Scott Wilson Mining

IGE NORDIC AB

TECHNICAL REPORT ON THE PRELIMINARY ASSESSMENT OF RÖNNBÄCKEN NICKEL PROJECT, SWEDEN

NI 43-101 Report

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SCOTT WILSON ROSCOE POSTLE ASSOCIATES INC.

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EXECUTIVE SUMMARY

INTRODUCTION

Scott Wilson Roscoe Postle Associates Inc. (Scott Wilson RPA) was retained by IGE Nordic AB (IGE) to prepare an independent Technical Report on the Rönnbäcken Nickel Project (the Project), located in Storuman municipality, Sweden. The purpose of this report is to review Mineral Resources, costs, mining and processing productivity, and to prepare an economic analysis based on studies done by IGE at a Preliminary Assessment level. This Technical Report conforms to National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101). Scott Wilson RPA visited the property on August 12-15, 2008, during the exploration drilling program.

The Rönnbäcken Nickel Project is situated in the mountain range of northern Sweden, about 25 km to the south of the village Tärnaby, Västerbotten County. The Project currently comprises seven granted mineral claims totalling 3,767 ha, 100% owned by IGE. There are a series of low grade nickel deposits amenable to open pit mining within the Project area. The Project currently includes two deposits: the Vinberget and Rönnbäcksnäset deposits.

This report is considered by Scott Wilson RPA to meet the requirements of a Preliminary Assessment as defined in Canadian NI 43-101 regulations. **The economic analysis contained in this report is partially based on Inferred Resources, and is preliminary in nature. Inferred Resources are considered too geologically speculative to have mining and economic considerations applied to them and to be categorized as Mineral Reserves. There is no certainty that the reserves development, production, and economic forecasts on which this Preliminary Assessment is based will be realized.**

CONCLUSIONS

Based on the Project site visit and review of the available data, Scott Wilson RPA offers the following interpretation and conclusions:

- The Rönnbäcken Project comprises two low grade, high tonnage, epigenetic Ni-sulphide deposits in serpentinized ultramafic rocks.

- The Ni sulphide minerals are predominantly pentlandite, heazlewoodite, with some millerite, which in combination with the absence of iron sulphide minerals typically associated with Ni sulphides are suitable for producing a high grade Ni concentrate.

- Inferred and Indicated Mineral Resources were estimated using a conventional computerized block modelling technique. Indicated Mineral Resources total 54.9 Mt grading 0.137% Ni in sulphides containing 75,000 t Ni. Inferred Mineral Resources total 192.9 Mt grading 0.107% Ni in sulphides containing 206,000 t Ni.

- The Project has potential to outline additional Mineral Resources based on the favourable geology of the area and recent exploration work.

- The shape of the deposits is suitable for high tonnage, low cost, open pit mining at a low strip ratio.

- The metallurgical test work indicates that a high grade Ni concentrate can be produced by conventional crushing, grinding, flotation, and dewatering.

- For base case economic analysis, the following inputs were used:
  - Nickel price of US$9.00 per pound
  - Initial capital costs of US$698 million
  - Operating costs of US$7.54 per tonne milled, or US$4.04 per pound of nickel recovered to concentrate (no byproduct credits included).

- The Project has an undiscounted pre-tax cash flow of US$662 million, an Internal Rate of Return (IRR) of 12.4%, and a Net Present Value (NPV) of US$142 million at an 8% discount rate.

- The base case total cash cost is US$5.55 per pound of nickel, net of byproduct credits. The Life of Mine (LOM) capital unit cost is US$1.92 per pound of nickel. The average annual nickel production during operations is 17,000 tonnes.

- The Project economics are most sensitive to the price of nickel, with a break-even price (NPV at 8% discount rate equal to zero) of $US8.33 per pound of nickel.

RECOMMENDATIONS

Scott Wilson RPA recommends that work on the Project continue to a Pre-Feasibility stage.

This Preliminary Assessment uses a base price of US$9.00 per lb Ni, which is at the upper limit of current long-term forecasts by banks and financial institutions, but is in line with prices required for producers to undertake future nickel projects. In Scott Wilson RPA's opinion, the project merits advancement under the following conditions:

- Consensus on higher long-term nickel prices by forecasters.

- Improvements in the Project cash flow break-even nickel price (currently US$8.33 per lb nickel), which could be achieved by improvements in resource quantities and grades, capital and operating costs, and metallurgical recovery.

Based on the review of the available data and studies undertaken as part of this Preliminary Assessment, Scott Wilson RPA offers the following recommendations:

- An exploration program should be conducted to delineate additional Mineral Resources, targeting higher grades than the current resource base. The program should comprise geological mapping, geophysics, and diamond drilling.

- Geotechnical data should be collected for use in determination of appropriate pit slope angles.

- The preliminary metallurgical test work was limited in scope. Future metallurgical test work is planned with an aim to improve recovery with a focus on the separation of fine nickel sulphide and gangue minerals. Scott Wilson RPA recommends that future metallurgical test work include locked cycle tests on blended samples of Vinberget and Rönnbäcksnäset ore, representative of the first few years of production, in order to validate metallurgical projections. Mini-pilot plant test work and verification of fully autogenous grinding and appropriate flotation retention time will also be required in subsequent phases.

- The Rönnbäcken concentrate will be very high grade, containing 25% to 30% Ni, due to the significant presence of heazlewoodite, Ni_3S_2. This provides some upside economic potential in that a smaller amount of concentrate needs to be shipped and smelted. However, the concentrate may contain much higher amounts of SiO_2 and MgO, and much lower amounts of S, than typical Ni concentrates due to entrainment of fine gangue minerals. Scott Wilson RPA recommends that the effect of this concentrate on downstream processing be thoroughly investigated at the next stage to determine the impact on the smelters and consequently the potential impact on smelting terms.

- The Project would be a very large tonnage operation by nickel mining project standards with no obvious comparables, however, it is reasonable to benchmark it with large tonnage greenfield copper projects. Scott Wilson RPA recommends that future project development work look closely at comparable greenfield projects in establishing pre-production development and operating costs.

The proposed work program is recommended in two phases, as follows:

1. Focus on increasing resource size and quality, and metallurgical optimization, to add value to the Project.

2. Complete a formal Pre-Feasibility Study, including upgrading resources to the Indicated category (estimated to require 40,000 m of drilling) and completion of metallurgical test work.

The estimated cost of the work for Phases 1 and 2 is summarized in Tables 1-1 and 1-2, respectively.

TABLE 1-1 RECOMMENDED WORK PROGRAM - PHASE 1
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Item	Units	Cost/Unit (US$)	Cost (US$)
Mapping/Sampling		Lump Sum	130,000
Diamond Drilling (200 m x 100 m)	10,000	130	1,300,000
Splitting/Assaying	5,000	115	575,000
Update Resource Estimate		Lump Sum	40,000
Geotechnical Study		Lump Sum	105,000
Met Optimization Test Work		Lump Sum	500,000
Supervision		Lump Sum	100,000
Total			**2,750,000**

TABLE 1-2 RECOMMENDED WORK PROGRAM – PHASE 2
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Item	Cost (US$)
Resource Upgrade	6,400,000
Metallurgical Test Work	1,000,000
PFS Study	1,200,000
Total	**8,600,000**

ECONOMIC ANALYSIS

An economic evaluation of the Project was undertaken using an incremental cash flow model built up from the Project capital expenditure requirements and annual operating costs throughout the Project life based on the mine and mill production schedules.

The model generates an annual and cumulated cash flow, commencing from the pre-production phase of Years -2 and -1 continuing through production in Years 1 to 13, when the economic resources which may potentially be mined are depleted, and the closure and site rehabilitation phase commences.

A base case model using a nickel price of US$9.00 per lb was used in order to estimate the NPV and IRR for the Project. Currently, this price is at the upper limit of long-term forecasts for nickel price from banks and financial institutions.

A pre-tax Cash Flow Projection has been generated from the LOM production schedule and capital and operating cost estimates, and is summarized in Table 1-3. A summary of the key criteria is provided below.

ECONOMIC CRITERIA

PHYSICALS

- Mine Life: 13 years
- Mine Production: 248 Mt ore
  181 Mt waste
- LOM Stripping Ratio: 0.73
- Concentrator Throughput: 60,000 tpd
- LOM Ni Recovery: 74.5%
- Average Annual Ni Production: 17,000 t

REVENUE

- Nickel Price: US$9.00/lb Ni
- Exchange Rate: 8.00 SEK/USD
- Smelter Terms: Per budgetary quotations from smelters
- Royalty: 0.2% of Gross Revenue
- LOM Average NSR: US$13.57/t

COSTS

- Operating Costs:
  - Mining Cost: US$1.58/t moved
    US$2.83/t milled
  - Processing: US$4.24/t milled
  - G&A: US$0.48/t milled
  - Total: US$7.55/t milled
    US$4.04/lb Ni in concentrate

- Capital Costs:
  - Initial: US$698 million
  - Sustaining: US$104 million
  - Closure: US$ 25 million
  - Total: US$827 million

Table 1-3 Life of Mine Cashflow
IGE Nordic - Rönnbäcken Project

			Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Total
Mining																				
Ore	tonnes '000s				14,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	13,524	-	-	**247,525**
Ni	%				0.121	0.122	0.126	0.125	0.123	0.107	0.109	0.107	0.106	0.107	0.109	0.106	0.115	-	-	**0.114**
Byproduct Metals	%				0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	-	-	**0.0010**
Strip Ratio					0.14	0.60	0.90	0.80	0.85	0.78	1.00	1.00	0.80	0.80	0.70	0.71	-	-	-	**0.73**
Waste	tonnes '000s				2,000	12,000	18,000	16,000	17,000	15,660	20,000	20,000	16,000	16,000	14,000	14,210	-	-	-	**180,869**
Processing																				
Recovery - Nickel Concentrate																				
Ni	%				74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	**75%**
Byproduct Metals	%				39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	**39.1**
Nickel Concentrate	tonnes				44,912	64,809	66,967	66,571	65,397	57,193	57,992	56,679	56,293	56,784	58,155	56,144	41,416	-	-	**749,312**
Ni	%				28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	**28.0**
Byproduct Metals	%				0.19	0.19	0.19	0.19	0.19	0.20	0.20	0.20	0.21	0.20	0.20	0.21	0.20			**0.20**
Recovered metal in concentrate																				
Ni	tonnes				12,575	18,146	18,751	18,640	18,311	16,014	16,238	15,870	15,762	15,899	16,283	15,720	11,597			**209,807**
Byproduct Metals	tonnes				524	753	768	765	757	700	705	696	693	697	706	692	492			**8,948**
Revenue																				
Payable Metal																				
Ni	lbs '000s				25,783	37,206	38,445	38,217	37,543	32,834	33,292	32,538	32,317	32,599	33,386	32,232	23,776	-	-	**430,167**
Byproduct Metals	lbs '000s				345	499	515	512	503	440	446	436	433	437	448	432	319			**5,766**
Metal Prices																				
Ni	$/lb				9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	**9.00**
Exchange Rate	EUR/USD				0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	**0.80**
Exchange Rate	SEK/USD				8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	**8.00**
Gross Revenue																				
Ni	$'000s				232,047	334,850	346,002	343,954	337,891	295,502	299,631	292,845	290,851	293,388	300,472	290,084	213,988	-	-	**3,871,505**
Byproduct Metals	$'000s				7,249	10,416	10,616	10,579	10,471	9,712	9,786	9,664	9,628	9,674	9,801	9,615	6,821			**124,031**
Total	**$'000s**				**246,546**	**345,266**	**356,618**	**354,533**	**348,361**	**305,213**	**309,417**	**302,509**	**300,480**	**303,062**	**310,273**	**299,699**	**220,809**	**-**	**-**	4,002,785
Royalties																				
Landowners	$'000s	0.15%			370	518	535	532	523	458	464	454	451	455	465	450	331	-	-	6,004
State	$'000s	0.05%			123	173	178	177	174	153	155	151	150	152	155	150	110	-	-	2,001
Total	**$'000s**	0.20%			**493**	**691**	**713**	**709**	**697**	**610**	**619**	**605**	**601**	**606**	**621**	**599**	**442**	**-**	**-**	8,006
Concentrate Charges																				
Total Charges	**$'000s**				**38,591**	**55,685**	**57,533**	**57,194**	**56,189**	**49,165**	**49,849**	**48,725**	**48,394**	**48,815**	**49,989**	**48,267**	**35,593**	**-**	**-**	643,990
Net Smelter Return	**$'000s**				**207,955**	**289,581**	**299,085**	**297,339**	**292,172**	**256,048**	**259,568**	**253,784**	**252,085**	**254,247**	**260,284**	**251,432**	**185,215**	**-**	**-**	3,358,795
	$/t				14.85	14.48	14.95	14.87	14.61	12.80	12.98	12.69	12.60	12.71	13.01	12.57	13.69			13.57
Operating Costs		Unit Costs																		
Mining	$'000s	1.58 $/t moved			21,166	44,034	54,269	54,959	56,204	55,375	65,650	69,186	64,530	64,530	56,558	51,599	19,720	-	-	**677,780**
Processing	$'000s	4.24 $/t milled			59,336	84,766	84,766	84,766	84,767	84,766	84,766	84,766	84,766	84,766	84,766	84,766	57,320	-	-	**1,049,085**
G&A	$'000s	0.48 $/t milled			6,672	9,532	9,532	9,532	9,532	9,532	9,532	9,532	9,532	9,532	9,532	9,532	9,532	9,532	9,532	**140,122**
Total	**$'000s**	**7.54 $/t milled**			**87,175**	**138,332**	**148,567**	**149,258**	**150,503**	**149,673**	**159,948**	**163,484**	**158,828**	**158,828**	**150,856**	**145,898**	**86,572**	**9,532**	**9,532**	**1,866,987**
		4.04 $/lb Ni (at gate)			3.14	3.46	3.59	3.63	3.73	4.24	4.47	4.67	4.57	4.53	4.20	4.21	3.39			**4.04**
Operating Cash Flow	**$'000s**				**120,780**	**151,248**	**150,518**	**148,082**	**141,670**	**106,375**	**99,619**	**90,300**	**93,257**	**95,419**	**109,428**	**105,534**	**98,643**	**- 9,532**	**- 9,532**	**1,510,873**
Capital Costs																				**-**
Mine	$'000s			-																**-**
Process	$'000s		118,398	135,313	84,570															**338,281**
Erection	$'000s		12,465	14,246	8,904															**35,616**
Infrastructure	$'000s		-	64,625																**64,625**
Tailings	$'000s			17,875			1,250	1,250	1,250	1,250	1,250	1,250	1,250	625	625	625				**28,500**
Indirects	$'000s	10%	13,086	23,206	9,347															**45,640**
ECPM	$'000s	15%	16,358	29,007	11,684															**57,050**
Contingency	$'000s	25%	40,077	71,068	28,626															**139,772**
Working Capital	$'000s				21,794												(21,794)			**-**
Sustaining	$'000s				6,044	2,015	2,015	2,015	10,073	10,073	10,073	10,073	10,073	10,073	10,073	10,073				**92,668**
Reclamation	$'000s																	12,500	12,500	**25,000**
Total	**$'000s**		**200,385**	**355,340**	**170,970**	**2,015**	**3,265**	**3,265**	**11,323**	**11,323**	**11,323**	**11,323**	**11,323**	**10,698**	**10,698**	**10,698**	**(21,794)**	**12,500**	**12,500**	**827,151**
Grants																				
Employment	$'000s		-	1,650 -	1,650 -	1,650														- **4,950**
Cashflow																				
Net Pre-Tax Cashflow	**$'000s**		**(200,385)**	**(353,690)**	**(49,033)**	**150,193**	**146,540**	**144,108**	**129,650**	**94,442**	**87,678**	**78,359**	**81,333**	**84,115**	**98,109**	**94,237**	**119,995**	**(22,032)**	**(22,032)**	**661,588**
Cumulative	$'000s		(200,385)	(554,075)	(603,108)	(452,915)	(306,374)	(162,266)	(32,616)	61,826	149,504	227,862	309,196	393,311	491,420	585,657	705,652	683,620	661,588	
Year					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Net Present Value	$'000s	6% discount rate	231,739																	
	$'000s	8% discount rate	141,960																	
	$'000s	10% discount rate	69,704																	
	$'000s	12% discount rate	11,332																	
Payback	years		5.2																	
Internal Rate of Return	%		12.4%																	
UNIT PRODUCTION COSTS																				
Operating	$/lb Ni	Net of byproduct credits			**4.60**	**4.93**	**5.08**	**5.13**	**5.23**	**5.76**	**6.01**	**6.22**	**6.11**	**6.07**	**5.72**	**5.73**	**4.85**			**5.55**
Capital	$/lb Ni																			**1.92**
Total	$/lb Ni																			**7.47**

CASH FLOW ANALYSIS

Considering the Project on a stand-alone basis, the undiscounted pre-tax cash flow totals US$631 million over the mine life, and simple payback occurs 62 months (5 years and 2 months) after the start of production. Discounting the cash flow at 8% yields an NPV of US$142 million. The internal rate of return is 12.4%.

SENSITIVITY ANALYSIS

A sensitivity analysis was carried out to model potential fluctuations of key input parameters to observe the impact on the Project's NPV. Most parameters were varied by +/- 10% and 20%, with the exceptions being recovery and mine life. The results are summarized in Figure 1-1 and Table 1-4.

- Nickel price (range US$7.20/lb - US$10.80/lb)
- Capital expenditure (range US$662 million - US$993 million)
- Plant recovery (range 70% - 80%)
- Operating expenditure (range US$6.03/t - US$9.05/t)
- Nickel grade (range 0.09% - 0.14%)
- Exchange rate (range SEK/USD 6.67:1 – 10:1)
- Mine life (range 98 Mt – 398 Mt)

FIGURE 1-1 SENSITIVITY ANALYSIS

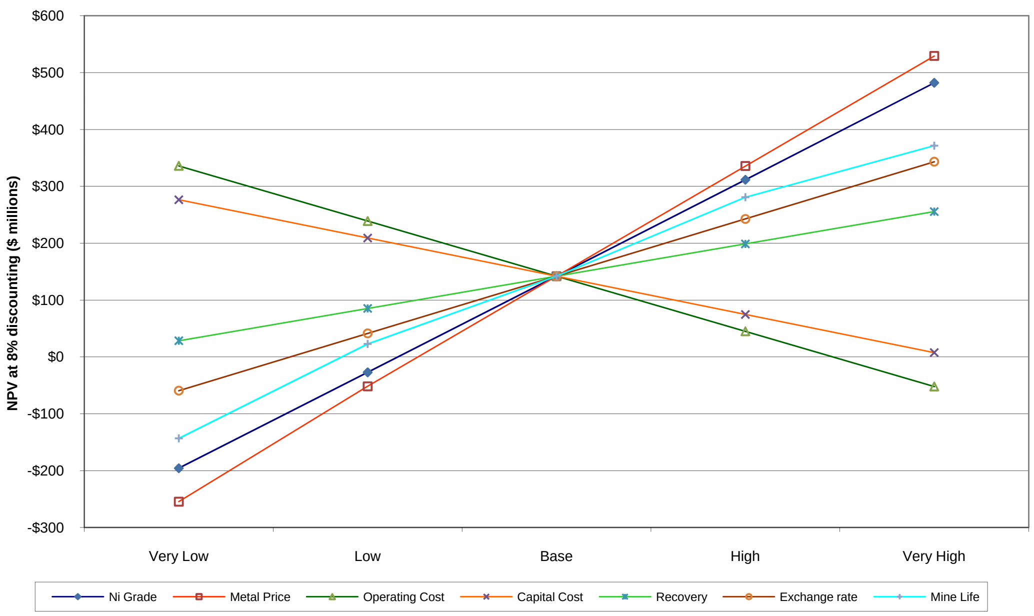


TABLE 1-4 SENSITIVITY ANALYSES
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Input	Units	Input Values -20%	-10%	Base Case	10%	20%
Metal Price	US$/lb Ni	7.20	8.10	9.00	9.90	10.80
Ni Grade	% Ni	0.091	0.102	0.114	0.125	0.137
Recovery	%	69.5	72.0	74.5	77.0	79.5
Operating Cost	US$/t	6.03	6.79	7.54	8.30	9.05
Capital Cost	US$ millions	662	744	827	909	993
Exchange Rate	SEK/USD	6.67	7.27	8.00	8.89	10.00
Mine Life	Million tonnes	98	173	248	323	398

Input	Units	NPV @ 8% Results -20%	-10%	Base Case	10%	20%
Metal Price	US$ millions	-254	-52	142	336	529
Ni Grade	US$ millions	-196	-27	142	311	482
Recovery	US$ millions	28	85	142	199	256
Operating Cost	US$ millions	336	239	142	45	-52
Capital Cost	US$ millions	276	209	142	75	8
Exchange Rate	US$ millions	-59	41	142	243	343
Mine Life	US$ millions	-152	13	142	267	359

TECHNICAL SUMMARY

PROPERTY DESCRIPTION AND LOCATION

The Rönnbäcken Nickel Project is located 25 km south-southeast of Tärnaby, Storuman Municipality, Västerbotten County, Sweden. The Project currently includes two deposits, Vinberget and Rönnbäcksnäset, and can be accessed from the town of Tärnaby by road E12 west for nine kilometres to the community of Ängesdal and then approximately 35 km of gravel roads to the Project. The nearest airport is Hemavan Tärnaby Airport, located in Hemavan, 15 km northwest of Tärnaby. The airport has daily flights from Stockholm depending on the season.

LAND TENURE

The Rönnbäcken nickel property consists of seven granted mineral claims (Rönnbäcksjön nos. 1 to 7) 100% owned by IGE, totalling 3,767 ha. Exploration licences are granted initially for three years, with possible extensions up to 15 years. Annual fees for the first three year period are SEK 4 (~US$0.56), SEK 6 (~US$0.84), and SEK 10 (~US$1.40) per hectare in each successive year.

SITE INFRASTRUCTURE

The Ajaure hydro power plant, rated for 75 MW, is located upstream of Lake Gardiken, approximately 20 km from the Project site by gravel road. European route E12 is 27 km from the Project site, running in a southeast-northwest direction connecting Storuman to the port of Mo i Rana in Norway. This port is 148 km distant and is the closest of three within 500 km. The nearest rail access is at the town of Storuman, 127 km to the southwest. Water is plentiful around the site, but permission must be obtained to use it.

HISTORY

The Boliden Mining Company (Boliden) first staked claims in two areas in 1942.

New metallurgical tests to recover nickel were performed in the 1960s, with promising results. Nickel metal prices were rising and a number of companies began to explore in the mountain chain and investigated assay techniques for nickel.

In the 1970s, the Royal Institute of Technology (KTH) in Stockholm conducted metallurgical research test work on the peridotites and serpentinites from the Caledonian mountain chain. Three diamond drill holes were drilled for metallurgical test work at the Murfjället, Graipisvare, and Rotiken properties.

Boliden drilled one diamond drill hole in 1972 along the road below IGE's Vinberget deposit. The core intersected 125 m of serpentinite and was used for metallurgical tests at KTH in Stockholm and Boliden.

Boliden performed metallurgical studies during the 1970s on the sulphide nickel bearing ultramafic rocks along the Caledonian mountain chain. Pilot mining of 4,000 tonnes in an open pit was conducted in 1974 along the road below Vinberget Hill. The sample was used for metallurgical test work in Boliden's pilot plant in Boliden, which produced nickel concentrates grading 26% Ni to 34% Ni, 1.5% Co, 5 g/t Au, and 2 g/t combined PGM at a recovery of 67% to 73%.

The Boliden mining leases were released in 2003 and IGE was granted the Rönnbäcksjön no. 1 exploration permit in the area around Vinberget in 2005. Three additional licences were granted over Rönnbäcksjön in 2007.

GEOLOGY

The Project is located in the Swedish Caledonian mountains, which were formed approximately 400-510 million years ago. The geology in the Rönnbäcken area is dominated by the Köli Nappe and includes the Tjopasi Group, in the Rönnbäcken area, that consists of phyllite and felsic to mafic metavolcanics and nickel bearing ultramafic rocks.

The ultramafic rocks occur as lenses of various sizes over an area of approximately 15 km^2. The complex folding has resulted in local variations in strike and dip. The ultramafic rocks are serpentinized, which is seen in the colour of the weathering surface. The most serpentinized rock is often grey, while more olivine and pyroxene rich rocks have a more brownish colour. The rocks vary from massive lenses to compositional layered rocks to erosion products such as serpentinite conglomerates and sandstones.

MINERAL RESOURCES AND MINERAL RESERVES

The Mineral Resources were estimated by Scott Wilson RPA and are summarized in Table 1-5.

TABLE 1-5 MINERAL RESOURCES – APRIL 9, 2009
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Deposit	Classification	Tonnes Resource (Mt)	Ni %	Grade Ni-AC %	Co %	Contained Metal Ni (t 000s)	Contained Metal Ni-AC (t 000s)
Vinberget	Indicated	54.9	0.187	0.137	0.009	102	75
Rönnbäcksnäset	Inferred	192.9	0.178	0.107	0.009	343	206
Total	**Indicated**	**54.9**	**0.187**	**0.137**	**0.009**	**102**	**75**
	Inferred	**192.9**	**0.178**	**0.107**	**0.009**	**343**	**206**

Notes:
1. Resources are consistent with CIM definitions.
2. Resources are estimated at US$7.50/lb Ni.
3. Resources are based on an optimized pit shell at a cut-off grade of 0.065% Ni in sulphides (Ni-AC).
4. Columns may not add exactly due to rounding.

The Mineral Resource estimate is based entirely on diamond drilling sampled on two metre intervals. Three dimensional wireframes were based on lithological contacts. Assays contained within the wireframes were composited to six metres. A block model, constrained by the serpentinite lithological model, was constructed with blocks 12 m by 12 m by 12 m. Search distances and directions were consistent with variography.

Optimized pit shells were created using Whittle software to provide a reasonable certainty that the mineralized material could cover the operating costs associated with open pit mining, processing, general and administrative costs.

There are no Mineral Reserves estimated for the Project. There has not been a study at the Pre-feasibility level to support the conversion of Mineral Resources to Mineral Reserves.

MINING OPERATIONS

The mining operation will comprise two open pits with 12 m benches. The open pit operation will include drilling 150 mm to 310 mm holes, blasting with emulsion, loading with large hydraulic shovels, and haulage with 225 t trucks for both ore and waste.

MINERAL PROCESSING

The Rönnbäcken flow sheet consists of crushing, grinding, flotation, and dewatering steps typical to Scandinavian concentrator operations, with several distinguishing features. The conceptual concentrator design has been provided by Outotec (Sweden) AB. The mill will have a capacity of 2,500 tonnes per hour, or 20 million tonnes per year, and produce approximately 60,000 tonnes per year of concentrate at 28% Ni.

ENVIRONMENTAL CONSIDERATIONS

At the exploration phase of the Project, there is no requirement for environmental permits for discharges from the activities in the area. In order to proceed to the next phase, i.e., an Exploitation Concession, which secures the holder the right to carry out mineral exploitation for a 25 year period, an Environmental Impact Assessment (EIA) will be required. The authorities require a simplified EIA to be included in the application for an Exploitation Concession. However, an Environmental Permit application to the Environmental Court requires a comprehensive EIA which should consider the following:

- Direct or indirect releases to surface water
- Emissions to air

- Noise and vibration
- Process and non-process waste generation and disposal
- Decommissioning

The main conflicting interest to a mining project in the Rönnbäcken area is reindeer husbandry, and the Vapsten Sámi village, a key local stakeholder. Even if there is no formal requirement for stakeholder consultations for an applicant to an Exploitation Concession, the company considers consultation with the Sámi village important and has initiated such a process from an early stage, to discuss plans for potential mining activities in the area. A result of the consultation is an agreement between IGE and the Vapsten Sámi village to conduct a study on the Project's expected impact on the reindeer herding operations of Vapsten including social aspects. The study would eventually form part of the EIA.

CAPITAL AND OPERATING COST ESTIMATES

The capital costs for the Project are summarized in Table 1-6.

TABLE 1-6 CAPITAL COSTS
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

	Item	US$ millions
Initial Capital	Mine	-
	Process	338
	Erection	35
	Infrastructure	65
	Tailings	18
	Total Direct Costs	**456**
	Indirects	46
	EPCM	57
	Contingency	139
	Total Initial Capital	**698**
Ongoing Capital	Sustaining	104
	Reclamation	25
	Life of Mine Total	**827**

The operating costs for the Project are summarized in Table 1-7.

TABLE 1-7 OPERATING COSTS
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Item	US$
Mining	1.58/t moved
Mining	2.82/t milled
Processing	4.24/t milled
G&A	0.48/t milled
Total	**7.54/t milled**

2 INTRODUCTION

Scott Wilson Roscoe Postle Associates Inc. (Scott Wilson RPA) was retained by IGE Nordic AB (IGE) to prepare an independent Technical Report on the Rönnbäcken Nickel Project (the Project), near the town of Tärnaby, Storuman Municipality, Sweden. The purpose of this report is to review Mineral Resources, costs, mining and processing productivity, and to prepare an economic analysis based on studies done by IGE at a Preliminary Assessment level. This Technical Report conforms to National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101).

IGE is a subsidiary of International Gold Exploration IGE AB and is focused on exploration and development of projects in Sweden and Norway. IGE core commodities are nickel, gold, and copper and it is a locally based company with a diversified portfolio of exploration projects in Sweden and Norway.

The Rönnbäcken Nickel Project is situated in the mountain range of northern Sweden, about 25 km to the south of the village Tärnaby, Västerbotten County. The Project is currently under an exploration licence and ownership is 100% IGE Nordic. There are a series of low grade nickel deposits amenable to open pit mining in the Project area. The Project currently includes two deposits: the Vinberget and Rönnbäcksnäset deposits.

Currently, the major assets and facilities associated with the Project are:

- Mineral Resources associated with the Vinberget and Rönnbäcksnäset deposits.
- The Ajaure hydro power plant, rated for 75 MW, located upstream of Lake Gardiken, approximately 20 km from the Project site by gravel road.
- European route E12, 27 km from the Project site, running in a southeast-northwest direction connecting Storuman to the port of Mo i Rana in Norway.

Scott Wilson RPA has had no previous involvement with the Project.

This report is considered by Scott Wilson RPA to meet the requirements of a Preliminary Assessment as defined in Canadian NI 43-101 regulations. **The economic analysis contained in this report is partially based on Inferred Resources, and is preliminary in nature. Inferred Resources are considered**

too geologically speculative to have mining and economic considerations applied to them and to be categorized as Mineral Reserves. There is no certainty that the reserves development, production and economic forecasts on which this Preliminary Assessment is based will be realized.

SOURCES OF INFORMATION

A site visit was carried out by Wayne W. Valliant, P. Geo., Scott Wilson RPA Principal Geologist, on August 12-15, 2008, with the primary purpose of reviewing IGE Nordic's work including quality assurance/quality control (QA/QC) and diamond drill hole spacing.

Discussions were held with personnel from IGE

- Fredric Bratt, Chief Executive Officer
- Benny Mattsson, Exploration Manager
- Bill Mercer, Consulting Geologist
- Thomas Månsson, Project Geologist, Rönnbäcken Project
- Tony Ökvist, Manager Nordic Area, ALS Laboratory Group

Subsequently, discussions have been held with:

- Dave Jakelski, Consultant
- Rolf Ritzen, Mining Consultant
- Fred Mellberg, Manager Mineral Processing & Environment, IGE
- Marja Kirves, Consultant
- Per Broman, Environmental Consultant
- Torsten Lundström, Power & Energy Consultant

The documentation reviewed, and other sources of information, are listed at the end of this report in Section 21, References.

LIST OF ABBREVIATIONS

Units of measurement used in this report conform to the SI (metric) system. All currency in this report is US dollars (US$) unless otherwise noted.

μ	micron	kPa	kilopascal
°C	degree Celsius	kVA	kilovolt-amperes
°F	degree Fahrenheit	kW	kilowatt
μg	microgram	kWh	kilowatt-hour
A	ampere	L	litre
a	annum	L/s	litres per second
bbl	barrels	m	metre
Btu	British thermal units	M	mega (million)
C$	Canadian dollars	m^2	square metre
cal	calorie	m^3	cubic metre
cfm	cubic feet per minute	min	minute
cm	centimetre	MASL	metres above sea level
cm^2	square centimetre	mm	millimetre
d	day	mph	miles per hour
dia.	diameter	MVA	megavolt-amperes
dmt	dry metric tonne	MW	megawatt
dwt	dead-weight ton	MWh	megawatt-hour
ft	foot	m^3/h	cubic metres per hour
ft/s	foot per second	opt, oz/st	ounce per short ton
ft^2	square foot	oz	Troy ounce (31.1035g)
ft^3	cubic foot	oz/dmt	ounce per dry metric tonne
g	gram	ppm	part per million
G	giga (billion)	psia	pound per square inch absolute
Gal	Imperial gallon	psig	pound per square inch gauge
g/L	gram per litre	RL	relative elevation
g/t	gram per tonne	s	second
gpm	Imperial gallons per minute	SEK	Swedish krona
gr/ft^3	grain per cubic foot	st	short ton
gr/m^3	grain per cubic metre	stpa	short ton per year
hr	hour	stpd	short ton per day
ha	hectare	t	metric tonne
hp	horsepower	tpa	metric tonne per year
in	inch	tpd	metric tonne per day
in^2	square inch	US$	United States dollar
J	joule	USg	United States gallon
k	kilo (thousand)	USgpm	US gallon per minute
kcal	kilocalorie	V	volt
kg	kilogram	W	watt
km	kilometer	wmt	wet metric tonne
km/h	kilometer per hour	yd^3	cubic yard
km^2	square kilometer	yr	year

3 RELIANCE ON OTHER EXPERTS

This report has been prepared by Scott Wilson Roscoe Postle Associates Inc. (Scott Wilson RPA) for IGE Nordic AB. The information, conclusions, opinions, and estimates contained herein are based on:

1. Information available to Scott Wilson RPA at the time of preparation of this report,
2. Assumptions, conditions, and qualifications as set forth in this report, and
3. Data, reports, and other information supplied by IGE Nordic AB and other third party sources.

For the purpose of this report, Scott Wilson RPA has relied on ownership information provided by IGE Nordic AB. Scott Wilson RPA has not researched property title or mineral rights for the Rönnbäcken Project, and expresses no opinion as to the ownership status of the property.

Scott Wilson RPA has relied on IGE Nordic AB for guidance on applicable taxes, royalties, and other government levies or interests, applicable to revenue or income regarding the Project.

Except for the purposes legislated under provincial securities laws, any use of this report by any third party is at that party's sole risk.

4 PROPERTY DESCRIPTION AND LOCATION

The Rönnbäcken Nickel Project is located 25 km south-southeast of Tärnaby, Storuman Municipality, Västerbotten County, as illustrated in Figure 4-1.

The Rönnbäcksjön no. 1 permit is on Vinberget Mountain on the mainland south of Lake Gardiken. The Rönnbäcksjön no. 2 to 6 permits are located in what now is an island, Rönnbäcksnäset, in Lake Gardiken, and the no. 7 permit which is on the north side of Lake Gardiken. The island was created in 1963 when a hydro power station was built and raised the water levels. The properties are centred at approximately:

RT 90 2.5 gon V 0:-15; 148200E, 726600N
SWEREF 99 lat long (WGS84); north latitude 65°29’43”; west longitude 15°24’58”

PROPERTY TENURE

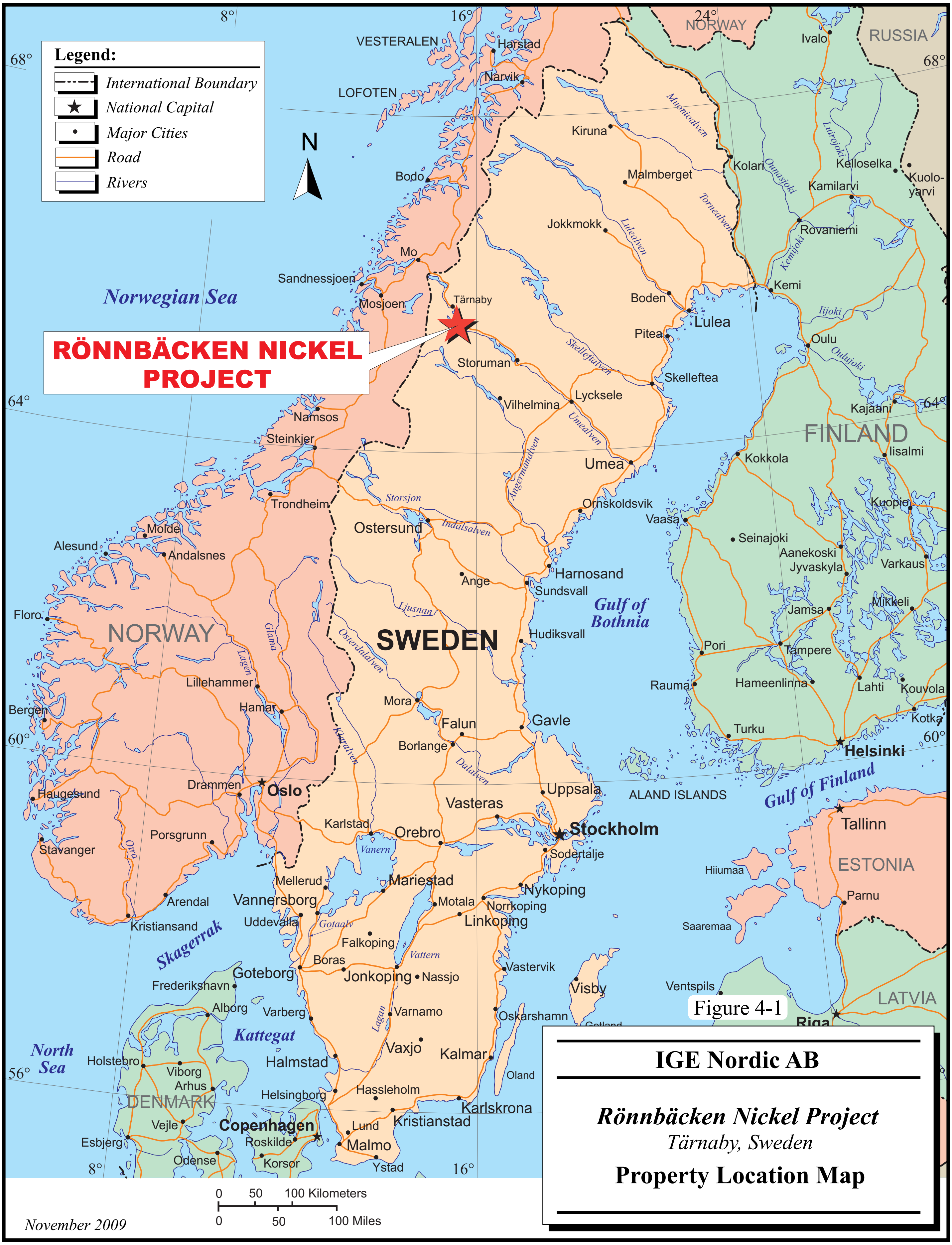
The Rönnbäcken nickel property consists of seven granted mineral exploration licences (Rönnbäcksjön nos. 1 to 7) 100% owned by IGE Nordic AB, totalling 3,767 ha. Exploration licences are granted initially for three years, with possible extensions up to 15 years. Annual fees for the first three year period are SEK 4 (~US$0.56), SEK 6 (~US$0.84), and SEK 10 (~US$1.40) per hectare in each successive year. Table 4-1 summarizes the status of the claims.

