m in 49 holes have now been completed and were available to support the new resource estimate of April 2012. The Project is a promising REE project and has resources of sufficient quality and quantity that warrant additional investigation.

- A new Mineral Resource has been estimated using conceptual economic and technical parameters consistent with development of the property as a surface mine and processing plant which would produce two concentrates: a mixed REO-Y carbonate and a Zr carbonate concentrate. These intermediate products would be sold to third-parties for conversion to REE metals.

- The new Mineral Resource is spatially constrained to the interpreted mineralized domains within the intrusive complex and to a conceptual pit shell developed in the Whittle® mining software. Pit shells were calculated using conceptual economic and technical parameters for metal recovery, REO prices and operating expenses. The resources reported include mining loss (5%) and dilution (5%) with a cut-off grade of 0.170 percent TREO.

- The in-pit Mineral Resources at Norra Kärr are summarized below.

  - Indicated Mineral Resource: 41.6 million tonnes, 0.57% TREO, 1.70% ZrO_2

  - Inferred Mineral Resource: 16.5 million tonnes, 0.64% TREO, 1.70% ZrO_2

- PAH considers the estimated Mineral Resource to be in accordance with NI 43-101 Guidelines for Resource Estimates. There are no Mineral Reserves on the property.

- Process metallurgists engaged by Tasman have developed a conceptual flowsheet for recovery of rare earth elements, yttrium, and zirconium from the deposit. Based on early test-work, the flow sheet envisions communition of the ore by crushing and grinding, beneficiation of the ground feed to remove acid consuming gangue minerals and hydrometallurgy to separate and extract the values. Test work is underway to improve beneficiation methods that would up-grade the quality of the feed material going into the acid leach, to this end flotation and high gradient magnetic separation techniques are being tested.

- Tasman's environmental consultants have completed the initial base-line investigations, studies related to the local flora and fauna and archeology. The Environmental Impact Assessment (EIA), tailings and waste rock characterization studies and hydrological studies are advanced and on-going as of April 2012.

- The financial model of the project assumes a two year start-up period before full production is reached. The production model used the estimated annual mining rate of approximately 1.5 million tonnes of ore for a total LOM production of 58.1 million tonnes, which is the current “in-pit” Mineral Resource.

- Total estimated revenue from the project over the 40 year life of mine is $10.9 billion or $5.3 billion during the first 20 years. This is based on a sale price of $31.60 per kg of TREO produced (FOB mine), which is derived from discounting the REO basket price of $51.00 per kg by 38 percent. A summary of the results of the financial analysis is presented in Table 22-4.

26.0 RECOMMENDATIONS

The very positive financial analysis presented in this PEA combined with the current strong demand for the heavy rare earth metals and the strategic need to diversify international supply, indicate that the Norra Kärr project should advance to the pre-feasibility stage for which the following recommendations are made.

26.1 *Geology and Mineral Resources*

- In-fill drilling should continue in the in-pit Mineral Resource Area, as delimited in this PEA. Drilling on a tighter grid is recommended in order to up-grade a proportion of the resource to the measured class, using a 50 m x 40 m, diamond pattern with drill sections on 50 m line spacing and holes on 40 m centers.

- As larger metallurgical samples are required in 2012 and beyond, it is recommended that at least 5 met holes be twined with holes that penetrated the principal mineralized domains in the GTC, PGT and GTM rock units.

- Continue the practice of collecting high quality geotechnical (RQD) data for eventual mine planning and pit slope stability studies.

26.2 *Mining*

- Continue the process of developing more refined mining and processing cost for opex and capex estimates.

- Investigate the parameters required to increase the tailings storage facility capacity to 40 years of production based on the 58 Mt in-pit Mineral Resources.

- Continue the tailings and waste rock characterization study.

