TETRA TECH

QuadraFNX MINING LTD

PROCESSING, POWER AND LOGISTICS SOLUTIONS FOR GREENLAND PROJECT

Malmbjerg Project:

Lead consultant for Feasibility Study

WATER | NATURAL RESOURCES | ENVIRONMENT | INFRASTRUCTURE | ENERGY

(Left) View of deposits; (right) Haul routes (Photos of Malmbjerg: Quadra FNX)

LOCATIONS WORLDWIDE

340 Locations
19 Countries

See reverse for full listing of locations.

Tetra Tech is a leading provider of consulting, engineering, program management, construction, and technical services addressing the resource management and infrastructure markets.

The Company supports government and commercial clients by providing innovative solutions focused on water, the environment, and energy. With approximately 13,000 employees worldwide, Tetra Tech's capabilities span the entire project life cycle.

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Tetra Tech

Supporting mining operations for over 60 years with worldwide office locations

Lead consultant for Feasibility Study on the Malmbjerg Project, executed on behalf of International Molybdenum / Quadra FNX, 2007 - 2008

All information in this document is correct and/or in the public domain at the time of publication, November 2011.

Cover photos (Left) Euhedral, hexagonal molybdenite on quartz, from Molly Hill mine, Quebec, Canada. The large crystal is 15mm across (corner to corner). (Source: http://en.wikipedia.org/wiki/File:Molly_Hill_molybdenite.JPG); (Right) The field camp at the Malmbjerg project in Greenland. (Photo: Tetra Tech, January 2006)

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International Molybdenum / Quadra FNX Malmbjerg Project

(Top) View of Nuuk, Greenland
(Bottom) Surveying in progress on site (Photos: Quadra FNX)

1. ABOUT THE CLIENT

Quadra FNX Mining Ltd. (Quadra) is a leading mid-tier copper mining company with corporate offices in Vancouver, B.C. and Toronto, Ontario. Quadra FNX produces copper, gold and platinum group metals from its operating mines: the Robinson mine in Nevada, the Carlota mine Arizona, Franke mine in northern Chile, and the McCreedy West, Levack (which includes the Morrison Deposit) and Podolsky mines in Sudbury, Ontario. The company possesses several advanced development projects, including the Sierra Gorda copper-molybdenum project in Chile, the Victoria Project in Sudbury, and the Malmbjerg molybdenum development project. Wardrop Engineering Inc., now Tetra Tech Inc., was originally commissioned by International Molybdenum plc (InterMoly), now a subsidiary of Quadra FNX.[1]

1 Effective Oct. 3, 2011, Wardrop Engineering Inc. changed its name to Tetra Tech WEI Inc., after the outright acquisition of the company by Tetra Tech Inc. in 2009.

2. BACKGROUND TO THE PROJECT

The Malmbjerg deposit is located in eastern Greenland and is one of the highest-grade molybdenum projects amenable to open pit mining that is currently being considered for development, with the added advantage of being fully permitted. The property is located in extremely rugged mountainous terrain, in the central portion of the east coast of Greenland. The project covers an area of approximately 307km^{2,} and is located 30km from Greenland's east coast, near Latitude 72 degrees north,

The terrain is remote and the topography consists of steep, high mountains and ridges, reaching elevations up to 1760m above sea level, alternating with deeply incised valleys. The slope of the area is generally toward the south, into the Schuchert Dal and the Scoresbysund Fjord. The Malmbjerg deposit outcrops at the base of the Hostakken Mountain, forming a wedge-shaped exposure located at the confluence of the Arcturus and Schuchert glaciers. The outcrop area of the resource is almost enclosed by these glaciers and has no vegetation.

Molybdenum was first discovered in the Malmbjerg area during the early 1950s. The area was explored by the Nordisk Mineselskab-Amax Inc. consortium, and others, from 1956 to 1979. Between 1982 and 2004, no further documented work was completed.