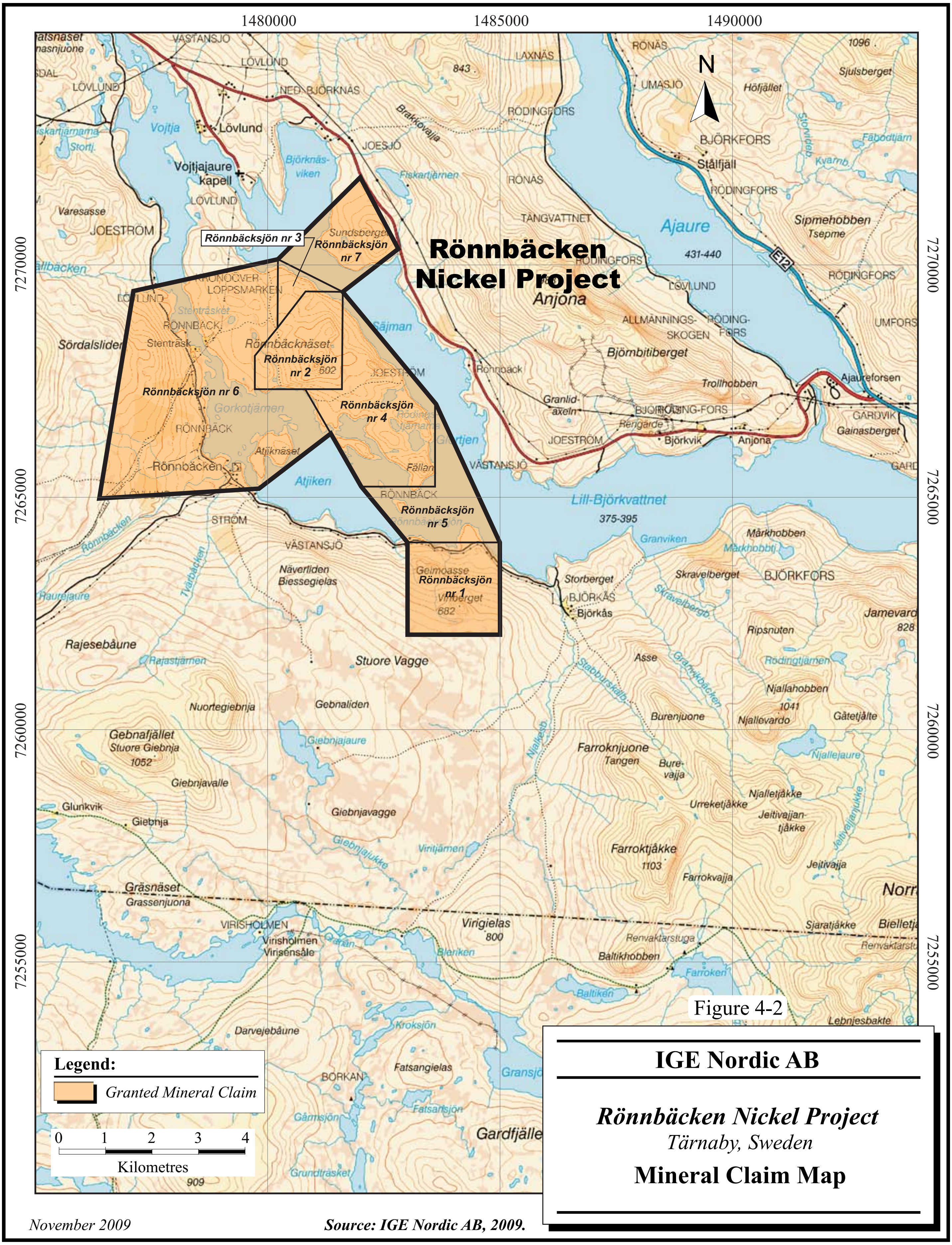
TABLE 4-1 IGE CLAIMS, RÖNNBÄCKEN PROJECT
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Licence Number	Claim Name	Granting Date	Expiry Date	Hectares
200-454-2005	Rönnbäcksjön no. 1	2005-08-01	2011-08-01	400
200-1396-07	Rönnbäcksjön no. 2	2007-02-08	2010-02-08	322
200-1009-07	Rönnbäcksjön no. 3	2007-12-11	2010-12-11	72
200-1010-07	Rönnbäcksjön no. 4	2007-12-11	2010-12-11	642
200-527-2009	Rönnbäcksjön no. 5	2009-06-11	2012-06-11	342
200-528-09	Rönnbäcksjön no. 6	2009-06-25	2012-06-25	1683
200-1015-2009	Rönnbäcksjön no. 7	2009-10-01	2012-10-01	306

A mineral claim granted by the Mining Inspectorate can be appealed by land owners or other organizations or people that have interest in the area. The Sami people are significant users of the land in northern Sweden for reindeer herding. Although the

Vapsten Sami village appealed the issue of the mineral claims of Rönnbäcksjön nos. 1 to 6 to civil court for disturbance of their reindeer herding, the appeals were resolved by the county administrative court (Länsrätten).


Legend:
International Boundary
National Capital
Major Cities
Road
Rivers
N
RÖNNBÄCKEN NICKEL PROJECT
Norwegian Sea
North Sea
Skagerrak
Kattegat
Gulf of Bothnia
Gulf of Finland
NORWAY
SWEDEN
FINLAND
RUSSIA
ESTONIA
LATVIA
DENMARK
ALAND ISLANDS
VESTERALEN
LOFOTEN
Harstad
Narvik
Kiruna
Malmberget
Jokkmokk
Bodo
Mo
Sandnessjoen
Mosjoen
Tärnaby
Storuman
Vilhelmina
Lycksele
Boden
Lulea
Pitea
Skelleftea
Umea
Namsos
Steinkjer
Trondheim
Ostersund
Ornskoldsvik
Vaasa
Molde
Alesund
Andalsnes
Ange
Harnosand
Sundsvall
Hudiksvall
Floro
Lillehammer
Hamar
Bergen
Mora
Falun
Borlange
Gavle
Uppsala
Vasteras
Stockholm
Sodertalje
Oslo
Drammen
Haugesund
Stavanger
Porsgrunn
Karlstad
Orebro
Mellerud
Mariestad
Vannersborg
Uddevalla
Motala
Norrkoping
Nykoping
Linkoping
Arendal
Kristiansand
Falkoping
Boras
Goteborg
Jonkoping
Nassjo
Vastervik
Visby
Frederikshavn
Alborg
Varberg
Varnamo
Oskarshamn
Vaxjo
Kalmar
Oland
Halmstad
Holstebro
Viborg
Arhus
Helsingborg
Hassleholm
Karlskrona
Kristianstad
Lund
Malmo
Ystad
Copenhagen
Roskilde
Korsor
Odense
Vejle
Esbjerg
Ivalo
Kolari
Kelloselka
Kuolo-yarvi
Kamilarvi
Rovaniemi
Kemi
Oulu
Kajaani
Kokkola
Iisalmi
Kuopio
Seinajoki
Aanekoski
Jyvaskyla
Varkaus
Mikkeli
Jamsa
Pori
Tampere
Rauma
Hameenlinna
Lahti
Kouvola
Kotka
Turku
Helsinki
Tallinn
Hiiumaa
Parnu
Saaremaa
Ventspils
Riga
Muonioalven
Torneälven
Luleälven
Skellefteälven
Umeälven
Angermanälven
Storsjon
Indalsälven
Ljusnan
Osterdalälven
Klarälven
Dalälven
Glama
Lagen
Otra
Vanern
Gotaälv
Vattern
Lagan
Ounasjoki
Luiro joki
Kemijoki
Iijoki
Oulujoki
8°
16°
24°
68°
64°
60°
56°
0 50 100 Kilometers
0 50 100 Miles
November 2009
Figure 4-1
IGE Nordic AB
Rönnbäcken Nickel Project
Tärnaby, Sweden
Property Location Map



Rönnbäcken Nickel Project
Rönnbäcksjön nr 1
Rönnbäcksjön nr 2
Rönnbäcksjön nr 3
Rönnbäcksjön nr 4
Rönnbäcksjön nr 5
Rönnbäcksjön nr 6
Rönnbäcksjön nr 7
N
1480000
1485000
1490000
7270000
7265000
7260000
7255000
Ajaure
Lill-Björkvattnet
Vojtja
Säjman
Atjiken
Anjona
Legend:
Granted Mineral Claim
0 1 2 3 4
Kilometres
IGE Nordic AB
Rönnbäcken Nickel Project
Tärnaby, Sweden
Mineral Claim Map
November 2009
Source: IGE Nordic AB, 2009.

Figure 4-2

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

ACCESSIBILITY

The Rönnbäcken Project can be accessed from the town Tärnaby by road E12 west for nine kilometres to the community of Ängesdal and then approximately 35 km of gravel roads to the Project.

The nearest airport is Hemavan Tärnaby Airport in Hemavan, 15 km northwest of Tärnaby. The airport has daily flights from Stockholm depending on the season.

CLIMATE

The area has a humid cold temperate climate of a continental type. Between the years 1961 and 1990, the average annual temperature in Hemavan (about 15 km northwest of Tärnaby) was -0.5°C, with an average rainfall of 745 mm/year. Annual rainfall in the Lapland Mountains ranges between 1,000 mm and 1,500 mm. The mean winter temperature (December-January) in Tärnaby is -11.5°C, with occasional low temperatures of -40°C.

INFRASTRUCTURE

The Ajaure hydro power plant, rated for 75 MW, is located upstream of Lake Gardiken, approximately 20 km from the Project site by gravel road. European route E12 is 27 km from the Project site, running in a southeast-northwest direction connecting Storuman to the port of Mo i Rana in Norway. This port is 148 km distant and is the closest of three within 500 km. The nearest rail access is at the town of Storuman, 127 km to the southeast. Water is plentiful around the site, but permission must be obtained to use it.

PHYSIOGRAPHY

The elevation within the claims ranges from 390 MASL to 666 MASL, i.e., a difference of about 280 m from the lowest to the highest point. The claims are in low mountain terrain which for the most part is covered by coniferous forest, principally spruce and pine trees, except for some higher areas in which birch trees predominate.

Lake Gardiken surrounds the island of Rönnbäcksnäset and is controlled by Gardiken hydro power station which is located at the Lake Gardiken outlet in Umeälven approximately 300 km from the river mouth. The power station dam created a head pond representing several years supply of approximately 875 million m^3. Water levels throughout the year may vary as much as 20 m.

The continental glaciation movement direction in the area is from the southeast. The till cover in the claims is generally thin but can be up to 20 m thick in some places.

The most frequent type of exposed lithology in the area is ultramafic rock, as this rock type has been more resistant to glacial erosion compared to the surrounding phyllites.

6 HISTORY

The chromite exploration campaign during the Second World War resulted in a discovery of nickel rich sulphides in the ultra-mafic rocks from Björkvattnet-Seimajaure region. Some extraction test work for nickel was undertaken without success.

The Boliden Mining Company (Boliden) first staked claims in two areas in 1942.

New metallurgical tests to recover nickel were performed in the 1960s with promising results. Nickel metal prices were rising and a number of companies began to explore in the mountain chain and investigated assay techniques for nickel.

In the 1970s, Professor P. G. Khilstedt at the Royal Institute of Technology (KTH) in Stockholm conducted research studies on the extraction of nickel from the peridotites and serpentinites from the Caledonian mountain chain. The work was funded by the Board for Technical Development (STU, today NUTEC), The Northland Fund (Norrlandsfonden), and a private company of the Johnson Group. Three diamond drill holes were drilled at the Murfjället, Graipisvare, and Rotiken properties funded by the Northland Fund. The cores were used for metallurgical test work.

Boliden drilled one core hole in 1972 along the road below IGE's Vinberget deposit. The core intersected 125 m of serpentinite and was used for metallurgical tests at KTH in Stockholm and Boliden. The surveys were supplemented by studies of the possible by-products, including magnesite and brucite, for extraction of magnesium.

Boliden performed extensive studies during the 1970s on the sulphide nickel bearing ultramafic rocks along the Caledonian mountain chain. In Rönnbäcken, grab samples were taken by blasting of exposed outcrops (68 samples in total). The samples were distributed over the exposed outcrops on Vinberget and on parts of Rönnbäcksnäset. The samples were analyzed for sulphur, total nickel, and bromine-methanol-soluble nickel. The latter was intended to reflect the grades of nickel sulphides. Metallurgical tests were carried out on some of the samples.

Boliden drilled a total of 21 holes in the area. Apart from the hole below Vinberget Hill, they drilled 20 core holes on the Rönnbäcksnäset Island. The holes on

Rönnbäcksnäset consisted mainly of short vertical holes of approximately 10 m, one vertical hole down to 50 m, and one inclined hole (50^{o}) 81.4 m. Analysis was conducted on sulphur, total nickel, and bromine-methanol-soluble nickel, the latter representing sulphide nickel. The boreholes were not drilled for resource estimates, but to highlight the vertical distribution of nickel sulphides. Analysis was made in intervals of 10 cm to five metres. No significant leaching of sulphide nickel was detected at surface. The leaching of nickel in sulphides was to a depth of less than 0.5 cm to 1.0 cm and this correlates to the weathering that also could visually be seen in the colour, brown to greyish, of the surface.

Pilot mining of 4,000 tonnes in an open pit was conducted in 1974 by the road below Vinberget Hill. The average grade of the bulk sample was 0.21% Ni, 0.11% Ni in sulphides, and 0.07% S. The sample was used for metallurgical test work in Boliden's pilot plant in Boliden, which produced nickel concentrates grading 26% Ni to 34% Ni, 1.5% Co, 5 g/t Au, and 2 g/t combined PGM at a recovery of 67% to 73%.

The investigations in outcrops, core drilling, and beneficiation experiments were compiled and used for an application of mining leases (“utmålsansökan”) submitted in 1976 for an area on Rönnbäcksnäset and one area on Vinberget.

A mining licence was only granted to those restricted areas where the drill holes and pilot mine were located, and not the parts that were sampled in outcrops. The mining leases Rönnbäck no. 26 and no. 59 were granted to Boliden in 1982 following the application in 1976. In 1990-1993, Boliden held a claim in connection with the mining leases, but no exploration was carried out. The mining leases were released in 2003 by a notification of withdrawal from Boliden Mineral AB.

IGE was granted the Rönnbäcksjön no. 1 exploration permit in the area around Vinberget in 2005. Three licences were granted over Rönnbäcksjön in 2007 and three more in 2009.

7 GEOLOGICAL SETTING

REGIONAL GEOLOGY

The Rönnbäcken Project is located in the Swedish Caledonian mountains, which were formed approximately 400-510 million years ago when the spreading of the Iapetus Ocean, which previously had been formed during the late Precambrian outside of the continent Baltica, started to decrease. The ocean crust moved downward along a subduction zone, with simultaneous build-up of sediment-filled basins linked to island arches along the marginal zones of the ocean. The collision between Baltica and the Iapetus Ocean, and eventually between the two continents Baltica and Laurentia, created an extensive rock complex that was then thrusted over the Baltoskandic shield. These units are termed allochthons, subdivided into nappe and nappe complexes, and may have been transported several hundreds of kilometres to the east or southeast over the shield. The top nappe is usually the one with the longest transport distance, while the lower units are more local. Alpine-type ultramafic rocks are tectonically displaced from the mantle into the crust. They occur along nappe boundaries in the Scandinavian Caledonides and most frequently in the Upper Allochtonous which host the Seve and Köli nappes. The regional geology is illustrated in Figures 7-1 and 7-2.

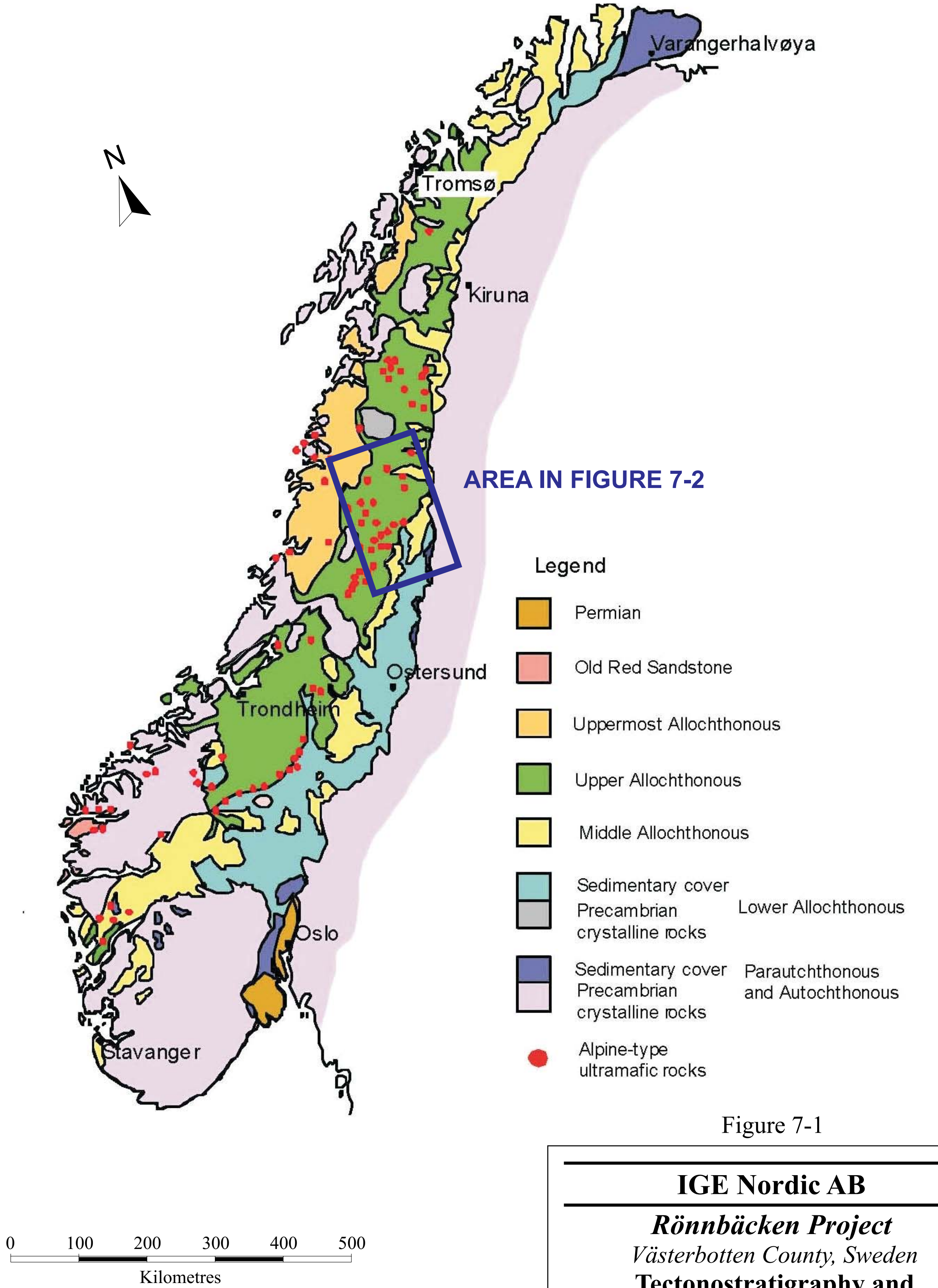


Figure 7-1

IGE Nordic AB

Rönnbäcken Project

Västerbotten County, Sweden

Tectonostratigraphy and Alpine-Type Ultramafic Rocks of Scandinavian Caledonides

November 2009 ***Source: Roberts & Gee, 1985, Ovale & Stigh, 1985.***

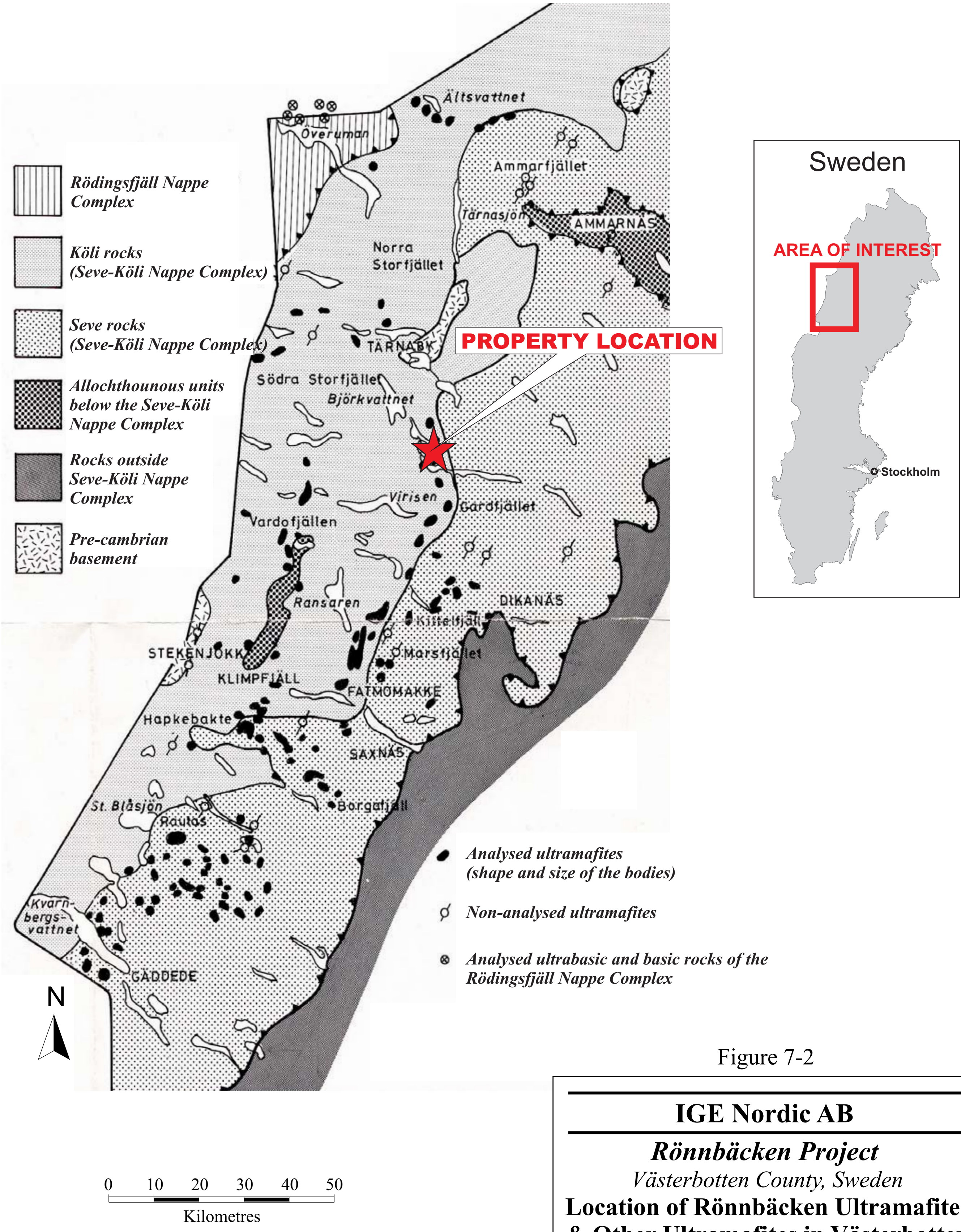


Figure 7-2

IGE Nordic AB

Rönnbäcken Project

Västerbotten County, Sweden

Location of Rönnbäcken Ultramafites & Other Ultramafites in Västerbotten and Northern Jämtland County

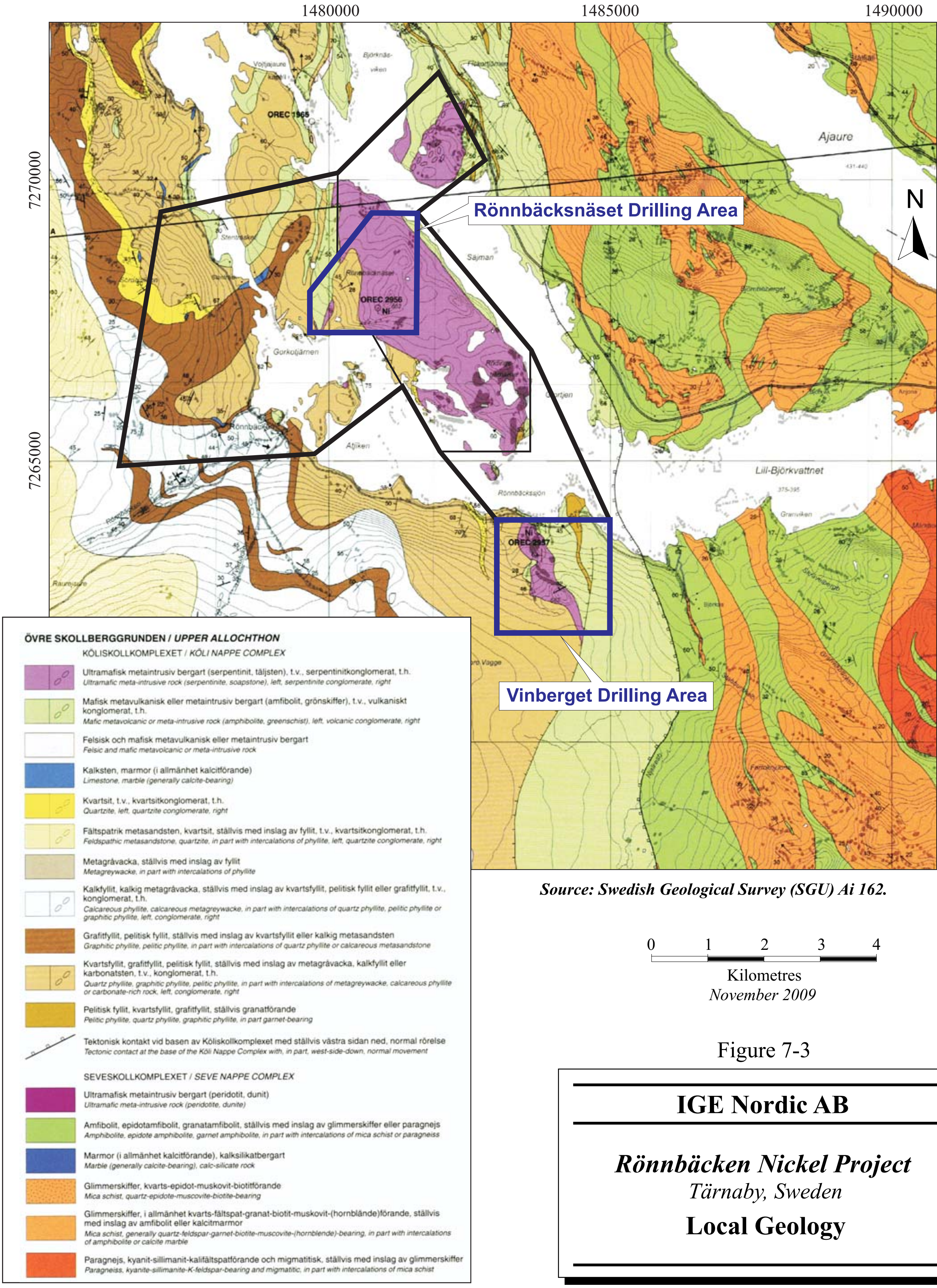
November 2009

Source: J. Stigh, 1979.

LOCAL GEOLOGY

The geology in the Rönnbäcken area is dominated by the Köli Nappe which is situated near the border to the Seve Nappe in the east. The Köli Nappe includes rocks of greenschist metamorphic facies and the Seve Nappe rocks, which are of higher metamorphic facies, mainly amphibolite facies. The rocks in the Köli Nappe include the Tjopasi Group, in the Rönnbäcken area, that consists of phyllite and felsic to mafic metavolcanics and nickel bearing ultramafic rocks. The ultramafic rocks occur as lenses of various sizes over an area of approximately 15 km^2. The complex folding has resulted in local variations in strike and dip. The ultramafic rocks are serpentinized, which is seen in the colour of the weathering surface. The most serpentinized rock is often grey, while more olivine and pyroxene rich rocks have a more brownish colour.

The rocks vary from massive lenses to compositional layered rocks to erosion products such as serpentinite conglomerates and sandstones. In general, the ultramafic rocks are more serpentinized in the Köli Nappe, while the Seve Nappe consists of rocks that are more olivine and pyroxene rich and also contain less nickel in sulphides. Figure 7-3 illustrates the local geology.



Source: Swedish Geological Survey (SGU) Ai 162.

November 2009

Figure 7-3

IGE Nordic AB

Rönnbäcken Nickel Project
Tärnaby, Sweden

Local Geology

PROPERTY GEOLOGY

The property geology in the Rönnbäcken local area comprises highly serpentinized rocks, which have been the target for the exploration of sulphide nickel mineralization. Limited modern geological field mapping or sampling has been done in the area. Some of the ultramafic lenses known in the area are less serpentinized and are therefore of less interest for nickel sulphide mineralization.

The Vinberget deposit comprises a homogeneous serpentinized tabular-shaped deposit up to 300 m thick and more than 700 m long. The serpentinite is steeply dipping to the northeast and plunges to the northwest. The mineralization is surrounded mainly by graphite bearing pelitic phyllite with intense quartz veining. In the contacts between the serpentinite and phyllite, a contact zone of soapstone is up to five metres, although it usually is less than one metre. The foliation of the surrounding phyllite follows the contact zone.

The serpentinite in the Rönnbäcksnäset deposit occurs as two horizons separated by 80 m to 140 m of chlorite schist. The horizons dip approximately 45° west in the north and flatten out into a bowl shaped geometry to a dip of roughly 30° north in the southwest.

The upper horizon is thin and of less economic interest and is likely not present in the southwestern area. It is overlain by pelitic phyllites, while chlorite dominates altered phyllite between the upper and lower slab. The lower serpentinite horizon that is of economic interest is divided into four units:

1. Upper serpentinite unit
2. Lower serpentinite unit
3. Mafic intrusion unit
4. Low sulphur unit

The mafic intrusion is found mainly between the upper and lower serpentinite unit throughout the area. The low sulphur unit is found in the two western sections in the Rönnbäcksnäset south area. Below the lower serpentinite horizon, pelitic phyllite occurs. In the phyllite, minor quartz conglomerate horizons occur within a couple of metres of the serpentinite contact.

8 DEPOSIT TYPES

The mineralization is mainly of an epigenetic, nickel-sulphide type, with minor magmatic nickel sulphides. Nickel was originally located mainly in the olivine lattice in the ultramafic rocks, such as dunites and peridotites. Due to serpentinization of the olivine, the nickel in the olivine was released and nickel bearing sulphides were formed depending on available sulphur.

Olivine in the ultramafic rocks is magnesium-dominant and contains up to 0.5% NiO. Serpentinization of ultramafic rocks and the olivine occurs through the supply of water, S, and CO_2.

Olivine (Ni) + H_2O + S_2 + CO_2 $\rightarrow$ Serpentine + Brucite + Carbonates + Fe_3O_4 + Ni_xSy* + H_2

* Ni-rich sulphides

By experimental studies, synthetic nickel bearing olivine has been serpentinized at 350°C under a pressure of 2 kbar by adding sulphur and water. Olivine was transformed to serpentinite, brucite, and magnetite, and nickel rich sulphides were formed such as millerite (NiS), pentlandite ($(Fe, Ni)_9 S_8$), heazlewoodite (Ni_3S_2), and bravoite ($(Fe, Ni, Co) S_2$). Low sulphur fugacity favours the formation of heazlewoodite and nickel rich magnetite. At higher sulphur fugacity, lower nickel values are found in magnetite, including iron sulphides as pyrite. Dehydration experiments (at 500°C) have shown that, based on the presence of brucite and serpentine, it is possible to get reformation of new olivine which is more magnesium rich than the original olivine. This is interpreted as magnetite and pentlandite being stable during the created metamorphic conditions.

9 MINERALIZATION

The nickel mineralization is hosted in serpentinized ultramafic rocks, which were altered from dunites and peridotites. The gangue mineralogy is dominated by antigorite, olivine, pyroxene, chlorite, carbonates (mainly calcite and dolomite), brucite, chrysotile, magnetite, and chromite.

The dominating nickel-rich sulphides at Vinberget and Rönnbäcksnäset are pentlandite $(Fe,Ni,Co)_9S_8$, often containing more than 40% Ni and various amounts of Co, heazlewoodite (Ni_3S_2), and millerite (NiS). Other minerals found are cobaltite (CoAsS) and maucherite ($Ni_{11}As_8$), which probably are the most frequent arsenic bearing minerals. The dominating cobalt bearing minerals are pentlandite, millerite, and cobaltite. Only traces of pyrrhotite and pyrite are present.

Nickel is also found in various amounts in olivine, serpentine, magnetite, and brucite.

In Vinberget, pentlandite dominates as the most frequent nickel rich sulphide. In Rönnbäcksnäset, mineralization varies more and occurs in different rock types. In some parts, millerite dominates and in other areas heazlewoodite occurs as the most frequent nickel sulphide. Rönnbäcksnäset also contains more arsenic and gold than Vinberget. Arsenic and gold are more frequent in the northern area (lower serpentinite unit) and the southeastern area (upper serpentinite unit). The elements arsenic, gold, and sulphur are not unique to any of the lithologies. They may have been introduced later or have been remobilized.

Overall, the nickel sulphides are fine grained (often about 25 µm) and occur as individual grains in serpentine or oxides or as mineral aggregates together with other nickel sulphides or magnetite.

MINERALOGICAL STUDIES

Various mineralogical investigations were done by Ekström Mineral AB (Ekström), Xstrata Process Support (Xstrata), Outotec Research Oy (Outotec research centre, or ORC), Finland, and Qumex Material Teknik AB (Qumex).

EKSTRÖM - OPTICAL MICROSCOPY

Eleven samples from six drill cores, two from Rönnbäcksnäset and four from Vinberget, were sent to Ekström for basic mineralogical thin section study and for

Scanning Electron Microscope/Energy Dispersive Spectroscopy (SEM/EDS) analysis of the sulphides. The results of the study are illustrated in Tables 9-1 to 9-4.

TABLE 9-1 THIN SECTION SAMPLES
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Hole	Sample Number	Sect. (m)	SEM	Type
RON57	RON5702	50.4		Serpentinite
RON58	RON5801	31		Pyroxenite
RON58	RON5802	47.2	X	Serpentinite
VIN26	VIN2601	20		Serpentinite
VIN26	VIN2604	80	X	Serpentinite
VIN27	VIN2702	40	X	Serpentinite
VIN30	VIN3001	40	X	Serpentinite
VIN30	VIN3003	120		Serpentinite
VIN30	VIN3005	200		Serpentinite
VIN31	VIN3101	10		Serpentinite
VIN31	VIN3103	90		Serpentinite

TABLE 9-2 MINERAL COMPOSITION - VINBERGET SAMPLES
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Drill core number	Vin2601	Vin2604	Vin2702	Vin3001	Vin3003	Vin3005	Vin3101	Vin3103
Sampled at	**20.0 m**	**80.0 m**	**40.0 m**	**40.0 m**	**120.0 m**	**200.0 m**	**10.0 m**	**90.0 m**
Serpentine antigorite	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Carbonate	xxxx	xxx	xxx	xxx		xx	xxx	xxx
Chlorite								x
Amphibole								xx
Olivine	xx					pseu	xx	x
Pyroxene	x				xx	pseu		xx
Phlogotite							x	
Chrysotile asbestos		xxx					x	
Epidote								
Iddingsite	x						x	
Brucite	x	x	r	x		xx	x	
Magnetite	xxx	x	xxxx	xxx	xxx	xx	xxx	xxx
Chromite	xx	x	xxx	xx	xxx	xx	xx	x
Pentlandite	xx	xx	xx	xx	xx	xx	xx	xx
Heazlewoodite	x	x		xx	xx	x	x	x
Maucherite				x	r			
Millerite	r							
Violarite								
mackinawite	r		x					
Chalcopyrite		x						
Pyrrhotite		x						
Awaruite					r			r
Cobaltite						xx	x	x
Pyrite		x						

Relative frequency: xxxx =high, xxx = intermediate, xx= minor, x= accessory, r=rare

TABLE 9-3 MINERAL COMPOSITION - RÖNNBÄCKSNÄSET
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Drill core number	RON 5801	RON 5802	RON 5702
Sampled at	31.0 m	47.2 m	50,4 m
Serpentine antiorite		xxxx	xxxx
Carbonate	x		x
Chlorite	xxxx	x	
Amphibole	xx		x
Olivine			xx
Pyroxene	xxx		xx
Phlogotite	xx	xx	
Chrysotile asbestos		xx	
Bolingwite			xx
Iddingsite			x
Brucite		xx	xx+
Epidote	xx		
Magnetite		xxx	xxx
Chromite		xx	x
Pentlandite		xx	xx
Heazlewoodite		x	x
Maucherite		xx	r
Millerite		x	r
Violarite mackinawite		x	
Chalcopyrite	x		
Pyrrhotite			
Ilmenite	r		

Relative frequency: xxxx =high, xxx = intermediate, xx= little, x= acc, r=rare

TABLE 9-4 SEM-EDS ANALYSIS (RON58 & 57, VIN26, 27, 30 & 31)
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Mineral	Formula	Range % Ni	Range % As	Range % Co	Comment
Pentlandite	(Ni,Fe,Co)9S8	39.8-44.2		1.5-2.8	
Millerite	NiS	69.1-69.8			
Heazlewoodite	Ni3S2	71.5-76.3			
Maucherite	Ni11As8	50.8-51.4	44.6-45.85	0.2-0.4	1.5-1.7 % Sb
Cobaltite	CoAsS			23	
Pyrrhotite		1.6-2.3			
Chromite					>5% Mn

EKSTRÖM - QUALITATIVE FIBRE MEASUREMENT

Two samples of diamond drill core from VIN30 at 219.2 m and RON58 at 52.3 m were selected for qualitative analysis of fibres, and examined with optical microscopy by Ekström for light refraction, anisotropy, angle of extinction, elongation, and pleochroism. Both samples showed the same optical properties as chrysotile.