26.3 *Metallurgy*

- Tasman's metallurgical consultants continue to conduct test work on samples from the Norra Kärr deposit. New test work that is on-going or pending includes the following:

    - Magnetic separation testing to improve rejection of the sodium-rich minerals nepheline and natrolite from the magnetic concentrate;

    - Pilot stage magnetic concentration testing to demonstrate the best beneficiation process and to produce sufficient concentrate for laboratory and pilot testing;

- Laboratory leaching testing on concentrate to maximize dissolution of REE values; and
- Laboratory testing to evaluate recovery of REEs, Y and Zr from the leachate.

- AS more mineralized bulk test will be required proposed new test work will require 100 kg of metallurgical samples obtained from representative core samples in the deposit.

26.4 *Environmental*

The environmental studies have advanced quickly with local consultants in Sweden as the various studies are completed over the next 2-3 years, Tasman will be well positioned to apply for their main environmental permit which will grant them the right to mine.

26.5 *Financial*

Tasman should continue to monitor and assess the international REE markets to keep abreast of prices and marker drivers, Chinese political and economic trends.

27.0 REFERENCES

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28.0 STATEMENTS OF QUALIFIED PERSONS

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I, Geoffrey Charles Reed, MAusIMM (CP), am a Senior Consulting Geologist for Runge Ltd., trading as Minarco-MineConsult of Level 16 Australia Square, 264-278 George Street, Sydney, NSW, Australia 2000, and a Principal Geologist for Pincock, Allen & Holt, Inc. of 165 S. Union Boulevard, Suite 950, Lakewood, Colorado, USA. This certificate applies to the "Preliminary Economic Assessment Norra Kärr REE Zirconium Deposit, Gränna, Sweden," on behalf of Tasman Metals, Ltd. (the "Issuer"), dated May 11, 2012, (the "Technical Report").

1. For the duration of this project I have been on secondment as a Senior Consulting Geologist with Runge Inc., d.b.a Pincock, Allen and Holt, a wholly owned subsidiary of Runge Limited

2. I graduated with a degree in Geology with a Bachelor of Applied Science from the University of Technology, Sydney, NSW, Australia, awarded in 1997.

3. I am a Member of the Australasian Institute of Mining and Metallurgy since 1998.

4. I have worked as a geologist for a total of over 14 years since my graduation from University.

5. I have read the definition of "qualified person" set out in National Instrument 43101("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

6. I am responsible for the preparation of all sections of this technical report titled "Technical Report For Norra Kärr REE - Zirconium Deposit," dated January 20, 2011, which is based in large part on examination of the material presented to me by Tasman Metals Limited during September 1, 2010 to November 30, 2010. I visited the Norra Kärr property on September 27, 2010. First hand impressions about the style of mineralization are based on examinations of drill core from representative drill holes on September 28, 2010.

7. I have had no prior involvement with the properties which are the subject of this Technical Report.

8. I am not aware of any material fact or material change with respect to the subject matter of this Technical Report which is not reflected in the Technical Report, the omission to disclose which would make this Technical Report misleading.

9. I am independent of the issuer applying all of the tests in section 1.5 of National Instrument 43-101.

10. I have read National Instrument 43-101 and Form 43-101F1, and this Technical Report has been prepared in compliance with that instrument and form.

11. I consent to the filing of this Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of this Technical Report.

Dated at Sydney, Australia, this 11th day of May, 2012.

Geoffrey Charles Reed, MAusIMM (QP)

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I, Craig F. Horlacher, am a Principal Geologist employed at Pincock, Allen & Holt, 165 South Union Blvd., Suite 950, Denver, Colorado 8228-2226. This certificate applies to the "Preliminary Economic Assessment Norra Kärr REE Zirconium Deposit, Gränna, Sweden," on behalf of Tasman Metals, Ltd. (the "Issuer"), dated May 11, 2012, (the "Technical Report").

1. I am a Professional Geologist registered (1494620RM) under the Society for Mining, Metallurgy, and Exploration (SME) and also a member of the Australian Institute of Mining and Metallurgy (#303156).

2. I graduated from Lawrence University, Appleton, Wisconsin with a Bachelor's Degree in Geology in 1975 and subsequently obtained a Master of Geology from the Colorado School of Mines in 1987, and I have practiced my profession continuously since 1987.

