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GENERAL REPORT ON THE PROPERTIES

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BAKER TALC LIMITED

Potton Township, Quebec

Summary

Baker Talc Limited produces pulverized talc for a number of industrial uses. Green Cross brand insecticides are manufactured for the Sherwin-Williams Co. of Canada, Limited, by adding the poisons to the talc prior to fine grinding. Asphalt filler is sold to Koppers Products, Limited and The Barrett Company Limited for use in corrosion-resistant enamel compounds. Wesco Waterpaints (Canada) Limited and Reardon's use Baker talc in the manufacture of certain cementing and plastering compounds. Smaller amounts are used by other customers in paints, pottery, electrical cables, rubber goods, cleansers, insecticides and cosmetics.

It is planned to install new equipment that will permit production of a wider range of products and expand the markets for Baker talc. With this equipment it will be possible to grind to 98 plus percent minus 325 mesh. This material should be suitable for use in certain papers, paints and products for which it must be free of grit. A coarse by-product, 60-100 mesh, may be made by throwout attachments. This coarse product would find ready markets in roofing paper, linoleum and floor tiles.

Ore developments within the past two years show a reserve of 130,000 tons, of which 75 percent should be recoverable. This will be ample to supply increased milling requirements for several years.

Property and Location

Baker Talc Limited owns the mining rights to lots 111 and 112, Range II, Potton Township, Brome County, Quebec. The Company also owns surface rights on part of lot 112, on which the mill and Baker mine entry are located. The Company owns mining rights, subject to royalty, on the Van Reet mine, lots 606 and 607, Range V, Potton Township. The Van Reet mine is 15 miles by road from the Baker mine and mill.

The mill and Baker mine opening are adjacent to the CPR line from Montreal to Boston, one and a half miles west of Highwater, Quebec. Highwater is 80 miles southeast of Montreal. A siding at the mill permits direct loading of the products for rail shipment, and a good gravel road connects the mill to Provincial Highway number 39 at Highwater.

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History

A grinding mill was built in 1938 by Baker Mining and Milling Co. Ltd., and was operated by them until the company was reorganized as Baker Talc Limited in 1952. The original Baker mine was developed by an adit into the hillside behind the mill and about 25,000 tons were mined from this location. The Marcoux mine was operated by open pit methods from 1949 to 1952; this property is seven miles from the mill. The Van Reet mine has been the chief source of ore since 1953.

Geology of Area

The general geology of this area has been described by H. C. Cooke(1). The talc deposits occur within a sedimentary series named the Sutton. These are tentatively assigned to the Cambrian and consist of a thick series of quartzites, greywacke, and slate with minor volcanic and limestone members, all sheared and injected with numerous quartz veins. The sediments have been folded into a broad anticline, the crest of which approximately corresponds with the peaks of the Sutton Mountain range.

Peridotite dykes, now altered to serpentine and talc, intruded the Sutton schists in post-Ordovician or, possibly, post-Devonian time.

The Sutton Mountains are part of the northern Appalachians, reaching an elevation of 1800 feet above the St. Lawrence Lowlands to the west. The Sutton series strike about N 15° E.

Geology of Deposits

The peridotite dykes were altered to serpentine. The serpentine, in turn, was partly altered to talc by addition of silica, probably by hydrothermal solutions penetrating through openings produced by folding and faulting.

The deposits are zoned. A core of serpentine, slightly talcose and veined with carbonates, occurs in the thicker or undisturbed parts of the dykes. From the core outward, gradually, talc replaces serpentine and this zone contains disseminated crystals and veinlets of magnesite.

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(1) - Cooke, H. C., "Geology of a Southwestern Part of the Eastern Townships of Quebec." G. S. C. Memoir 257, 1950.

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The talc-magnesite zone is massive and grey in colour due to the presence of small amounts of chlorite.

A sharp contact occurs between the talc-magnesite zone and a zone of soft, schistose, grey to pale green talc.

The soft talc zone has a sharp contact with a zone of talc-chlorite schist that, in turn, has a sharp contact with the wall rock. The talc-chlorite schist, locally called soapstone, is dark green or grey to black in colour. This zone has a high alumina content, and appears to be a result of interaction between the dyke rock and wall rock during hydrothermal alteration.