XSTRATA - QEMSCAN AND EPMA

Mineralogical studies were performed by Xstrata, Sudbury, Canada, using Quantitative Elevation of Materials by Scanning Electron Microscope (QEMSCAM) and Electron Probe Micro Analysis (EPMA) on four composite samples. The samples were composed of a quarter of the core and crushed and successively sieved at Xstrata to avoid the finest fraction.

TABLE 9-5 XSTRATA QEMSCAN SAMPLES
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Hole	Interval (m)
VIN30	20.0-26.0
VIN30	192.0-198.0
RON53	52.0-58.0
RON53	76.0-82.0

Mineralogy of the Vinberget and Rönnbäcksnäset samples is dominated by serpentine (83% to 89%), olivine (0.20% to 0.48%), chlorite (0.1% to 0.6%), magnetite (5.25% to 7.32%), chromite (1.20% to 2.29%), with total minor oxides at 6.5% to 8.1%. The Rönnbäcksnäset samples contain small amounts of brucite at 0.1% to 0.3%, while those of Vinberget contain significantly more, at 3.7% to 5.5%. The Rönnbäcksnäset samples also contain 0.8% to 1.0% carbonates.

The dominating nickel sulphides were heazlewoodite in VIN30 (over the interval 20 m to 26 m), pentlandite in VIN30 (192 m to 198 m), and millerite in RON53 (52 m to 58 m and 76 m to 82 m). Nickel was also found to occur in other minerals, mainly magnetite and serpentine. Cobalt occurs in solid solution in pentlandite and millerite. A few cobaltite grains are also found. Gangue mineralogy contains 30% of the total nickel in VIN and 40% of total nickel in RON53. The grain size of the nickel bearing sulphides is 15 µm to 50 µm, with an average of 25 µm. Reconciliation between total nickel chemical assays and calculated total nickel assays from mineralogy is in general very good, with a difference of 0.01% to 0.04%. Analysis was completed on nine size fractions from VIN30 (20 m to 26 m) plus the coarse fraction (-600/-300 µm) from the remaining composite. For the nickel in sulphides, an assay difference of 0.03% to 0.06% was found on the same sample.

ORC - OPTICAL MICROSCOPY, SEM, XRF, XRD AND ICP

Mineralogical examination of larger intervals, including the interval studied by Xstrata, was done at ORC. The samples were taken from stored coarse rejects (less than two millimetres), about three kilograms each from two metre intervals, and from a composite sample (Table 9-6) composed of 11 samples from the assay sample preparation. ORC performed mineralogical studies by optical microscopy, Scanning Electron Microscope (SEM), X-Ray Fluorescence (XRF), X-Ray Diffraction (XRD), and Inductively Coupled Plasma (ICP) on the material.

TABLE 9-6 ORC SAMPLES
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Hole	Interval (m)
VIN29	40.0 – 62.0
VIN30	6.0 – 28.0
VIN30	184.0 – 206.0
RON53	44.0 – 66.0
RON53	72.0 – 94.0

TABLE 9-7 SUMMARY OF MINERALOGICAL SAMPLES
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Hole	From (m)	To (m)	Rock Type
VIN30	6	28	Altered peridotite or pyroxenite, serpentinite
VIN30	184	206	Serpentinite
RON53	44	66	Serpentinite (diopside together with garnet)
RON53	72	94	Serpentinite (abundant chrysotile)
VIN30	40	62	Altered peridotite or pyroxenite, serpentinite

The main sulphides were pentlandite, millerite, and heazlewoodite. Pentlandite was more frequent at Vinberget while millerite predominated at Rönnbäcksnäset. Heazlewoodite occurred both as lamellae in pentlandite and as separate grains. Pentlandite was found to contain 1.9% to 19.8% Co and 32.1% to 41.9% Ni. Maucherite and cobaltite were the main arsenic bearing minerals.

Magnetite occurred as primary euhedral crystals with no nickel and secondary magnetite, with up to 2% Ni. Maucherite $Ni_{11}As_8$ was often seen as inclusions in nickel sulphides.

The nickel sulphides in the larger composite sample from Rönnbäcksnäset, representing the upper serpentinite and the major tonnages, were dominated by heazlewoodite.

QUMEX - QUANTITATIVE FIBRE MEASUREMENT

Samples were collected from particularly fibrous-rich parts in the cores and sent to Qumex for quantitative analysis of fibres. The samples were prepared, crushed, and pulverized for the standard intervals, for assaying of two metre core length. The samples were evaluated in the electron microscope with a magnification of 250 times, with 25 fields per sample evaluated regarding fibre content (volume units).

TABLE 9-8 FIBROUS VOLUME IN SAMPLES
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Hole	Section (m)	Fibrous Vol. (%)	Report	Date
VIN27	20.0 – 22.0	0.1	4360-01-08	2008-06-03
RON53	92.0 – 94.0	0.5	4431-01-08	2008-11-19

10 EXPLORATION

Exploration programs at the Project comprise geological mapping, sampling outcrops, ground magnetic surveys, and magnetic susceptibility surveys. The results of the programs will be used to plan future drill targets to possibly expand the tonnage and/or grade of the Mineral Resources.

GEOLOGICAL MAPPING AND SAMPLING

IGE sampled serpentinite outcrops in the Rönnbäcken area for the first time in the summer of 2005 within the framework of a regional sampling program. The program included tests on several claims along the borders of the Caledonian mountains with the objective of testing the serpentinites for potential nickel, platinum, and palladium. Areas that were tested apart from the Rönnbäcken area were Klumpliklumpen, Rotiken, and Fjelkaområdet. In total, approximately 70 samples were taken of which five were from Rönnbäcksnäset, four from the Rönnbäcksjön no. 1 claim, and one sample from the Rönnbäcksjön no. 4 claim.

In 2007, additional sampling of 30 samples was conducted by IGE. The emphasis on the sampling program was the serpentinite outcrops within the claims Rönnbäcksjön nos. 3 and 4.

In summer 2009, IGE mapped approximately 15 km^2 and collected 117 samples for analyses by the ammonium citrate method for Ni, Co, Cu, and S in an attempt to identify ultramafic rocks suitable for future drill targets. Twenty-three of the samples returned values greater than 1,000 ppm (0.1%) Ni as determined by ammonium citrate method (Ni-AC).

In total IGE has taken 156 rock samples within the Rönnbäcken licences.

GEOPHYSICS

MAGNETIC SUSCEPTIBILITY SURVEY

Magnetic susceptibility was measured on every metre of core, every bag of coarse rejects, as well as outcrops during the geological mapping program. Measurements were taken with an SM-20 Magnetic Susceptibility Meter from GF Instruments, s.r.o., a hand-held instrument with a sensitivity of 1x10-6 SI units. The measurement gives relative readings and no corrections have been done for geometry or volume of the sample bags of coarse reject from the sample preparation of drill cores or rocks. The recommended measurement surface is more than 10 cm by 10 cm and the thickness should be at least 5 cm.

Susceptibility surveys were conducted in the field in Vinberget in order to quickly, easily, and cheaply identify the presence and quality of serpentinites. Much of the magnetite is secondary due to serpentinization of olivine and, therefore, the magnetic susceptibility may correlate with the amount of nickel in sulphides. Measurements were taken at ten metre intervals on 20 m section lines. At each surveyed point, two measurements were taken separated by a distance of 10 cm to 20 cm on a flat surface of the outcrop. Sections were surveyed between 390N to 2140N in the Vinberget local grid. The surveys provided good information about the serpentinite distribution of the existing profiles. The entire property was not surveyed due to the rugged topography in the area.

The surveys were carried out during July and August 2008, and a total of approximately 450 measurements over approximately 17 ha were taken.

In 2009 magnetic susceptibility surveys were taken on all outcrops mapped on the Rönnbäcken project. A total of approximately 2,287 readings were taken.

GROUND MAGNETIC SURVEYS

Ground magnetic surveys were performed with a GEM system, GSM-19T proton magnetometer, in 2008-2009. Measurements were taken at ten metre intervals on 100 m or 200 m sections. The results of the ground magnetic surveys for the Vinberget and Rönnbäcksnäset projects are illustrated in Figures 10-1 and 10-2, respectively. Low magnetic areas, blue in Figure 10-2, are caused by rough topography and uncompleted sections.

Vinberget

The first ground magnetic surveys at Vinberget were carried out in the spring of 2008 on the southwest side of the deposit. The survey covered sections 0 to 1200N, with additional more detailed measurements taken from sections 550N to 950N to better understand the horseshoe-shaped serpentinite outcrop south of Vinberget. During the same period in the summer of 2008, surveys were expanded to also cover the north side of Vinberget.

In 2009 additional surveys were carried out to cover the remainder of the ultramafic rocks in the Rönnbäcksjön no. 1 claim. In total, approximately 25 line-km have been surveyed.

Rönnbäcksnäset

During the spring of 2008, ground magnetic surveys at Rönnbäcksnäset were carried out over sections 0 to 500E in the south area and 0 to 1300N in the north area. During the summer of 2008, the survey was expanded to cover sections 100W to 600W in the south area. Towards the end of the drill program, the survey was extended further south to assist locating “satellite holes” RON205 and RON206. After completion of the drilling program, the survey was extended in several areas to facilitate planning of the next phase of diamond drilling.

In 2009 additional surveys were carried out to cover the remainder of the ultramafic rocks in the Rönnbäcksnäset area. A total of approximately 64 line-km have been surveyed.

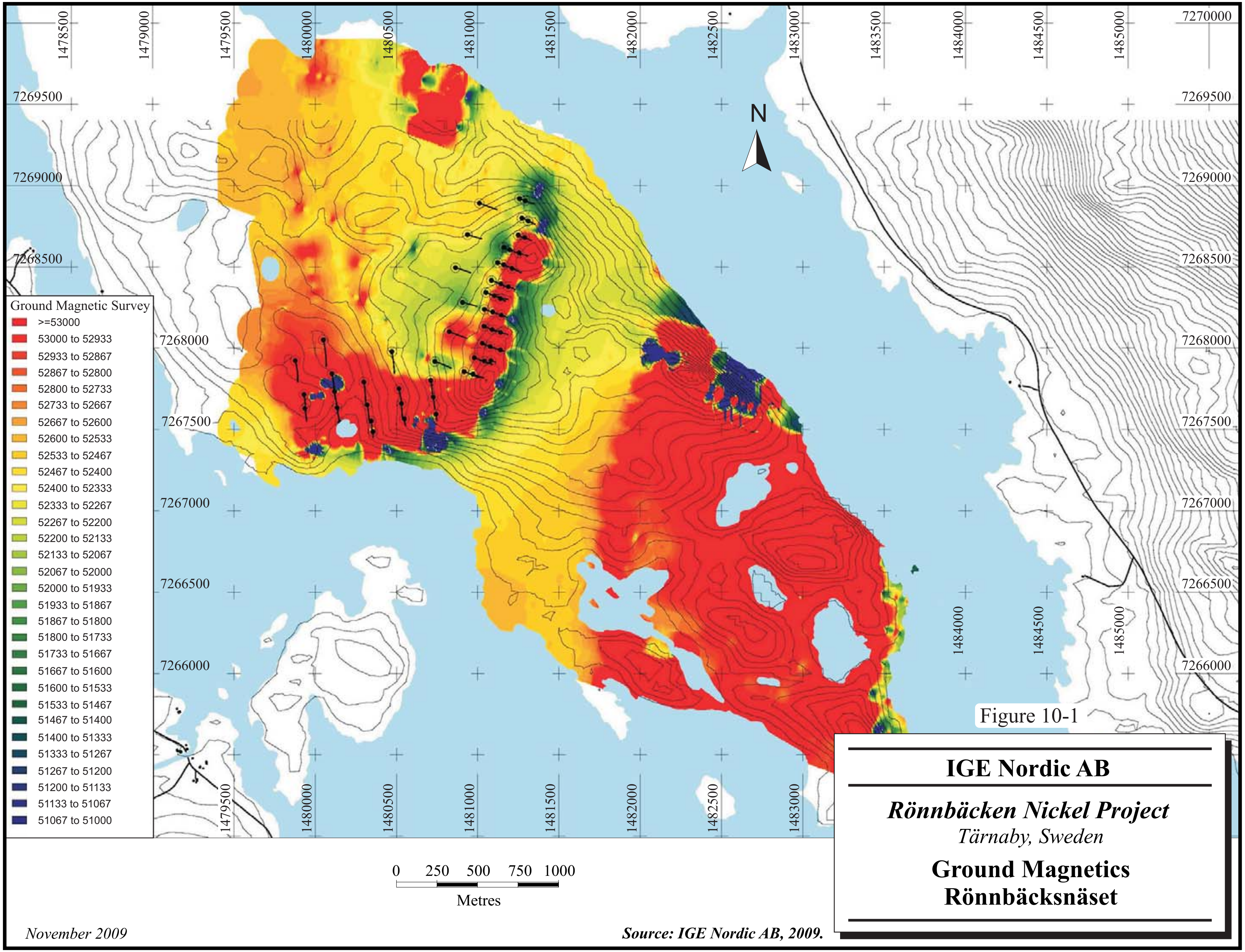


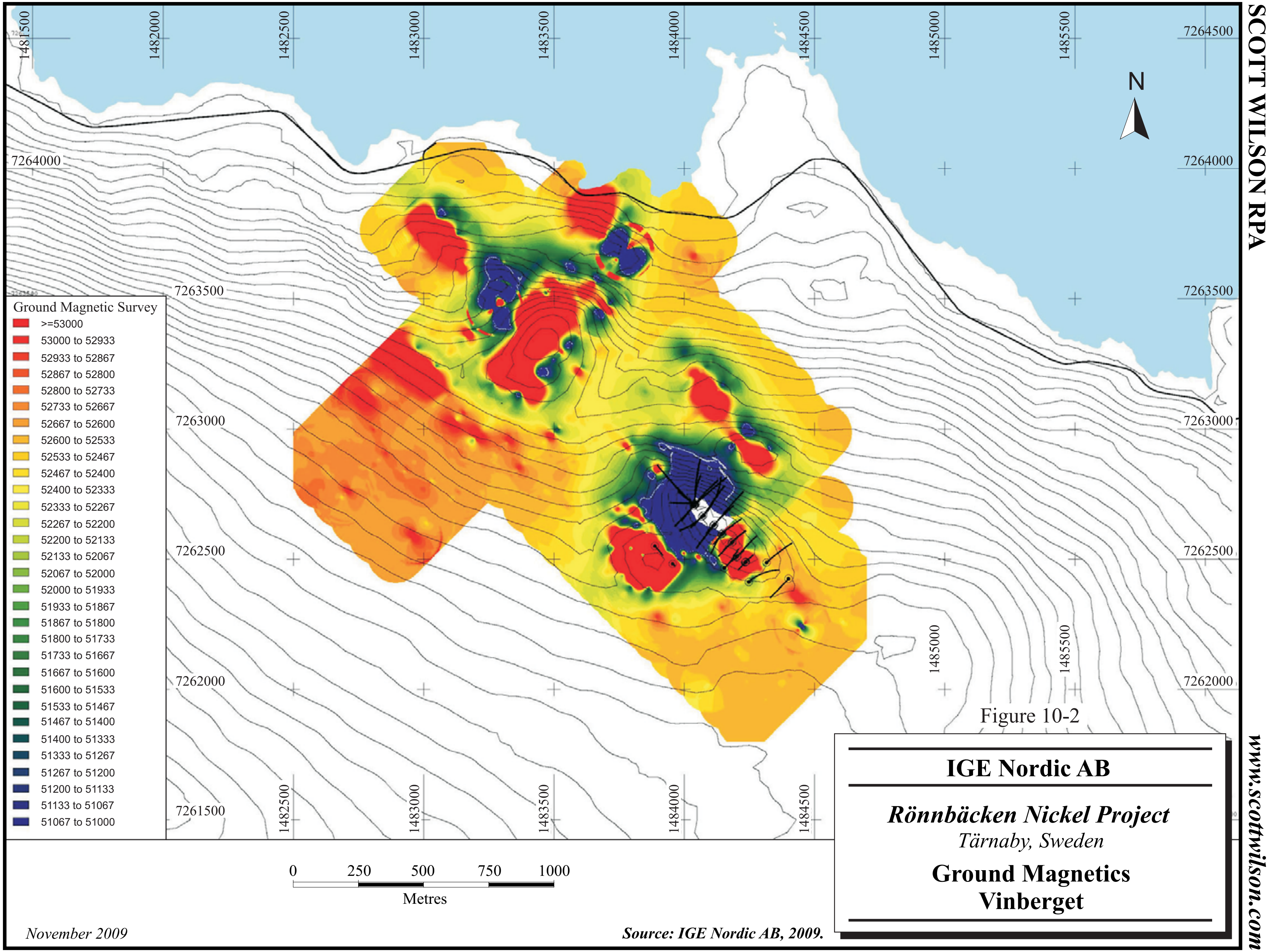
Figure 10-1

IGE Nordic AB

Rönnbäcken Nickel Project

Tärnaby, Sweden

Ground Magnetics
Rönnbäcksnäset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51200 to 51133
51133 to 51067
51067 to 51000
0
250
500
750
1000
Metres
November 2009
Source: IGE Nordic AB, 2009.
IGE Nordic AB
Rönnbäcken Nickel Project
Tärnaby, Sweden
Ground Magnetics
Vinberget
Figure 10-2

GEOCHEMISTRY

The only geochemical surveys performed in the area were the rock geochemistry programs described in Geological Sampling and Mapping.

EXPLORATION POTENTIAL

Exploration to date has concentrated principally on the Vinberget and Rönnbäcksnäset deposits. There is good exploration to delineate serpentized rocks in ultramafic rocks identified in the geological mapping programs and ground magnetic surveys. Scott Wilson RPA recommends that additional diamond drilling should be done to test the potential of the most favourable targets.

The exploration targets recommended for future work include:

- The Sundsberget project lies on the mainland northeast of the Rönnbäcksnäset deposit, with outcrops of high magnetic susceptibility and high Ni-AC values. IGE was recently granted the exploration licence for this area.
- The outcrops on the shore northwest of the Rönnbäcksnäset deposit yielded some high Ni-AC values and should be further investigated with diamond drilling.
- The southern portion of the Rönnbäcksnäset deposit should be tested for a possible extension of wider intersections and/or higher grade mineralization.
- Several areas close to the Vinberget deposit that returned high Ni-AC values should be tested by diamond drilling.

11 DRILLING

The diamond drilling was performed by the contactor RATE Diamantboring AB (RATE). Two Onram 1000 drill rigs, mounted on Morooka 1500 band dumpers, were used to drill BTW core (42 mm). RATE used environmentally certified hydraulic fluids for minimum environmental impacts in case of a leak.

The Rönnbäcken drill hole database includes 119 drill holes, of which 21 were drilled by Boliden in the 1970s for a total of 443.5 m. IGE started Phase 1, approximately 8,000 m, in April 2008. Phase 2, approximately 8,000 m, started in October 2008 and the drilling was completed in January 2009. In total, 15,999.5 m were drilled in 98 holes. Of these holes, 42 holes for 7,882.9 m were drilled on Vinberget and 57 holes for 8,116.6 m, on Rönnbäcksnäset.

VINBERGET

The original drill plan was to start along the southwest side of Vinberget. That strategy was revised after drilling holes VIN23 & VIN25 roughly parallel to the sediments without finding the serpentinite. The drilling confirmed the field mapping that indicated a dip of 50-60°. IGE had originally planned to drill the deposit on a 100 m x 100 m spacing and follow up with 50 m x 50 m spacing at a later time. However, due to steep slopes and generally rough terrain, which inhibited the mobility of the drill machine, IGE chose to drill the more detailed pattern on the first pass. The nominal procedure was to position the machine at the crest of a hill and drill angle holes such that the horizontal distance between holes was 50 m to 60 m at a depth of 150 m below the collar.

Drilling conditions were for the most part favourable, however, the drill string became stuck at several times in clay zones, especially when drilling towards the west in the local grid system.

The Vinberget drill collar locations are illustrated in Figure 11-1.

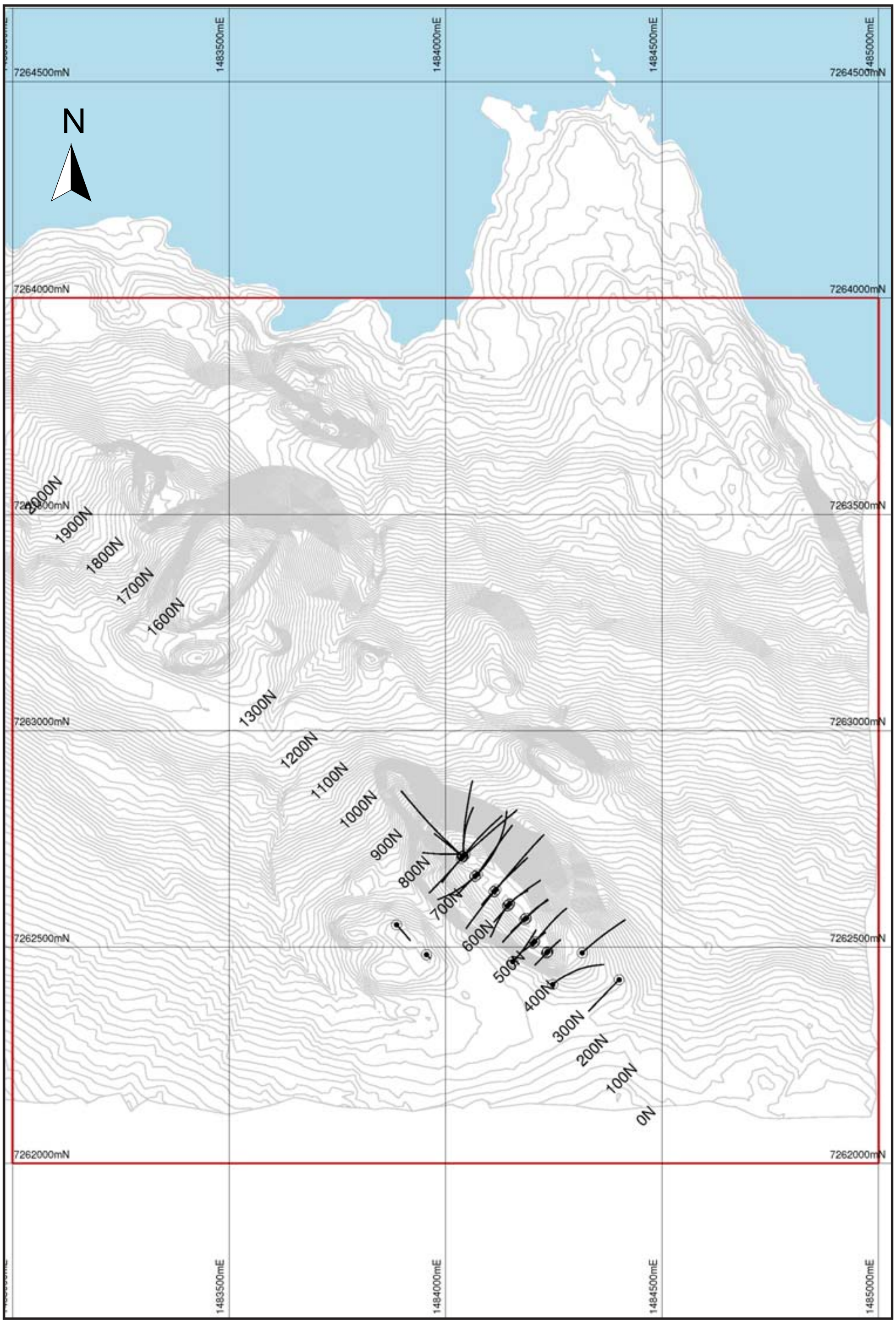


Figure 11-1

IGE Nordic AB

Rönnbäcken Nickel Project

Tärnaby, Sweden

Vinberget Drilling Area

November 2009

Source: IGE Nordic AB, 2009.

RÖNNBÄCKSNÄSET

Drilling began on Rönnbäcksnäset's northern area with three drill holes at 50 m intervals on 100 m sections. Thereafter, a fourth hole was drilled in every second section to check for a possible downward extension of the mineralization and to investigate a magnetic anomaly.

The rock conditions at Rönnbäcksnäset varied more than in Vinberget as the rock was less competent.

The Rönnbäcksnäset deposit was subdivided into two separate areas as illustrated in Figure 11-2. In Rönnbäcksnäset North, 38 drill holes with an average depth of approximately 120 were drilled. In Rönnbäcksnäset South, 19 drill holes with an average depth of approximately 190 m were drilled.

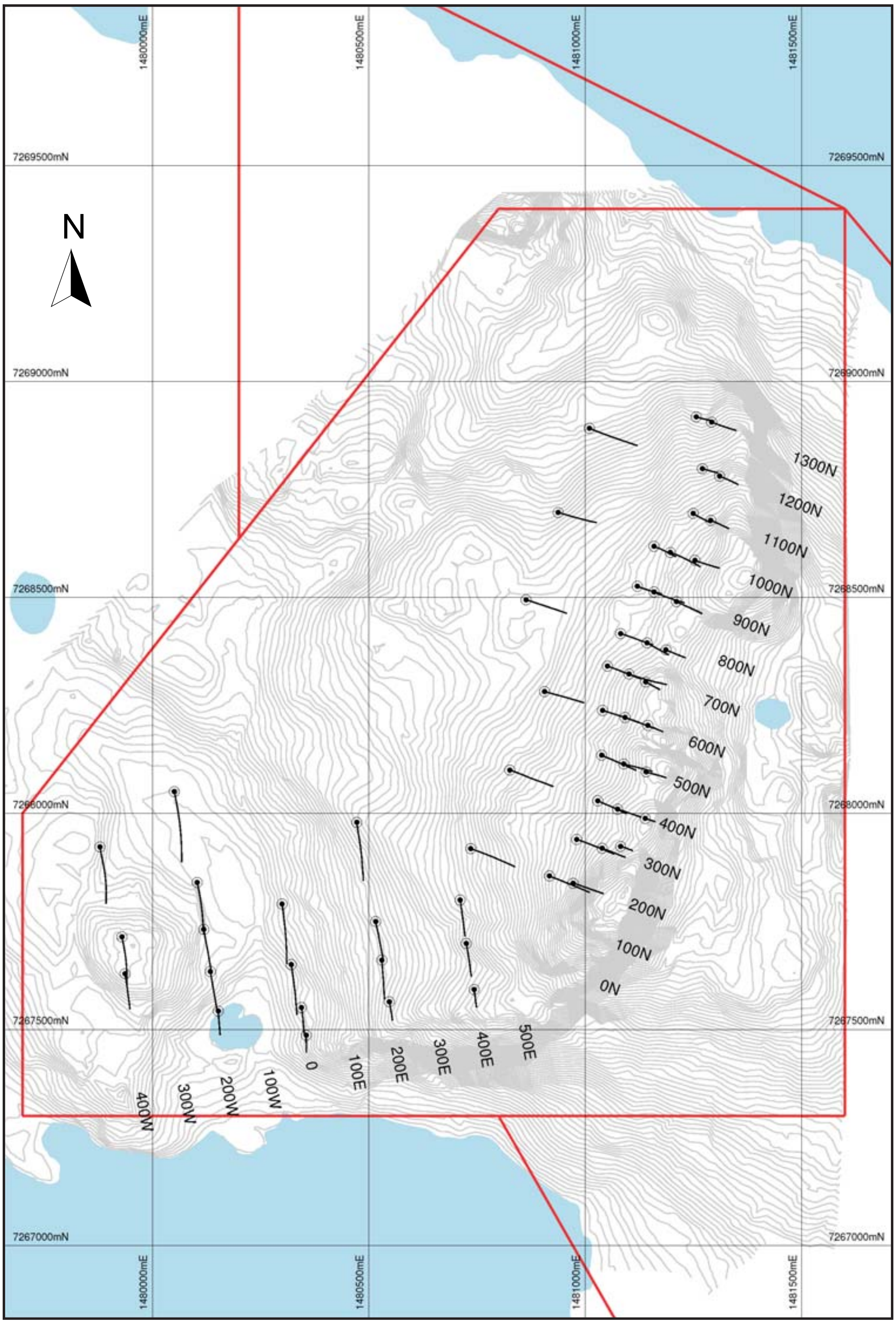


Figure 11-2

IGE Nordic AB

Rönnbäcken Nickel Project

Tärnaby, Sweden

Rönnbäcksnäset Drilling Area

November 2009 ***Source: IGE Nordic AB, 2009.***

CASING

Casings above ground level were cut in accordance with Swedish Association of Mines, Mineral and Metal Producers' (SveMin) guidelines to less than 10 cm above ground, and sealed with the cap stamped with the drill hole number.

DOWNHOLE SURVEYS

The deviation survey has been performed with a Reflex Maxibor II instrument which measures the trace of the drill hole with optical technology. Surveys were mainly carried out by IGE staff and, to a lesser extent, by entrepreneur Sten Wikström, Skellefteå Bergsupport AB, Elin Broström, RATE. All surveys were made after the drill holes were completed.

The first holes in Vinberget and Rönnbäcksnäset were surveyed with an instrument length of 3.0 m and a survey interval of 1.5 m. Most, however, were measured with full instrument length of 6.0 m and a survey interval of 3.0 m for greater accuracy. Several measurements had unreliable dip measurements; therefore, some drill holes were measured twice, both up and down.

During the first half of the program, the Maxibor surveys were conducted by lowering the instrument using the drilling rig hoist cable system. For the other half, they were conducted by pumping the instrument to the bottom of the hole and surveying as the drill string was taken up. For measurements in the wireline system, it appeared that lowering the instrument in the drill hole gave the best results, which was because the instrument rotated to a greater extent than if it was raised from the bottom up. Spray paint was used as a marker on the wire to get regular data points of 1.5 m and 3.0 m. All measurements made with the instrument raised with the drill string have a survey interval of 3.0 m.

In total, 39 out of 42 holes on Vinberget and 54 of 57 holes on Rönnbäcksnäset were downhole surveyed, giving a database of about 6,100 data points.

COLLAR SURVEYS

Due to strong magnetic properties of the host rock, an ordinary magnetic compass is not practical in the vicinity of the serpentinite. Drill hole locations were laid out with a GPS. The collars were later surveyed by Tyréns and Mikael Norén, surveyors, using Leica System 1200 GPS technology.

CORE LOGGING

An IGE geologist or field technician inspected the core at the site on a continuous basis and stopped the drilling at a predetermined depth in mineralized material or when the hole intersected the barren hanging wall or footwall schist. The drill contractor transported the core to the logging facility in Skellefteå.

The core was photographed and logged noting lithology, alteration, mineralogy, and structural geology. Fibrous asbestiform mineral bearing sections were noted in order for the sample preparation facility to prepare accordingly. Magnetic susceptibility was measured every metre using a SM-20 instrument manufactured by GF Instruments, Czech Republic. Density measurements were taken every two metres using the water immersion method on unsealed core. Rock Quality Designation (RQD) measurements were taken on two metre intervals. The statistics of the RQD, magnetic susceptibility, and density for the Vinberget and Rönnbäcksnäset deposits are summarized in Table 12-1.

TABLE 12-1 SUMMARY OF DRILL CORE DATA
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

	Data type	RQD	Susc	Density
Rönnbäcken	Mean	68	57	2.75
	Median	74	61	2.71
	Max	100	222	3.38
	Min	0	0	2.48
	Std. dev.	24	30	0
	Rel. std. dev	36%	53%	4%
	n (>= det. limit)	2,694	2,703	2,701
	n empty	12	3	5
	n total	2,706	2,706	2,706
Vinberget	Mean	83	53	2.71
	Median	89	57	2.69
	Max	100	160	3.21
	Min	0	0	2.46
	Std. dev.	17	24	0.05
	Rel. std. dev	21%	45%	2%
	n (>= det. limit)	3,377	3,414	3,417
	n empty	43	6	3
	n total	3,420	3,420	3,420

n=number of samples

12 SAMPLING METHOD AND APPROACH

The nickel sulphides are expected to be evenly distributed and fine grained without any zones of higher nickel grades. Cobalt, gold, platinum, and palladium may contribute to the value of the deposits, however, their distribution is less well understood. Two metre sample intervals were selected to better understand the distribution of the accessory mineralization and to provide sufficient detail to correlate possible layered ultramafics.

SAMPLES FOR ASSAY

The core was marked for sampling by a geologist, starting at the contact of the mineralization and then every two metres beginning at the first even numbered metre. Consequently every sample at the footwall and hanging wall of the mineralized material was a non-regular length. Scott Wilson RPA considers the sampling procedure appropriate for the type of deposit.

THIN SECTION SAMPLES

A sample was collected for thin section work every 40 m.

SAMPLES FOR METALLURGICAL TESTS

Two samples of 20 kg to 30 kg each were taken from the old Boliden test pit and were tested at Minpro AB. The pit is located at the road one kilometre north of the drilled area at Vinberget. The sample was a composite sample comprised of small fragments throughout the pit.

In an early stage of the drill program, five samples of 30 kg to 35 kg each were taken for new tests at ORC. At Vinberget, three samples were taken from the coarse reject from the sample preparation of two drill holes, VIN30 and VIN29. The sample from VIN30 represented one lower grade zone higher up and one higher zone deeper down in the hole. A third similar type of sample was collected in VIN29. At Rönnbäcksnäset, two samples were collected from drill hole RON53 in the same way as in VIN30. RON53 was located in the northern part of the mineralization and outside the major tonnages at Rönnbäcksnäset in the south.

For the second phase of testing at ORC, two composite samples were prepared using coarse rejects from the two drilled areas at the end of the drill program.

At Vinberget, all sample rejects were composited into a 2.5 tonne sample from selected holes. The samples represent the mineralization from 630 to 500 MASL, a total of 1,008 samples representing 1,216 m of core drilling.

At Rönnbäcksnäset, the samples were selected from coarse rejects from 15 core holes drilled in the southern part of Rönnbäcksnäset where the major tonnage is situated. The samples were split in two halves, with one half included in the sample. A total of 264 samples were included, weighing 366 kg and representing 528 m core drilling. This in turn represents approximately two years of production from the area down to 400 MASL. The sample was dominated by the upper pyroxene bearing serpentinite and not much of the higher grade lower serpentinite zone with similarities to the Vinberget serpentinite. The sample does not include any of the low grade mafic intrusion material or the low grade zone with almost no sulphides.

13 SAMPLE PREPARATION, ANALYSES AND SECURITY

The Rönnbäcken nickel project comprises two low grade nickel deposits. The sulphur is mainly associated with nickel sulphides. The nickel content in silicate and oxide minerals, such as olivine, serpentine, and magnetite, could possibly contain similar grades of nickel as the mineralized rock containing nickel sulphides. The nickel in sulphides is considered to originate from olivine altered to serpentine in the host rock itself while the sulphur is added. The purpose of the Project is to locate mineralization that could be recovered by established metallurgical methods, i.e., flotation of sulphide minerals. The adapted assay technique is partial-leach that selectively dissolves nickel in sulphides and leaves the nickel bearing silicates and oxides unaffected. As the sulphur content will be low, analyses of sulphur must be performed by methods with low detection limit, better than or equal to 0.01% S.

As the selective nickel leaching technique is not an accredited method for assaying nickel in sulphides, other accepted methods were included in the assay package such as Aqua Regia leach and Near Total Four Acid Leach.

To support the values of the grades of nickel in sulphides, mineralogical studies and metallurgical tests were used as well as only assays. The specific gravity of the core was performed to obtain numbers for the resource estimates but also to get a value of the degree of serpentinization. The transformation of olivine to serpentine lowers the density from greater than 3.0 g/cm^3 down to 2.7 g/cm^3. For similar reasons, the magnetic susceptibility has been surveyed on drill core, outcrops, and on sample bags of the coarse rejects from the sample preparation. The magnetite is formed as a secondary product during serpentinization.

SAMPLE PREPARATION

ALS Sweden AB, a subsidiary of ALS Chemex (ALS), was contracted to split the core and carry out the sample preparation. A separate room for sample preparation was set up for the Rönnbäcken Nickel Project. No other samples were treated in the room during the drilling campaign.

The samples were logged in the tracking system, weighed, and split with a diamond saw (Almonte Core Saw). One half of the sawed core was treated according to ALS code PREP-31, which included drying and crushing to 70% minus 2 mm (Tyler 9 mesh. US Std. No. 10). A split of up to 300 g was taken and pulverized to 85% minus 75 µm (Tyler 200 mesh. US Std. No. 200). The 300 g sample pulp was then split in two or three subsamples and sent to two different assay laboratories and a duplicate was retained for quality assurance/quality control (QA/QC).

The remainder of the coarse reject was labelled with the analytical number and stored at the assay laboratories. After a holding period at the laboratories, all of the rejects and pulps were returned to the IGE storage facility in Skellefteå. The pulps at Labtium Oy in Rovaniemi, Finland (Labtium), duplicates of the pulps stored in Skellefteå, have been discarded.

A more detailed description is illustrated in the flowchart in Figure 13-1. Note that the sample split is modified to up to 300 g instead of 250 g.