3. Since 1987, I have been involved in mineral exploration, project management and evaluation of mineral properties for gold, silver, copper, lead, zinc, uranium, molybdenum, diatomite, tungsten, potash, iron ore and chrome, in the United States, Canada, Mexico, Panama, Venezuela, Slovakia, Sweden, Argentina, Turkey, Liberia and Senegal I am past president of the Denver Region Exploration Society (2001-2003).

4. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

5. I am presently Principal Geologist with the international resource and mining consulting company of Pincock, Allen & Holt (PAH), and have been so since January 2008.

6. As a result of my experience and qualification I am a Qualified Person as defined under the terms of NI 43-101 as revised on 30 June 2011.

7. I have overall responsibility for preparation of this report in collaboration with Mr. Reed and Mr. Gates who are Qualified Persons as defined under the terms of NI 43-101 as revised on 30 June 2011.

8. For purposes of this Technical Report my colleague by Mr. Geoff Reed, Senior Consulting Geologist with PAH who is considered to be a Qualified Person under the Australian Institute of Mining and Metallurgy, MAusIMM (CP) conducted the site visit to the Project during the week of September 27th, 2010 to review existing geology, core logging and the project setting. A consent form from Mr. Reed is found in Section 28.

9. I have not had prior involvement with the property that is the subject of this report. I have not received, nor do I expect to receive, any interest, directly or indirectly, from Tasman Metals Ltd., any affiliate, or associate company.

10. To the best of my knowledge, information and belief, the Preliminary Economic Assessment contains all scientific and technical information that is required to be disclosed to make the PEA not misleading.

11. I am independent of the Issuer in accordance with the application of Section 1.5 of National Instrument 43-101.

12. I have read NI 43-101, Form 43-101F1, and the Companion Policy 43-101CP, and this Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1 as revised on 30 June 2011.

13. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Preliminary Economic Assessment Technical Report.

Dated at Lakewood, Colorado, this 11th day of May, 2012.

Craig F. Horlacher, (1494620RM)

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I, Paul A. Gates, P.E., am a Principal Mine Engineer employed at Pincock, Allen & Holt, 165 South Union Blvd., Suite 950, Denver, Colorado 8228-2226. This certificate applies to the "Preliminary Economic Assessment Norra Kärr REE Zirconium Deposit, Gränna, Sweden," on behalf of Tasman Metals, Ltd., dated May 11, 2012, (the "Technical Report").

1. I am a Professional Mining Engineer registered with the State of Colorado, #43794.

2. I graduated with a Bachelor of Science degree in Mining Engineering from Montana College of Mineral Science and Technology in 1984. In addition, I have obtained a Master of Business Administration degree from Western New Mexico University in 1997.

3. I have worked as a mining engineer for a total of 28 years since my graduation from university.

4. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

5. I am presently a Principal Mine Engineer with the international resource and mining consulting company of Pincock, Allen & Holt, Inc. and have been employed in this capacity since December 2009.

6. I am responsible for the preparation Sections 1, 14, 16, 21, and 22 of the Technical Report titled the "Preliminary Economic Assessment Norra Kärr REE Zirconium Deposit, Gränna, Sweden," prepared for Tasman Metals, Ltd.

7. Prior to the preparation of the Preliminary Economic Assessment, I have had no involvement with the Tasman Metals Project.

8. To the best of my knowledge, information and belief, the Preliminary Economic Assessment contains all scientific and technical information that is required to be disclosed to make the PEA not misleading.

9. I am independent of Tasman Metals Ltd. in accordance with the application of Section 1.5 of National Instrument 43-101.

10. I have read National Instrument 43-101 and Form 43-101F1, and the Preliminary Economic Assessment has been prepared in compliance with that instrument and form.

11. I consent to the filing of the Preliminary Economic Assessment with any stock exchange and other regulatory authority and any publication by them, including electronic publications in the public company files, on their websites accessible by the public.