In 2005, Intermoly was able to obtain all data developed during the previous investigations of the project. Still a greenfield site, the nearest point of access by air is Mestersvig, a Danish naval base with a gravel airstrip. Constable Point, located 150 km to the Southeast of Malmbjerg, is accessible by scheduled airline from Iceland, which is located about 700 km southeast of Constable Point.

The main components of the proposed Malmbjerg mine development include:

- open pit mining operation
- 3km-long haul road from the mine to the primary crusher (across the Schuchert Glacier)
- 9km-long conveyor from the primary crusher to reclaim tunnel/coarse ore stockpile
- 1km-long conveyor across the Schuchert Dal River to the secondary crushing (HPGR) facilities
- process plant and camp
- tailings management facility
- 75km-long access road from the process plant to the port facility
- airstrip to support the operations

Global presence and experience

3. WHAT DIFFERENTIATES THE MALMBJERG PROJECT?

Intermoly commissioned Tetra Tech to carry out a Feasibility Study on the Malmbjerg Project to incorporate the results of the various previous studies and to provide a concept upon which to base the defined Feasibility Study. The Malmbjerg Project is in a particularly remote location, and the project team had to consider the rugged terrain, the extreme weather conditions, the absence of power supply and access roads, and the particular Geology of the area, in addition to the normal considerations for setting up an open-pit operation.

4. INDUSTRY SNAPSHOT

24%

The operational cost savings in the comminution circuit, with the application of HPGR to the Malmbjerg project

The world's largest producers of molybdenum materials are the United States, China, Chile, Peru and Canada. The main commercial source of molybdenum is molybdenite, which is mined as a principal ore and is also recovered as a byproduct of copper and tungsten mining. Large mines in Colorado and in British Columbia yield molybdenite as their primary product, while many porphyry copper deposits in Utah and northern Chile produce molybdenum as a byproduct of copper mining. Molybdenum maintained a price at or near $10,000 per tonne from 1997 through 2003, and reached, due to increased demand, a peak of $103,000 per tonne in June 2005.

4.5Mw

Reduction in gross power consumption reduction possible in the combined crushing-grinding circuits, with the application of HPGR

Prior to the global financial crisis, molybdenum was one of the base metal sector's best performing commodities, but in August 2009, prices fell to a value of approximately $30,000 per tonne [after Tetra Tech had completed the Feasibility Study on Malmbjerg]. Once prices began falling, major companies cut back on production and investment in exploration and development. However, since November 2009, molybdenum prices have been rising on demand out of China, Japan, Korea and the U.S. In response to industry demand, the London Metals Exchange began offering trade in publicly-available molybdenum futures on February 22, 2010. (Source: http://molyinvestingnews.com/investing-in-molybdenum/moly-price)

86.4%

Recovery rate at a concentrate grade of 54.0% Mo.

MINE LOCATION Located at Malmbjerget in Eastern Greenland, approximately 200km northwest of the settlement of Scoresbysund. Greenland is approximately 80% ice-capped, with a sub-arctic climate and continuous permafrost over the northern two-thirds of the island. The Malmbjerg deposit is located within a mountain range in an alpine region near the coast, and while the project is remote, both the mining and the processing operations are technically straightforward. | PROJECT MANAGER John Robertson, Tetra Tech, Vancouver | PROJECT DURATION – June 2007 - Feb. 2008

Independent , qualified opinion

"When we talk to our clients, we try to come up with innovative solutions to the conditions in the field and we consider all the potential technologies for saving power and costs and getting optimum results."

- Hassan Ghaffari, P.Eng., Manager, Metallurgy, Mining and Minerals, Tetra Tech, Vancouver

Campsite at Malmbjerg (Photo: Tetra Tech archives)

Signpost at the Malmbjerg project site, Jan. 2006 (Photo: Tetra Tech archives)

5. PROJECT MILESTONES

- July 28, 2005: InterMoly was floated on AIM Market of the London Stock Exchange.

- 2005: After listing, InterMoly conducted studies of the Malmbjerg project that eventually led to a full assessment of the feasibility of the project.

