APPLE BAY

Electra Gold Cementing the Future

by Kristina Walcott

Since the earliest days man has used a variety of bonding agents in building structures. The ancient Egyptians mixed water and impure gypsum to hold fast the pyramidical structures that dominated their landscapes. The Romans combined lime mortar with pozzolan, a volcanic ash, to produce a much stronger bonding compound, the proof of which can be seen in the examples of Roman architecture that have survived through to the present day.

However, the secrets of those ancient days were lost and forgotten with the onset of the Dark Ages, and it was not until the 18th century that this previously commonplace technology was rediscovered. In fact, the cement of today owes its existence to an English bricklayer by the name of Joseph Aspdin, who was issued Patent No.5022 in 1824 for a material he named "Portland Cement." This dry-crushed compound, consisting of alumina, silica, and lime, was kiln-dried. Water was then added to the compound, reacting with the silica and alumina and resulting in a solid mass that became progressively harder and harder. Joseph Aspdin named this compound Portland Cement because of its striking similarity to the Portland Building stone, a particular type of stone favoured in buildings designed by the British architect, Sir Christopher Wren.

The first shipment of Electra Gold chalky geyserite being loaded on a barge at Port Hardy, BC, bound for Washington State. *Photo courtesy Electra Gold Ltd.*

Today, Portland Cement accounts for approximately 98% of the cement produced in the United States. It is the basic ingredient in concrete and currently it is comprised of a carefully balanced combination of calcium, silica, aluminium and iron. The silica, calcium and aluminium are mixed together and roasted in a rotary kiln, creating what is known as a "clinker" which is then ground into a fine powder. Gypsum is added to the powder in order to control the setting speed of the concrete, which is a combination of water, stone and sand in which water is the catalyst to bind it into a rock-like mass.

Although extremely capital-intensive to produce, Portland Cement is the most widely used building material in the world. More than twice as much cement is used in construction than any other building material, including wood, aluminium or steel. Its principal application continues to be in the production of concrete.

In addition to heavy machinery, coupled with a high demand for heat and energy, cement manufacturing also requires approximately 80 different operations involving considerable chemical and physical testing throughout the process. In an effort to reduce energy consumption, iron is added to the original compound to lower the kiln temperature.

Demand for cement continues to increase and there is a projected consumption rate of 105.23 million tons in 2004 in the United States alone. In Canada, the concrete and cement industries employed nearly 23,000 people in 2003, and they have annual sales revenues of $4 billion.

Cement is currently produced in 16 locations throughout Canada, and most companies also have operations in the United States. Raw materials for cement are easily shipped by barge between the two countries. One such supplier of raw materials for cement is **Electra Gold Ltd.** [ELT-TSXV]. Electra has been supplying raw cement material (silica and alumina) called "chalky geyserite" since October 2003 to Ash Grove Cement, which is one of the largest producers of cement in North America with an annual production of more than 7.8 million tons of cement.

Electra has recently signed a five-year contract with Ash Grove Cement to provide 10,000 tons of silica and alumina per month. The silica-alumina material found in Electra's PEM100 Quarry on northern Vancouver Island, British Columbia has proved ideal for cement production, grading about 85+% Si_2O and 15% Al_2O_3 with very low alkalis and very low sulphur. The material is relatively soft, has low grinding energy (low "bond" number) with a low abrasion index and handles very well when wet. The product is presently being barged to Seattle, Washington from Port Hardy, BC. Potential ore reserves are very large with nine other undeveloped zones in addition to the PEM100 Quarry.

In addition to its current supply arrangement with Ash Grove Cement, Electra has also delivered a number of 5,000-tonne bulk samples to Lehigh Northwest Cement in Delta, British Columbia, and is engaged in active discussions regarding potential supply arrangements with other producers throughout BC and California.

Not only does Electra have an excellent product in a location with an experienced workforce, but the company also has a proven understanding of how to develop a resource within BC's unique resource management framework. Too often, territory disputes with First Nation peoples are cited as the reason that resource projects are not developed. In Electra's case, it executed a landmark agreement in 2003 with the Quatsino First Nations, which ensured that the development of the resources would benefit the local community as well as the company, thereby cementing Electra's future in