Dated in Lakewood, Colorado, this 11th day of May, 2012.

Paul A. Gates

Paul A. Gates, P.E.

APPENDIX A

All Drilled Intersections

TABLE A-1
Tasman Metals Limited
Norra Kärr Project – PEA
All Drilled Intersections from Norra Kärr with a 0.2% TREO Cutoff

SECTION B	**Domain 3**	**NKA09007**	44.25m – 68.75m:	24.5m @ 0.40% TREO, 64.1% HREO, 1.98% ZrO2
	Domain 2		68.75m - 149.25m:	80.5m @ 0.29% TREO, 64.6% HREO, 1.67% ZrO2
	Domain 2	**NKA09008**	2.7m - 103.4m:	100.7m @ 0.26% TREO, 64.8% HREO, 1.67% ZrO2
	Domain 2		112.0m - 138.8m:	26.8m @ 0.27% TREO, 62.2% HREO, 1.17% ZrO2
	Domain 2	**NKA09009**	22.4m - 44.7m:	22m @ 0.25% TREO, 63.6% HREO, 1.27% ZrO2
SECTION BC	**Domain 2**	**NKA11048**	82.2m – 233.1m:	150.9m @ 0.26% TREO, 65.2% HREO, 1.79% ZrO2
	Domain 2	**NKA11047**	28.65m - 69.1m:	40.45m @ 0.21% TREO, 66.3% HREO, 2.07% ZrO2
	Domain 3	**NKA11047**	69.1m - 76.74m:	7.64m @ 0.53% TREO, 64.7% HREO, 2.30% ZrO2
	Domain 2	**NKA11047**	76.74m - 178.64m:	101.98m @ 0.26% TREO, 65.2% HREO, 1.54% ZrO2
	Domain 2	**NKA11046**	8.25m - 15.12m:	6.87m @ 0.24% TREO, 690% HREO, 2.53% ZrO2
	Domain 3	**NKA11046**	15.12m - 45.4m:	30.28m @ 0.41% TREO, 64.7% HREO, 2.28% ZrO2
	Domain 2	**NKA11046**	45.4m - 125.18m:	79.78m @ 0.24% TREO, 64.5% HREO, 1.98% ZrO2
SECTION C	**Domain 2**	**NKA09019**	82.25m - 92.15m:	9.9m @ 0.26 % TREO, 63.5 % HREO, 2.29 % ZrO2
	Domain 3	**NKA09019**	92.15m – 150.47m:	58.32m @ 0.50 % TREO, 63.5 % HREO, 2.32 % ZrO2
	Domain 2	**NKA09019**	150.47m – 206.4m:	55.93m @ 0.36 % TREO, 63.9 % HREO, 2.60 % ZrO2
	Domain 2	**NKA09020**	29.53m - 38.57m:	9.04m @ 0.24 % TREO, 66.8 % HREO, 2.09 % ZrO2
	Domain 3	**NKA09020**	38.57m - 101.75m:	63.18m @ 0.46 % TREO, 63.1 % HREO, 2.14 % ZrO2
	Domain 2	**NKA09020**	101.75m - 149.38m:	47.63m @ 0.30 % TREO, 65.7 % HREO, 2.33 % ZrO2
	Domain 3	**NKA09021**	1.65m - 68.45m:	66.8m @ 0.52 % TREO, 61.9 % HREO, 2.12 % ZrO2
	Domain 2	**NKA09021**	68.45m - 139.55m:	71.1m @ 0.36 % TREO, 62.8 % HREO, 1.92 % ZrO2
	Domain 3	**NKA09022**	0.6m - 16.47m:	15.87m @ 0.42 % TREO, 62.4 % HREO, 2.28 % ZrO2
	Domain 2	**NKA09022**	16.47m - 86.0m:	69.53m @ 0.28 % TREO, 62.7 % HREO, 1.54 % ZrO2