  An extensive infill and confirmation drill program validated historical work by AMAX Mining Co. (now part of Freeport McMoran) and others. As a result of this program, a NI 43-101 compliant Measured and Indicated Resource of 560 million pounds of contained molybdenum at Malmbjerg was produced, with a production rate of approximately 25 million pounds per year of molybdenum, which at the time, constituted approximately 4.5% of current global demand.

  Further studies were completed of alternative mining methods, the location of facilities, metallurgical parameters and infrastructure considerations.

- November 2005: Resource Estimation announced by InterMoly.

- 2007: Quadra acquired 82.5% of the share capital of InterMoly

- June 2007: International Molybdenum/Quadra commissioned Wardrop Engineering Inc. , now Tetra Tech, and a team of experts to complete a Feasibility Study on the Malmbjerg project.

- May 16, 2008: Quadra increased its ownership of InterMoly from 82.5% to 98.2%.

6. PROJECT SCOPE

At the initiation of the study for the Malmbjerg Project, in July 2007, InterMoly and Quadra's vision of the project was to investigate the potential for early mobilization and a plant start-up date of January 2011. This led to a more aggressive schedule to complete the study than originally anticipated and as a result Tetra Tech's scope of work increased to include:

- Project Management
- Engineering
- Procurement and Logistics
- Scheduling
- Capital Cost Estimate
- Document Control
- Project Administration
- Project Controls

Due to the more aggressive schedule, InterMoly/Quadra requested that Tetra Tech's management role be expanded to taking responsibility for managing and monitoring the overall project. Tetra Tech's particular areas of design, in conjunction with MTHøjgaard (MTH) were Process, Plantsite Infrastructure and Ancillary Facilities, and Project Execution. Tetra Tech also contributed to the Capital and Operational Cost Estimates.

"The immediate objective going forward is to confirm the economics of the project, explore funding opportunities and to establish a development strategy. An updated NI 43-101 compliant Technical Report will follow this exercise and will allow us to firm up design criteria and optimize development and execution concepts."

- Paul M. Blythe, President & CEO, Quadra FNX Mining Ltd., news release, July 10, 2007

High pressure grinding roll technology is gaining wider acceptance in non-ferrous applications. Newmont's Boddington gold mine in Australia, for example, has installed four HPGRs, shown here. (Photo courtesy of Polysius)

6. PROJECT SCOPE (CONTINUED)

Other contributors to the report were:

- MTHøjgaard (MTH), with Tetra Tech – airstrip, port and access road
- Knight Piesold (KP) – Tailings and water management
- Moose Mountain Technical Services (MMTS) - Mining
- Scott Wilson RPA (SWRPA) – Resource estimate
- SRK Consulting – Draft Environmental and Social Assessment
- Quadra – Mining, financial analysis and marketing

7. OUTCOMES

Selection of best solution

In the case of the Malmbjerg project, Tetra Tech's engineers faced two obstacles – one was the sheer remoteness of the location, the other was the choice of grinding technology.

"When we talk to our clients, we try to come up with innovative solutions to the conditions in the field and we consider all the potential technologies for saving power and costs and getting optimum results. We could for instance, consider the pros and cons of in-pit crushing and conveying, versus trucking; paced thickening versus direct deposit into tailings; vertimill versus Isamill, and HPGR versus SAG milling. Numerous studies have been done on the relative benefits of these technologies, and we are well aware of these – and of course, we have carried out numerous trade-off studies ourselves.