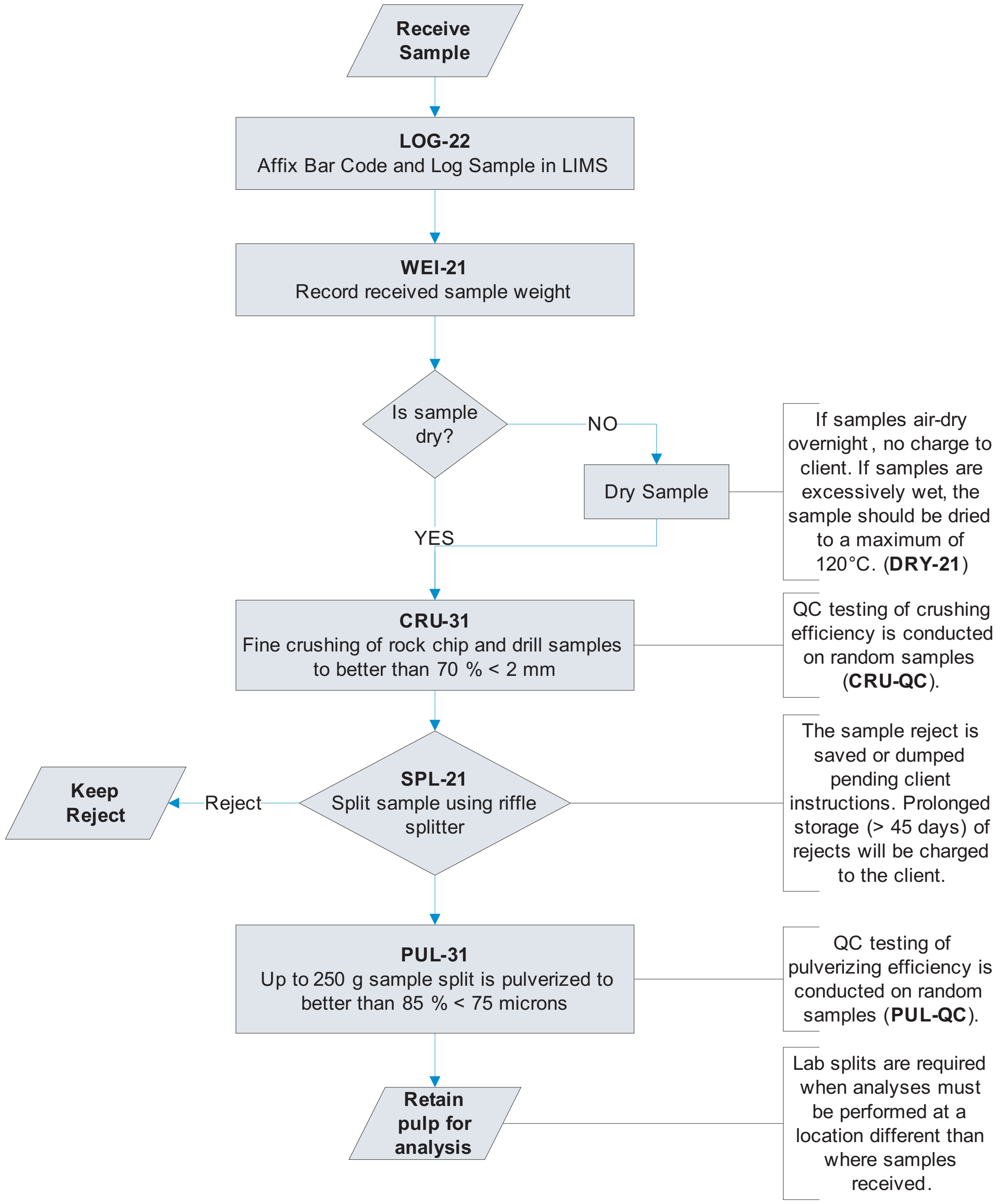


Figure 13-1

IGE Nordic AB

Rönnbäcken Nickel Project

Tärnaby, Sweden

Sample Preparation Flow Sheet

November 2009

Source: ALS Chemex, 2009.

SAMPLE ANALYSES

Two assay laboratories were contracted for analyses: Labtium in Rovaniemi, Finland, and ALS in Vancouver, Canada. Check analyses were mainly performed by Acme Analytical Laboratories Ltd. (Acme) in Vancouver, Canada. The analyses carried out by the three laboratories are summarized in Table 13-1.

TABLE 13-1 ANALYTICAL METHODS
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Lab	Lab code	Sample digestion	Type	Size (g)	Ana-lytes	Main interest	Use
ALS Chemex	ME-ICP61	Four-acid	Near total	0.25	33	Ni, Co, S	Normal
ALS Chemex	PGM-ICP23	Fire Assay	Total	30.00	3	Au, Pt, Pd	Normal
Labtium	240P	H_2O_2+NH_4 citrate	Sulphides	0.15	3	Ni, Co	Normal
Labtium	510P	Aqua regia	Partial	0.15	14	Ni, S	Normal
Acme	G7TD	Hot four-acid	Near total	0.50	23	Ni, S	QC
Acme	8NiS	H_2O_2+NH_4 citrate	Ni sulphide	1.00	1	Ni	QC
Labtium	307P	HF+ $HClO_4$	Near total	0.20	13	Ni	QC
Labtium	720P	Na_2O_2 fusion	Total	0.20	12	Ni, S	QC

A total of 6,778 analyses were performed of which 6,125 were core and 653 were a variety of QA/QC analyses. A summary of the analyses is summarized in more detail in Table 13-2 below.

TABLE 13-2 ANALYSES SUMMARY
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Part	Core	IGENOR dup	UM-4	Blank	Acme check	Labtium check	Coarse reject	Total QC	OVER-ALL	Labtium dup
VIN	3419	107	68	76	68	32	14	365	3784	130
RON	2706	94	58	67	55	0	14	288	2994	112
Total:	*6125*	*201*	*126*	*143*	*123*	*32*	*28*	*653*	*6778*	*242*
VIN	55.8%	3.1%	2.0%	2.2%	2.0%	0.9%	0.4%	10.7%	55.8%	3.8%
RON	44.2%	3.5%	2.1%	2.5%	2.0%	0.0%	0.5%	10.6%	44.2%	4.1%
% of total	*100.0%*	*3.3%*	*2.1%*	*2.3%*	*2.0%*	*0.5%*	*0.5%*	*10.7%*	*100.0%*	*4.0%*

LABTIUM

Labtium has FINAS T025 accreditation ISO/IEC 17025:2005. According to FINAS, "a laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC

17025:2005 are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 Quality Management Systems Requirements and are aligned with its pertinent requirements”. This accreditation represents a higher standard than ISO 9001:2000. According to the website of Labtium, “Labtium’s quality system fulfills the requirements of the Standards Council of Canada (CAN-P-1579), Guidelines for Accreditation of Mineral Analysis Testing Laboratories”. However, the ammonium citrate leach procedure is not covered by the accreditation, as the method is relatively new to Labtium.

Ammonium citrate hydrogen peroxide leach (AC), Labtium code 240P, is described as follows. A 0.15 g subsample is leached in a mixture of ammonium citrate and hydrogen peroxide (1:2; total volume 15 mL). The leach is done on a shaking table for two hours at room temperature. The solution is decanted from the sample powder directly after the leach. The solutions are diluted (5:1) and measured with ICP atomic emission spectroscopy (ICP-AES). It is a partial leach and is selective at dissolving nickel, cobalt, and copper from sulphide mineral species while leaving those elements in silicates unaffected. The detection limits are 10 ppm.

This method was used to determine the recoverable nickel content for this Project, i.e., specifically to obtain accurate estimates of the metals that can be recovered by established metallurgical methods, such as flotation of sulphide minerals.

Aqua regia digestion, lab code 510P at Labtium, is described as follows. A 0.15 g subsample is digested with aqua regia (3:1 mixture of concentrated hydrochloric acid and concentrated nitric acid) by heating at 90°C in an aluminum-heating block for 1.5 hours and diluted to 15 mL with water. An aliquot is centrifuged before instrumental analysis. Aqua regia is a partial leach for silicates, but is an almost complete leach for sulphides and oxides. It is a much better leach for this Project than the “near total” leach, however, as silicates are partially dissolved, even this method will overestimate the metal content. It is mainly included as a comparison to the sulphide nickel method for the sulphur content and other elements, such as arsenic, that can exist in sulphide phases.

The results from Labtium are reported with three significant digits (zero uncounted) or <X where X is the detection limit. The latter is preferable to the ALS reporting method, even if the last digits are not significant.

ALS

ALS is accredited by ISO 9001:2000 overall and conforms to the requirements of CAN−P−1579 and CAN−P−4E (ISO/IEC 17025:2005) by the Standards Council of Canada (SCC) for a number of specific test procedures, including the two methods employed by IGE.

A more detailed description of ALS code ME-ICP61 follows. The pulp is digested with perchloric, nitric, hydrofluoric, and hydrochloric acids (HNO_3-$HClO_4$-HF-HCl). The residue is topped up with dilute hydrochloric acid and the resulting solution is analyzed by ICP-AES. Results are corrected for spectral inter-element interferences. Four acid digestions are able to dissolve most minerals. However, although the term "near-total" is used, depending on the sample matrix, not all elements are quantitatively extracted. Therefore, the leach is less useful to the Project as an estimate of recoverable metals. It is mainly included to demonstrate the need of the partial leach method and to provide an extra check of sulphur content. The elements analyzed and ranges of the procedure are shown in Table 13-3. The upper limits have never been reached.

TABLE 13-3 ANALYTES AND RANGES OF ME-ICP61
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Analytes & Ranges (ppm)							
Ag	0.5-100	Cr	1-10,000	Na	0.01%-10%	Ti	0.01%-10%
Al	0.01%-50%	Cu	1-10,000	Ni	1-10,000	Tl	10-10,000
As	5-10,000	Fe	0.01%-50%	P	10-10,000	U	10-10,000
Ba	10-10,000	Ga	10-10,000	Pb	2-10,000	V	1-10,000
Be	0.5-1,000	K	0.01%-10%	S	0.01%-10%	W	10-10,000
Bi	2-10,000	La	10-10,000	Sb	5-10,000	Zn	2-10,000
Ca	0.01%-50%	Mg	0.01%-50%	Sc	1-10,000		
Cd	0.5-1,000	Mn	5-100,000	Sr	1-10,000		
Co	1-10,000	Mo	1-10,000	Th	20-10,000		

The detection limits of PGM-ICP23 are 1 ppb for Au and Pt and 5 ppb for Pd. The upper limit is 10 ppm and has never been reached.

The results from ALS are reported by increments of the detection limits. For example, if the detection limit is 1, the result given is <1, 1, 2, 3, etc., with some exceptions such as Pb (<2, 2, 3, 4, etc.).

ACME

Acme is accredited as complying with ISO 9001:2000.

Check samples were mostly done at Acme using the four acid digestion and ammonium citrate methods.

SECURITY

STORAGE OF DRILL CORES

Drill core, coarse rejects, and pulps are stored in a locked unheated storage building inside a fenced area. All drill core from Vinberget and Rönnbäcksnäset are stored on separate pallets.

DATABASE

All project data are stored on the IGE field office server, with data backup.

14 DATA VERIFICATION

The IGE Quality Control/Quality Assurance (QA/QC) program comprised submitting sample blanks, standard reference samples, sample duplicates, and interlaboratory check samples. The approximate rate of sample submissions is summarized in Table 14-1.

TABLE 14-1 QA/QC SAMPLES
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Sample Type	Frequency
Blank	1/50
Standard (UM-4)	1/50
Duplicate	1/25
Interlab Check Assays	1/50

Additional checks were done on near total and total nickel on coarse rejects.

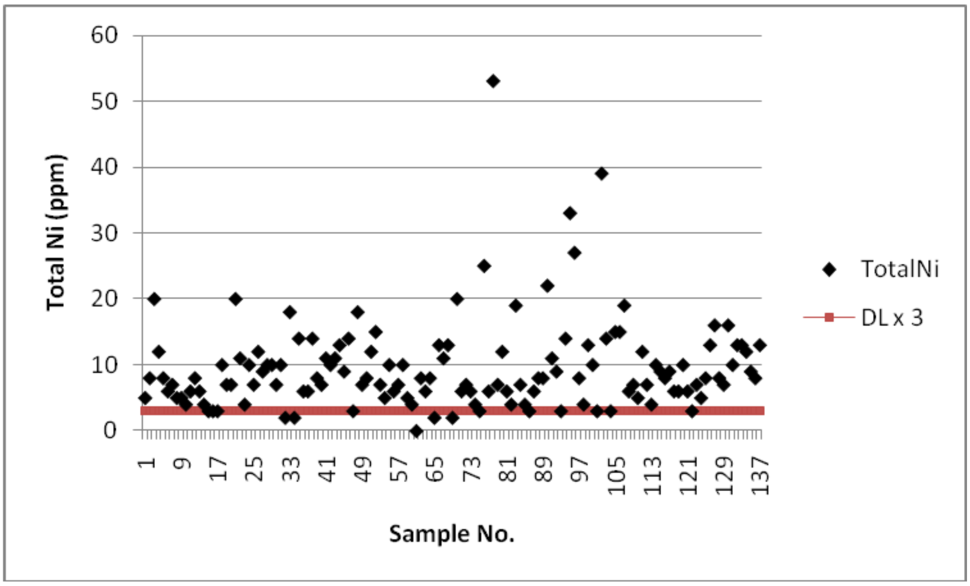
In addition, the laboratories performed analyses of duplicates, in-house standards, etc., which were also forwarded to IGE. The QA/QC results from the laboratory were checked as they were returned. In rare cases, the laboratory reanalyzed parts of batches.

SAMPLE BLANKS

IGE submitted 137 sample blanks into the sample stream to check for contamination and drift. The blanks were prepared from pale coloured granite and were inserted by the sample preparation laboratory. In Scott Wilson RPA's opinion the sample blank assays should fall within an acceptance limit of three times the detection limit (3DL). The relevant checks in the Project are for Ni, Ni-AC, and Co and their detection limits are 1 ppm, 10 ppm, and 1 ppm, respectively.

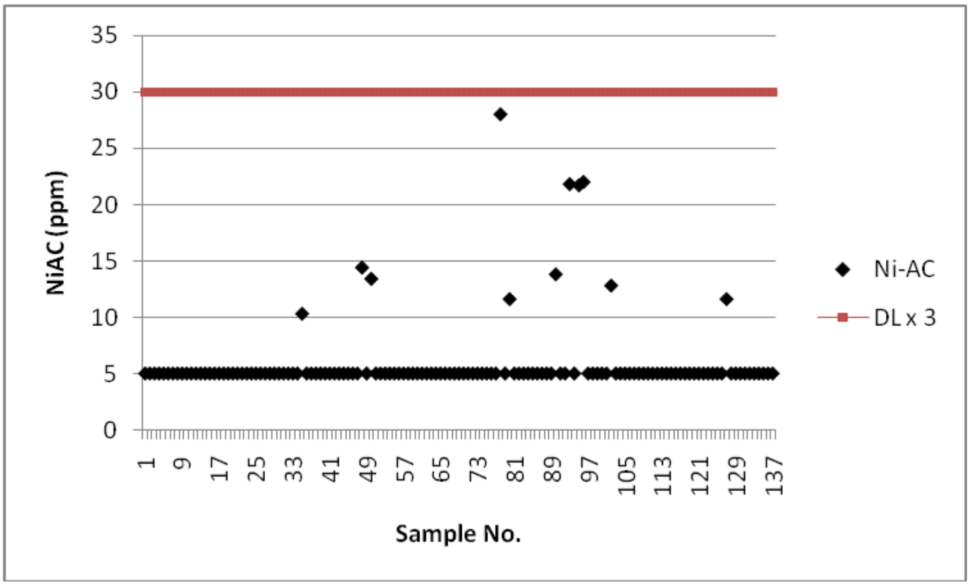
The sample blanks returned mean Ni results of 9 ppm, most of which were well outside the 3DL acceptance limit. This may be due to Ni in the mafic minerals in the granite blanks. The results are illustrated in Figure 14-1.

FIGURE 14-1 SAMPLE BLANKS – TOTAL NI



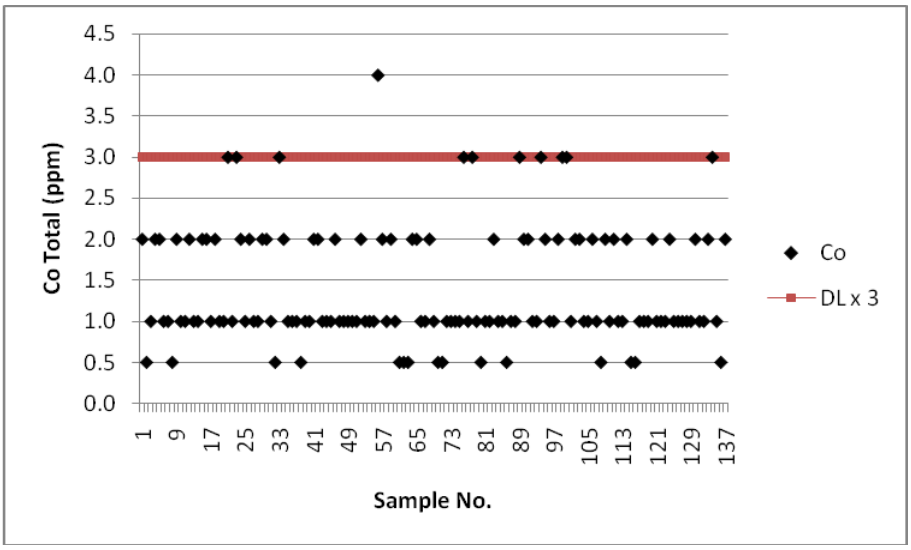
The sample blanks returned mean Ni-AC results of 7 ppm, all within the 3DL acceptance limit. The Ni-AC results are illustrated in Figure 14-2.

FIGURE 14-2 SAMPLE BLANKS - NI-AC



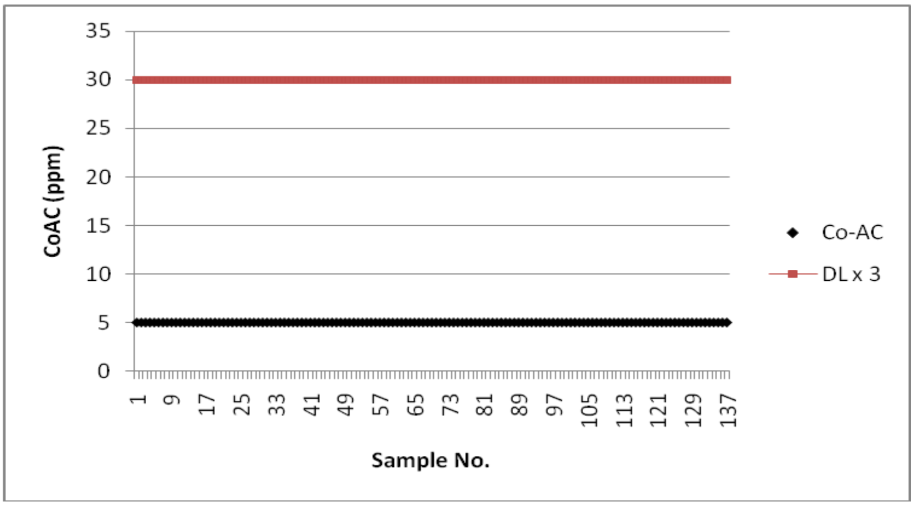
The sample blanks returned mean total Co results of 1.4 ppm, all except one within the 3DL acceptance limit. The Ni-AC results are illustrated in Figure 14-3.

FIGURE 14-3 SAMPLE BLANKS – TOTAL CO



The sample blanks returned mean Co-AC values of 5 ppm as a result of all the values being below the 10 ppm detection limit and reported as one-half of the detection limit. The Co-AC results are illustrated in Figure 14-4.

FIGURE 14-4 SAMPLE BLANKS – CO-AC



In Scott Wilson RPA's opinion, the results of the sample blank assays indicate minimal drift or contamination at the assay laboratories.

STANDARD REFERENCE SAMPLES

Standard Reference Samples were inserted in the sample stream to check the accuracy of the assay laboratory. Reference UM-4 sample was purchased from

CANMET Mining and Mineral Sciences Laboratories (CANMET) and originated from the Werner Lake - Gordon Lake district of northwestern Ontario, Canada. The reference sample is intended as a reference material for the determination of ascorbic acid/hydrogen peroxide-soluble copper, nickel, and cobalt in ultramafic rocks. There are no certified standards for the sulphide selective leach method used, mostly due to the lack of laboratories offering such analytical services. Therefore, no Round Robin Test was done and no performance gates were recommended which are normally based on the Round Robin statistics. While slightly inaccurate terminology, it is labelled “standard” in this text. The reference grades recommended by CANMET are 0.19% Ni and 0.007% Co.

IGE submitted 120 UM-4 samples for analysis by the ammonium citrate method (Ni-AC) described in Item 13, Sample Preparation, Analysis, and Security. In Scott Wilson RPA’s opinion, given that the analytical technique is different than that used for the reference sample, greater than 90% of the Ni-AC assays should fall within 5% of the reference sample grade and 90% of the Co-AC assays should fall within 10% of the reference sample grade.

The mean Ni-AC grade of the reference samples submitted was identical to the reference grade at 0.19%. Ninety-seven percent of the assays were within 5% of the reference grade. The mean Co-AC grade of the reference samples submitted was 5% higher than the reference grade at 0.0074%. Ninety-four percent of the assays were within 10% of the reference grade. In Scott Wilson RPA’s opinion, these results indicate good accuracy of the Ni and Co in sulphides, especially when considering the analytical procedures are slightly different.

The results of the reference sample assay program are illustrated in Figure 14-5 for Ni-AC and Figure 14-6 for Co-AC.

FIGURE 14-5 STANDARD REFERENCE SAMPLE UM-4 FOR NI

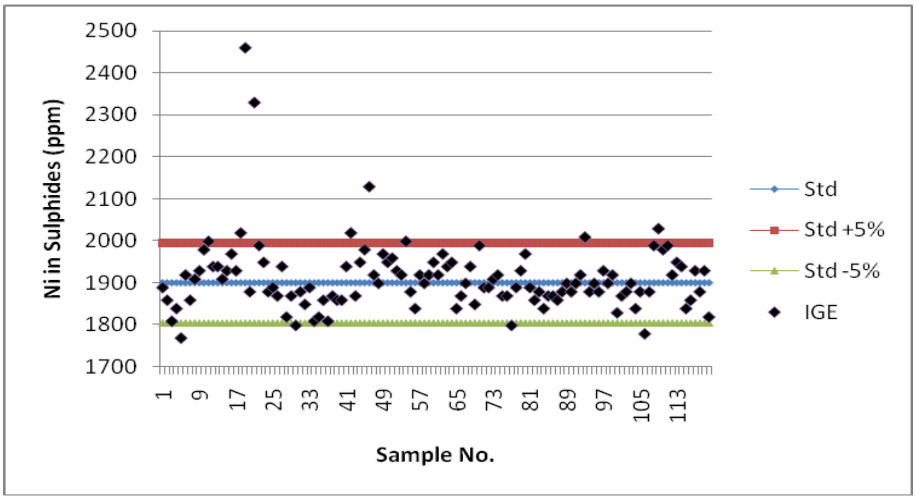
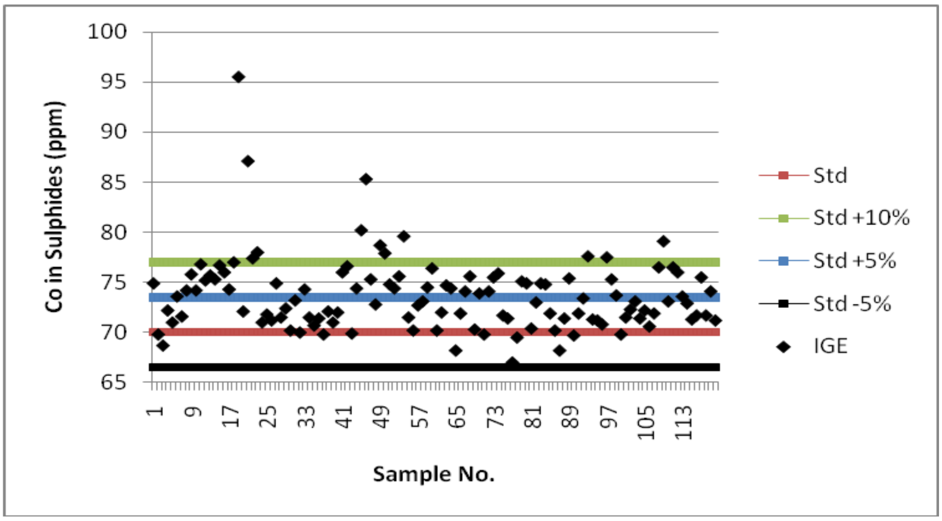


FIGURE 14-6 STANDARD REFERENCE SAMPLE UM-4 FOR CO

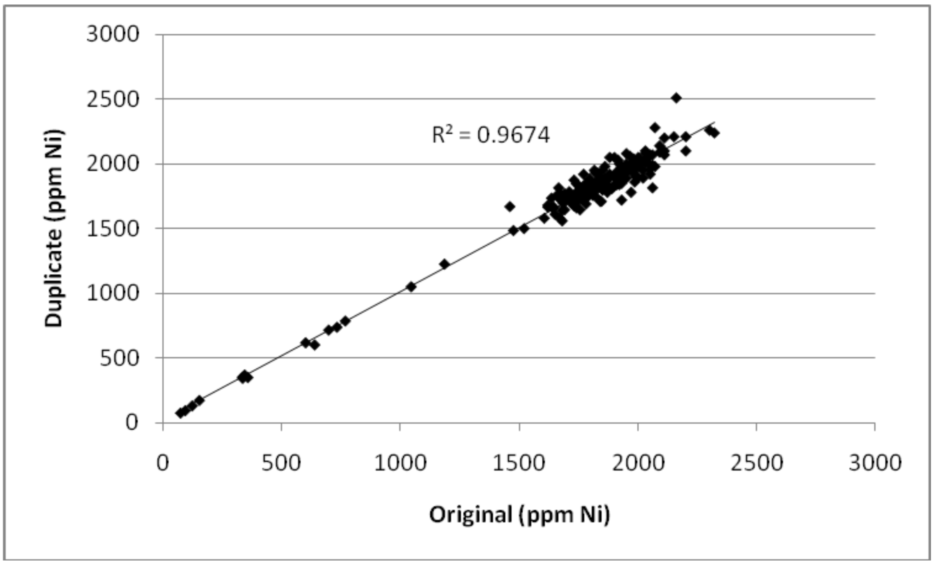


DUPLICATE PULP SAMPLES

IGE renumbered and submitted 192 pulps that were previously assayed.

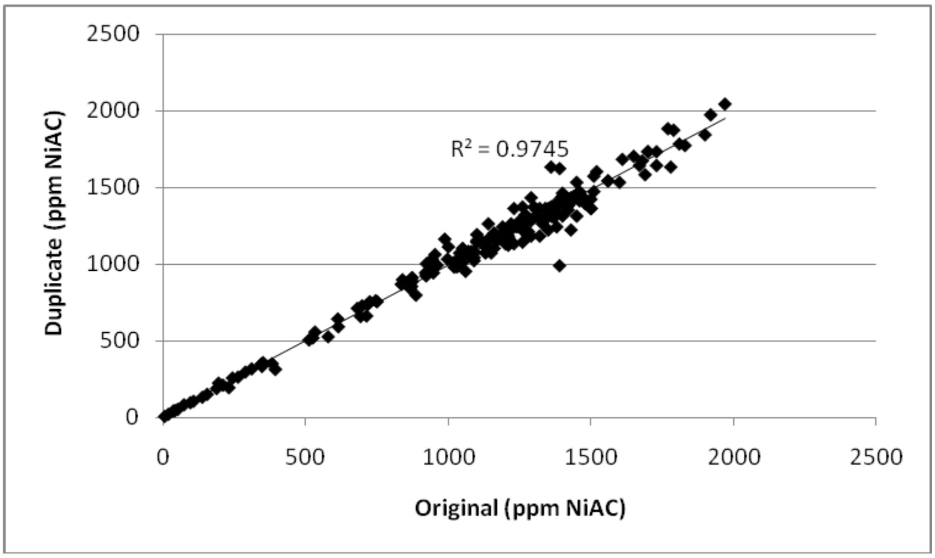
The results for total Ni compared favourably with a coefficient of correlation of 0.97. The results are illustrated in Figure 14-7.

FIGURE 14-7 DUPLICATE ANALYSIS – TOTAL NI



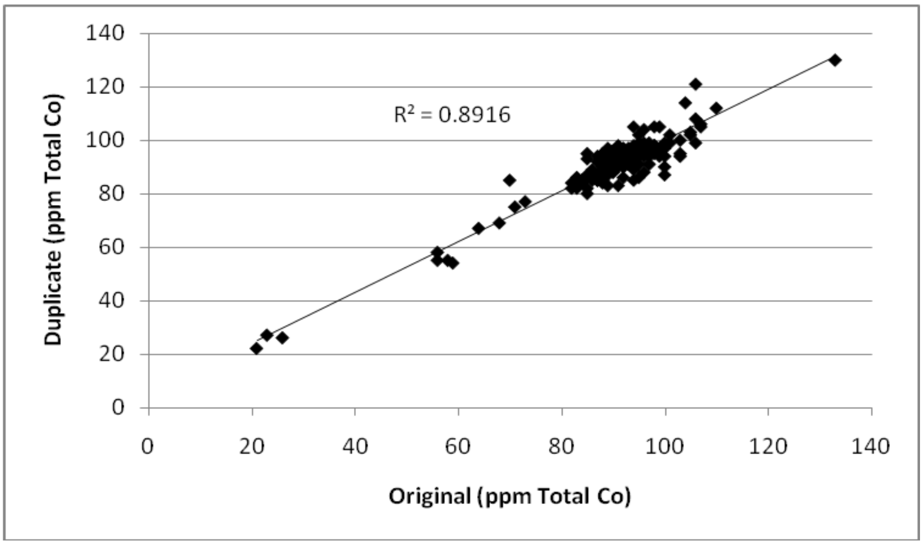
The results for Ni in sulphides (Ni-AC) compared favourably with a coefficient of correlation of 0.97. The results are illustrated in Figure 14-8.

FIGURE 14-8 DUPLICATE ANALYSIS –NI IN SULPHIDES



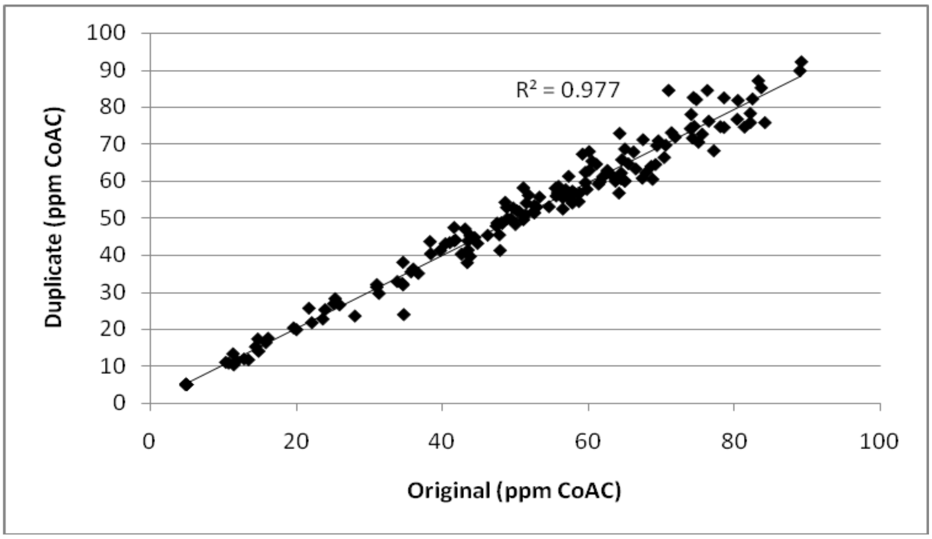
The results for total Co compared favourably with a coefficient of correlation of 0.89. The results are illustrated in Figure 14-9.

FIGURE 14-9 DUPLICATE ANALYSIS – TOTAL CO



The results for Co in sulphides compared favourably with a coefficient of correlation of 0.98. The results are illustrated in Figure 14-10.

FIGURE 14-10 DUPLICATE ANALYSIS –CO IN SULPHIDES



DUPLICATE COARSE REJECT SAMPLES

Twenty-eight samples of coarse rejects were renumbered and resubmitted for assay in order to test if the 70% minus 2 mm crush size would achieve repeatable results. The results were very consistent with coefficients of correlation of 0.93 for total Ni and 0.97 for Ni-AC. The results for total Ni and Ni-AC are illustrated in Figures 14-11 and 14-12.

FIGURE 14-11 COARSE REJECT DUPLICATES – TOTAL NI

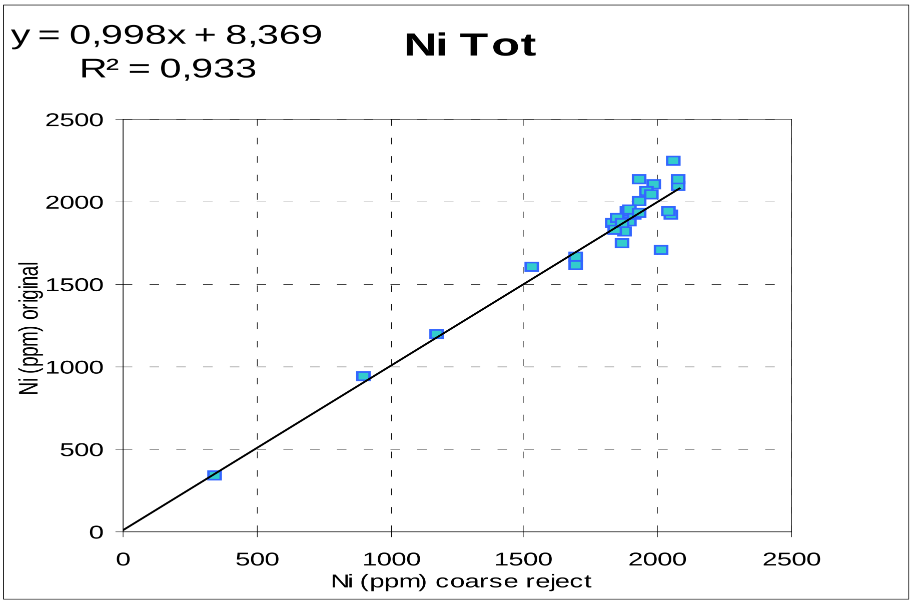
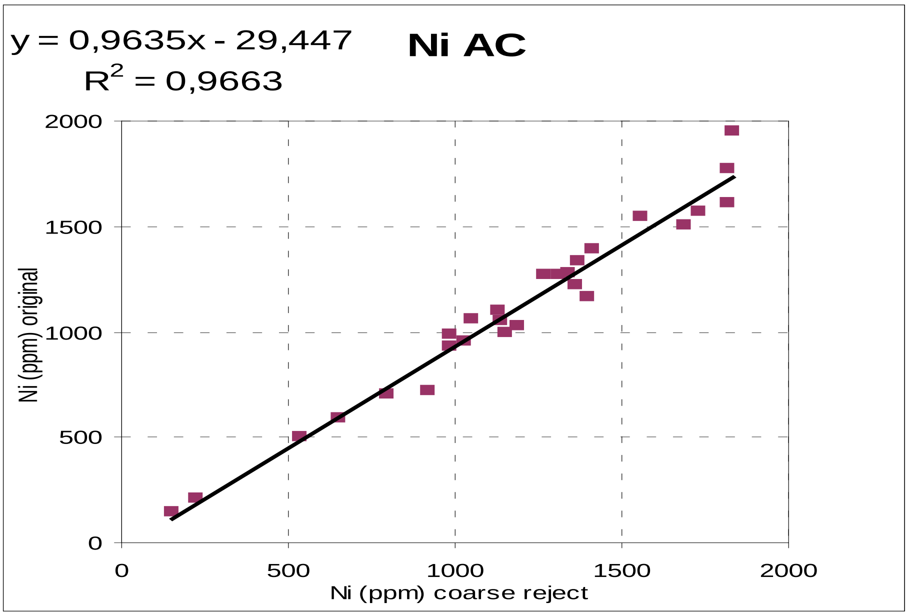


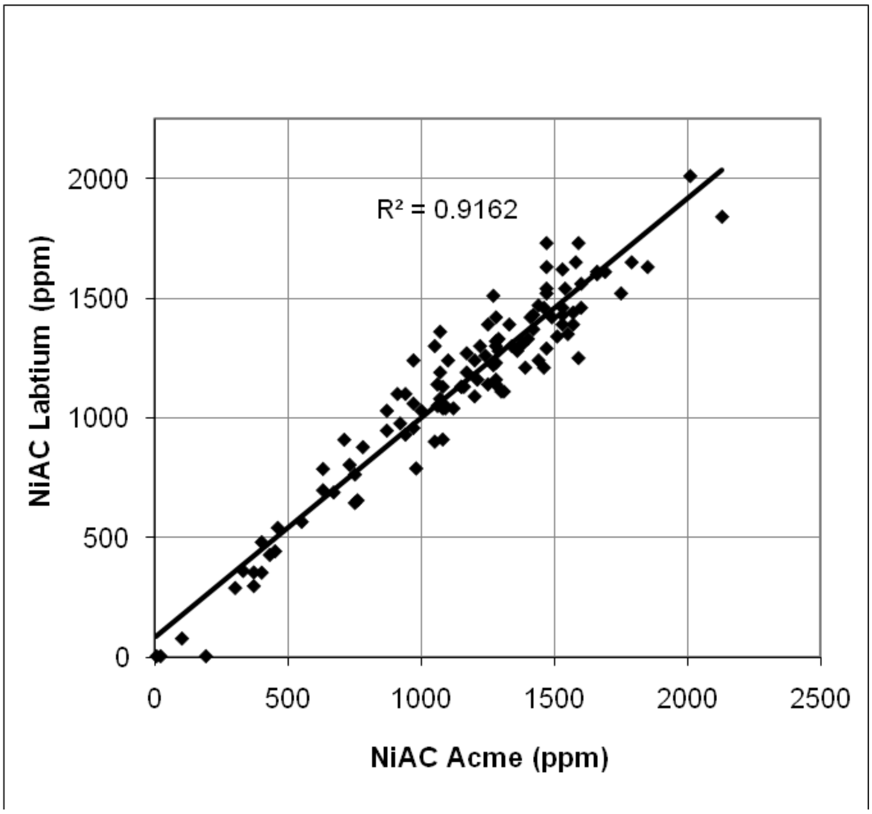
FIGURE 14-12 COARSE REJECT DUPLICATES – NI-AC



INTERLABORATORY CHECKS

A total of 123 samples originally assayed at Labtium were submitted for assay at Acme principally as a check on the accuracy of the Ni-AC results. Both laboratories returned identical mean Ni-AC grades for the 123 samples. The coefficient of correlation was 0.92. The results are illustrated in Figure 14-13.