	Domain 2	**NKA09023**	3.9m - 50.9m:	47.0m @ 0.28 % TREO, 61.6 % HREO, 1.35 % ZrO2
SECTION CD	**Domain 2**	**NKA11045**	82.52m - 88.35m:	5.83m @ 0.25% TREO, 66.7% HREO, 2.35% ZrO2
	Domain 3	**NKA11045**	88.35m - 266.0m:	177.65m @ 0.51% TREO, 61.3% HREO, 2.17% ZrO2
	Domain 2	**NKA11045**	266.0m - 270.7m:	4.7m @ 0.36% TREO, 61.0% HREO, 1.72% ZrO2
	Domain 3	**NKA11044**	28.36m - 190.4m:	162.04m @ 0.53% TREO, 61.5% HREO, 2.12% ZrO2
	Domain 3	**NKA11043**	2.8m - 115.72m:	112.92m @ 0.68% TREO, 52.6% HREO, 1.95% ZrO2
	Domain 2	**NKA11043**	155.72m - 202.8m:	87.08m @ 0.33% TREO, 62.4% HREO, 1.55% ZrO2
	Domain 3	**NKA11042**	2.44m - 59.66m:	57.22m @ 0.68% TREO, 50.2% HREO, 1.82% ZrO2
	Domain 2	**NKA11042**	59.66m - 131.25m:	71.59m @ 0.30% TREO, 63.4% HREO, 1.47% ZrO2
	Domain 3	**NKA11041**	0.92m - 11.8m:	10.88m @ 0.46% TREO, 61.0% HREO, 2.02% ZrO2
	Domain 2	**NKA11041**	11.8m – 81.6m:	69.8m @ 0.29% TREO, 56.0% HREO, 1.33% ZrO2
SECTION D	**Domain 2**	**NKA09006**	73.53m - 110.2m:	36.97m @ 0.30% TREO, 62.9% HREO, 1.76% ZrO2
	Domain 3	**NKA09006**	110.5m - 297.39m:	186.89m @ 0.61% TREO, 59.3% HREO, 2.11% ZrO2
	Domain 2	**NKA09006**	297.39m - 300.9m:	3.51m @ 0.35% TREO, 61.3% HREO, 1.12% ZrO2
	Domain 2	**NKA09005**	0.45m - 38.0m:	37.55m @ 0.27% TREO, 68.9% HREO, 1.99% ZrO2
	Domain 3	**NKA09005**	38.0m - 245.07m:	207.07m @ 0.66% TREO, 53.3% HREO, 1.97% ZrO2
	Domain 2	**NKA09005**	245.07m - 251.5m:	6.43m @ 0.30% TREO, 62.3% HREO, 1.29% ZrO2
	Domain 2	**NKA10014**	1.95m - 11.35m:	9.4m @ 0.32% TREO, 63.0% HREO, 1.80% ZrO2
	Domain 3	**NKA10014**	11.35m - 106.15m:	94.8m @ 0.62% TREO, 53.0% HREO, 1.80% ZrO2
	Domain 3	**NKA09004**	2.55m - 63.0m:	60.45m @ 0.63% TREO, 51.1% HREO, 1.80% ZrO2
	Domain 4	**NKA09004**	63.0m - 129.25m:	66.25m @ 0.56% TREO, 40.1% HREO, 1.54% ZrO2
	Domain 3	**NKA09004**	129.25m - 172.52m:	43.27m @ 0.61% TREO, 54.1% HREO, 1.89% ZrO2
	Domain 2	**NKA09004**	172.52m - 228.2m:	55.68m @ 0.30% TREO, 60.7% HREO, 1.32% ZrO2
	Domain 4	**NKA09003**	3.0m - 45.6m:	42.6m @ 0.50% TREO, 37.4% HREO, 1.21% ZrO2
	Domain 3	**NKA09003**	45.6m - 101.45m:	55.85m @ 0.58% TREO, 50.7% HREO, 1.76% ZrO2
