

*These are the unredacted versions of stories published in **The Chronicle-Journal**, a regional daily newspaper based in Thunder Bay, ON, on February 27, 2010:*

### **Ring of Fire railway feasibility studied**

*by Edgar J. Lavoie*

If you have a world-class chromite deposit in the James Bay Lowlands, how do you transport the broken ore over 340 kilometres of muskeg and glacial till and Precambrian rock and 89 different water crossings?

You build a short-line railway.

KWG Resources Inc. has already identified millions of tonnes of chromite, the essential ingredient in stainless steel. The Big Daddy discovery lies in the so-called Ring of Fire, near McFauld's Lake. The company created a subsidiary to study the feasibility of a rail line: Canada Chrome Corporation.

Canada Chrome engaged Krech Ojard & Associates, PA, of Duluth, MN. Krech Ojard is a railroad engineering and construction firm. Since starting work last July, the firm has recommended a route for the Class 3 heavy-haul line. At this point, in the dead of winter, there are dozens of workers strung out along the route, which project officials call "the alignment". Krech Ojard hired Golder Associates, also of Duluth, to do geotechnical drilling.



The track-mounted drill rig has started its first bore hole on the north bank of the Ogoki R. and has located solid granite. Beyond it, chainsaw and skidder crews have cut trail to the next drilling site.



On February 18<sup>th</sup>, in a massive public meeting in Nakina, M.J. Lavigne outlined the project. "Moe" Lavigne, vice president/exploration and development, represented Canada Chrome. The railway, he said, would start at Exton, on the CN mainline just west of the community, and run generally north. Workers from nearby Aroland First Nation were cutting trail to provide access for track-mounted drill rigs. Crews were building ice bridges at water crossings, ensuring thick ice for the heavy machines.



Nels J. Ojard, PE, stated that 50 bridges would be required to cross waterways ranging from creeks to major rivers. The larger rivers would require multiple-span bridges; e.g., the Little Current, about 170 metres; the Albany, 215 m; and the Attawapiskat, 380 m.

The proposed crossing of the Albany River, looking upstream. Below Kagiama Falls, the banks feature light-coloured poplar stands, indicators of glacial till for bridge foundations.

The next day, the writer accompanied project officials on a helicopter flight up the alignment. On the

north bank of the frozen Ogoki River, a large drill rig had just maneuvered into place to extract rock core from the bank. The geologist-in-charge said the rock was granite, which would provide a solid foundation for a bridge. The distance across the river: about 110 m.

North of the Albany, smaller drill rigs were being transported by helicopters. Crews were targeting a depth of 15 feet to obtain good soil samples using hollow-stem augers. The helicopter party visited one rig that was boring its first hole of the day and encountering lacustrine clay, a soil deposited long ago in a post-glacial lake. In the tiny clearing, tiny black spruce stood around observing the work.

Workers put in 10- or 11-hour days – as long as daylight lasts – and then choppers bring them to a remote base camp for the night, or in the case of at least one crew, to Nakina. They work 3 weeks on and then go home for a week.

If the alignment proves feasible, and things unfold as they should, Lavigne foresaw an open pit operation by 2015. Mine infrastructure would include an all-weather airport, a 150-person trailer camp, and a power transmission line. Still undecided is the location of the ore concentrator – at the northern or the southern terminus of the railway.

Meanwhile, Canada Chrome and the Krech Ojard firm are consulting local communities, First Nations, and special interest groups. The alignment is being refined, engineering data and constructs are being assembled, and costs will be calculated.

Build it, and the ore will come.

## Flying the alignment

A young woman from Winnipeg leans over a muddy soil sample, about an inch thick and 18 inches long. She is probing the engineering characteristics of lacustrine clay in this subarctic region. The clay will one day, hopefully, help support a railway that will run from the Ring of Fire all the way to the CN mainline near Nakina.

Joanne Woodward, field logger, displays the soil sample she is documenting. The table holds tools of her trade.

Joanne Woodhouse is field logger at this drill site. She works for Golder Associates, an international engineering firm engaged by Krech Ojard and Associates, PA. Her two companions







Shawn Bishop, driller, and Scott Kingdon, helper, pose with the portable drill rig. The five-foot length of hollow-stem auger is being lowered into the bore hole.

operate a Ranger 24 geotechnical drill nearby. The driller and his helper work for Paddock Drilling Ltd., hired by Golder Associates.

The rig, deposited earlier that day by a powerful Bell 407 helicopter, uses a hollow-stem auger to sample the soil north of the Albany River. The alignment runs in a transition zone between the low and soggy terrain of the James Bay Lowlands and the firmer Canadian Shield. Woodhouse is testing Sample No. 5 from the first bore hole, pulled from a depth of about 10 feet.

Earlier that morning, on February 19<sup>th</sup>, the writer had joined a party of explorationists in a Eurocopter AS 350B-2 helicopter. The chopper flew north from Exton at a height of 250 feet. In the Shield country below, crews from Aroland First Nation had cut trails northward. Moe Lavigne, vice president/exploration and development for KWG Resources Inc., explained that the trails accommodated track-mounted drill rigs.

At one point the chopper flew over a geophysical survey party. Matt Krzewinski, field program manager for Golder Associates, explained they were using GPR and ERI techniques – ground-penetrating radar and electrical resistivity imagery. The soil profile would be confirmed by drilling.

Past the Ogoki River, in advance of the cut trail, a snowshoe track marked the line of travel of an experienced timber cruiser. It was his job to flag drilling sites, using pre-determined GPS coordinates. Some sites, off the alignment, targeted potential quarries and borrow pits.



Glacial till ridges can be identified by stands of poplar. A discontinuous string of ridges runs for hundreds of kilometers, generally north-south. *Photo supplied.*

Back in August, Nels Ojard, PE, project manager for his firm, had been instrumental in locating the alignment. On the flight he pointed out stands of poplar, now leafless, in the conifer forest. The alignment makes major use of glacial till ridges topped by poplar.

North of the Albany, in a trackless region, choppers transport the drills of Paddock Drilling, based in Brandon, MB. Ten minutes past the Albany, the AS 350-B2 drops down to a small prepared clearing.

A few metres away, the drill crew have just lifted up a soil sample in a device called a split-spoon sampler. Joanne Woodhouse performs quick field tests for bearing capacity and shear strength. She logs, bags, and labels all samples, which will be shipped to laboratories in various Golder offices in the U.S. and Canada.

The chopper lifted off again. The party stared out the windows, mesmerized by far horizons. Caribou trails wandered through the land of little sticks. On the return trip, the chopper touched down on the ice bridge built across the Ogoki River. The crew for the track-mounted rig had begun boring the first of six holes – two on either bank, two in the river bed.

The six-hour trip ended at the Nakina airport. The party had spent an hour at a remote base camp. They had eaten lunch under canvas as the chopper refueled.

By nightfall, all workers along the alignment would be eating hot food and sleeping under roofs.