FIGURE 14-13 CONTROL SAMPLES NI-AC LABTIUM VS. NI-AC ACME

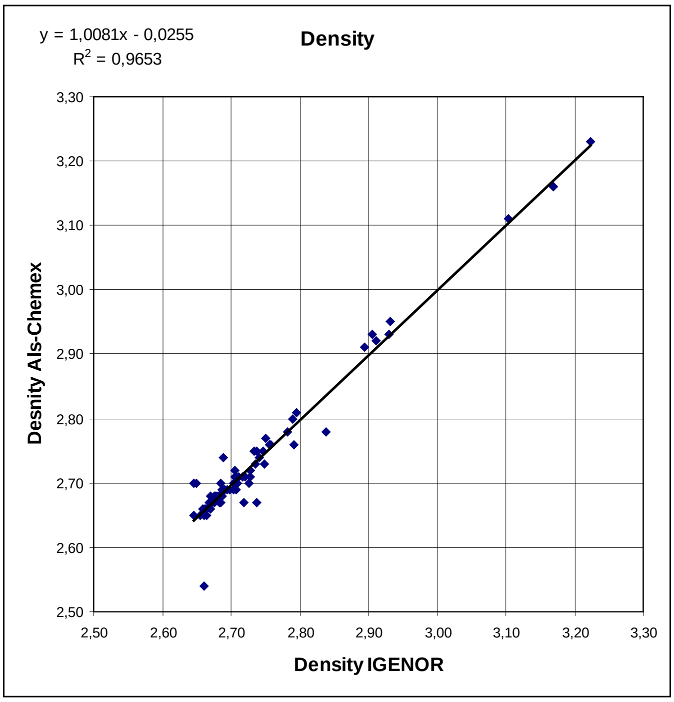


In Scott Wilson RPA's opinion, the results demonstrate further evidence of the accuracy of the Labtium Ni-AC results.

DENSITY MESUREMENT

The specific gravity was measured at ALS on 79 samples using the water immersion method. Of these samples, 44 were from Vinberget and 35 from Rönnbäcksnäset. The results of the tests compare well with the IGE measurements, with a coefficient of correlation of 0.97. The results are illustrated in Figure 14-14. The same measurement techniques were used by both ALS and IGE.

FIGURE 14-14 DENSITY MEASUREMENTS ALS CHEMEX/IGE



SCOTT WILSON RPA SAMPLES

Scott Wilson RPA collected three samples of split core and had them assayed at SGS Lakefield Research Ltd. The results compare well with the IGE results and are summarized in Table 14-2.

TABLE 14-2 SCOTT WILSON RPA SAMPLES
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Hole No.	Depth (m)	IGE (% NI-AC)	Scott Wilson RPA (% NI-AC)
VIN 28	134-136	0.044	0.046
VIN 30	190-192	0.188	0.170
RON 57	64-66	0.129	0.140

15 ADJACENT PROPERTIES

There are no adjacent properties as defined by NI 43-101.

16 MINERAL PROCESSING AND METALLURGICAL TESTING

METALLURGICAL TESTING

HISTORICAL TEST WORK

The Royal Institute of Technology in Stockholm, Sweden, conducted bench scale studies on three different samples from the Rönnbäcken area using standard flotation in the early 1970s. The nickel concentrates produced contained 31% Ni to 47% Ni, 1.5% Co to 2.8% Co, 4 g/t Au to 8 g/t Au, and some minor platinum group metals (PGM) at recoveries reported to be 80% of the sulphide nickel.

The Swedish mining company Boliden then started investigations in the Rönnbäcken area, carrying out test mining and a pilot flotation program in 1974. Boliden produced nickel concentrates grading 26% Ni to 34% Ni, 1.5% Co, 5 g/t Au, and 2 g/t combined PGM at a recovery of 67% to 73%. Grinding was tested in both a rod mill – pebble mill and autogenous (AG) mill – pebble mill combination. The best metallurgy was obtained using AG – pebble grinding with a P_{80} size of 44 µm. The total energy consumption using two-stage fully AG grinding was 25 kWh/t.

Commercial scale testing at the Boliden existing operations demonstrated that Vinberget ore media were very competent, comparing favourably with ore from the Aitik copper mine. It was determined to be suitable for AG grinding using large diameter mills.

RECENT TEST WORK

MINPRO TESTS

A sample was taken from Boliden's test pit in November 2007 and subjected to standard bench scale flotation tests at Minpro AB (Minpro) laboratories. Despite the earlier Boliden work, two coarser grind sizes, 80 µm P_{80} and 60 µm P_{80}, were tested. Minpro reported total nickel (Ni_T) rather than only sulphide nickel (Ni_S) in their report.

Even at the low head grade of 0.10% Ni_S (by ammonium-citrate method), Minpro succeeded in producing concentrate grades as high as 25% Ni. The best tests resulted in a recovery of sulphide nickel to the rougher concentrate of 90%. After two stages of cleaning, a concentrate grading 18% Ni was produced at 77% recovery (estimated due to assays reported as Ni_T) in an open circuit test.

OUTOTEC RESEARCH CENTRE TESTS – PHASE 1

In 2008, five samples from the drilling campaign were sent by IGE to ORC at the Outotec Research Oy in Finland. The samples were from two drill holes at Vinberget (VIN29 and VIN30) and one drill hole at Rönnbäcksnäset (RON53), with each of the five samples weighing 25 kg. The samples provided were half core that had been crushed to -2 mm. In addition, a reference sample was provided from the Boliden test pit near Vinberget. This reference sample had previously been used at the MINPRO tests described above.

The main objective of the first phase of the test work was to verify previous test results, using both the ammonium citrate (AC) and bromine methanol (BM) assay methods for determination of sulphide nickel. Secondary objectives were to study the mineralogy of the flotation products and the sedimentation properties of the tailings.

The five samples ranged from 0.104% Ni_S to 0.153% Ni_S as measured by the BM method for sulphide Ni content at ORC (Table 16-1). The samples ranged from 0.182% Ni_T to 0.202% Ni_T as determined by total digestion. The samples were also assayed by AC method at Labtium, Finland, for sulphide Ni content and by four acid digestion at ALS, Vancouver, and aqua regia digestion at Labtium, Finland, for total Ni content. The assay methods compared reasonably well.

TABLE 16-1 ASSAY METHOD COMPARISON
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Sample	Sulphide Ni BM %Ni_S	Sulphide Ni AC %Ni_S	Total Ni ORC %Ni_T	Total Ni Four Acid %Ni_T	Total Ni Aqua Regia %Ni_T
VIN29 (40-62m)	0.13	0.1325	0.190	0.190	0.1747
VIN30 (6-28m)	0.133	0.1334	0.189	0.1985	0.1771
VIN30 (184-206m)	0.153	0.161	0.187	0.1858	0.1757
RON53 (44-66m)	0.104	0.0953	0.182	0.1688	0.1653
RON53 (72-94m)	0.131	0.1438	0.202	0.1852	0.1915

A total of 14 standard rougher flotation tests were conducted over a range of grind sizes (80 µm P_{80}, 50 µm P_{80}, and approximately 40 µm P_{80}) to determine the best grind size. Reagents used consisted of potassium amyl xanthate (PAX) as a collector, a standard dispersant, Dowfroth 250, and sulphuric acid for pH control.

The results of the first phase of tests can be summarized as follows.

- The recovery of sulphide nickel to rougher concentrate ranges from 75% to 85%.
- Finer grinding provided improved results.
- The two assaying methods, ammonium citrate and bromine methanol, provided similar results.
- The rougher concentrate typically contains approximately 1% Ni_s and contains many liberated gangue minerals.
- Sedimentation of solids in the tailings was slow but manageable.

In addition to this preliminary work, standard grinding tests on two individual core samples, one each from Vinberget and from Rönnbäcksnäset, resulted in Bond ball mill work index values of 17.5 kWh/t and 16.4 kWh/t, respectively. These results characterize the ore as medium-hard in a typical ball milling size range, with Rönnbäcksnäset somewhat softer than Vinberget.

ORC TESTS – PHASE 2

Phase 2 of the ORC test program commenced in March 2009 and finished in July 2009. Its objective was to produce higher grade concentrates in laboratory scale batch flotation tests while improving operating costs.

Two composite samples representing the Vinberget and Rönnbäcksnäset deposits were prepared by IGE and sent to ORC. The composite sample assays are shown in Table 16-2. The samples were analyzed by ICP after total digestion and by BM method for sulphide digestion of nickel and cobalt. In addition, MgO was assayed by ICP, S by Leco, and Fe_3O_4 by Satmagan. The sample origins are discussed in Section 12. The grade of sample is reasonably close to that expected in the first eight years of the proposed mine operation. Although preliminary, the results from this test work are considered to be reasonably indicative of what is achievable in the process plant.

TABLE 16-2 COMPOSITE SAMPLE ASSAYS
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Composite	$\%Ni_S$	$\%Co_S$	$\%Ni_T$	$\%Co_T$	$\%Fe_T$	%MgO
Vinberget	0.118	0.006	0.177	0.009	5.36	35.6
Rönnbäcksnäset	0.117	0.002	0.189	0.009	5.61	34.8

The ORC Phase 2 test work focused on standard flotation tests at a finer grind as employed in the test work at the Royal Institute of Technology. Most of the earlier tests in this phase of work were conducted at a 50 µm P_{80}, while in the later stages of the program the grind size was varied between 38 µm P_{80} and 31 µm P_{80}. Reagent additions were modified throughout the tests using the following general scheme:

- PAX as a collector
- Dowfroth 250 as a frother
- H_2SO_4 as a pH modifier
- Carboxymethyl Cellulose (CMC) as a dispersant or MgO depressant (predominantly for Viberget)
- A second standard dispersant (predominantly for Rönnbäcksnäset)

A total of 18 rougher flotation tests and 14 cleaner flotation tests were conducted on the two composite samples. The test program was limited to open circuit batch flotation tests. Scott Wilson RPA would highly recommend further optimization test work and, in particular, that locked cycle tests be undertaken at the next stage. Scott Wilson RPA also suggests that a blended sample of Vinberget and Rönnbäcksnäset be tested in future scoping level tests.

Concentrate grades of 25% to 35% were produced at overall sulphide nickel recoveries of 50% to 60%. The finer grind sizes (38 µm P_{80} and 31 µm P_{80}) produced much better results than coarser grinding. Typical rougher circuit recoveries at the finer grind were 77% to 83%, while typical cleaner circuit recoveries were 66% to 70%. The results for the Vinberget sample were generally slightly better than those for the Rönnbäcksnäset composite at lower concentrate grades, however, at a grade of 28% Ni, the recovery with both composites was similar.

CONCENTRATE QUALITY

The quality of concentrate produced from the ORC cleaner tests was high (Table 16-3). The assays in the table are simple averages from the cleaner tests performed in Phase 2. This concentrate would be considered fairly unique amongst Ni concentrates as it has high Ni content and very low Fe content, owing to the high percentage of Ni contained in heazlewoodite (Ni_3S_2). This makes this concentrate highly desirable for smelters.

TABLE 16-3 CONCENTRATE ASSAYS FROM CLEANER TESTS
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Final Concentrate	%Ni	%Co	%S	%Fe	%As	%MgO	%SiO_2
Average Vinberget	26.3	1.33	19.8	13.5	0.295	12.7	19.8
Average Rönnbäcksnäset	36.0	0.74	16.3	3.7	0.173	13.4	16.3

The main concern with smelter off-take will be with the high content of MgO, as typically it attracts penalties at greater than 8% MgO and sometimes as low as 4% MgO, depending on the smelter; therefore, it would appear likely that this concentrate would be penalized. Future test work will focus on reducing the MgO content in the concentrate. SiO_2 content is also high and, although it is not expected to be a penalty concern, it should be further investigated at the next stage. The As content may attract a penalty depending upon the smelter treating the concentrate. It may be possible that the attractiveness of the high Ni:Fe ratio will offset potential disadvantages from MgO, SiO_2, and As.

SIMULATION WORK AND RECOVERY PROJECTION

Outotec has used specific results from the Phase 2 test work to predict recovery in a commercial plant by simulation of a closed circuit flow sheet. This has been done with HSC Chemistry®, steady state simulation software, by using the kinetic information from the laboratory results for the Vinberget ore only. The results were validated against the open circuit results for Vinberget but have not been validated on closed circuit results, i.e., a locked cycle test. Based on the simulation work, after four stages of cleaning, ORC projects that a cleaner concentrate will contain:

- 28% Ni at 74.5% recovery
- 1.0% Co at 74.5% recovery

Scott Wilson RPA agrees with the general methodology used in making these projections but finds the use of specific results from two tests of Vinberget ore as the basis for the projections to be very limiting. Scott Wilson RPA recommends that future test work include locked cycle tests on a blended sample of Vinberget and Rönnbäcksnäset ore in order to help validate these projections.

Other potential payable metals include gold, silver, platinum, and palladium. There are only minor quantities of these metals in the ore, so it is unlikely that these will contribute much revenue and, therefore, they have not generally been assayed for in the test work. Scott Wilson RPA has estimated recoveries based on the very limited data available from one test at ORC.

- 20% recovery of Au and Ag
- 35% recovery of Pt and Pd

FUTURE TEST WORK

One of the challenges in future flotation test work will be the selective separation of antigorite $\{Mg_{2.25}Fe^{2+}_{0.75}(Si_2O_5)\cdot(OH)_4\}$, the predominant gangue mineral, and the nickel sulphides. Utilizing fine grinding, or regrinding, possibly finer than in the Phase 2 test work, the emphasis will be the promotion of fine nickel sulphide flotation in the roughers, and reduction of entrainment of fine antigorite in the cleaners. This work will be done initially in batch cleaner tests, followed up by locked cycle tests or mini-pilot plant work. Other challenges to be investigated will be the possible reduction of grinding energy input and an increase in nickel recovery.

Once an optimized flow sheet has been developed through testing of a blended Vinberget/Rönnbäcksnäset sample, a variability test program will need be conducted in which a standard test will be applied to a large number of individual samples from across the entire resource. This will provide a geo-metallurgical mapping of the resource and will include mineralogical evaluation along with grinding and flotation testing. This will be complemented by larger scale grinding tests of a smaller number of suitably representative samples. The larger scale test work will be required in order to confirm amenability to AG grinding, as the recent test work has involved standard grinding with steel.

Mini-pilot plant test work may also be required, depending on the earlier test results and the need to obtain larger amounts of concentrate for negotiation with smelters for off-take agreements.

MINERALOGY

Mineralogical work has been a mix of qualitative and quantitative work during the scoping study, consisting of optical microscopy examinations, and SEM analysis of the various minerals observed, along with mineral liberation analysis (MLA) of feeds, and selected concentrates and tails. The work has been based on two composite samples, one from each major deposit comprising the resource.

It should be noted that for both samples, the mineralogical sulphide nickel assay was in good agreement with the bromine methanol sulphide nickel assay method. However, the Satmagan magnetite assay of approximately 6% was used, as opposed to the mineralogical assay of approximately 10%, as the former was considered the most reliable indication of magnetite content.

VINBERGET SAMPLE

The predominant mineral in the Vinberget sample is antigorite, but significant amounts of chlorite are also present suggesting that altered peridotite or pyroxenite rock types exist in addition to serpentinites. Diopside was also found, which was not present in samples studied earlier.

Pentlandite, $(Ni,Fe)_9S_8$, is the main Ni-sulphide, but some heazlewoodite, Ni_3S_2, is also present in the Vinberget sample. Heazlewoodite occurs mainly as lamellae in pentlandite. Based on optical observations the pentlandite to heazlewoodite ratio is approximately 3 to 1. Antigorite contains trace amounts of nickel, at an average of 0.1% Ni. Magnetite and chromite also contain low amounts of nickel.

The total nickel content of the Vinberget sample was assayed as 0.177% Ni, with that of sulphide nickel measured as 0.118% Ni, using the BM method. This suggests that 67% of the nickel is in sulphide form, and 33% is in non-sulphides.

Optical microscopy examinations show that 50% of the nickel sulphides are liberated at <45 µm, 65% at <38 µm, and 90% at <20 µm. MLA work shows that 91% liberation is achieved at a 38 µm grind. This suggests that a grind P_{80} of approximately 45 µm is required in order to achieve the desired liberation and that regrinding will be required. The predominant unliberated particles are found as binaries with serpentine (antigorite)

RÖNNBÄCKSNÄSET SAMPLE

In the Rönnbäcksnäset sample, antigorite was again found to predominate, but with heazlewoodite as the dominant sulphide. Grain size was found to vary mainly from 10 µm to 100 µm, while very small grains of Co-pentlandite and maucherite were encountered together with heazlewoodite.

Heazlewoodite, Ni_3S_2, is the main Ni-sulphide, while only a couple of pentlandite grains were found and, in each case, they were Co-rich. Heazlewoodite was found to occur mainly as locked grains with antigorite and, to a lesser degree, with magnetite. No pyrite or pyrrhotite was noted.

The total nickel content of the Rönnbäcksnäset sample was assayed as 0.189% Ni, with sulphide nickel measured at 0.117% Ni, using the BM method. This suggests that the 62% of the nickel is in sulphide form, and 38% is in non-sulphides.

Again the optical microscopy work indicates that a relatively fine grind is required for good liberation. MLA work shows 89% liberation at a grind of 39 µm. Both methods also indicate that relatively high grade concentrates can be produced, although the primary separation will be between fine nickel sulphide and fine antigorite, which will require some attention to reducing entrainment.

MINERAL PROCESSING

The Rönnbäcken flow sheet consists of crushing, grinding, flotation, and dewatering steps typical of Scandinavian concentrator operations, with several distinguishing features. The conceptual concentrator design has been provided by Outotec AB (Sweden). The mill will have a capacity of 2,500 tonnes per hour, or 20 million tonnes per year, and will produce approximately 60,000 tonnes per year of concentrate at 28% Ni. The following process plant description should be read in conjunction with Figure 16-1.

The ore is blended and crushed to less than 300 mm in a gyratory crusher and sent to a coarse ore stockpile. The crusher will operate 10 to 14 eight hour shifts per week. From the stockpile the ore is drawn by apron/vibrating feeders and belt conveyors to two parallel grinding circuits comprising two primary AG mill, four secondary and three tertiary pebble mill(s). The concentrator will operate 8,000 hours per year (91.3% availability) at a feed rate of 1,250 t/h to each grinding circuit. The AG mills discharge directly to the secondary pebble mills working in closed circuit with a cyclone cluster. The mills discharge to spiral classifiers ahead of the cyclones in order to return chips to the pebble mills. The tertiary mills function similarly to the secondary mills, accepting secondary cyclone overflow as feed and producing tertiary cyclone overflow as feed for the flotation circuit.

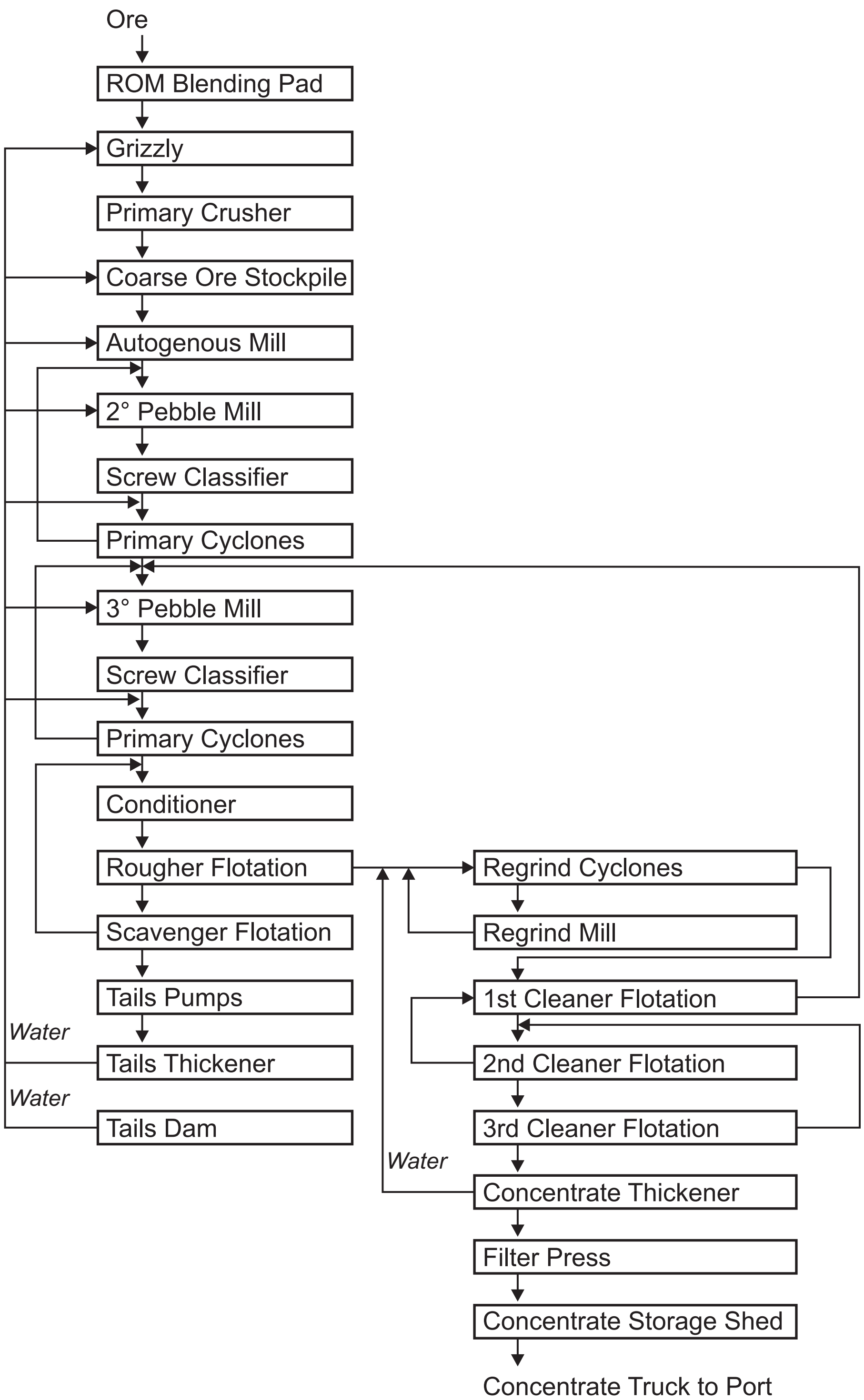


Figure 16-1

IGE Nordic AB

Rönnbäcken Nickel Project
Tärnaby, Sweden

Flowsheet Diagram

November 2009

Underflow from the cyclone clusters flows by gravity back to two parallel pebble mills. Cyclone overflow reports by gravity to conditioning tanks for a five minute conditioning time. A dispersion agent is added directly to the grinding mills, along with collector. Water is further added to the conditioners to reach an optimal pulp density of approximately 30% solids. Sulphuric acid is added to modify the pH.

Additional collector, as well as frother, is added to the rougher feed box and the rougher/scavenger circuit, along with sulphuric acid. The conditioned slurry is pumped to two parallel rougher flotation banks, each consisting of several 300 m^3 flotation cells. Final tailings are pumped to the tailings thickeners, located at the tailings pond site.

The rougher concentrate, approximately 5% to 10% by weight of the feed, will be pumped to a cyclone cluster. Cyclone underflow flows by gravity to a regrinding ball mill. Regrind mill discharge will be pumped back to the cyclones. Cyclone overflow flows by gravity to a first cleaner bank consisting of a bank of 100 m^3 flotation cells. Middlings from the first cleaner bank are recycled back to the pebble mills. The concentrate from the first cleaner flotation bank will be pumped to two additional stages of cleaning consisting of several 50 m^3 flotation machines. A final nickel concentrate grading approximately 28% Ni will be produced. The tailings from cleaning stages 2 and 3 are pumped back to the previous cleaner stage. The tailings from the first cleaner stage will be recycled to the regrinding ball mill.

The final concentrate will be pumped to a concentrate thickener. Thickener underflow will be pumped to a holding tank and then pumped to a pressure filter. The filter cake reports to a concentrate loading system for bulk shipping. Three concentrate trucks per day will leave the site. Final tailings will be pumped to the tailings dam, from which water will be recycled back to the plant, primarily to the grinding circuit.

Depending on the results of future test work, variations in the final flow sheet may include the following:

- If the ore is not very amenable to AG grinding, then other grinding circuit designs will need to be considered.
- Optimization of reagents may lead to a coarser primary grind being utilized along with a rougher concentrate regrind; or a finer primary grind may obviate the need for a regrind circuit.

- Depending on the cleaner selectivity performance achieved, a fourth stage of cleaning may be necessary.

Scott Wilson RPA considers the flow sheet to be a conventional flotation concentrator.

PLANT LOCATION AND LAYOUT

The processing plant site location has been chosen on the basis of the location of the deposits. As the Rönnbäcksnäset deposit is the largest, it is important, for logistical reasons, to locate the concentrator in close proximity. In addition, since tailings handling and water reclamation will be a key part of the operations, the plant location selected was close to the planned tailings storage facility (TSF).

The plant layout has been chosen to utilize the natural geography and topography of the area. The proposed location is suitable for the size of the plant and the proposed layout provides for a conventional flow of material from the crusher to the milling and gravity section, to the flotation plant, and finally to the concentrate handling and tailings handling parts of the plant.

The preliminary location selected is on a smaller island near the western shore of the reservoir system, as illustrated in Figure 16-2.

An initial plant layout has been completed by Outotec AB and is shown in Figure 16-3.

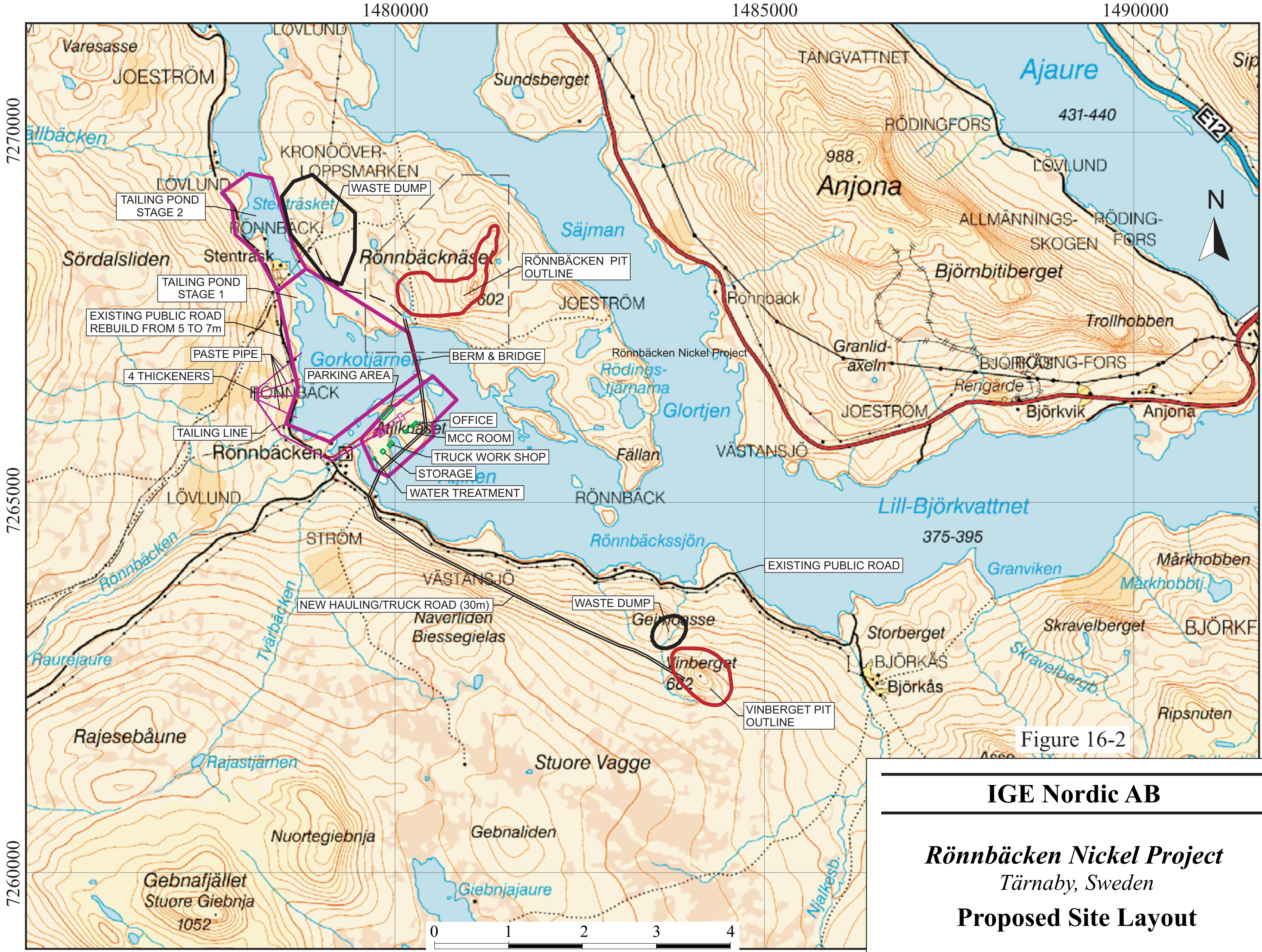


Figure 16-2

IGE Nordic AB

Rönnbäcken Nickel Project

Tärnaby, Sweden

Proposed Site Layout

November 2009

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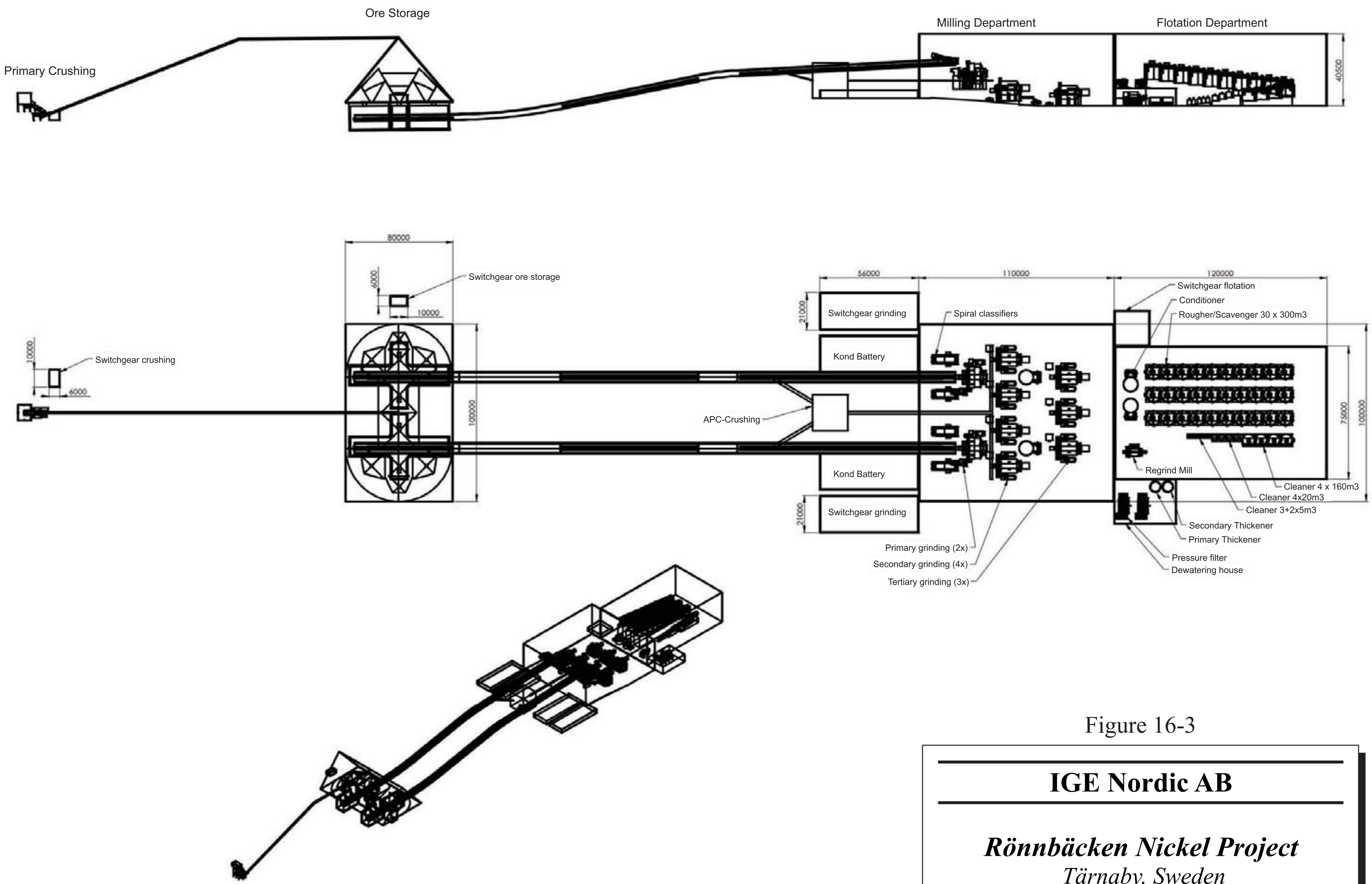

Figure 16-3

IGE Nordic AB

Rönnbäcken Nickel Project

Tärnaby, Sweden

Process Plant Layout

November 2009

Source: Outotec Sweden AB, 2009.

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17 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

MINERAL RESOURCES

SUMMARY

The Mineral Resources estimated at the Project are summarized in Table 17-1.

TABLE 17-1 MINERAL RESOURCES – APRIL 9, 2009
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Deposit	Classification	Tonnes (Mt)	Grade			Contained Metal	
			Ni %	Ni-AC %	Co %	Ni (t 000s)	Ni-AC (t 000s)
Vinberget	Indicated	54.9	0.187	0.137	0.009	102	75
Rönnbäcksnäset	Inferred	192.9	0.178	0.107	0.009	343	206
Total	**Indicated**	**54.9**	**0.187**	**0.137**	**0.009**	**102**	**75**
	Inferred	**192.9**	**0.178**	**0.107**	**0.009**	**343**	**206**

Notes:
1. Resources are consistent with CIM definitions.
2. Resources are estimated at US$7.50/lb Ni.
3. Resources are based on an optimized pit shell at a cut-off grade of 0.065% Ni in sulphides (Ni-AC).
4. Columns may not add exactly due to rounding.

DATABASE

The Mineral Resource estimate is based entirely on diamond drilling. RATE was the drill contractor, using a T56 drill, drilling 39 mm diameter core (approximately equivalent to BQ). Drilling was done on 50 m cross sections and fanned from the crest of a hill in the host serpentinite. Drill holes were angled such that the horizontal distance between holes was 50 m to 60 m at a depth of 150 m below the collar.

Drill core samples were taken on two metre intervals. Analyses for Ni in sulphide (Ni-AC) were by the ammonium citrate – hydrogen peroxide leach method. This analytical method is not accredited, however, it is used in numerous analytical laboratories worldwide, including Canada. Analyses of Au and PGM were by fire assay and analyses of 33 additional elements were by a four-acid leach and ICP.

Results below the detection limit for S, Co-AC, Cu-AC, Ni-AC, and S-AR (sulphur by aqua regia digestion) were replaced by a value of half of the detection limit.

Wayne Valliant, P.Geo., Principal Geologist, Scott Wilson RPA, visited the Vinberget Project in August 2008 to review the drilling, surveying, core logging, sampling, sample preparation, sample analysis, and QA/QC procedures. In Scott Wilson RPA's opinion, these aspects were carried out using industry standard practices.

Scott Wilson RPA reviewed the diamond drill hole and assay database prepared by IGE. Some minor errors were found and corrected.

PARAMETERS AND ASSUMPTIONS

CAPPING

Total Ni and Ni-AC grades are restricted to the serpentinite lithology. In the Vinberget deposit, grades are very homogeneous. The Rönnbäcksnäset deposit displayed some variation with depth. Grade trends are continuous and generally coincident with the attitude of the serpentinite. Univariate statistics for Ni-AC grades within the serpentinite are summarized below.

TABLE 17-2 UNIVARIATE STATISTICS – NI-AC
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

	Vinberget	Rönnbäcksnäset
Number of Samples	3,304	2,706
Mean	0.132%	0.083%
Median	0.135%	0.084%
Standard Deviation	0.007%	0.045%
Coefficient of Variation	0.053	0.536

Given the very low variation of the Ni-AC grades, capping was not considered necessary.

CORRELATION OF MINERALIZED DOMAINS

Three dimensional wireframes of the serpentinite were constructed based on the lithological contacts in the drill holes and the surface topography trace of the serpentinite.

COMPOSITING

Assays inside the wireframe were flagged and composited to six metres for grade interpolation.

METHODOLOGY

A block model, constrained by the serpentinite lithological model, was constructed with blocks 12 m by 12 m by 12 m. Search distances and directions were consistent with variography. A spherical search of 100 m was used in the Vinberget deposit. In the Rönnbäcksnäset deposit, a 175 m by 125 m by 40 m search ellipsoid was used in the northeast portion of the deposit and a 175 m by 125 m by 25 m search ellipsoid was used in the southwest area to account for the Ni-AC grade trends.

Grade interpolation was done using inverse distance squared (ID^2).

ECONOMIC OPTIMIZATION

Optimized pit shells were created using Whittle software to provide a reasonable certainty that the mineralized material could cover the operating costs associated with open pit mining, processing, general and administrative costs. The parameters are based on data provided by IGE, as well as on Scott Wilson RPA's experience on similar projects, and are considered by Scott Wilson RPA to be reasonable for Mineral Resource estimation. The parameters for the Whittle runs are summarized in Table 17-3.

TABLE 17-3 ECONOMIC OPTIMIZATION PARAMETERS
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Production rate	20-25 Mtpa resource
Mining cost	US$ 1.00/tonne + depth factor
Haulage to plant	US$ 0.35/tonne
Processing incl tailings cost	US$ 5.00/tonne
General & Administrative cost	US$ 1.00/tonne
Process recovery	80%
Pit slope	52°
Ni price	Range US$ 6.00 to US$ 10.00/lb
Exchange rate	US$ 1.00=SEK 8.00
Smelter	As per IGE Nordic research

Optimized pit shells were checked for a reasonable buffer distance between the pit edge and the lake shore.

Based on the foregoing, the pit discard cut-off grade is 0.065% Ni-AC. Mineral Resources, i.e., mineralized material within an optimized pit shell, estimated at various Ni prices, are summarized in Table 17-4.