	Domain 2	**NKA09003**	101.45m - 145.08m:	43.63m @ 0.31% TREO, 60.1% HREO, 1.39% ZrO2
	Domain 3	**NKA09002**	0.5m - 46.9m:	46.4m @ 0.57% TREO, 54.9% HREO, 1.49% ZrO2
	Domain 2	**NKA09002**	46.9m:- 101.6m:	54.7m @ 0.30% TREO, 60.0% HREO, 1.21% ZrO2
	Domain 2	**NKA09002**	107.57m - 117.52m:	9.95m @ 0.20% TREO, 60.5% HREO, 1.28% ZrO2
	Domain 2	**NKA09001**	0.8m - 35.1m:	34.3m @ 0.31% TREO, 60.1% HREO, 1.45% ZrO2
SECTION DE	**Domain 2**	**NKA11040**	65.75m - 83.7m:	17.95m @ 0.22 % TREO, 65.9% HREO, 2.04% ZrO2
	Domain 3	**NKA11040**	83.7m - 187.0m:	103.3m @ 0.64 % TREO, 54.9 % HREO, 2.21 % ZrO2
	Domain 4	**NKA11040**	187.0m - 292.03m:	105.03m @ 0.63 % TREO, 51.4 % HREO, 1.68 % ZrO2
	Domain 3	**NKA11040**	292.03m - 298.8m:	6.77m @ 0.55 % TREO, 56.6 % HREO, 2.28 % ZrO2
	Domain 2	**NKA11039**	1.7m - 15.85m:	14.15m @ 0.27 % TREO, 65.2 % HREO, 2.41 % ZrO2
	Domain 3	**NKA11039**	15.85m - 92.47m:	76.62m @ 0.59 % TREO, 57.2 % HREO, 2.13 % ZrO2
	Domain 4	**NKA11039**	92.47m - 224.33m:	131.86m @ 0.56 % TREO, 39.2 % HREO, 1.40 % ZrO2
	Domain 3	**NKA11039**	224.33m - 252.64m:	28.31m @ 0.65 % TREO, 46.9 % HREO, 1.67 % ZrO2
	Domain 2	**NKA11039**	252.64m - 266.05m:	13.41m @ 0.31 % TREO, 63.2 % HREO, 1.35 % ZrO2
	Domain 3	**NKA11036**	1.45m - 28.57m:	27.12m @ 0.63 % TREO, 50.6 % HREO, 1.80 % ZrO2
	Domain 4	**NKA11036**	28.57m - 152.06m:	123.49m @ 0.51 % TREO, 40.3 % HREO, 1.34 % ZrO2
	Domain 4	**NKA11035**	59.18m - 86.0m:	26.82m @ 0.50 % TREO, 38.2 % HREO, 1.36 % ZrO2
	Domain 3	**NKA11035**	86.0m - 105.57m:	19.57m @ 0.70 % TREO, 41.9 % HREO, 1.77 % ZrO2
	Domain 2	**NKA11035**	105.57m - 124.77m:	19.2m @ 0.31 % TREO, 59.9 % HREO, 1.10 % ZrO2
	Domain 2	**NKA11035**	148.01m - 180.81m:	32.8m @ 0.21 % TREO, 65.6 % HREO, 1.25 % ZrO2
	Domain 4	**NKA11034**	15.5m - 21.86m:	6.36m @ 0.38 % TREO, 42.8 % HREO, 0.77 % ZrO2
	Domain 3	**NKA11034**	21.86m - 36.45m:	14.59m @ 0.51 % TREO, 38.6 % HREO, 1.30 % ZrO2
	Domain 2	**NKA11034**	36.45m - 51.49m:	15.04m @ 0.31 % TREO, 61.4 % HREO, 1.13 % ZrO2
	Domain 2	**NKA11034**	90.1m - 124.93m:	34.83m @ 0.27 % TREO, 61.2 % HREO, 1.28 % ZrO2
	Domain 2	**NKA11037**	3.53m - 50.36m:	46.83m @ 031% TREO, 61.4% HREO, 1.62% ZrO2