Mining

The Baker mine was developed through an adit driven into the hillside behind the mill. Three deposits or veins were mined. Above adit level, in the area developed to date, the number 1 vein has been stoped out. This vein has been followed by drifting for an additional 150 feet. In this length it has narrowed down to a few inches, but still persists. Experience with this type of talc deposit shows that they are subject to sudden change in dimensions. Additional drifting is recommended to follow the vein in search of expanded areas.

Some few thousand tons of talc remain in the numbers 2 and 3 veins. Because of water inflow this ore cannot be used until the mill is equipped with a drier. There is also room for underground exploration of these veins for more ore.

At the Van Reet mine an adit has been driven into the hillside for 450 feet. Two deposits have been developed. The one nearer to the adit entry is 220 feet long and up to 60 feet wide. It is mined by a modified room and pillar method but, as backs are shallow, water was encountered at a number of places. Parts of this deposit contain serpentine. The second deposit has been developed by drifts on hanging wall and footwall, by one cross-cut, by bulldozing off the overburden along a length of 300 feet and a width of 50 feet, and by a glory hole at the north end of the deposit. The south end is still open. The indicated dimensions above drift level are 70 x 75 x 250 feet, or 130,000 tons. Seventy-five percent of this tonnage should be recoverable. No serpentine has been seen in the development of this deposit so far, but it is possible that there is a core of serpentine, at depth, toward the south end of the deposit.

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This deposit is being mined by glory hole to the footwall drift, where it is mechanically mucked and trammed to the trucking bins at the adit entry. The gloryhole phase of mining will make a V-cut, leaving about one-half of the ore as a pillar for the hanging wall. A large part of this pillar will eventually be mined through the hanging wall drift. The mining costs should be relatively small.

Milling

Talc ore is drawn by truck from the Van Reet mine, or by mine car from the Baker mine, to a coarse ore bin at the mill. A chain conveyor carries the ore to a jaw crusher where it is reduced to minus three inch. A hammer mill reduces the ore to minus three-quarter inch, then it is conveyed to the roller mill or stored in the fine ore bins. The talc is reduced to 90 percent minus 200 mesh, to 90 percent minus 325 mesh, depending on the product required.

The roller mill is a Williams with a capacity of one and one-half (1½) to two and one-half (2½) tons per hour, depending on fineness of grind. It is an air-swept mill in which air currents carry over the pulverized product, when fine enough, to a cyclone collector. The product is packed in multi-wall paper bags by a Bates Bagger.

There is storage capacity at the mill for 300 tons of coarse and fine ore, and 700 tons of bagged products.

Uses and Production

Baker Talc Limited manufactures pulverized talc for use as a filler in pipe line enamels, insecticides, paint, plaster compounds, adhesives, linoleum, tile, plastics and ceramics. It is used as a dusting agent, to prevent sticking, on electric cables and rubber goods. Insecticides are manufactured directly by the addition of the poisons to the talc ore before pulverizing.

A large portion of Baker talc production is used in pipe line enamels (asphalt filler). Specifications for this material require that it have a low loss on ignition. The soapstone and soft schistose talc meet these requirements.

The talc-magnesite zone is suitable for insecticides and for many of the other uses. This zone supplies material nearer to white than the other zones.

Production is in the range of 5,000 to 7,000 tons

per year. It is proposed to increase this output as outlined below. There is sufficient ore now in sight to warrant expansion.

Proposed Development

It is planned to replace the Williams roller mill with a new Raymond roller mill with Whizzer separator. The new mill will have greater capacity and better control over the quality of product. It will also produce finer material of more consistent fineness. With this better quality product it is expected that additional markets can be opened in paper, paints and rubber goods.

Another outlet for talc is in the coarser sizes, 60 to 100 mesh. The present mill cannot produce this material which is used in roofing papers, linoleum, tile, and some rubber goods. The new Raymond mill has a throw-out attachment by which it is hoped to produce a by-product in the coarser sizes.

Following installation of the Raymond mill, additional improvements will consist of installation of larger crushing capacity, and a drier to permit the use of wet ore.

Respectfully submitted,

J. H. Morgan

J. H. Morgan - Geologist.

Montreal 1, Quebec,
February 2nd, 1956.