TABLE 17-4 MINERAL RESOURCES VS. NI PRICE
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Vinberget Deposit

Ni Price	Tonnes			Grade			Contained Metal		Strip Ratio
	Indicated Resource	Waste	Total	Ni	Ni-AC	Co	Ni	Ni-AC	
$	(Mt)	(Mt)	(Mt)	%	%	%	(t 000s)	(t 000s)	
6.00	51.6	18.6	70.2	0.187	0.138	0.009	97	71	0.36
7.00	54.4	24.2	78.6	0.187	0.137	0.009	102	75	0.45
7.50	**54.9**	**25.4**	**80.3**	**0.187**	**0.137**	0.009	**103**	**75**	**0.46**
8.00	55.6	26.8	82.4	0.186	0.136	0.009	103	76	0.48
9.00	56.2	29.6	85.8	0.186	0.136	0.009	105	76	0.53
10.00	56.4	30.9	87.3	0.186	0.136	0.009	105	77	0.55

Rönnbäcksnäset Deposit

Ni Price	Tonnes			Grade			Contained Metal		Strip Ratio
	Inferred Resource	Waste	Total	Ni	Ni-AC	Co	Ni	Ni-AC	
$	(t 000s)	(t 000s)	(t 000s)	%	%	%	(t 000s)	(t 000s)	
6.00	105.5	43.0	148.5	0.179	0.110	0.009	189	116	0.41
7.00	176.1	121.3	297.4	0.178	0.107	0.009	314	188	0.69
7.50	**192.9**	**155.2**	**348.1**	**0.178**	**0.107**	**0.009**	**343**	**206**	**0.80**
8.00	205.0	185.3	390.3	0.178	0.107	0.009	365	219	0.90
9.00	222.0	235.5	457.4	0.178	0.106	0.009	395	235	1.06
10.00	229.9	265.1	495.1	0.178	0.105	0.009	409	241	1.15

Notes:
1. Resources are consistent with CIM definitions.
2. Resources are based on optimized pit shell at a cut-off grade of 0.065% Ni in sulphides (Ni-AC).
3. Columns may not add exactly due to rounding.
4. Scott Wilson RPA recommends using Mineral Resources estimated at US$7.50/lb Ni.

MINERAL RESERVES

There are no Mineral Reserves estimated for the Project. There has not been a study at the Pre-feasibility level to support the conversion of Mineral Resources to Mineral Reserves.

18 OTHER RELEVANT DATA AND INFORMATION

Resources contained in the $7.50 per lb Ni pit optimizations were provided to IGE for use in an internal scoping study. Scott Wilson RPA reviewed the results, and provided advice on cost estimation and cash flow modelling, as described in the following subsections.

MINING OPERATIONS

Mining operations will include two open pits, one at Vinberget and the other at Rönnbäcksnäset. The location of the open pits is illustrated in Figures 18-1 to 18-4.

Conventional open pit drilling, blasting, shovel, and truck mining of ore and waste will be used for this Project. The following aspects were considered in making this selection:

1. The life and size of ore and waste production.
2. The depth and size of the probable pit.
3. The ore geometry.

At the time of the scoping study, alternative bulk movement options such as in-pit crushing and conveying or trolley assisted haulage were not considered viable, due to the relatively short mine life. The potential of such alternatives may warrant consideration in further studies, particularly if more resources are identified.

A system of 12 m benches will be used to suit the size and geometry of the pit, and to match loading equipment. Haulage ramps will be 27 m wide, including a safety berm and a 20.5 m “running width” (2.5 times truck width). Ramp gradients will be at 10%. The overall pit wall slope used in the ultimate pit design, with allowance for batters and berms, is 52^o, which is a normal slope angle in similar operations in hard rock in northern Sweden. Geotechnical studies will be necessary to determine slope angles appropriate for local conditions.

Four waste dumps were designed, one for Vinberget and three for Rönnbäcksnäset.

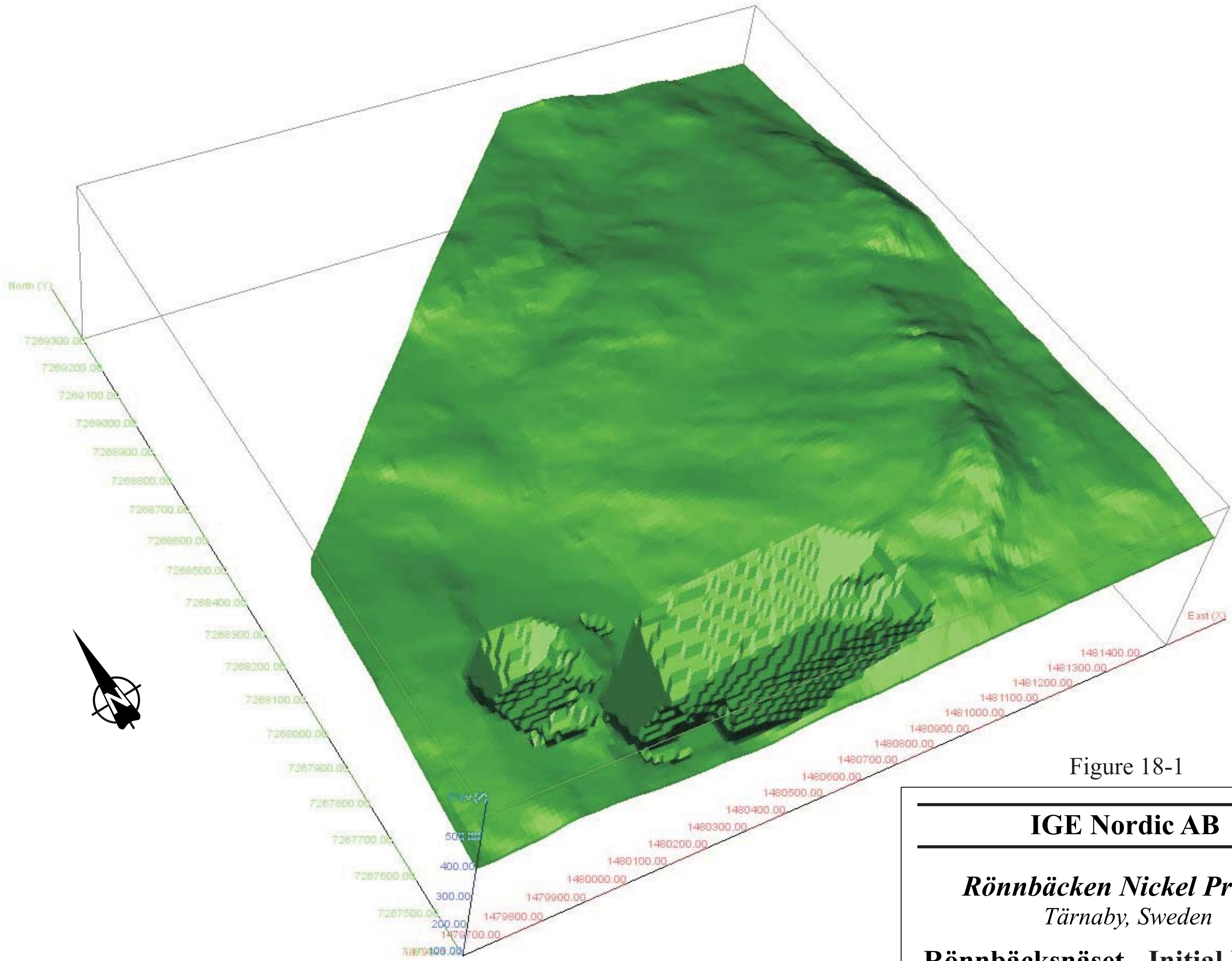

Figure 18-1

IGE Nordic AB

Rönnbäcken Nickel Project

Tärnaby, Sweden

Rönnbäcksnäset - Initial Pit Shell

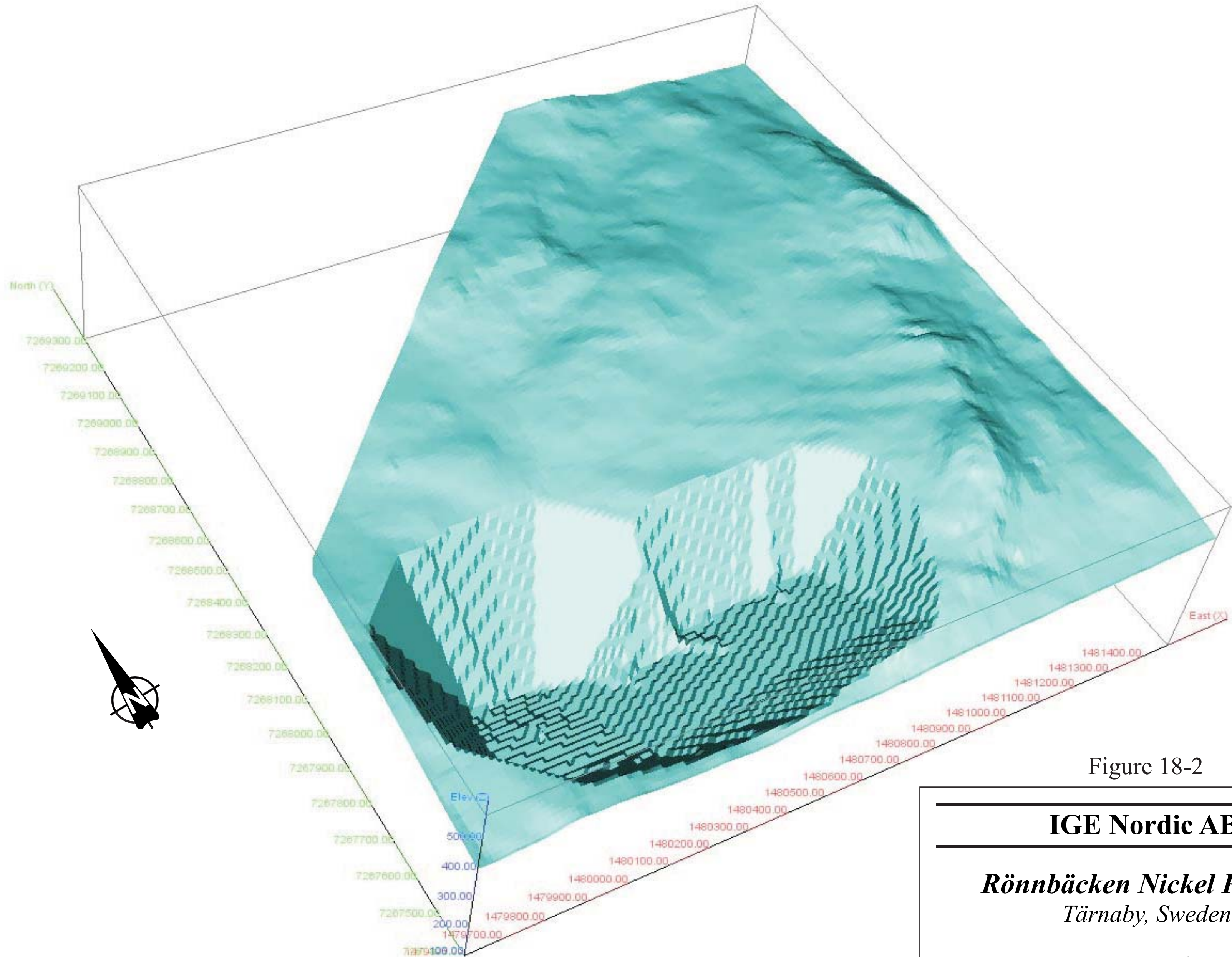

Figure 18-2

IGE Nordic AB

Rönnbäcken Nickel Project

Tärnaby, Sweden

Rönnbäcksnäset - First Pushback

November 2009

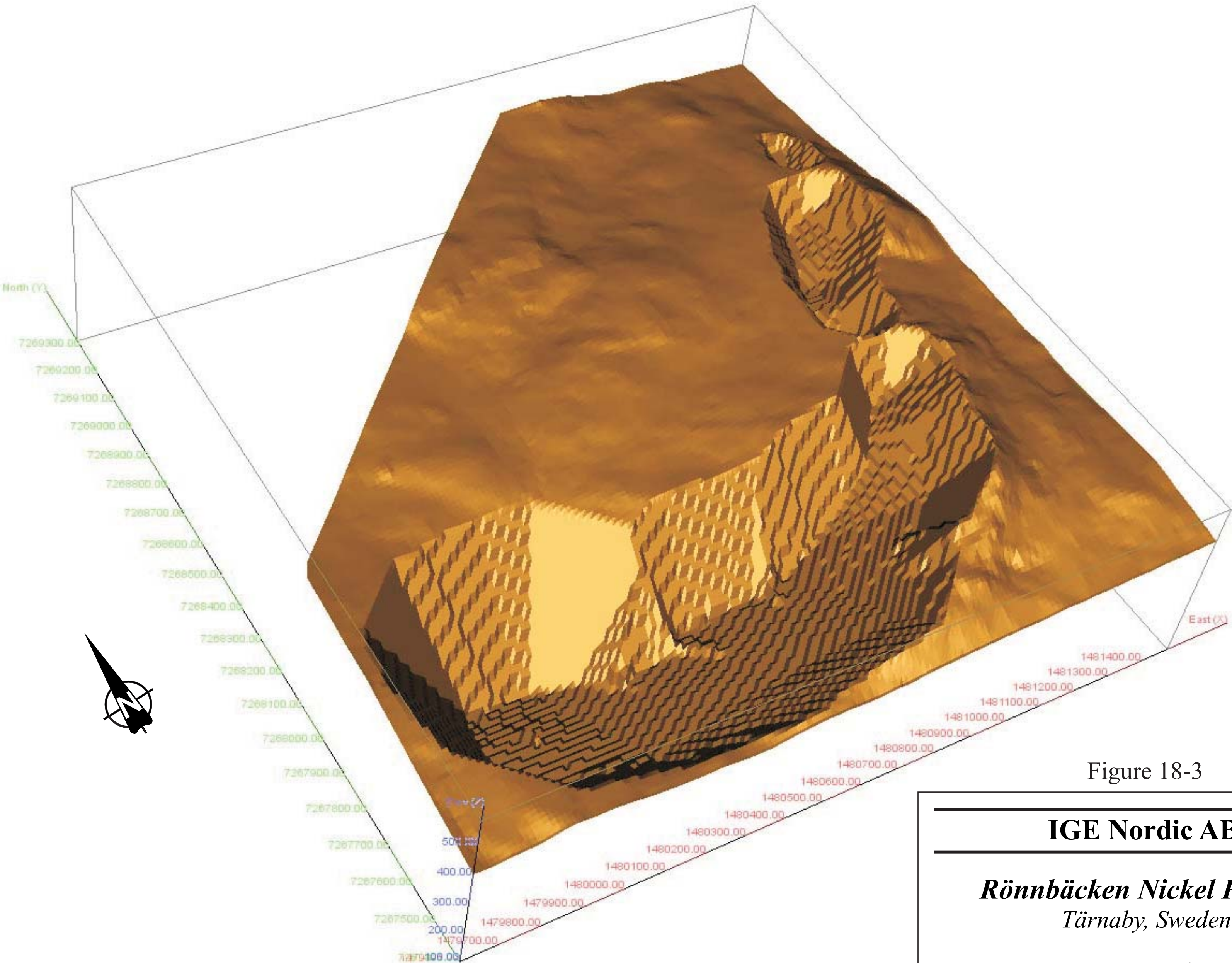

Figure 18-3

IGE Nordic AB

Rönnbäcken Nickel Project

Tärnaby, Sweden

Rönnbäcksnäset - Final Pit Limit

November 2009

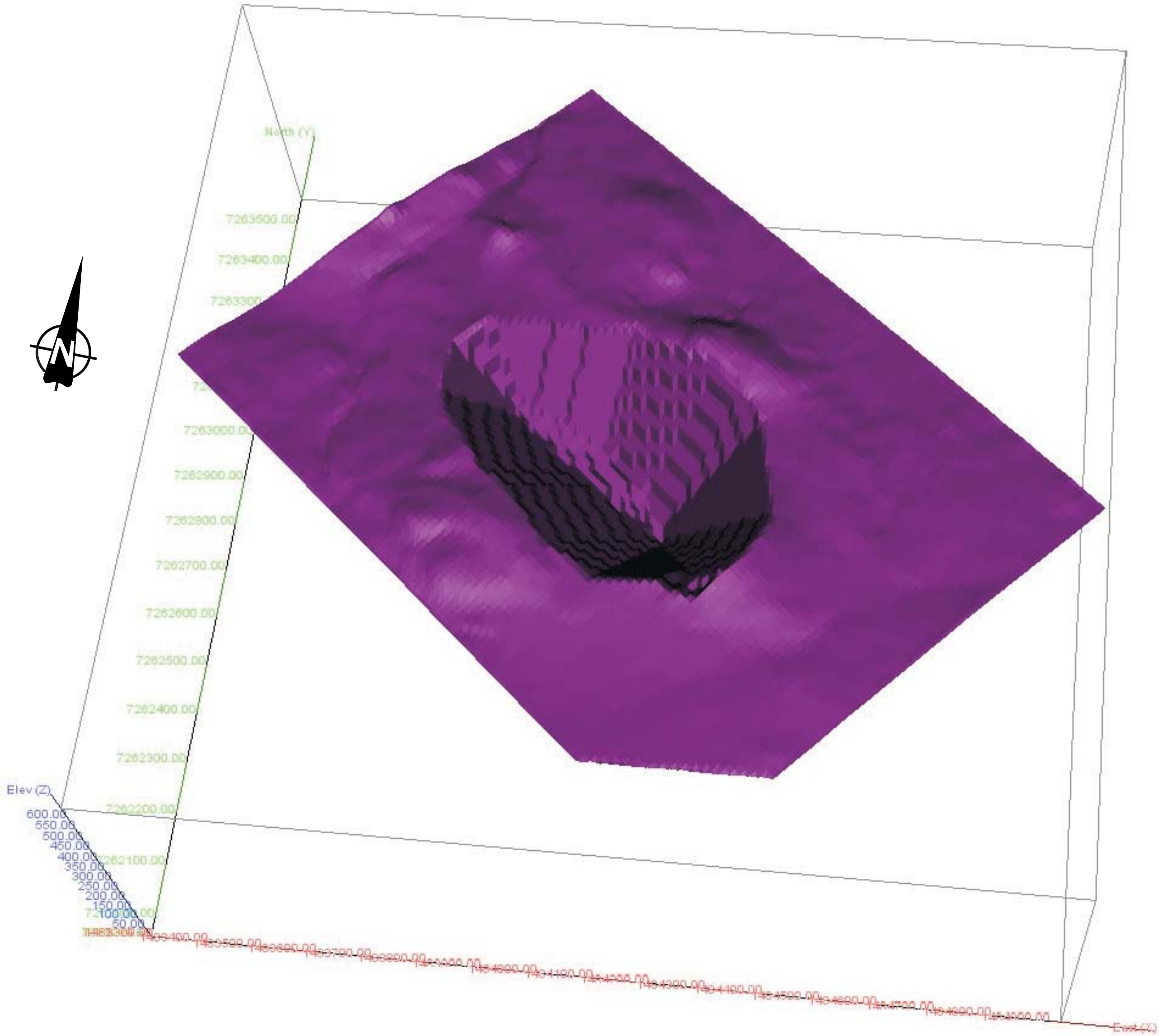

Figure 18-4

IGE Nordic AB

Rönnbäcken Nickel Project

Tärnaby, Sweden

Vinberget - Final Pit Limit

November 2009

PRODUCTION SCHEDULE

The quantities used in the production schedule are based on pit optimizations carried out on the Rönnbäcksnäset and Vinberget block models. Rönnbäcksnäset is mined with a starter pit, a pushback, and a final phase. Ore is mined sequentially from different phases. Waste is mined to expose sufficient ore for processing. The limiting constraint is the vertical advance in each pit and pushback. The vertical advance rates are based on industry experience with the equipment selected and do not exceed seven benches, or 84 m, per year. Two schedules have been developed (Figures 18-5 and 18-6), based on ore production of 20 million tonnes per year.

Alternative 1. Start-up with 50% Vinberget + 50% Rönnbäcksnäset.
Advantages: Possibilities to blend ore from both major deposits, including higher grade Vinberget ore.
Disadvantages: The hauling road from Vinberget has to be built before start-up (6.5 km).

Alternative 2. Start-up with 100% from Rönnbäcksnäset for 2 years and later 50% from Vinberget + 50% Rönnbäcksnäset.
Advantages: All hauling roads will be built with waste production from Rönnbäcksnäset.
Disadvantages: Reduced possibilities to blend ore, resulting in lower grades during the first 2 years.

Alternative 1 was selected for this Preliminary Assessment, as summarized in Table 18-1.

FIGURE 18-5 MINING SCHEDULE OPTION 1

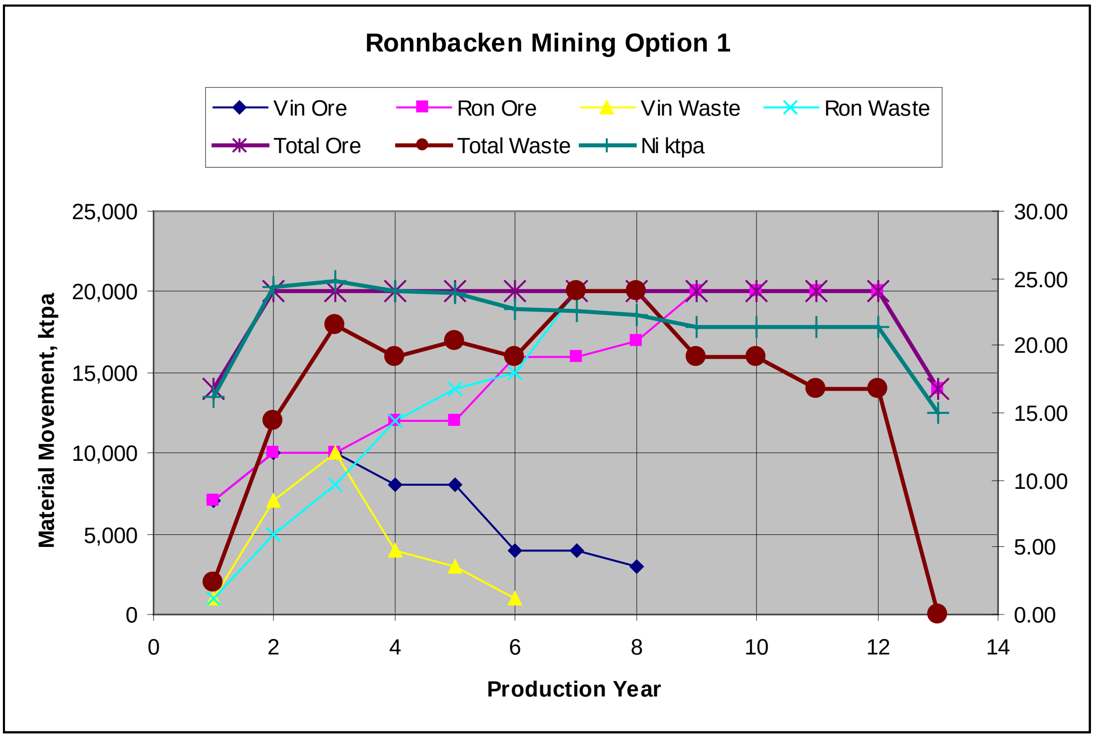

FIGURE 18-6 MINING SCHEDULE OPTION 2

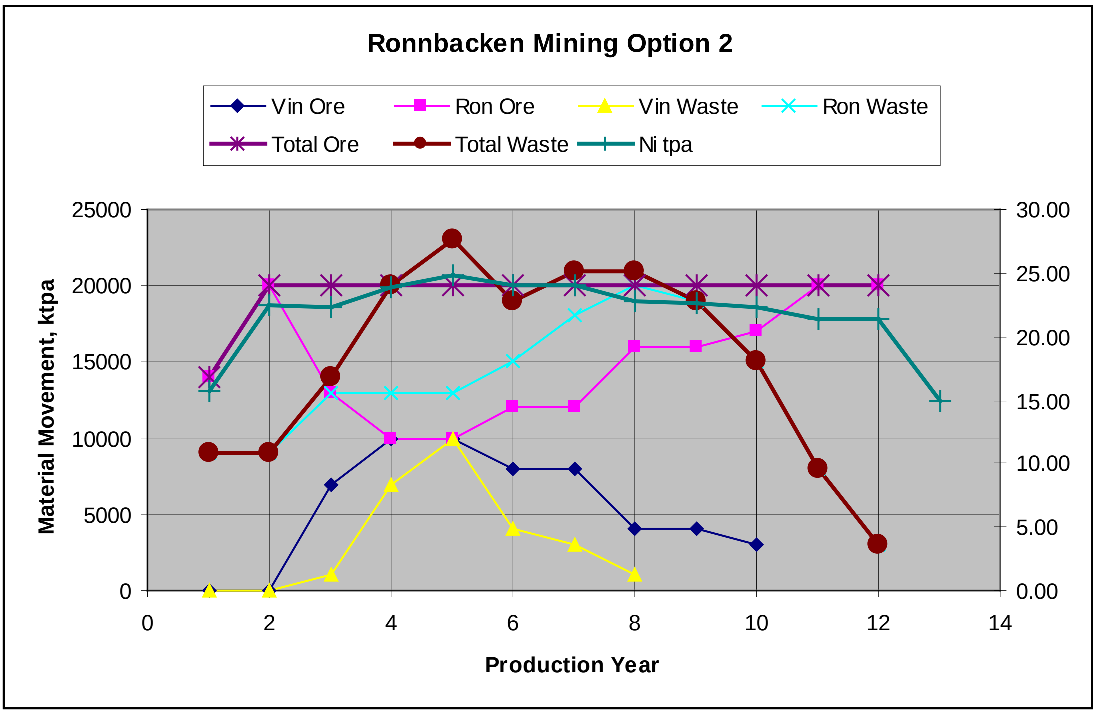

TABLE 18-1 PRODUCTION SCHEDULE

PRODUCTION SCHEDULE			Production													
ORE PRODUCTION			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Total
Rönnbäcksnäset Starter	Ore	tonnes '000s	7,000	10,000	10,000	12,000	3,636	-	-	-	-	-	-	-	-	42,636
Rönnbäcksnäset Pushback1	Ore	tonnes '000s	-	-	-	-	6,292	16,000	16,000	17,000	19,347	20,000	17,528	653	-	112,820
Rönnbäcksnäset SW Pit	Ore	tonnes '000s	-	-	-	-	-	-	-	-	-	-	2,472	19,347	3,110	24,929
Rönnbäcksnäset NE Pit	Ore	tonnes '000s	-	-	-	-	-	-	-	-	-	-	-	-	10,415	10,415
Vinberget	Ore	tonnes '000s	7,000	10,000	10,000	8,000	10,072	4,000	4,000	3,000	653	-	-	-	-	56,725
Total	Ore	tonnes '000s	14,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	13,524	247,525
GRADE																
Rönnbäcksnäset Starter	Ni	%	0.115	0.109	0.108	0.115	0.116									0.112
Rönnbäcksnäset Pushback1	Ni	%	-	-	-	-	0.099	0.099	0.102	0.103	0.105	0.107	0.111	0.106		0.104
Rönnbäcksnäset SW Pit	Ni	%	-	-	-	-	-	-	-	-	-	-	0.099	0.105	0.123	0.107
Rönnbäcksnäset NE Pit	Ni	%	-	-	-	-	-	-	-	-	-	-	-	-	0.113	0.113
Vinberget	Ni	%	0.126	0.135	0.143	0.141	0.140	0.140	0.135	0.127	0.129	-	-	-	-	0.137
Total			0.121	0.122	0.126	0.125	0.123	0.107	0.109	0.107	0.106	0.107	0.109	0.106	0.115	0.114
WASTE PRODUCTION																
Rönnbäcksnäset Starter	Waste	tonnes '000s	1,000	5,000	7,496	-	-	-	-	-	-	-	-	-	-	13,496
Rönnbäcksnäset Pushback1	Waste	tonnes '000s	-	-	-	8,939	14,445	15,239	20,000	20,000	13,445	-	-	-	-	92,067
Rönnbäcksnäset SW Pit	Waste	tonnes '000s	-	-	-	-	-	-	-	-	2,555	16,000	12,254	-	-	30,809
Rönnbäcksnäset NE Pit	Waste	tonnes '000s	-	-	-	-	-	-	-	-	-	-	1,746	14,210	-	15,956
Vinberget	Waste	tonnes '000s	1,000	7,000	10,504	7,061	2,555	421	-	-	-	-	-	-	-	28,541
Total	Waste	tonnes '000s	2,000	12,000	18,000	16,000	17,000	15,660	20,000	20,000	16,000	16,000	14,000	14,210	-	180,869
STRIP RATIO																
Rönnbäcksnäset Starter	Waste:Ore	-	0.14	0.50	0.75	-	-	-	-	-	-	-	-	-	-	0.32
Rönnbäcksnäset Pushback1	Waste:Ore	-	-	-	-	-	2.30	0.95	1.25	1.18	0.69	-	-	-	-	0.82
Rönnbäcksnäset SW Pit	Waste:Ore	-	-	-	-	-	-	-	-	-	-	-	4.96	-	-	1.24
Rönnbäcksnäset NE Pit	Waste:Ore	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.53
Vinberget	Waste:Ore	-	0.14	0.70	1.05	0.88	0.25	0.11	-	-	-	-	-	-	-	0.50
Total	Waste:Ore	-	0.14	0.60	0.90	0.80	0.85	0.78	1.00	1.00	0.80	0.80	0.70	0.71	-	0.73

MINING

Mining operations include:

- Strip topsoil from the open pit.
- Construct access and haul roads using waste material from the open pit.
- Drill and blast ore and waste.
- Mine, load, haul and dump ore and waste.
- Contain surface water run-off and dewater the pit.
- Maintain access roads, dumps, access ramps, haul roads, and waste dumps.
- Provide dust suppression in working areas, including access roads, using water from tanker trucks.
- Maintain the mining fleet.

The main infrastructure required to service the mine on site is:

- Office facilities.
- Workshop and warehouse facilities.
- Communications facilities.
- Lunch room.
- Explosives magazines.
- Power supply.
- Water tank filling facilities.
- Fuel storage facilities.
- Truck parking area.
- Employee parking area.

DRILLING AND BLASTING

Standard blasthole diameters were selected to match the bench heights:

- 12 1/4 in. (310 mm) diameter holes for bulk mining of ore and waste on 12 m benches.
- 6 in. (150 mm) diameter holes for pre-split blasting of walls and minor bench height.

These hole diameters generally provide reasonable explosives distribution at the corresponding bench heights, resulting in adequate rock fragmentation for excavation. A high powder factor should be used to increase rock fragmentation and for easier loading and grinding in the plant.

Emulsion type explosives have been selected for mining ore and waste. Emulsion explosives are pumpable products with good water resistance and are mixed at the collar of the blasthole. The bulk density can vary between approximately 1.1 t/m^3 and 1.4 t/m^3, to account for variations in rock strength and optimize fragmentation. Initial inquiries indicate that Orica Mining Services (Orica) would be able to provide a downhole service.

TABLE 18-2 BASIC DRILL SPECIFICATIONS
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

	Atlas Copco 351 Viper	Atlas Copco L8
Hole diameter	12 ¼", 310 mm	6", 150 mm
Bench height	12 m	12 m
Sub drilling	1.2 m	
Drill capacity	33 m/hr	42 m/hr
Overall drill capacity	22 m/hr	28 m/hr
Spacing	9 m	
Burden	7 m	
Utilization	65%	65%
Work hour/year	6,000	6,000
Overall production (drill metre/year)	132,000	

Charging/blasting specifications are:

- Emulsion 1.4 t/m^3
- Specific charging 1.1 kg/m^3
- Primer 1.7 kg (2 pieces per hole)
- NONEL detonators

LOAD AND HAUL

Selection of load and haul mining equipment was based on:

- Matching the loading equipment with haul trucks to minimize the total load and haul cost.
- In general, as open pit load and haul equipment increases in size, unit mining costs decrease, due in part to reduced labour requirements per tonne of material moved and the use of larger capacity haul trucks.
- Large hydraulic shovels (550 t operating weight, 28 m^3 to 30 m^3 bucket) were selected.
- Large diesel haul trucks (load capacity of 225 t) were selected due to their proven performance for similar duties; in particular, the proposed pits will be up to 300 m deep, which will require long continuous operation under load. The selection of truck size, compatible with the bulk loading equipment, is important for equipment utilization and efficient operation of the mine.
- Other operations have selected similar sized equipment for similar duties.

Material specific gravities are estimated as follows:

- In situ 2.85 t/m^3
- Bulk 1.8 t/m^3

TABLE 18-3 LOADER SPECIFICATIONS
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Model	OK 200 RH
Operating weight	550 t
Bucket size	28 m3
Loading time per bucket	30 seconds
Fill factor	90%
Efficiency factor	80%
Number of buckets to fill truck	4.9
Number of passes	5
Operating production rate	3,500 t/h
Utilization	65%
Working hours/year	6,000
Capacity per year	21 Mt

TABLE 18-4 TRUCK SPECIFICATIONS
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Model	Cat 793D
Truck capacity	225 t
Spotting time at excavator	45 sec
Utilization	72%
Working hours/year	6,300

Wherever specific manufactures and models of equipment are mentioned, these are intended to represent a class of equipment rather than a selection of the particular manufacturer or model.

ANCILLARY EQUIPMENT

Major ancillary equipment will consist of the following:

- Wheel loader Cat 994F - back-up for shovels and service in the mine
- Dozer Cat D10T - waste dump handling
- Grader Cat 16M - road maintenance
- Wheel loader 950H - support and service in the mine
- Water truck - dust suppression
- Maintenance truck - service
- 25 t crane

- Tire handling equipment
- Light vehicles

GRADE CONTROL

Grade control will be carried out using samples taken from blasthole drilling cuttings. Every blasthole in ore and selected holes in waste will be sampled and assayed, with two samples taken from each hole. Blasthole samples would be split, bagged, and delivered to the assay laboratory. Delineation of ore/waste boundaries and update of block model would be the responsibility of the mine geologist.

HUMAN RESOURCE REQUIREMENTS

Mine operations will be carried out by contractors, with a small owner's workforce for engineering and contractor management. The required workforce skills are expected to be as follows:

- Technical and Engineering personnel with higher education qualifications.

- Equipment operators - Basic School education with experience in operation of heavy equipment. All necessary training in operation of specific mining equipment will be provided by the contractors or manufacturers.

The number of personnel is based on similar operations in Sweden and complies with Swedish labour laws on shift rotation. The manpower requirements are summarized in Table 18-5.

TABLE 18-5 MANPOWER REQUIREMENTS
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

	Quantity
Technical/Administration	
Manager	1
Chief Mining Engineer	1
Mine Planning Engineer	3
Surveyor	2
Assistant Surveyor	1
Geologist	1
Technicians	3
Production	
Production Supervisor	1
Shift Supervisor	5
Maintenance Supervisor	2
Drill Operators	15
Shovel Operators	10
Haul Truck Operators	52
Ancillary Equipment Operator	30
Maintenance Personnel	25
Blasting Personnel	5
Total	**157**

MINE OPERATING TIME

The mine production will operate on a 24 hours per day, 7 days per week schedule. The main work roster is based on a three shifts per day schedule. It will require five operators per piece of equipment on an annual basis.

EQUIPMENT REPLACEMENT STRATEGY

Estimated replacement age:

- Drills 60,000 hours
- Trucks 75,000 hours
- Shovels 60,000 hours
- Dozers 50,000 hours
- Ancillary equipment 45,000 hours
- Light vehicle 4 – 5 years

FUTURE PLANNING

Future work recommendations are as follows:

Mining: Further investigation of different mining sequences and alternatives will be required for both Vinberget and Rönnbäcksnäset.

Geotechnical: Rock strength test work for both ore and waste will be required. Samples will be sourced largely from existing drill core, as well as future infill drilling programs. Particular focus will be on testing the geotechnical characteristics of the rock between the lake and the open pit at Rönnbäcksnäset.

Hydrogeology: Investigation of groundwater inflow to different pits will be required. The permeability of the rock mass between the lake and the open pit at Rönnbäcksnäset will need to be evaluated.

MINERAL PROCESSING

The proposed process is discussed under Section 16 of this report, which includes a process flow sheet.

MARKETS

The Rönnbäcken Project will produce a high grade nickel concentrate suitable for most sulphide nickel smelters. Expected concentrate production is approximately 60,000 tpa at a grade of 28% Ni, or 17,000 tpa of contained nickel. The nickel in the concentrate is expected to be present as a mixture of heazlewoodite, Ni_3S_2 (50%-80% depending on the percentage of Rönnbäcksnäset ore in the feed), and pentlandite, $(Ni,Fe)_9S_8$ (25%-45%), with minor amounts of millerite, NiS (<10%).

The typical Ni concentrate specification is shown in Table 18-6. It is based upon the assays of the concentrates produced in the test work completed at ORC. The Ni and Fe grade of concentrate will mainly depend on the percentages of Rönnbäcksnäset and Vinberget ore blended ahead of the concentrator, while the gangue content (MgO and SiO_2) will depend on the degree of mineral liberation and the cleaning of the concentrate. The S content in the concentrate will vary with the percentage of ore types, as higher amounts of Vinberget ore will have higher pentlandite content and therefore higher S. Co is usually encountered as Co-rich pentlandite and therefore Co content would be expected to rise with higher proportions of Vinberget ore. The concentrate will be pressure filtered and is expected to contain 8% H_2O.

TABLE 18-6 CONCENTRATE SPECIFICATION
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Element	Typical %	Range %
Ni	28	25-35
Co	0.7	0.7-1.4
Cu	0.5	0.5-1.0
As	0.23	0.15-0.30
Fe	8	4-12
S	18	15-21
MgO	16	10-20
SiO_2	18	12-20

In addition, low levels of Au, Ag, Pt, and Pd are expected to be present in the concentrate. Based on a very limited number of assays, Au, Pt, and Pd are expected to be approximately 1 g/t, while Ag is likely to be in the order of 10 g/t.

Mercury has also been identified by one of the potential off-takers and considered a possible deleterious element, as it assayed from 3 ppm to 13 ppm. It is expected that this level would be acceptable by most smelters, although this needs to be further investigated in the next stage of the study.

