



Meanwhile mining is proceeding according to plan, with the deposit providing no surprises so far. AEM (Agnico-Eagle Finland, to be precise) is mining two open pits: Suuri, close to the offices and process facilities; and Roura to the north. Kittilä is now using down-the-hole drilling for open-pit production but has retained one top-hammer rig for pre-split drilling. Maxam is producing explosives at the matrix plant on site and delivering them to the holes by truck. However, production at Suuri will start to decline late this year, and Roura will be the main open-pit in 2011 while a new small pit, Etela south of Suuri, will add to gradually declining output until surface mining stops in 2013.

Underground development enabled mining of two stopes in first half of 2010. Stopes will initially be mined in three areas down to the 600 level, mucking and haulage is being done by a contractor. AEM intends to do all the mining in future but will require contractor assistance for some time yet, Haga said. Anticipated mine life is now 23 years.

Tailings are piped to two ponds. In Pond 1 AEM neutralizes flotation tailings for recycling to Pond 2 and clean water is dis-

charged to the river system – the Seurujoki river is nearby. Pond 2 handles the CIL tails after they have passed through the Inco Process cyanide destruction unit, as required by EU regulations. Process water is recycled from this pond but there are no discharges to the environment. A new tailings containment area is under construction.

The main long-term focus is on expanding the mineral resource, Haga said. In 2009, exploration increased gold resources by 25% and the company has allocated €16 million for drilling in the mine licence area during 2010. A contractor has two rigs exploring underground and there are 10 on surface, also operated by contractors, drilling to depths of 800–1,200 m. The main purpose is to convert resources in the Suuri area and at Rimpi, north of Roura, to reserves.

The regional exploration budget is €5.5 million for testing the whole mineralized structure. In addition, some 400 km to the south AEM has another company in the early stages of exploration. Agnico is also looking for new exploration options, including through buy-ins.

Meanwhile Kittilä, which now employs 500 people, was able to run on cash earn-

ings in August and 2010 gold production could be 147,000 oz. Thereafter output should reach 150,000 oz/y at total cash costs in the \$520-550/oz range, Haga said.

### Reviewing the Situation

While the operations discussed above are under construction or ramp-up there is a considerable Nordic pipeline of iron ore, nickel, gold and other mineral projects looking to make progress in the near- to medium-term. *E&MJ* talked to four Swedish hopefuls: one, IGE Nordic, planning to produce nickel and cobalt and three with iron ore projects—Dannemora Mineral, Northland Resources (both see *E&MJ* October 2009, pp. 46–51) and Grängesberg Iron.

*IGE Nordic seeks feasibility study finance* A subsidiary of the Oslo listed IGE Resources AB group (IGE), IGE Nordic is currently wholly focused on the Rönnebäcken nickel project (RNP) in the upper Umeå river valley close to Sweden's border with Norway. In Stockholm, CEO Fredric Bratt and Manager Operations Development Lars Carnerud outlined the present state-of-play.

Based on the extensive international nickel industry experience of the IGE



Nordic management team, Bratt and Carnerud are convinced they have a good, internationally competitive project. Although the grade is low, the mineralogy is very favorable thanks to the presence of unusually rich nickel sulphide minerals such as Heazlewoodite (71%–75% nickel) and Millerite (61%–65% Ni, 2%–5% cobalt) in addition to the conventional Pentlandite (38%–40% Ni, 2%–6% Co). According to the company, RNP has very low potential for acid drainage, excellent existing infrastructure and offers potential economies of scale similar to those achieved by New Boliden at Aitik.

What IGE Nordic does not have at the time of writing is funding for the pre-feasibility study which is the next key step for the RNP. For this reason, IGE recently hired Hatch Corporate Finance to execute a private placement to finance the PFS in exchange for a stake in the project. Meanwhile, Sweden's Norrlandsfonden, established to provide risk capital for small and medium-sized companies in the country's five northern counties, is providing a SEK 5 million (\$600,000) convertible loan for on-going exploration and development, thereby endorsing the RNP.

IGE also entered into a strategic partnership with the Mitchell River Group (MRG) in June 2010, whereby the Perth, Western Australia based company will provide nickel development expertise in return for an option to acquire 10% of the RNP. Bratt said that he had contacts with MRG in his previous position at Falconbridge International and was impressed by MRG's ability to realize the Sally Malay (Australia), Munali (Zambia) and Santa Rita (Brazil) nickel ventures from early stage exploration through feasibility studies to production.