SECTION E	**Domain 3**	**NKA10026**	85.4m - 136.15m:	50.75m @ 0.65% TREO, 48.4% HREO, 1.79% ZrO2
	Domain 4	**NKA10026**	136.15m - 254.52m:	118.31m @ 0.62% TREO, 40.4% HREO, 1.47% ZrO23
	Domain 3	**NKA10026**	254.52m - 290.1m:	35.58m @ 0.71% TREO, 50.6% HREO, 1.83% ZrO2
	Domain 2	**NKA10025**	2.5m - 36.2m:	33.7m @ 0.22% TREO, 60.9% HREO, 1.07% ZrO2
	Domain 3	**NKA10025**	36.2m - 76.2m:	40.0m @ 0.61% TREO, 49.0% HREO%, 1.55% ZrO2
	Domain 4	**NKA10025**	76.2m - 123.8m:	47.6m @ 0.48% TREO, 39.3% HREO%, 1.26% ZrO2
	Domain 4	**NKA10025**	144.7m - 149.4m:	4.7m @ 0.40 % TREO, 45.3% HREO, 0.95% ZrO2
	Domain 4	**NKA10024**	2.9m - 51.3m:	48.4m @ 0.51 % TREO, 40.3% HREO, 1.31% ZrO2
	Domain 4	**NKA10024**	176.98m - 219.7m:	42.72m @ 0.51 % TREO, 43.0% HREO, 1.46% ZrO2
	Domain 3	**NKA10024**	219.7m - 248.83m:	29.13m @ 0.65 % TREO, 46.3% HREO, 1.53% ZrO2
	Domain 2	**NKA10024**	248.83m - 259.1m:	10.27m @ 0.31 % TREO, 60.8% HREO, 1.31% ZrO2
	Domain 4	**NKA11049**	81.77m - 121.77m:	40.0m @ 0.47 % TREO, 41.6% HREO, 1.30% ZrO2
	Domain 2	**NKA11049**	121.77m - 146.5m:	24.73m @ 0.27 % TREO, 62.4% HREO, 1.34% ZrO2
	Domain 4	**NKA10017**	27.97m - 34.75m:	6.78m @ 0.52 % TREO, 39.4% HREO, 1.42% ZrO2
	Domain 3	**NKA10017**	34.75m – 49.4m:	14.65m @ 0.71 % TREO, 49.5% HREO, 1.64% ZrO2
	Domain 2	**NKA10017**	49.4m - 77.95m:	28.55m @ 0.31 % TREO, 60.4% HREO, 1.31% ZrO2
	Domain 4	**NKA10018**	2.7m - 15.55m:	12.85m @ 0.48 % TREO, 40.4% HREO, 1.34% ZrO2
	Domain 2	**NKA10018**	15.55m - 28.25m:	12.7m @ 0.24 % TREO, 61.2% HREO, 1.03% ZrO2
SECTION EF	**Domain 2**	**NKA11038**	7.25m - 67.07m:	59.82m @ 0.2% TREO, 62.7% HREO, 1.10% ZrO2
	Domain 3	**NKA11038**	67.07m - 276.8m:	209.73m @ 0.69% TREO, 54.9% HREO, 1.86% ZrO2
	Domain 2	**NKA11038**	290.58m - 296.55m:	5.97m @ 0.35% TREO, 60.6% HREO, 1.79% ZrO2
	Domain 2	**NKA11033**	1.5m - 30.0m:	28.5m @ 0.2% TREO, 65.2% HREO, 1.30% ZrO2
	Domain 3	**NKA11033**	30.0m - 127.0m:	97.0m @ 0.65% TREO, 51.2% HREO, 1.70% ZrO2
	Domain 4	**NKA11033**	127.0m - 132.55m:	5.55m @ 0.61% TREO, 35.3% HREO, 1.01% ZrO2
	Domain 4	**NKA11033**	140.53m - 156.93m:	16.4m @ 0.66% TREO, 35.2% HREO%, 1.43% ZrO2