SMELTING

Compared to most Ni concentrates, which are pentlandite-based and range in Ni content from 5% to 20% Ni, the Rönnbäcken concentrate has high Ni content. This allows the nickel smelter to achieve higher throughput rates and potentially increase nickel recoveries. While the MgO level is relatively high and the sulphur level is relatively low, it is expected that most smelters will be able to blend Rönnbäcken concentrate with other feeds to meet their requirements. Flash smelters in particular will need to blend the concentrate in order to establish a manageable level of ignition and reaction shaft heat balance.

In the open market, there are a number of potential customers for Rönnbäcken concentrate. These include:

- Norilsk Nickel International (Norilsk) – Harjavalta smelter in Finland
- Xstrata Nickel – Sudbury smelter in Ontario, Canada
- Vale Inco – two smelters in Canada (Sudbury, Ontario, and Thompson, Manitoba)
- Votorantim Metais Niquel - Fortaleza smelter in Brazil

- Jinchuan – three smelters in China
- Jilin – small smelter in China

There are various reasons for any of these smelters to be reasonably interested in Rönnbäcken concentrate. Norilsk is most likely to be interested, as it has been active in the custom feed market in the past and has an agreement with Boliden for concentrate treatment at its Harjavalta smelter in Finland.

In Canada, both Xstrata and Vale Inco will likely be looking for custom feeds in the future. Xstrata currently requires custom feed to top up the concentrate generated from its own mines, while Vale Inco will cease shipping Voisey's Bay concentrate to its two smelters in 2012. In each case, there are projects or partnerships that could make up the difference, and Rönnbäcken could provide a suitable alternative, including a potential feed to the Voisey's Bay hydrometallurgical refinery.

The Fortaleza smelter in Brazil will be relying increasingly on concentrate from Mirabela's new Santa Rita mine starting this year. There is potential to provide additional concentrate to make up any shortfall and Mirabela is studying the possibility of developing its own smelter.

China offers a good potential for off-take as a number of Australian Ni concentrates are currently smelted there. Jinchuan has spare smelting capacity at its smelters. In the past, Jinchuan has carried out a series of refinery expansions, as necessary to accommodate prospective feeds.

Jilin has recently doubled the capacity of its smelter to 15,000 tpa based on an off-take agreement with Liberty Mines, however, the current mine is due to be depleted in 2013.

SUPPLY AND DEMAND

CONSUMPTION

Nickel consumption is closely linked to stainless steel production, which represents 67% of total worldwide nickel demand. The most common form of stainless steel, austenitic, contains 8% to 10% nickel. Other major uses include Ni alloys (12%) and plating (11%). Since 1970, the growth in stainless steel production has been 4.9% per year, with an average of 6.4% per year from 2001 to 2007.

In 2008, nickel demand declined due to the global economic downturn, with demand from the Chinese stainless steel industry decreasing by as much as 30%. The reduced demand from stainless steel mills worldwide was somewhat compensated for by increased demand from non-stainless sectors, as the nickel alloys market experienced strong demand. In 2009, the nickel industry has continued to be impacted by the slowdown in stainless steel production, compounded by a decline in demand from the non-stainless sectors. The forecast demand for nickel in 2009 is 1.189 million tonnes.

Nickel demand is forecast by many to return to typical trend growth rates in 2010 with expansion of stainless steel production capacity. The continued emergence of the new industrialized Asian economies will remain key drivers behind sustained nickel demand in the long-term future. World nickel demand is forecast to grow 5% per year in the long term.

PRODUCTION

Since 2000, world refined nickel production has increased by over 360,000 tonnes to a peak of 1.5 million tonnes in 2007. The growth in nickel production in recent years has primarily occurred through brownfield expansions - the most economical and timely way for established nickel producers to increase production. In addition, low nickel pig iron (NPI) produced from imported low grade laterite ores emerged in China as a new source of nickel for its burgeoning stainless steel industry.

Total world nickel production in 2008 was 1.4 million tonnes and was dominated by five major companies making up 61% of the world supply, as shown in Table 18-7.

TABLE 18-7 WORLD NICKEL PRODUCTION IN 2008
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Company	Production (kt)	Percentage Share (%)
Vale Inco	270	19
RAO Norilsk	269	19
BHP Billiton	116	8
Xstrata Plc	108	8
Jinchuan Nonferrous Metals	105	7
Sumitomo Metal Mining	58	4
Eramet-SLN	51	4
Cuba Niquel	41	3
Pacific Metals Company	33	2
Sherritt	32	2
Other	330	24
Total	**1,413**	**100**

Due to the economic downturn, the first quarter of 2009 saw announcements of reduced nickel production totaling 126,000 tonnes for the year. A significant amount of NPI production became uneconomic and was removed from the market. In addition, there have been further reductions in production due to extended summer shutdowns. Production in 2009 is forecast to be 1.307 million tonnes, a reduction of 8% from 2008 levels. The production cutbacks are expected to end in 2010, with production returning to 2007/2008 levels.

In the near-term future, production increases are expected to come from expansion via laterite nickel projects. Due to a lack of discoveries of large sulphide nickel deposits in the last two decades, nickel companies have turned increasingly to laterite nickel resources. The laterite resources are being exploited by both conventional ferronickel smelting technology (saprolites) and leaching technology (limonites) including high-pressure acid leach (HPAL). In addition, there has been a reactivation of China's NPI sector in line with the recovery in nickel prices in 2009, and it is estimated production can readily reach over 200,000 tonnes of nickel.

Most of the new production expected to come on stream in the next few years comes from nickel laterite development. Advanced greenfield projects such as Goro, Ramu, Onca Puma, Koniambo, Barro Alto and Ambatovy, as well as a brownfield expansion at Niquelandia, if successful, may provide up to 280,000 tonnes of Ni by 2014, with Goro, Ramu, and Onca Puma expected to come on stream in the next year.

While HPAL technology is complex and still in its infancy as a commercial process, with issues regarding costs, environmental matters and tailings disposal, the ferronickel smelting technology is well established. As a result, some of these greenfield projects could face long lead times to reach their full potential. A series of disruptions have already been experienced at Goro and Ramu leading to project schedule slippage.

NICKEL CONCENTRATE TRADE

The trade in nickel concentrates has grown substantially in recent years, an average of 10% per year, to 140,000 tonnes in 2007 according to Brook Hunt. Purchased concentrates have allowed smelter operations to maintain production levels as their own mines became depleted, while other producers have implemented brownfield expansions based on long-term off-take agreements for custom feed.

Australia is a major seller of custom concentrates, accounting for 53% of the market. The buyers of concentrates are located in Australia, Finland, China, Botswana, and Canada. Up until 2007, the concentrate market had been balanced, according to Brook Hunt. With the large volume of mine production taken out of the market due to the economic downturn, the concentrate market has moved into a supply deficit. Between the seven nickel producers actively purchasing feed for their smelters – Norilsk, Vale Inco, Xstrata, Jinchuan, Jilin, BCL, and Fortaleza – it is estimated that their need for additional nickel from custom concentrates is expected to grow to 250,000 tonnes by 2020.

SUPPLY AND DEMAND BALANCE

The market balance has been forecast on the basis that the demand for nickel will continue to grow by an average of 5% per year. The global economic slowdown is expected to ease towards the end of 2009, leading to a corresponding increase in stainless steel production and demand for nickel. Nickel demand is forecast to be 1.36 million tonnes in 2010.

However, the market will continue in significant surplus in the near-term future. For 2009, even with the announced cutbacks in production, a surplus of 55,000 tonnes is projected. If 2007 production levels were to return in 2010, a surplus of 86,000 tonnes would be realized. Further cutbacks, closures, and delays in new projects are what have been deemed necessary to bring the balance closer to equilibrium in the medium-term. Under this scenario, the nickel market changes to a deficit around 2014.

NICKEL PRICE

From 2010 to 2012, a recovery in nickel demand will place upward pressure on nickel prices, however, an overhang of sidelined production capacity at existing producers poised to re-enter the market, is expected to keep the price within the range of $7.00/lb to $8.00/lb. When the nickel market does eventually move into deficit in 2013, the nickel price is expected to rise correspondingly to the $8.00/lb to $9.00/lb level until 2015. From 2016 onwards, the forecast nickel deficits will become larger and there will be a need for significant volumes of new nickel supply from large greenfield projects. Higher nickel prices are expected to be required for these projects to be successful.

This Preliminary Assessment uses a base price of $9.00 per lb Ni, which is at the upper limit of current long-term forecasts by banks and financial institutions, but is in line with prices required for producers to undertake future nickel projects. In Scott Wilson RPA's opinion, the Project merits advancement in an environment of long-term nickel price forecasts in this range.

CONTRACTS

There are no contracts negotiated for the Project. The following subsections discuss possible contracts IGE would enter into as the Project evolves to the operating stage.

MINING

Contract mining has been assumed for this Preliminary Assessment, in order to remove the capital cost of mining equipment from the pre-production costs. An allowance of 10% increase in mine operating costs has been included to cover the cost of contractors.

Contract mining is common in Scandinavia, and there is a reasonable choice of contract mining resources available. Preliminary investigations have shown there is interest in the Project.

The advantage of contract mining is the ability to tap into a greater expertise base than would otherwise be available in trying to hire all the expertise from the beginning of operation.

Under this philosophy, mine operations could either be split amongst different contractors or be handled by one contractor. In either case, long-term contracts are recommended in order to correspond to the economic life time of different equipment. Back-off clauses will be required in order to address the scenario of prematurely ending any contracts.

Careful consideration will need to be made to properly structure the contracts to align the contractors' goals with those of the company.

SMELTING AND REFINING

IGE obtained preliminary smelting and refining terms from six major potential off-takers:

- Norilsk Nickel Finland
- Xstrata Nickel
- Vale Inco
- Jinchuan
- Jilin
- Votorantim Metais Niquel

At this very early stage of the Project, the terms offered by the large nickel companies, which operate the smelters and essentially control the market are not favourable. IGE has developed smelting terms which it believes can be reasonably negotiated at a later date. In Scott Wilson RPA's opinion, these terms, although considerably better than those provided by the smelters at this preliminary stage, may be possible once negotiations have begun in earnest. It is reasonable to assume that these terms may be possible in a market where additional custom concentrate is desired by the smelters. This will be an area that will require further development during the feasibility study stage.

TRANSPORTATION AND HANDLING

Rönnbäcken is situated approximately 60 km from the Norwegian border with European route E12 passing within 23 km of the Rönnbäcken site. This highway connects the port city Umeå in Sweden with the port city Mo i Rana in Norway. Both of these cities are potential shipping points for nickel concentrate produced at Rönnbäcken.

Umeå is situated on the Gulf of Bothnia with access to the Baltic Sea and connection to the Atlantic Ocean through the Öresund strait, or the Sound, between Sweden and Denmark. Umeå is 375 km by road from Rönnbäcken. An alternative shipping point on the Gulf of Bothnia is Skellefteå, which is approximately the same distance by road, 387 km.

Mo i Rana is on the Atlantic Ocean and offers an ice free harbour all year round. It is 142 km by road from Rönnbäcken.

There is also a possibility to transport nickel concentrates by railway at Storuman, which is 127 km from Rönnbäcken, and has a railway network connection. However, this is considered an unlikely scenario due to the double handling required and no apparent savings in costs.

The filtered concentrate will be either loaded bulk into trucks or packed in two tonne bags. The permitted net weight for truck transport on main roads is 40 tonnes. Alternatively, a 22 tonne container could be utilized with 11 big bags in each, suitable for intercontinental transport.

Truck transport contracts for the Ni concentrate will include all costs for handling from the process plant concentrate storage to CIF destination or FOB ship at the port, depending on the requirements from the potential customer. IGE has obtained indicative transportation terms from a well-known Swedish shipping agency in order to estimate the transportation costs for the Ni concentrate to the potential customer.

Based on an inquiry made by the agency, budget costs for the transport of Ni concentrate from Rönnbäcken to various global locations has been estimated. A summary of the costs developed for shipping concentrate to the probable off-take smelters is provided in Table 18-8. For this preliminary stage, it has been assumed that a blended rate for the three off-take locations will be used. A total transportation charge of $78 per dry tonne has been used for the study.

TABLE 18-8 TRANSPORTATION COSTS
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Item	Harjavalta $/t	Jinchuan $/t	Sudbury $/t
Loading at mine cost	0.63	0.63	0.63
Trucking to port	30.67	11.25	11.25
Port charges	2.50	2.50	2.50
Subtotal (excl. sea freight)	**33.79**	**14.38**	**14.38**
Sea Freight	15.00	85.00	55.00
Total (on wet basis per t)	**48.79**	**99.38**	**69.38**
Total (on dry basis per t)	**53.03**	**108.02**	**75.41**

For transport to Harjavalta, concentrate will be trucked from Rönnbäcken to Skellefteå and then delivered by ship to Pori, Finland. Ship loads are assumed to be 4,000 tonnes. If smaller quantities are transported, the unit rate will increase correspondingly. In Skellefteå, the cargo will be stored outdoors, which means that no costs will be charged for used space.

For transport to Sudbury and China, concentrate will be trucked from Rönnbäcken to Mo i Rana. The costs for handling at the port are estimated at 700 Norwegian kroner (NOK)/hour, with the leasing cost for 1,000 m^2 storage space assumed at 5,000 NOK/month.

Scott Wilson RPA has reviewed the budget costs and believes they are within industry norms. There is an opportunity for transport costs to be reduced if a greater percentage of the concentrate is sent to the Harjavalta smelter.

ENVIRONMENTAL CONSIDERATIONS

CURRENT PERMITS AND REGULATORY REQUIREMENTS

At the exploration phase of the Project, there is no need for environmental permits for discharges from the activities in the area. In order to proceed to the next phase, the Exploitation Concession, an Environmental Impact Assessment (EIA) must be prepared according to the Environment Act, chapter 6 (Swedish Code of Statutes 1998:808), latest change 2005;571. The chapter defines what the EIA should comprise, including potential discharges from the activity. The authorities require a simplified EIA to be included in the application for an Exploitation Concession licence. The EIA in question focuses on land use issues. However, an application to the Environmental Court requires a comprehensive EIA which should consider the following discharges:

- Direct or indirect releases to surface water
- Emissions to air
- Noise and vibration
- Process and non-process waste generation and disposal
- Decommissioning

WATER

The Swedish Environment Protection Authority (EPA) has published standard methods and equipment for monitoring discharges from the industrial activities, as well as providing a classification system for estimating impact from metals in surface water based on metal concentrations.

Generally, legal requirements prescribe metal concentration limits at a level lower than “high grades” classification, while mines in operation normally manage to keep discharge levels around the high grade classification.

A number of settling tests were conducted on the tailings in order to determine the settling velocity. The overflow water from the settling tests was analyzed for metals to determine the EPA classification. In general, all of the metal concentrations were at or below the level of high grade.

AIR

Ambient air quality standards are defined in Swedish directive SFS 2001; 257 (changes SFS 2004; 661). The document states permitted concentrations of SO_2, NO_x, Pb, and particulates in the air.

Limits are as follows:

SO_2	125 µg/m^3 (24 hours average)
	350 µg/m^3 (1 hour average)
NO_2	60 µg/m^3 (yearly average))
	200 µg/m^3 (1 hour average))
Pb	60 µg/m^3 (yearly average))
Particles	40 µg/m^3 (yearly average))
	50 µg/m^3 (1 hour average))

All the buildings will be ventilated using mechanical air treatment units. Exhaust air will pass through filters in order to reduce dust content to lower than 50 mg/m^3. Exhaust air will preheat cold air entering the buildings. To meet regulatory requirements for air emissions from the crushing plant (<10 mg/m^3), the facilities will be equipped with wet scrubber systems to clean the working areas and deliver cleaned air to the environment.

NOISE AND VIBRATION

Noise emissions from the industrial activities must not exceed the following noise level, as monitored at the nearest neighbour's site:

- 55 dB(A) daytime (7 am to 6 pm)
- 50 dB(A) evenings (6 pm to 10 pm)
- 45 dB (A) nights (10 pm to 7 am)

Ground vibrations caused by blasting and other mining activities are monitored as vertical frequency velocity and are expressed as mm/s. Maximum permitted vibration is 10 mm/s in order to avoid damage.

During the first EIA, a desktop study is planned to produce a model for noise emissions in the area, to assess the noise impact of the Project as part of the feasibility studies, and to identify measures to achieve regulatory requirements.

NON-MINERAL WASTE

Non-mineral waste handling is regulated according to waste directive SFS 2005; 571 and waste prescription SFS 2005; 628. In summary, there should be a management program in place with the objective to reuse and recycle waste, with special attention to the possibility of waste avoidance and source reduction. Waste generated should be sorted in categories to be treated and disposed of by the community. Hazardous waste shall be classified and taken care of by certified agencies.

REQUIREMENTS FOR NEW ENVIRONMENT LICENCES AND PERMITS

IGE holds exploration licences for the area of interest for a mining project at Rönnbäcken. According to the minerals legislation in Sweden, exploration licences are issued by the Mining Inspectorate of Sweden (in Swedish: Bergsstaten), entailing a holder a preferential right to an Exploitation Concession at a later stage. It secures the holder access to land for exploration work that does not damage the environment or impair land use.

IGE plans to apply for an Exploitation Concession by the end of 2009. The issuer of the Exploitation Concession is the Mining Inspectorate of Sweden. An Exploitation Concession is granted if there is a probability for an economic exploitation of the deposit and if the site is considered appropriate from an environmental point of view. The latter requirement calls for an Environmental Impact Assessment (EIA) to be included in the application. The preparation of an EIA requires a number of specific studies regarding land use, such as nature values, archeology and, if relevant, an assessment of the impact on reindeer herding. An Exploitation Concession normally secures the holder the right to carry out mineral exploitation for a 25 year period. A decision by the Mining Inspectorate for a licence to exploit may be appealed to the Government.

After being granted an Exploitation Concession, the Company may decide to apply to the Environmental Court (in Swedish: Miljödomstolen) for an environmental permit under the Swedish Environmental Code (in Swedish: Miljöbalken). The permit will define the conditions for the design, building, operation and closure of a mining installation. Such an application shall be supported by a comprehensive EIA, in which formal consultations with stakeholders will be practiced.

In addition to the above mentioned permits, the intended operator requires an approval regarding designation of land, which is handled by the Mining Inspectorate. A building permit is also needed under the Planning and Building Act. The permit is issued by the local authority.

The preparation of a comprehensive EIA to be included in an application to the Environment Court is planned to start during the second half of 2009 and is expected to be finalized at the end of 2010. An environmental baseline study for water quality was initiated during this last summer season. An Environment Permit can take up to 18 months after the application has been sent to the Environment Court.

CLOSURE METHODOLOGY AND COST ESTIMATES

A decommissioning plan normally must address oxygen-induced weathering of mine sulphide tailings. However, at Rönnbäcken, the tailings are composed of an ultramafic rock, and the tailings produced will present a product characterized by a high buffer capacity. The dominant part of the gangue minerals such as serpentine, olivine, brucite, and calcite maintains a long term pH > 9. In addition, the sulphur content is relatively low (nickel sulphide <0.2 %), while other sulphides like pyrite and pyrrhotite are only found in trace amounts. As a result, the risk of acid mine drainage is expected to be very low.

The European Commission has established criteria for the classification of waste facilities concerning the management of waste from the extractive industry, as well as financial guarantee in accordance with Mine Waste Directive 2006/21/EC. The Commission has also approved the best available technical document for the management of extractive waste to be used as a guideline for tailings management. It is estimated that these regulations will be implemented in the Swedish law within one to two years.

A presentation of basic data for the environmental characterization of the waste is required as part of the comprehensive EIA. Based on this, a suitable design and thickness of a cover for the tailings can be made.

In the absence of such information, a conservative approach has been taken for estimating the costs for covering the TSF after the mine closure. The total costs for rehabilitation are estimated to be 200 million SEK. The rehabilitation comprises water filling of the open pits and leveling of the slopes to reach a safe condition. The industrial area will be cleaned up and re-vegetated. A great deal of the rehabilitation costs are reserved for establishing a cover of the tailings pond if necessary and possibly the waste rock dumps. The dam walls should be constructed with a slope 1:3 to meet the requirements for long-term stability.

According to the Environment Act, a financial guarantee shall be presented by the company to obtain an Operating Licence. The financial guarantee shall at any time cover the costs for rehabilitation of areas used for the mining activity. The funding can be built up successively in correspondence to the areas used for tailings disposal. The financial guarantee can be presented in various forms, e.g., a bank guarantee, a blocked account, financial bond, or pledge.

ENVIRONMENTAL MANAGEMENT AND MONITORING PROGRAMS

An Environment Management System (EMS) will be put in place for continuous performance improvement and compliance with the relevant certifiable and internationally accepted systems. The EMS will state that an Environment Policy is established and that environmental objectives and targets are defined for the operation and all activities and projects included in the operation. As working tools, Environment Risk Assessments shall be used to identify issues within the operations. The EMS will also apply to contractors and suppliers.

A monitoring and control program will be developed for approval and supervision by the County Administrative Board, and will comprise the following:

- List of chemicals used in the operation, with safety procedures and material safety data sheets
- Solids disposal scheme, including management of hazardous material
- List of Permissions and Licences needed for the operation
- Air Emissions
- Water Emissions
- Noise and vibration
- Solids handling procedures
- Registers including instructions for monitoring, consumptions of chemicals, etc.
- Reporting for regular documentation, specific disturbances and systematic auditing
- Programs for recipient monitoring

COMMUNITY ISSUES

Vapsten Sámi village, with major occupation in reindeer husbandry, is a key local stakeholder. Although there is no formal requirement that an applicant for an Exploitation Concession hold stakeholder consultations, IGE initiated such consultations at an early stage, to discuss plans for potential mining activities in the area.

As a result, IGE and Vapsten Sámi village have agreed to carry out a study of the impact the Project may have on the reindeer herding operations of the village, including social aspects. The study will eventually form part of the EIA. IGE has commissioned a specialist consulting firm to carry out this study. The study will assess the long-term socioeconomic and cultural changes for Vapsten Sami village imposed by a mining project. It will also define the consequences for the reindeer herding in the area and will map sites of cultural and historical importance.

It is estimated that the study could be finalized in time for inclusion in the EIA, planned to be ready before the end of 2009.

Consultation meetings have also been held with the County Administrative Board and the Municipality of Storuman, to provide updates on the project. At these meetings, it was confirmed that a good consultation process with the Vapsten Sami village is a key factor to the success of the permitting process.

INTERACTION WITH OTHER STAKEHOLDERS

It is up to the Environmental Court to advise who is a stakeholder to which the Application for an Environment Licence together with EIA will be sent for consideration. Generally, the natural stakeholders are the EPA, the County Administrative Board and the local municipality. In the case of Rönnbäcken, the Vapsten Sami village is considered a key stakeholder. There is normally other legislation to be considered in a mining project e.g. the Minerals Act and the Building Act.

Currently, there are no active NGOs in the area.

ANTICIPATED FUTURE COMPLIANCE REQUIREMENTS

While new closure regulations are expected during the project development period, the Registration, Evaluation, and Authorization of Chemicals (REACH), is an important development of the European legislation, as it replaces 40 different former prescriptions.

Some of the fundamental changes through REACH are as follows:

- Industry responsibility to map and carry out risk assessments for all chemicals is clarified with special focus on producers and importers.
- Industry shall register 30,000 chemicals and make risk assessments for one third of them before 2016.
- Hazardous chemicals must not be used without special permissions.
- Use of safer chemicals shall be pursued based on reasonable economic and ecological considerations.

TAILINGS AND WATER MANAGEMENT

TAILINGS STORAGE

The design criteria for the TSF are based on the assumption of an ore production rate of 20 Mtpa and a mine life of 15 years. The initial plans for the TSF capacity have taken into account a possible extension of the mine life beyond 15 years and a storage capacity for a Mineral Reserve of more than 300 Mt.

Based on the assumption that Ni in sulphide on average grades 0.12% and that 74.5% of the Ni can be recovered, the quantity of tailings produced from a total of 300 Mt of ore will approximately be 300 Mt as the quantity of concentrate is negligible compared to the total amount of ore.

On a bulk density basis of 1.45 t/m^3 (dry weight), the required volume for 300 Mt tailings will be approximately 210 Mm^3. The surrounding area of the deposits offers several possibilities for the TSF, including mountain valleys, as well as the bay surrounding the island of Rönnbäcken.

Disposal of tailings in the bay offers the following advantages:

- Tailings can be disposed underwater during the production phase, thus avoiding dusting problems;
- Flooding can be used as a method for rehabilitation.

A clarification pond adjacent to the tailings pond is required to provide enough retention time to be able to transfer excess water to downstream if required. It will also serve as a volume buffer to meet demands of the discharge plan issued by the Environmental Court. The slime sedimentation rate will be tested in order to design the size of the clarification pond. The required quality of recycled water to the process will be an important design consideration. Normally, the clarification pond requires an area of about 10% of the TSF area, or approximately 1 million m^2.

Two water-based areas (Alternatives 1 and 2 in Figure 18-7) were identified as a result of a review of the area. One land-based swamp area located south-southwest of Vinberget (Alternative 3) offered a potential area of about 6 km^2 and was within pumping distance from the location of a projected processing plant.

Initially, Alternative 2 was a preferred option, with tailings disposal in water in the bay between Vinberget and Rönnbäcksnäset, an area of 5 km^2 to 7 km^2. The storage volume underwater is sufficient to store tailings during the first 10 years of operation. Submerged tailings disposal offers advantages both during operation and after mine closure. An expansion of the tailings storage could be done by raising the dams on the west side of the TSF using tailings as construction material and then by proceeding with tailings disposal from west to east using the thickened tailings.

Tailings deposition in the bay (Alternative 2) will result in a reduction of hydro power water storage capacity, by up to 16%, and a corresponding loss of energy producing capacity in wintertime for the downstream hydro-electric dam.

The land based Alternative 3 in the vicinity of Vinberget was studied closely but could not be recommended due to the following reasons.

- Unfavourable sloping of the terrain requires construction of several dams with significant heights.
- The area spreads over several watersheds.
- High static heads for pumping >300 m.
- Worst alternative from the point of view of reindeer herding according to the Vapsten Sami village.

After due consideration of each option, Alternative 1 in the sound between Rönnbäcksnäset and the land area west of the island was selected as the preferred location. This alternative offers the possibility to store more than 250 Mm^3 through a combination of disposing of tailings in water and on land. Along the western side, the TSF can use the natural mountain as a border.

Thickened tailings produced at a suitably high elevation would permit the tailings to flow by gravity over the entire TSF area. The thickener overflow could also be recycled back as water supply to the processing plant by gravity. The thickened tailings will form a slope of about 4%, which means that the height of the eastern dam adjacent to the Rönnbäcksnäset deposit will be minimized. Only minor dams must be constructed initially, about one kilometre between Ajtiken and Rönnbäcksnäset, to act as borderline towards the water bay, a starter dam at the south end of the TSF, and a small dam for dividing the TSF from the clarification pond and the clarification pond from the water reservoir.

Figure 18-7

IGE Nordic AB

Rönnbäcken Nickel Project

Tärnaby, Sweden

Tailings Storage Facility Alternatives

November 2009 ***Source: IGE Nordic AB, 2009.***

Dam building material would be sourced from mine waste rock, significantly reducing costs for dam construction. As well, tailings can be used as building material, which will also lower the costs for dam building.

Alternative 1 has a much lower impact on the water reservoir capacity than Alternative 2. The total area covers less than 4 km^2 and the water area about 2 km^2. Shallow depths in this part of the bay limit the loss of winter power energy to an estimated 15 million m^3 of regulating water volume, corresponding to about 2% of the total water reservoir volume.

Under Alternative 1, it would also be possible to use the mined out areas at Rönnbäcksnäset for tailings disposal. In summary, Alternative 1 offers considerable advantages compared to the other alternatives.

Alternatives 1 and 2 infringe on the present use of the area for water storage hydro-power generation. The use of the area for tailings disposal has both a legal and an economic dimension. The legal dimension includes water rights and environmental permitting aspects, while the economic dimension would be an issue for negotiation with the holder of the present water right permit. In principle, it should be possible to reach such an agreement.

WATER HANDLING AND WASTE WATER TREATMENT

The construction and the handling of the freshwater/wastewater treatment system will follow the regulations stated in Swedish law SFS 1970:244 (changes SFS 1998; 820). At this early stage, no detailed planning has been made, but the general outline of the systems will follow the description below.

Potable water will be provided on site through wells. Pipes distributing water to the office and service buildings will be installed at a frost-free depth.

Recovered water will be used as industrial water, where possible, and distributed to designated consumers, e.g., maintenance, truck washing, and wastewater facilities. Process water will also be used for the fire water system.

Sewage water from the site will be collected and treated in a wastewater facility before leaving the site. Where required, sewage water will pass oil separators before entering the wastewater treatment.

For the drainage of surface rainwater, drainage ditches will be constructed around the open pit. Submersible pumps will be used for dewatering of the pit. A stormwater drain system will cover the industrial area and collect stormwater from all over the asphalted areas and roads.

WATER BALANCE

The raw water supply will be taken from the Gardiken water reservoir, which is a water storage facility upstream of the Ajaure water power station with an energy production capacity of 75 MW. The level in the water reservoir can be varied between 375 m and 395 m above sea level. The total storage capacity of the water reservoir is 875 Mm^3. The requirement is expected to be seasonal, up to 500 m^3/h.

Ore processing will require a water supply of approximately 5,565 m^3/h. As tailings are disposed of using high rate thickening, a substantial part of the water is recovered as a thickener overflow, if so required, after final treatment in the clarification pond. Operating the thickener at an underflow density of 65% solids will mean that 4,600 m^3/h (or 82% of the water supply) can be recycled.

In addition, water will be reclaimed from the TSF, which will include mine water and collected precipitation. The clarification pond will be sized to compensate for variations in the overall water balance created by mine water, the reclaimed water from the tailings, rain and snow melting periods. Water will be stored in the pond to compensate for variations during the seasons, as well as for meeting requirements of the discharge plan, issued by the Environmental Court.

TAXES

Scott Wilson RPA has relied on IGE for guidance on applicable royalties, and other government levies or interests, applicable to revenue or income from the Project.

Royalty interests include landowners (0.15% of gross revenue) and state (0.05% of gross revenue.

The cash flow analysis for the Project has been carried out on a pre-tax basis.

CAPITAL AND OPERATING COST ESTIMATES

CAPITAL COSTS

The capital costs for the Project are shown in Table 18-9.

TABLE 18-9 CAPITAL COSTS
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

	Item	US$ millions
Initial Capital	Mine	-
	Process	338
	Erection	35
	Infrastructure	65
	Tailings	18
	Total Direct Costs	**456**
	Indirects	46
	EPCM	57
	Contingency	139
	Total Initial Capital	**698**
Ongoing Capital	Sustaining	104
	Reclamation	25
	Life of Mine Total	**827**

MINING CAPITAL COSTS

Mining capital requirements are assumed to consist almost entirely of mine equipment, a cost borne by the mine contractor. Should an owner-operated fleet be considered, capital costs are estimated to be as summarized in Table 18-10, however, these costs have not been included in the Preliminary Assessment.

TABLE 18-10 MINING CAPITAL COSTS
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

	Quantity	Unit Cost MSEK	Total Cost MSEK	Total Cost US$ millions
Drilling				
Atlas Copco 351 Viper	2	33	66	8.3
Atlas Copco L8	2	3	6	0.8
Loading				
OK 200 RH	2	57	114	14.3
Cat 994 F	1	25	25	3.1
Hauling				
Cat 793D	14	22	308	38.5
Ancillary				
Cat 950H	2	2	4	0.5
Cat 16M	2	6.75	13.5	1.7
Cat D10T	2	7.1	14.2	1.8
Cat 930H	2	1.3	2.6	0.3
Water Truck	1	1.2	1.2	0.2
Tyre Handler	1	2	2	0.3
Light Vehicles	12	0.4	4.8	0.6
Maintenance Truck	3	0.75	2.3	0.3
Crane 25 t	1	1.8	1.8	0.2
Total			**565.4**	**70.7**

PROCESS PLANT CAPITAL COSTS

Process plant capital costs consist of the pre-production capital required for the 20 million tpa process plant and related infrastructure. Table 18-11 provides a summary of the process plant capital costs.

TABLE 18-11 PROCESS PLANT CAPITAL COSTS
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Area	US$ x 1,000
Crushing and Ore Storage	28,750
Grinding	130,100
Flotation	20,700
Concentrate Dewatering	8,750
Tailings & Water Reclaim	17,900
Pumping & Piping	43,750
Electrical & Instrumentation	50,000
Buildings	56,250
Installation and Erection	35,600
Infrastructure	64,600
Subtotal Direct Costs	**456,400**

The capital cost estimate is based on the preliminary process development done by Outotec AB. Costs for the major equipment such as crushers, mills, flotation cells, filters, and thickeners have been supplied by vendors including Sandvik, Metso and Outotec Minerals Oy (except where noted below). Preliminary sizing of equipment is based on test work at ORC. The capital costs include the costs for the concentrator building, ancillary buildings, tailings dam, and the infrastructure including access roads and power line. The costs do not include any growth allowances and represents a typical “fit-for-purpose” concentrator with no additional “nice-to-have” equipment.

In addition to cost estimates based on budget quotations, other costs include engineering estimates, allowances, and factors based on experience and benchmarking with a current project of similar size in Northern Sweden.

There are some areas of the plant that may change depending on future metallurgical test results and final plant design, which will affect the capital costs. These include:

- The current plant design provides for a single primary crusher, but it may be appropriate to add a second crusher at 50% capacity.
- The grinding mills have been sized to grind to 40 µm P_{80}, although there is an indication from the ORC work that finer grinding may be required. Boliden test work was done at a coarser grind. Further optimization tests are planned for the next phase of work to confirm grind size.
- Rougher flotation cells have been sized using closed circuit simulation based on lab scale testing, with a typical 2.5 upgrading factor for commercial sized units, providing 75 minute residence time. Locked cycle or mini pilot plant testing is recommended for the next phase of work in order to confirm the residence time requirement.
- Large-scale grinding tests are required to confirm the suitability of the chosen mill type (AG and pebble mills) and sizing, which may potentially increase the costs. It is noted that large scale pilot plant testing was successfully performed on trial pit ore in the area during the 1970s, however confirmation on representative samples from the new resource is required.
- Thickeners have been sized based on preliminary lab tests using the standard testing technique. Future testing should provide more accurate information regarding both underflow density and overflow clarity.

Erection and installation costs have been estimated by Outotec AB at 10% based on experience and represent the direct labour costs and subcontracts for erecting buildings and installing equipment.

Infrastructure costs are based on allowances and general cost factors for this region of Sweden. The items include:

- A 27 km access road
- A 12 km HV electrical transmission supply line tying into the Swedish grid
- 5 km of internal site roads
- 7.5 km of truck haul roads
- Electrical substation and switchgear
- Tailings Storage Facility
- Water supply
- Service buildings
- Laydown area

INDIRECT CAPITAL COSTS

Engineering, Procurement and Construction Management (EPCM) costs can vary with the size of the project and have been estimated by Scott Wilson at 12.5%, at the low end for a typical mining project, due to the project size. It is the experience of Outotec AB that EPCM costs in Sweden are considerably less than in North America.

Construction Indirect costs include freight, vendor assistance, initial fills, Owner's costs, and general construction services and have been estimated by Scott Wilson at 10%. Although this is a lower figure than would be typically applied in North America, some of the typical indirect costs have been included in the equipment supply. Costs for construction and site services include equipment rentals, safety, security, catering, medical staff, garbage collection, site road maintenance, temporary power, water, sewage, communications, fencing, weather protection, operation and maintenance of temporary facilities, tools, consumables, fuel and lube.

Exclusions from the capital cost estimate include:

- Project financing and interest charges
- Land acquisition, leases rights of way and water rights
- Escalation during construction
- Project application and approval expenses
- Permits, fees and process royalties

- Environmental impact studies
- Feasibility studies
- Pilot Plant and other test work
- Sunk costs
- Any additional civil, concrete work due to the adverse soil condition and location
- Insurance during construction
- Taxes
- Import duties and custom fees
- Cost of geotechnical investigation
- Exploration drilling
- Costs of fluctuations in currency exchanges
- Future expansion

CONTINGENCY

At present, process definition and engineering development on the project are at an early stage. Although a reasonable effort has been made to select the appropriate equipment and determine the costs, it is recognized that many cost items have not been accounted for. However, a benchmarking exercise with a nearby project of a similar size and scope, which is currently under construction, has provided some additional guidance on costs. This has resulted in a contingency of 25% being applied to the process plant and infrastructure costs.

The contingency has been estimated based on the following assumptions.

The costs for major process equipment are based on budget quotations, and these represent approximately 50% of the equipment and material costs, or approximately 25% of the overall project costs, before applying contingency. These items are conventional equipment where only moderate scope is expected and a contingency of 20% has been applied. The remaining equipment, while conventional, is, however, not specified to the same level and therefore a contingency of 30% has been applied. The contingency for installation, infrastructure, and indirect costs has been applied at a blended percentage of the two, or 25%.

With further development of the process and layout, the accuracy of the capital cost estimate will improve. In the next phase of work, the contingency is expected to decrease from 25% to approximately 20%, and, after a detailed feasibility study, to a further 15% or lower. The capital costs are expected to be incurred over the first three years of the Project, including the year of start-up.

OPERATING COSTS

The operating costs for the Project are shown in Table 18-12.

TABLE 18-12 OPERATING COSTS
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Item	US$
Mining	1.58/t moved
Mining	2.82/t milled
Processing	4.24/t milled
G&A	0.48/t milled
Total	**7.54/t milled**

MINING OPERATING COST

The average annual mining cost excluding equipment ownership cost (depreciation, interest, insurance) is summarized in Table 18-13.

TABLE 18-13 AVERAGE ANNUAL UNIT MINING COST
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Item	Cost
Personnel	1.94 SEK/t
Drilling	0.94 SEK/t
Charging/Blasting	2.30 SEK/t
Loading, Shovels	0.92 SEK/t
Base Haulage	0.37 SEK/t
Increment for Depth	0.20 SEK/t/12m bench
Increment for Vinberget	1.00 SEK/t
Auxiliary Equipment	0.69 SEK/t
Mine Services	0.72 SEK/t
Administration	0.30 SEK/t
Maintenance	0.64 SEK/t
Contractor Profit Margin	10%
Total (Mine Life Average)	**1.58 US$/t**

Haulage costs are increased as the pit depth increases, at a rate of 0.20 SEK per tonne for each 12 m bench. An additional 1.00 SEK per tonne is included to haul Vinberget ore to the process plant. An allowance of 10% is included for contract mining.