Bratt and Carnerud explained, given that PFS funds become available, the current RNP timetable has the study finalized in first quarter 2012, approval of the Environmental Permit application and completion of a Bankable Feasibility Study in the second quarter 2013, construction starting in mid-2013 and commissioning in the second quarter 2015.

### Iron in line

At the Dannemora Mineral AB office in Danderyd, Stockholm, CEO Staffan Bennerdt confirmed the company had put the brakes on its project to restart production at the Dannemora mine near Österby-

bruk during the financial crisis. But, he went on, the management team had used the time to do its homework thoroughly, assisted by Micon consultants who presented a technical, legal, environmental and financial assessment of the project in December 2009. Mine drainage was completed in February, a permanent dewatering system is being installed and Dannemora is now ready to enter start-up.

In the fourth quarter of 2009, the delayed trial shipments to potential customers had started.

In the expectation of favorable trial results, and having secured funds through three share issues on the Oslo stock exchange, Dannemora is now recruiting a full team for production start-up one year after a "go" decision, with ramp-up to 1.5 million mt/y over 18 months while the hoisting shaft is refurbished. Bergteamet is driving a ramp decline from the existing ramp to the main future production level. Dannemora has received bids for the new equipment needed and is considering leasing from key mobile equipment suppliers. Bidding is under way for construction of the process plant which will include crushing, screening and dry magnetic separation to yield 55% lumpy ore, 45% fines. The total operational workforce is expected to be 120 people.

Cash operating costs should be in the upper middle section of the global cost curve despite the relatively limited output, Bennerdt said. However, Dannemora is hopeful of getting a concession for a similar deposit at nearby Riddahyttan, which might allow output to be doubled. Meanwhile Bennerdt and his colleagues must wait for confirmation that trial processing was commercially viable.

They've been changing the guard at Northland Resources, corporate shakers have regrouped their forces. In essence the company has been further Europeanized, explained Corporate Secretary Deborah Craig. Chairman Anders Hvide has been joined by Karl-Axel Waplan as president and CEO while Waplan was replaced as vice president of Swedish operations by Bert-Ove Johansson who is also managing director of the Swedish subsidiary Northland Resources AB (NRAB). In January 2010 the parent company continued from Vancouver to Luxembourg as Northland Resources SA (NRSA).

Although Northland's nascent operations are in a former mining area straddling the Sweden-Finland border, unlike

the Dannemora and Grängesberg projects they involve completely new mining and processing facility development, potentially on a substantial scale. Johansson explained that, while the key Kaunisvaara Iron Ore Concentrate Project itself has remained essentially the same but more fully permitted through this same period, interest in the project expressed by potential Chinese customers has led NRSA to inject an alternative or additional product transport route into the project feasibility study parameters. The new transportation solution, coupled with new iron ore pricing assumptions, has resulted in an approximately US\$7/tonne economic net-back improvement to the project via the use of the port at Narvik.

Costs for shipping to the Asian market are significantly reduced by using the large vessels that can dock at Narvik in Norway rather than the transshipment system necessary at Kemi in Finland. Concentrate would be trucked to the station at either Malmberget or Svappavaara, railed on the line used by LKAB and shipped from a new terminal at Narvik. Johansson said that the Swedish rail authority Trafikverket says this is feasible. Consideration of this option delayed finalization of the Definitive Feasibility Study until the end of September 2010.

Meanwhile, NRSA has reached an off-take agreement for 1 million mt/y for an initial eight-year period with the independent steel trader Stemcor. Now that the DFS has been approved the syndicated banks can seek credit approvals which will then play into one or two more of the company's potential off-take agreements as the company seeks financing to accompany those off-takes. With an expected boost in the share price, NRSA will look for new equity finance in preparation for construction in the fall.

### Grängesberg: Going again?

Like the entrepreneurs who plan to reopen Dannemora, the Board of Grängesberg Iron AB (GIAB) saw an opportunity to enter the iron ore market by reopening the considerably larger mine at Grängesberg. By the time of its closure in 1989 this operation was owned by Swedish Steel and railed pellets to SSAB's Oxelösund works and to other customers from the adjacent port. GIAB is a subsidiary of Roslagen Resources, established in 2006, which has a portfolio of properties in the Bergslagen district and near Kiruna.

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