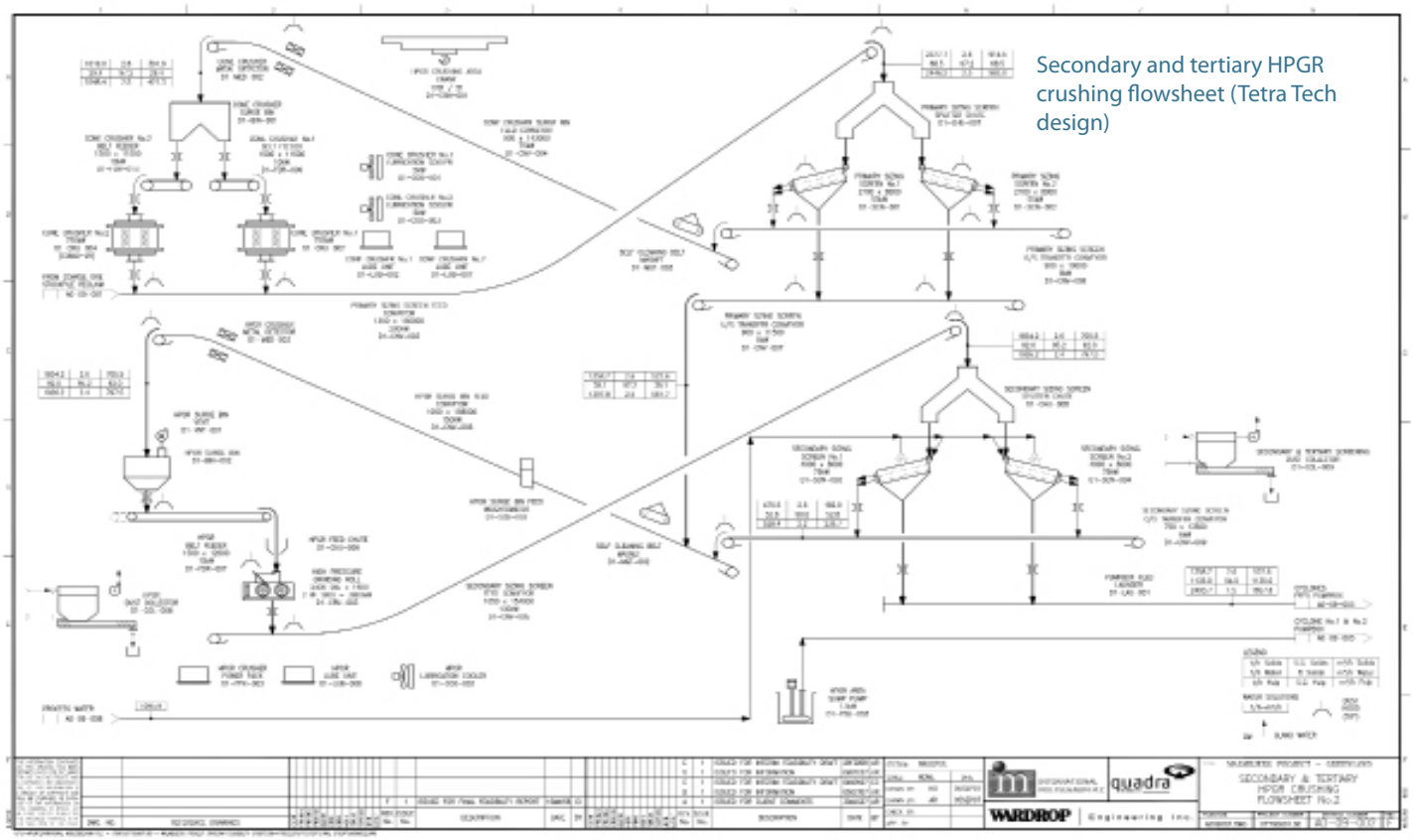
But, in my experience, each project is unique and what matters is that we have thorough, open-minded and critical discussions about the requirements with all the parties involved – our client, suppliers, manufacturers, other consultants, and gather enough quality data, before we even think about putting forward an idea to our client.

In the case of Malmbjerg, there were six other consultancies involved, along with ourselves, dealing with every component of the future mining operation.

We have, for the past seven years, presented new technologies to our clients, not as sellers but as consultants – knowing full well that we are dealing with a well-informed, astute market."

- Hassan Ghaffari, P.Eng., Manager, Metallurgy, Mining and Minerals, Tetra Tech, Vancouver

Critical mindset and scientific approach



Secondary and tertiary HPGR crushing flowsheet (Tetra Tech design)

7. OUTCOMES (CONTINUED)

HPGR technology

The processing plant at Malmbjerg was designed to operate at 30,000 t/d capacity with an availability of 92%. A trade-off study was done to evaluate the use of HPGR as an alternative technology to the conventional SAG milling process.