MINING COST GENERAL ASSUMPTIONS

- Diesel Cost 5.5 SEK / L or US$0.69 per L
- Power Cost 0.37 SEK / kWh or US$0.046 per kWh
- Explosive, Emulsion Cost 5.0 SEK / kg or US$0.63 per kg
- All heavy equipment will be maintained under a maintenance contract.

Diesel costs are dependent on the Swedish taxation system and may vary.

MINING LABOUR COST

Regional labour rates for northern Sweden were obtained from the latest SveMin agreement.

TABLE 18-14 MINING LABOUR RATES
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

	SEK/mo.
Manager	80,000
Chief Mining Engineer	66,000
Mine Planning Engineer	53,000
Geologist	53,000
Surveyor	50,000
Technicians	46,000
Production Supervisor	60,000
Shift Supervisor	64,000
Supervisor	50,000
Mine Equipment Operators, 3 shifts/day	41,000
Mine Equipment Operators, 2 shifts/day	38,000
Maintenance, daytime	31,000

These costs include a 32% social benefits tax, a 28% three-shift premium, and a 21% two-shift premium, where applicable.

PROCESS PLANT OPERATING COSTS

Table 18-15 provides a summary of operating costs for a 20 million tpa nickel plant at Rönnbäcken. The process plant costs cover all direct operating costs from the receipt of ore up to the production of Ni concentrate and pumping of tailings.

TABLE 18-15 PROCESS PLANT OPERATING COSTS
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Area	US$ / t
Labour	0.19
Consumables (Reagents and grinding media)	1.48
Electrical Power	1.78
Maintenance	0.61
Tailings	0.14
Assay Laboratory	0.05
Total Processing Costs	**4.24**

The process plant will operate continuously, year-round, for a total of 333 operating days annually. A four-shift operation is assumed, including an allowance for holidays. The staffing level is considered lean, but typical of a Swedish mineral processing operation. The total process plant manpower comprises 60 persons including management, shift operators, day operators, as well as maintenance staff. More details are provided in the section on manpower. The annual costs for plant personnel are taken from surveys of the mining industry in Sweden.

The major processing costs are for electrical power and reagents, accounting for approximately 75% of the total costs. Consumption of reagents is based primarily on the reagent scheme developed by ORC for the preliminary metallurgical test work, with some modification made to account for assumed lower usage in a commercial plant. Reagent prices have been obtained from potential suppliers and from similar mine operations.

It is anticipated that fully autogenous grinding will be sufficient and the only grinding media planned is fine ceramic beads for the regrind circuit.

Testing indicates that fine grinding will be required to recover nickel sulphides, which will require considerable grinding power, more than in a typical concentrator. With autogenous grinding, as tested by Boliden, the process plant is expected to consume 25 kWh/t to achieve sufficient liberation of the nickel sulphides. Additional processing power of 15 kWh/t has been estimated based on similar operations and typical energy consumption for the proposed equipment, for a total of 40 kWh/t for the entire process plant operation. A base price for the energy of 0.37 SEK/kWh ($0.0463/kWh) has been used based on the assessment of a local industry expert.

In the next phase of study, prices are expected to be provided by potential long-term suppliers of energy.

Major maintenance costs will be the wear parts used in the crusher and the grinding mills and, to a lesser extent, in flotation cells, pumps, and pipelines. The estimate is based on approximately 2.4% of the installed equipment and material capital costs.

Tailings handling costs are estimated to be SEK 22 million per year and are presented separately in Table 18-15 above. Tailings handling costs cover disposal of tailings and construction of dam walls using tailings and waste rock from mine preparation activities as construction material.

An allowance of SEK 8 million per year has been made for the on-site laboratory, including contracted personnel.

No contingencies have been included in the process operating cost estimate.

PROCESS PLANT MANPOWER

Table 18-16 shows the process plant personnel, which includes the operation and maintenance staff such as the plant manager, supervisors, metallurgist, plant and equipment operators, mechanics and electricians. No additional personnel are included, such as laboratory technicians, environmental and tailings personnel, warehouse and purchasing personnel, health and safety and security personnel.

TABLE 18-16 PROCESS PLANT PERSONNEL

IGE Nordic AB – Rönnbäcken Nickel Project, Sweden

Area	Number
Management	4
Operations	32
Maintenance	24
Total Process Plant Personnel	**60**

G&A OPERATING COSTS

General and administrative (G&A) costs are estimated to be approximately US$0.48/t, covering labour and general expenses for Administration, Human Resources, Health and Safety and Technical Services. Labour costs are based on typical salaries in the Swedish mining industry. Other typical costs are shown in

Table 18-17. The overall G&A costs have been benchmarked against similar sized operations in Sweden.

TABLE 18-17 G&A OPERATING COSTS
IGE Nordic AB – Rönnbäcken Nickel Project, Sweden

Area	US$ / t
Labour	0.09
Permits, Licences, Fees, Consultants	0.13
General Supplies and Communications	0.03
Light vehicle operation and maintenance	0.03
Maintenance (Rental Equipment & Contractors)	0.07
Environmental, Health & Safety	0.02
Freight	0.07
Travel, Training, Relocation	0.04
Total Processing Costs	**0.48**

G&A MANPOWER

General and administrative personnel are shown in Table 18-18. This includes typical accounting and administrative personnel, as well as technical and support personnel such as environmental and tailings technicians, warehouse and purchasing personnel, health and safety and security personnel. This does not include off-site corporate personnel.

TABLE 18-18 G&A PERSONNEL
IGE Nordic AB – Rönnbäcken Nickel Project, Sweden

Area	Number
Senior Management	3
Finance & Accounting	9
Human Resources	3
Health & Safety	3
Environmental	2
Warehouse & Purchasing	8
Total G&A Personnel	**28**

ECONOMIC ANALYSIS

An economic evaluation of the Project was undertaken using an incremental cash flow model built up from the Project capital expenditure requirements and annual operating costs throughout the Project life based on the mine and mill production schedules.

The model generates an annual and cumulated cash flow, commencing from the pre-production phase of Years -2 and -1 continuing through production in Years 1 to 13, when the economic resources which may potentially be mined are depleted, and the closure and site rehabilitation phase commences.

A base case model using a nickel price of $9.00 per lb was used in order to estimate the NPV and IRR for the Project. Currently, this price is at the upper limit of long-term forecasts for nickel price from banks and financial institutions.

The economic analysis contained in this report is partially based on Inferred Resources, and is preliminary in nature. Inferred Resources are considered too geologically speculative to have mining and economic considerations applied to them and to be categorized as Mineral Reserves. There is no certainty that the reserves development, production, and economic forecasts on which this Preliminary Assessment is based will be realized.

A pre-tax Cash Flow Projection has been generated from the LOM production schedule and capital and operating cost estimates, and is summarized in Table 18-19. A summary of the key criteria is provided below.

ECONOMIC CRITERIA

PHYSICALS

- Mine Life: 13 years
- Mine Production: 248 Mt ore
181 Mt waste
- LOM Stripping Ratio: 0.73
- Concentrator Throughput: 60,000 tpd
- LOM Ni Recovery: 74.5%
- Average Annual Ni Production: 17,000 t

REVENUE

- Nickel Price: US$9.00/lb Ni
- Exchange Rate: 8.00 SEK/USD
- Smelter Terms: Per budgetary quotations from smelters
- Royalty: 0.2% of Gross Revenue
- LOM Average NSR: US$13.57/t

COSTS

- Operating Costs:
  - Mining Cost: US$1.58/t moved
    US$2.82/t milled
  - Processing: US$4.24/t milled
  - G&A: US$0.48/t milled
  - Total: US$7.55/t milled
    US$4.04/lb Ni (in concentrate)

- Capital Costs:
  - Initial: US$698 million
  - Sustaining: US$104 million
  - Closure: US$ 25 million
  - Total: US$827 million

Table 18-19 Life of Mine Cashflow
IGE Nordic - Rönnbäcken Project

			Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Total
Mining																				
Ore	tonnes '000s				14,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	13,524	-	-	**247,525**
Ni	%				0.121	0.122	0.126	0.125	0.123	0.107	0.109	0.107	0.106	0.107	0.109	0.106	0.115	-	-	**0.114**
Byproduct Metals	%				0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	-	-	**0.0010**
Strip Ratio					0.14	0.60	0.90	0.80	0.85	0.78	1.00	1.00	0.80	0.80	0.70	0.71	-	-	-	**0.73**
Waste	tonnes '000s				2,000	12,000	18,000	16,000	17,000	15,660	20,000	20,000	16,000	16,000	14,000	14,210	-	-	-	**180,869**
Processing																				
Recovery - Nickel Concentrate																				
Ni	%				74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	**75%**
Byproduct Metals	%				39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	**39.1**
Nickel Concentrate	tonnes				44,912	64,809	66,967	66,571	65,397	57,193	57,992	56,679	56,293	56,784	58,155	56,144	41,416	-	-	**749,312**
Ni	%				28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	**28.0**
Byproduct Metals	%				0.19	0.19	0.19	0.19	0.19	0.20	0.20	0.20	0.21	0.20	0.20	0.21	0.20			**0.20**
Recovered metal in concentrate																				
Ni	tonnes				12,575	18,146	18,751	18,640	18,311	16,014	16,238	15,870	15,762	15,899	16,283	15,720	11,597			**209,807**
Byproduct Metals	tonnes				524	753	768	765	757	700	705	696	693	697	706	692	492			**8,948**
Revenue																				
Payable Metal																				
Ni	lbs '000s				25,783	37,206	38,445	38,217	37,543	32,834	33,292	32,538	32,317	32,599	33,386	32,232	23,776	-	-	**430,167**
Byproduct Metals	lbs '000s				345	499	515	512	503	440	446	436	433	437	448	432	319			**5,766**
Metal Prices																				
Ni	$/lb				9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	**9.00**
Exchange Rate	EUR/USD				0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	**0.80**
Exchange Rate	SEK/USD				8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	**8.00**
Gross Revenue																				
Ni	$'000s				232,047	334,850	346,002	343,954	337,891	295,502	299,631	292,845	290,851	293,388	300,472	290,084	213,988	-	-	**3,871,505**
Byproduct Metals	$'000s				7,249	10,416	10,616	10,579	10,471	9,712	9,786	9,664	9,628	9,674	9,801	9,615	6,821			**124,031**
Total	**$'000s**				**246,546**	**345,266**	**356,618**	**354,533**	**348,361**	**305,213**	**309,417**	**302,509**	**300,480**	**303,062**	**310,273**	**299,699**	**220,809**	**-**	**-**	**4,002,785**
Royalties																				
Landowners	$'000s	0.15%			370	518	535	532	523	458	464	454	451	455	465	450	331	-	-	6,004
State	$'000s	0.05%			123	173	178	177	174	153	155	151	150	152	155	150	110	-	-	2,001
Total	**$'000s**	0.20%			**493**	**691**	**713**	**709**	**697**	**610**	**619**	**605**	**601**	**606**	**621**	**599**	**442**	**-**	**-**	**8,006**
Concentrate Charges																				
Total Charges	**$'000s**				**38,591**	**55,685**	**57,533**	**57,194**	**56,189**	**49,165**	**49,849**	**48,725**	**48,394**	**48,815**	**49,989**	**48,267**	**35,593**	**-**	**-**	**643,990**
Net Smelter Return	**$'000s**				**207,955**	**289,581**	**299,085**	**297,339**	**292,172**	**256,048**	**259,568**	**253,784**	**252,085**	**254,247**	**260,284**	**251,432**	**185,215**	**-**	**-**	**3,358,795**
	$/t				14.85	14.48	14.95	14.87	14.61	12.80	12.98	12.69	12.60	12.71	13.01	12.57	13.69			13.57
Operating Costs		Unit Costs																		
Mining	$'000s	1.58 $/t moved			21,166	44,034	54,269	54,959	56,204	55,375	65,650	69,186	64,530	64,530	56,558	51,599	19,720	-	-	**677,780**
Processing	$'000s	4.24 $/t milled			59,336	84,766	84,766	84,766	84,767	84,766	84,766	84,766	84,766	84,766	84,766	84,766	57,320	-	-	**1,049,085**
G&A	$'000s	0.48 $/t milled			6,672	9,532	9,532	9,532	9,532	9,532	9,532	9,532	9,532	9,532	9,532	9,532	9,532	9,532	9,532	**140,122**
Total	**$'000s**	**7.54 $/t milled**			**87,175**	**138,332**	**148,567**	**149,258**	**150,503**	**149,673**	**159,948**	**163,484**	**158,828**	**158,828**	**150,856**	**145,898**	**86,572**	**9,532**	**9,532**	**1,866,987**
		4.04 $/lb Ni (at gate)			3.14	3.46	3.59	3.63	3.73	4.24	4.47	4.67	4.57	4.53	4.20	4.21	3.39			**4.04**
Operating Cash Flow	**$'000s**				**120,780**	**151,248**	**150,518**	**148,082**	**141,670**	**106,375**	**99,619**	**90,300**	**93,257**	**95,419**	**109,428**	**105,534**	**98,643 -**	**9,532 -**	**9,532**	**1,510,873**
Capital Costs																				**-**
Mine	$'000s			-																**-**
Process	$'000s		118,398	135,313	84,570															**338,281**
Erection	$'000s		12,465	14,246	8,904															**35,616**
Infrastructure	$'000s		-	64,625																**64,625**
Tailings	$'000s			17,875			1,250	1,250	1,250	1,250	1,250	1,250	1,250	625	625	625				**28,500**
Indirects	$'000s	10%	13,086	23,206	9,347															**45,640**
ECPM	$'000s	15%	16,358	29,007	11,684															**57,050**
Contingency	$'000s	25%	40,077	71,068	28,626															**139,772**
Working Capital	$'000s				21,794												(21,794)			**-**
Sustaining	$'000s				6,044	2,015	2,015	2,015	10,073	10,073	10,073	10,073	10,073	10,073	10,073	10,073				**92,668**
Reclamation	$'000s																	12,500	12,500	**25,000**
Total	**$'000s**		**200,385**	**355,340**	**170,970**	**2,015**	**3,265**	**3,265**	**11,323**	**11,323**	**11,323**	**11,323**	**11,323**	**10,698**	**10,698**	**10,698**	**(21,794)**	**12,500**	**12,500**	**827,151**
Grants																				
Employment	$'000s		-	1,650 -	1,650 -	1,650														**- 4,950**
Cashflow																				
Net Pre-Tax Cashflow	**$'000s**		**(200,385)**	**(353,690)**	**(49,033)**	**150,193**	**146,540**	**144,108**	**129,650**	**94,442**	**87,678**	**78,359**	**81,333**	**84,115**	**98,109**	**94,237**	**119,995**	**(22,032)**	**(22,032)**	**661,588**
Cumulative	$'000s		(200,385)	(554,075)	(603,108)	(452,915)	(306,374)	(162,266)	(32,616)	61,826	149,504	227,862	309,196	393,311	491,420	585,657	705,652	683,620	661,588	
Year					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Net Present Value	$'000s	6% discount rate	231,739																	
	$'000s	8% discount rate	141,960																	
	$'000s	10% discount rate	69,704																	
	$'000s	12% discount rate	11,332																	
Payback	years		5.2																	
Internal Rate of Return	%		12.4%																	
UNIT PRODUCTION COSTS																				
Operating	$/lb Ni	Net of byproduct credits			**4.60**	**4.93**	**5.08**	**5.13**	**5.23**	**5.76**	**6.01**	**6.22**	**6.11**	**6.07**	**5.72**	**5.73**	**4.85**			**5.55**
Capital	$/lb Ni																			**1.92**
Total	$/lb Ni																			**7.47**

CASH FLOW ANALYSIS

Considering the Project on a stand-alone basis, the undiscounted pre-tax cash flow totals $631 million over the mine life, and simple payback occurs 62 months (5 years and 2 months) after the start of production. Discounting the cash flow at 8% yields an NPV of $142 million. The internal rate of return is 12.4%.

SENSITIVITY ANALYSIS

A sensitivity analysis was carried out to model potential fluctuations of key input parameters to observe the impact on the Project's NPV. Most parameters were varied by +/- 10% and 20%, with the exceptions being recovery and mine life. The results are summarized in Figure 18-8 and Table 18-20.

- Nickel price (range $7.20/lb - $10.80/lb)
- Capital expenditure (range $662 million - $993 million)
- Plant recovery (range 70% - 80%)
- Operating expenditure (range $6.03/t - $9.05/t)
- Nickel grade (range 0.09% - 0.14%)
- Exchange rate (range SEK/USD 6.67:1 – 10:1)
- Mine life (range 98 Mt – 398 Mt)

FIGURE 18-8 SENSITIVITY ANALYSIS

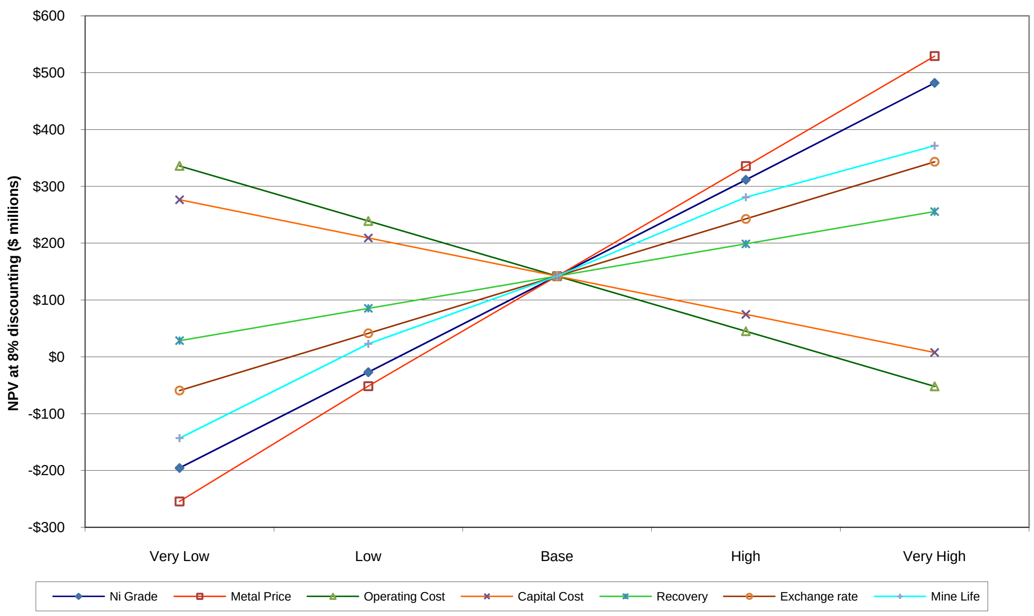

TABLE 18-20 SENSITIVITY ANALYSES
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Input	Units	-20%	-10%	Input Values Base Case	10%	20%
Metal Price	US$/lb Ni	7.20	8.10	9.00	9.90	10.80
Ni Grade	% Ni	0.091	0.102	0.114	0.125	0.137
Recovery	%	69.5	72.0	74.5	77.0	79.5
Operating Cost	US$/t	6.03	6.79	7.54	8.30	9.05
Capital Cost	US$ millions	662	744	827	909	993
Exchange Rate	SEK/USD	6.67	7.27	8.00	8.89	10.00
Mine Life	Million tonnes	98	173	248	323	398

Input	Units	-20%	-10%	NPV @ 8% Results Base Case	10%	20%
Metal Price	US$ millions	-254	-52	142	336	529
Ni Grade	US$ millions	-196	-27	142	311	482
Recovery	US$ millions	28	85	142	199	256
Operating Cost	US$ millions	336	239	142	45	-52
Capital Cost	US$ millions	276	209	142	75	8
Exchange Rate	US$ millions	-59	41	142	243	343
Mine Life	US$ millions	-152	13	142	267	359

19 INTERPRETATION AND CONCLUSIONS

Based on the Project site visit and review of the available data, Scott Wilson RPA offers the following interpretation and conclusions:

- The Rönnbäcken Project comprises two low grade, high tonnage, epigenetic Ni-sulphide deposits in serpentinized ultramafic rocks.
- The Ni sulphide minerals are predominantly pentlandite, heazlewoodite, with some millerite, which in combination with the absence of iron sulphide minerals typically associated with Ni sulphides are suitable for producing a high grade Ni concentrate.
- Inferred and Indicated Mineral Resources were estimated using a conventional computerized block modelling technique. Indicated Mineral Resources total 54.9 Mt grading 0.137% Ni in sulphides containing 75,000 t Ni. Inferred Mineral Resources total 192.9 Mt grading 0.107% Ni in sulphides containing 206,000 t Ni.
- The Project has potential to outline additional Mineral Resources based on the favourable geology of the area and recent exploration work.
- The shape of the deposits is suitable for high tonnage, low cost, open pit mining at a low strip ratio.
- The metallurgical test work indicates that a high grade Ni concentrate can be produced by conventional crushing, grinding, flotation, and dewatering.
- For base case economic analysis, the following inputs were used:
  - Nickel price of US$9.00 per pound
  - Initial capital costs of US$698 million
  - Operating costs of US$7.54 per tonne milled, or US$4.04 per pound of nickel recovered to concentrate (no byproduct credits included).
- The Project has an undiscounted pre-tax cash flow of US$662 million, an Internal Rate of Return (IRR) of 12.4%, and a Net Present Value (NPV) of US$142 million at an 8% discount rate.
- The base case total cash cost is US$5.55 per pound of nickel, net of byproduct credits. The Life of Mine (LOM) capital unit cost is US$1.92 per pound of nickel. The average annual nickel production during operations is 17,000 tonnes.
- The Project economics are most sensitive to the price of nickel, with a break-even price (NPV at 8% discount rate equal to zero) of US$8.33 per pound of nickel.

20 RECOMMENDATIONS

Scott Wilson RPA recommends that work on the Project continue to a Pre-Feasibility stage.

This Preliminary Assessment uses a base price of US$9.00 per lb Ni, which is at the upper limit of current long-term forecasts by banks and financial institutions, but is in line with prices required for producers to undertake future nickel projects. In Scott Wilson RPA's opinion, the project merits advancement under the following conditions:

- Consensus on higher long-term nickel prices by forecasters.
- Improvements in the Project cash flow break-even nickel price (currently US$8.33 per lb nickel), which could be achieved by improvements in resource quantities and grades, capital and operating costs, and metallurgical recovery.

Based on the review of the available data and studies undertaken as part of this Preliminary Assessment, Scott Wilson RPA offers the following recommendations:

- An exploration program should be conducted to delineate additional Mineral Resources, targeting higher grades than the current resource base. The program should comprise geological mapping, geophysics, and diamond drilling.
- Geotechnical data should be collected for use in determination of appropriate pit slope angles.
- The preliminary metallurgical test work was limited in scope. Future metallurgical test work is planned with an aim to improve recovery. Scott Wilson RPA recommends that future metallurgical test work include locked cycle tests on blended samples of Vinberget and Rönnbäcksnäset ore, representative of the first few years of production, in order to validate metallurgical projections. Mini-pilot plant test work and verification of fully autogenous grinding and appropriate flotation retention time will also be required in subsequent phases.
- The Rönnbäcken concentrate will be very high grade, containing 25% to 30% Ni, due to the significant presence of heazlewoodite, Ni_3S_2. This provides some upside economic potential in that a smaller amount of concentrate needs to be shipped and smelted. However, the concentrate may contain much higher amounts of SiO_2 and MgO, and much lower amounts of S, than typical Ni concentrates due to entrainment of fine gangue minerals. Scott Wilson RPA recommends that the effect of this concentrate on downstream processing be thoroughly investigated at the next stage to determine the impact on the smelters and consequently the potential impact on smelting terms.

- The Project would be a very large tonnage operation by nickel mining project standards with no obvious comparables, however, it is reasonable to benchmark it with large tonnage greenfield copper projects. Scott Wilson RPA recommends that future project development work look closely at comparable greenfield projects in establishing pre-production development and operating costs.

The proposed work program is recommended in two phases, as follows:

1. Focus on increasing resource size and quality, and metallurgical optimization, to add value to the Project.

2. Complete a formal Pre-Feasibility Study, including upgrading resources to the Indicated category (estimated to require 40,000 m of drilling) and completion of metallurgical test work.

The estimated cost of the work for Phases 1 and 2 is summarized in Tables 20-1 and 20-2, respectively.

TABLE 20-1 RECOMMENDED WORK PROGRAM - PHASE 1
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Item	Units	Cost/Unit (US$)	Cost (US$)
Mapping/Sampling		Lump Sum	130,000
Diamond Drilling (200 m x 100 m)	10,000	130	1,300,000
Splitting/Assaying	5,000	115	575,000
Update Resource Estimate		Lump Sum	40,000
Geotechnical Study		Lump Sum	105,000
Met Optimization Test Work		Lump Sum	500,000
Supervision		Lump Sum	100,000
Total			**2,750,000**

TABLE 20-2 RECOMMENDED WORK PROGRAM – PHASE 2
IGE Nordic AB - Rönnbäcken Nickel Project, Sweden

Item	Cost (US$)
Resource Upgrade	6,400,000
Metallurgical Test Work	1,000,000
PFS Study	1,200,000
Total	**8,600,000**

21 REFERENCES

Annersten H., Ericsson T. and Filippidis A. (1981): Cation Ordering in Ni-Fe-Olivines. University of Uppsala Institute of Geology, Department of Mineralogy and Petrology, ISSN 0348-1336, Research Report no 25. 1-9.

Birtel S. (2002): Fluid-rock interaction on alpine-type ultramafic rocks from the Norwegian Caledonides. Dissertation zur Erlangung des Doktorgrades der Geowissenschaftlichen Fakultät der Albert-Ludwigs Universität Freiburg i.Br.

Cameron, E. M. (1975): Three geochemical standards of sulphide-bearing ultramafic rock: U.M. 1, U.M. 2, U.M. 4. Geological Survey of Canada Paper 71-35

Du Rietz, T. (1935): Peridotites, serpentinites and soapstones of Northern Sweden. GFF Bd 57.

Du Rietz, T. (1955): The content of chromium and nickel in Caledonian Ultrabasic Rocks of Sweden. GFF Bd 78.

Dutaut, R. (2009): Rönnbäcken Ni Project – Mineral Resource Estimate, Scott Wilson RPA Internal Report, April 9, 2009.

Ekström, M., and Ekström, T. (2008): Mineralogical investigation of eleven samples from the Rönnbäcken nickel deposit. Ekström Mineral AB.

Ekström, M., and Ekström, T. (2008): SEM/EDS analysis of some samples from the Rönnbäcken nickel deposit. Ekström Mineral AB.

Filippidis, A., and Annersten, H. (1981): Nickel Partioning Between Silicates and Ore Minerals in Serpentinized Ultramafic Rocks from the Swedish Caledonides. University of Uppsala Institute of Geology, Department of Mineralogy and Petrology, ISSN 0348-1336, Research Report no 24. 1-12.

Filippidis, A. (1982): Experimental Study on the Serpentinization of Mg-Fe-Ni Olivine in the Presence of Sulfur. University of Uppsala Institute of Geology, Department of Mineralogy and Petrology, ISSN 0348-1336, Research Report no 27. 1-8.

Gozmán, M. (1976): Mikroskopundersökning av polerprov från Vinberget och Rotiken I Västerbotten utförd av M. Gozmán December 1976.

Helsinki University of Technology (2009): Mechanical Process Technology and Recycling, Test Report, Determination of Grindability of Vinberget and Rönnbäcksnäset, February 24, 2009.

IGE Nordic AB (2009): Various internal technical reports, memos and cost estimates.

IGE Nordic AB (2009): Various correspondence with Xstrata Nickel, Vale-Inco, Jinchuan Group, and Norilsk Nickel Finland Oy regarding indicative terms for smelting Ronnbacken nickel concentrates.

IGE Nordic AB (2009): Various correspondence with Varangia Shipping AB regarding transportation costs for shipping Ronnbacken nickel concentrates overseas.

Kormos, L., and Chisholm, K. (2008): Rönnbäcken Mineralogical Report. Final Report – 5008806.00, XSTRATA.

Kravtsov, T. (2009): Mineralogical study of six ore samples and rougher concentrates from Rönnbäcken low-grade Ni ore Deposit, in Sweden. Report 09048-ORC-T, Outotec Research Oy.

Kravtsov, T. (2009): Vinberget optimazation test no 13 (P80%=50 microns). 3rd cleaner concentrate. Memo, Outotec Research Oy.

Kravtsov, T. (2009): Mineralogical study of the flotation test composite from the Vinberget low-grade Ni ore deposit, in Sweden. Memo 09062-ORC-M, Outotec Research Oy.

Kravtsov, T. (2009): Mineralogical observation on the Rönnbäcken flotation feed sample. Memo July 23rd, 2009. Outotec Research Oy.

Kulling, O. (1933): Bergbyggnaden inom Björkvattnet – Virisen – området i Västerbottensfjällens centrala del. En studie i den kaledoniska fjällkedjans geologi. Akademis avhandling. Rotiken, Rönnbäcksnäset, Vinberget, peridotiter och serpentiniter. GFF Bd 55.

Mattsson, B. (1980): Berättelse over arbeten utförda på inmutningarna Rönnbäck nr 1, 2, 26-30, 84-89 inom Storumans kommun, Västernorrlands län. Bergstaten. Document from the application for the Mining Lease.

Mattsson, B. (1980): Berättelse over arbeten utförda på inmutningarna Rönnbäck nr 7-10, 12, 38-39, 52-53 och 58-60 inom Storumans kommun, Västernorrlands län. Bergstaten. Document from the application for the Mining Lease.

Mattson, B. (2009): Geology & Mineralization of the Ronnbacken Ni Deposit, Internal Report, 2009.

Minpro (2009): Bench Scale Flotation Tests for IGE Nordic AB on Samples from Ronnbacken, December 10, 2007.

Minpro (2009): Bench Scale Flotation Tests for IGE Nordic AB on Samples from Ronnbacken, December 10, 2007.

Nord A. G., Annersten H and Filippidis A. (1982): The Cation Distribution in Syntetic Mg-Fe-Ni Olivines. University of Uppsala Institute of Geology, Department of Mineralogy and Petrology, ISSN 0348-1336, Research Report no 26. 1-8.

Outotec Research Oy (2009): Laboratory Tests of the Ronnbacken Nickel Ore Samples, prepared by Outotec Research Oy for IGE, February 24, 2009.

Outotec Research Oy (2009): Flotation Tests on Rönnbäcken Nickel Ore Phase 2, prepared by Outotec Research Oy for IGE, August 14, 2009.

Outotec Research Oy (2009): Modeling and Simulation of the Vinberget Concentrator, prepared by Outotec Research Oy for IGE, August 14, 2009.

Outotec Research Oy (2009): Mineralogical study of the Flotation Test Composite from the Rönnbäcken Low-grade Sulphide Ni Ore Deposit in Sweden, prepared by Outotec Research Oy for IGE, July 3, 2009.

Outotec Research Oy (2009): Mineralogical Study of the Flotation Test Composite from the Vinberget Low-grade Sulphide Ni Ore Deposit in Sweden, prepared by Outotec Research Oy for IGE, May 5, 2009.

Outotec Research Oy (2009): Mineralogical Study of Six Ore Samples and Rougher Concentrates from Ronnbacken Low-grade Sulphide Ni Ore Deposit in Sweden, prepared by Outotec Research Oy for IGE, March 29, 2009.

Outotec Research Oy (2009): Mineral Liberation Analysis of the Tailings of Vinberget Optimization Tests no. 14 & 15, prepared by Outotec Research Oy for IGE, June 8, 2009.

Stephens, M. B. (1977): Stratigraphy and relationship between folding, metamorphism and thrusting in the Tärna - Björkvattnet area, northern Swedish Caledonides. 4 plates, Swedish Geological Survey, Ser C nr 726.

Stephens, M.B. (2001): Bedrock Map 24 F Tarna SO, Scale 1:50 000. Swedish Geological Survey (SGU) AI 162.

Stigh, J. (1979): Ultramafites and detrital serpentinites in the central and southern parts of the Caledonian allochton in Scandinavia. Geologiska institutionen, Chalmers tekniska högskola och Göteborgs universitet, Publ A 27 SI: 1-222 BI: +2 SP: eng.

Valliant, W. W. (2008): Rönnbäcken Ni Project, Internal Report prepared by Scott Wilson RPA, September 8, 2008.

Valliant, W. W. (2009): Rönnbäcken Ni Project – Mineral Resource Estimate, Internal Report prepared by Scott Wilson RPA, April 21, 2009.

Wadell K-O (2008): Utvärdering av volymsandel asbest i finmalt bergprov. Kommentar 4360-1-08, QUMEX.

Wadell K-O (2008): Utvärdering av volymsandel asbest i finmalt bergprov, (RON 531046). Kommentar 4431-08, QUMEX.

Zachrisson, E. (1969): Caledonian geology of northern Jämtland - southern Västerbotten, köli stratigrapy and main tectonic outlines. Swedish Geological Survey, Ser C nr 644.

22 DATE AND SIGNATURE PAGE

This report titled "Technical Report on the Preliminary Assessment of the Rönnbäcken Nickel Project, Sweden" dated November 6, 2009, was prepared and signed by the following authors:

(Signed & Sealed)

Dated at Toronto, Ontario
November 6, 2009

Jason J. Cox, P.Eng.
Senior Mining Engineer

(Signed & Sealed)

Dated at Toronto, Ontario
November 6, 2009

Wayne W. Valliant, P.Geo.
Principal Geologist

(Signed & Sealed)

Dated at Toronto, Ontario
November 6, 2009

Kevin C. Scott, P.Eng.
Principal Metallurgist

23 CERTIFICATE OF QUALIFIED PERSON

JASON J. COX

I, Jason J. Cox, P.Eng., as an author of this report entitled "Technical Report on the Preliminary Assessment of the Rönnbäcken Nickel Project, Sweden" prepared for IGE Nordic AB and dated November 6, 2009, do hereby certify that:

1. I am a Senior Mining Engineer with Scott Wilson Roscoe Postle Associates Inc. of Suite 501, 55 University Ave Toronto, ON, M5J 2H7.

2. I am a graduate of the Queen's University, Kingston, Ontario, Canada, in 1996 with a Bachelor of Science degree in Mining Engineering.

3. I am registered as a Professional Engineer in the Province of Ontario (Reg.# 90487158). I have worked as a Mining Engineer for a total of 13 years since my graduation. My relevant experience for the purpose of the Technical Report is:
    - Review and report as a consultant on mining operations and projects around the world for due diligence and regulatory requirements
    - Planning Engineer to Senior Mine Engineer at three North American mines
    - Contract Co-ordinator for underground construction at an American mine

4. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI43-101.

5. I have not visited the Rönnbäcken Nickel Project.

6. I am responsible for portions of Items 1, and 18 through 20 of the Technical Report.

7. I am independent of the Issuer applying the test set out in Section 1.4 of National Instrument 43-101.

8. I have had no prior involvement with the property that is the subject of the Technical Report.

9. I have read National Instrument 43-101, and the Technical Report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1.

10. To the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated this 6th day of November, 2009

(Signed & Sealed)

Jason J. Cox, P.Eng.

WAYNE W. VALLIANT

I, Wayne W. Valliant, P.Geo., as an author of this report entitled "Technical Report on the Preliminary Assessment of the Rönnbäcken Nickel Project, Sweden" prepared for IGE Nordic AB and dated November 6, 2009, do hereby certify that:

1. I am Principal Geologist with Scott Wilson Roscoe Postle Associates Inc. of Suite 501, 55 University Ave Toronto, ON, M5J 2H7.

2. I am a graduate of Carleton University, Ottawa, Ontario, Canada in 1973 with a Bachelor of Science degree in Geology.

3. I am registered as a Geologist in the Province of Ontario (Reg.# 1175). I have worked as a geologist for a total of 36 years since my graduation. My relevant experience for the purpose of the Technical Report is:
    - Review and report as a consultant on more than fifty mining operations and projects around the world for due diligence and resource/reserve estimation
    - General Manager of Technical Services for corporation with operations and mine development projects in Canada and Latin America
    - Superintendent of Technical Services at three mines in Canada and Mexico
    - Chief Geologist at three Canadian mines

4. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI43-101.

5. I visited the Rönnbäcken Nickel Project on August 12-15, 2008.

6. I have overall responsibility for the Technical Report, and I am directly responsible for Items 1 through 15, 17, and portions of Items 19 and 20 of the Technical Report.

7. I am independent of the Issuer applying the test set out in Section 1.4 of National Instrument 43-101.

8. I have had no prior involvement with the property that is the subject of the Technical Report.

9. I have read National Instrument 43-101, and the Technical Report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1.

10. To the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated this 6th day of November, 2009

(Signed & Sealed)

Wayne W. Valliant, P. Geo.

KEVIN C. SCOTT

I, Kevin C. Scott P.Eng., as an author of this report entitled “Technical Report on the Preliminary Assessment of the Rönnbäcken Nickel Project, Sweden” prepared for IGE Nordic AB and dated November 6, 2009, do hereby certify that:

1. I am a Principal Metallurgist with Scott Wilson Roscoe Postle Associates Inc. of Suite 388, 1130 West Pender Street, Vancouver, British Columbia, Canada V6E 4A4.

2. I am a graduate of University of British Columbia, Vancouver, Canada in 1989 with a Bachelor of Applied Science degree in Metals and Materials Engineering.

3. I am registered as a Professional Engineer in the Province of British Colombia (Licence # 25314) and the Province of Ontario (Licence # 90443342). I have worked as a metallurgical engineer for a total of 18 years since my graduation. My relevant experience for the purpose of the Technical Report is:
   - Reviews and reports as a metallurgical consultant on a number of mining operations and projects for due diligence and financial monitoring requirements
   - Process engineer at three Canadian base metals mineral processing operations
   - Senior metallurgical engineer working for three multi-national engineering and construction companies on feasibility studies and in engineering design of mineral processing plants in Canada and South America
   - Senior process manager in charge of process design and engineering for a metallurgical processing plant in South America

4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI43-101.

5. I have not visited the Rönnbäcken Nickel Project.

6. I am responsible for Item 16 and portions of Items 18 through 20 of the Technical Report.

7. I am independent of the Issuer applying the test set out in Section 1.4 of National Instrument 43-101.

8. I have had no prior involvement with the property that is the subject of the Technical Report.

9. I have read National Instrument 43-101, and the Technical Report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1.

10. To the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated this 6th day of November, 2009

(Signed & Sealed)

Kevin C. Scott, P.Eng.