	Domain 3	**NKA11033**	156.93m - 228.8m:	71.87m @ 0.70 % TREO, 47.2% HREO, 1.65% ZrO2
	Domain 2	**NKA11033**	234.72m - 250.35m:	15.63m @ 0.29 % TREO, 62.5% HREO, 1.14% ZrO2
	Domain 3	**NKA11032**	4.16m – 23.4m:	19.24m @ 0.62% TREO, 46.8% HREO, 1.53% ZrO2
	Domain 4	**NKA11032**	23.4m – 89.23m:	65.83m @ 0.62% TREO, 41.8% HREO, 1.49% ZrO2
	Domain 3	**NKA11032**	89.23m – 151.7m:	62.47m @ 0.69% TREO, 50.9% HREO, 1.74% ZrO2
	Domain 2	**NKA11032**	151.7m –166.05m:	14.35m @ 0.27% TREO, 63.1% HREO, 1.10% ZrO2
	Domain 4	**NKA11016**	2.3m – 19.7m:	17.4m @ 0.40% TREO, 43.8% HREO, 1.20% ZrO2
	Domain 4	**NKA11016**	59.76m – 84.35m:	23.9m @ 0.56% TREO, 39.4% HREO, 1.40% ZrO2
	Domain 3	**NKA11016**	84.35m – 118.15m:	33.8m @ 0.68% TREO, 48.7% HREO, 1.78% ZrO2
	Domain 2	**NKA11016**	118.15m – 149.66m:	31.53m @ 0.28% TREO, 62.8% HREO, 1.24% ZrO2
	Domain 4	**NKA11031**	1.2m – 25.23m:	24.03m @ 0.59% TREO, 36.5% HREO, 1.28% ZrO2
	Domain 3	**NKA11031**	25.23m – 60.6m:	35.37m @ 0.60% TREO, 49.4% HREO, 1.55% ZrO2
	Domain 2	**NKA11031**	60.6m – 78.22m:	17.62m @ 0.25% TREO, 63.4% HREO, 1.07% ZrO2
SECTION F	**Domain 2**	**NKA10012**	39.6m - 82.8m:	43.2m @ 0.34% TREO, 62.5% HREO, 1.58% ZrO2
	Domain 2	**NKA10012**	128.65m - 152.5m:	23.85m @ 0.34% TREO, 60.7% HREO, 1.92% ZrO2
	Domain 2	**NKA10011**	11.85m - 17.4m:	4.97m @ 0.77% TREO55.4% HREO, 1.13% ZrO2
	Domain 3	**NKA10011**	28.22m - 126.45m:	98.23m @ 0.66% TREO, 59.1% HREO, 2.06% ZrO2
	Domain 2	**NKA10011**	132.9m - 149.8m:	16.9m @ 0.24% TREO, 61.1% HREO, 1.36% ZrO2
	Domain 3	**NKA10010**	4.4m - 64.85m:	60.45m @ 0.82% TREO, 55.8% HREO, 1.71% ZrO2
	Domain 3	**NKA10015**	5.9m - 24.0m:	18.1m @ 0.67% TREO, 54.1% HREO, 1.49% ZrO2
SECTION FG	**Domain 2**	**NKA11030**	34.17m - 183.13m:	147.91m @ 0.21 % TREO, 66.6% HREO, 1.16% ZrO2
	Domain 2	**NKA11029**	3.45m - 123.05m:	119.6m @ 0.23 % TREO, 64.6 % HREO, 1.16 % ZrO2
	Domain 3	**NKA11028**	8.45m - 19.97m:	12.61m @ 0.43 % TREO, 62.7 % HREO, 2.43 % ZrO2
	Domain 2	**NKA11028**	19.97m - 59.7m:	38.64m @ 0.25 % TREO, 64.1 % HREO, 1.80 % ZrO2
	Domain 2	**NKA11027**	8.1m - 20.8m:	12.7m @ 0.2 % TREO, 61.3 % HREO, 1.11 % ZrO2