Results of this study indicated that the application of HPGR to the Malmbjerg project would yield significant operational cost savings in the comminution circuit, amounting to more than 24%, due to gross power consumption reduction of 4.5 MW (in the combined crushing-grinding circuits), which translates into an operating cost saving of USD 1.14/t.

The designed mill circuit comprises HPGR and two ball mills to reduce the ore to a nominal grind size of 80% minus 180 microns.

Process description

The grinding circuit product will feed the rougher scavenger flotation circuit with the majority of the final tails generated in this section. Final tails will be subjected to pyrite flotation and tailings sands cycloning prior to disposal in the tailings pond.

The combined rougher and rougher scavenger concentrate will be reground to 80% minus 60 microns and fed to bank of first cleaner, cleaner scavenger flotation cells. First, cleaner concentrate will be ground in a tower mill to produce a product with a particle size of 80% minus 25 microns prior to two stage cleaner flotation using column cells.

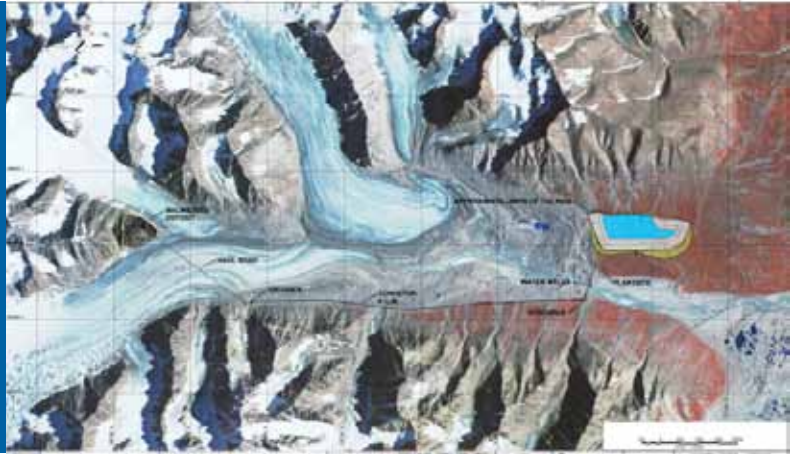
The final concentrate will be thickened, filtered, dried, packaged in one-tonne totes and stored to await off-site transportation. The main parameters used as a design basis for the process plant were a head grade of 0.15% Mo (Molybdenum), a nominal mine production rate of 30,000 tpd of ore allowing for recovery of 86.4% at a concentrate grade of 54.0% Mo.

8. SUBSEQUENT EVENTS

Following the acquisition by Quadra of its stake in InterMoly, feasibility level studies on Malmbjerg commenced in order to generate the information required to make a development decision.

Having received the Exploitation License during 2009, other permitting activities will continue but beyond this, no significant expenditures [were] planned for 2010.

Discussions with potential partners to assist in the funding of both the Sierra Gorda and Malmbjerg development projects will continue. (www.quadrafnx.com)



General site layout of Malmbjerg
(Design: by Tetra Tech)

ABOUT THIS DOCUMENT

This Case Study is published by Tetra Tech Inc. (NASDAQ: TTEK) (Tetra Tech), as a means of stimulating insight and debate in the mining and metals industry, and promoting the solutions and services offered by Tetra Tech and its associates.

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In the aggressive consulting marketplace, what sets Tetra Tech apart is its customer focus. More than just an engineering house, Tetra Tech's "Start with Science" methodology allows it to tailor solutions to a customer's need. This customized approach informs project planning throughout the mine life cycle, making projects much more likely to be built, more productive, and easier to maintain over the life of the mine.

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ADMINISTRATIVE DETAILS

References:
All statements about this project, including site maps and photos, in this document have been sourced from www.quadrafnx.com, and internal Tetra Tech documentation, unless indicated otherwise.

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