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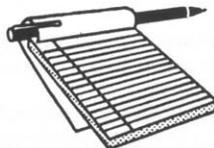
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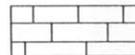
Ministry of Energy, Mines and  
Petroleum Resources  
Geological Survey Branch



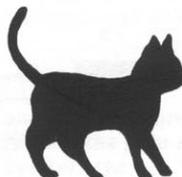
# ZEOLITE PERLITE FULLERS EARTH DIATOMITE KAOLIN



PULP AND PAPER



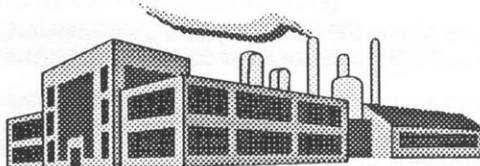
REFRACTORY



DOMESTIC AND  
INDUSTRIAL  
ABSORBANT



LIGHTWEIGHT AGGREGATE  
IN CONCRETE AND PLASTER



MINE AND WASTE WATER TREATMENT

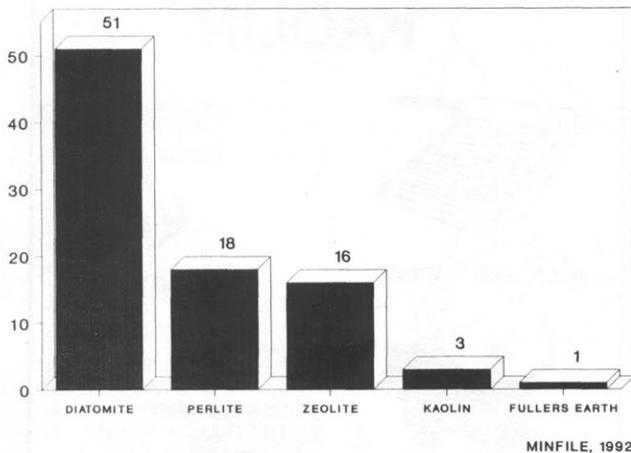
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## INVENTORY/RESOURCES

■ Upper Cretaceous and Tertiary volcano-sedimentary basins in British Columbia contain several important industrial minerals including: perlite, zeolite, diatomite, fullers earth, and kaolin.

■ There are 89 documented occurrences of these minerals in British Columbia.

## NUMBER OF OCCURRENCES



### PERLITE

■ Perlite deposits, restricted to volcanic belts of Tertiary to Quaternary age, occur in the British Columbia interior and on the Queen Charlotte Islands.

■ Perlite is hydrated volcanic glass of rhyolitic composition.

■ Tests on samples from several perlite occurrences in British Columbia indicate good expansion properties.

### ZEOLITE

■ Zeolitized beds of volcanic ash have been identified near Princeton, Cache Creek and Gang Ranch.

■ Zeolites are naturally occurring hydrated aluminum silicate minerals.

■ Zeolites from Princeton and Cache Creek have properties comparable to commercial products.

### KAOLIN

■ Residual kaolin deposits occur in the basement of Cretaceous sedimentary basins on Vancouver Island and in Paleocene/Eocene sedimentary basins in the interior.

■ Kaolin is most commonly found as kaolin rich claystones and shales which are suitable for ceramics and the manufacture of bricks.

■ Fargo Resources has identified a residual kaolin deposit at Lang Bay north of Vancouver.

### DIATOMITE/FULLERS EARTH

■ Deposits of diatomite occur in Miocene sediments between Kamloops and Quesnel.

■ Diatomite is composed of the siliceous skeletons of unicellular marine plants and is used throughout the world in filtration and as special fillers, carriers and extenders.

■ There are numerous untested diatomite showings in British Columbia.

■ Fullers earth is found in Upper Cretaceous to Lower Tertiary basins in the central interior of British Columbia.

■ Fullers earth is composed of varying amounts of smectite, illite, montmorillonite and diatomaceous earth.

## PRODUCTION

■ Fullers earth is mined at Red Lake, northwest of Kamloops. The deposit is up to 37 metres thick over a 64.8 hectare area and contains up to 20 per cent diatomite. Intermittent production began in about 1984 and production for 1991 was estimated at 30,000 to 40,000 tonnes.

■ Western Industrial Clay Products Ltd. trucks the material from Red Lake to its processing plant in Kamloops, where it is used to produce a variety of industrial and domestic absorbants, such as pet litter.

■ A small quantity of diatomite from Quesnel is used to manufacture DIATHERM, a line of refractory bricks made by Clayburn Industries Ltd. of Abbotsford.

■ There is currently no production of perlite, zeolites or kaolin in British Columbia.

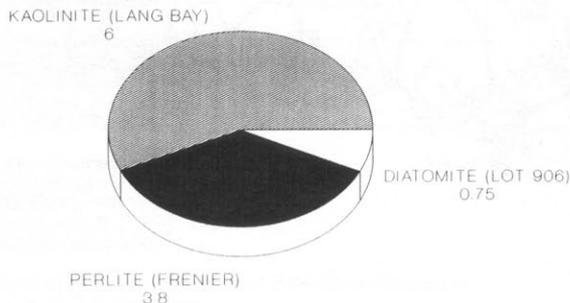
■ Six thousand tonnes of crude perlite was shipped from the Frenier deposit between 1983 and 1985.

## RESERVES

- Total reported reserves are 3.8 million tonnes of perlite, 6 million tonnes of kaolinite and 0.75 million tonnes of diatomite.
- Only a few of the identified sites in British Columbia have been explored.
- Drilling at the Lang Bay kaolinite deposit, east of Powell River, has outlined measured geological reserves of primary kaolin of approximately 6 million tonnes.
- The Frenier perlite deposit, northwest of Clinton, has inferred reserves of 3.8 million tonnes.
- Other interesting perlite prospects occur at Francois Lake, Uncha Lake, and Graham Island in the Queen Charlotte Islands.
- The deposit at Lot 906, near Quesnel, contains diatomite beds with variable amounts of clay, silt and volcanic ash. Proven and probable reserves total 750,000 tonnes of diatomaceous earth.
- The Buck Ridge diatomite prospect encompasses a number of separate but relatively closely spaced showings over a distance of about 6 kilometres along the west bank of the Fraser River.

## RESERVES

(IN MILLION TONNES, VARIABLE GRADES)



## MARKETS AND OPPORTUNITIES

### PERLITE

- A proven market of 5 000 tonnes per year of expanded perlite products exists in the Vancouver area.
- In expanded form, perlite is used mainly as insulating aggregate in plaster and concrete, as loose-fill insulation, in horticultural applications and as a filtering agent.
- Perlite from the Queen Charlotte Islands has excellent market potential along the entire Pacific coastline of Canada and the U.S.A.

### ZEOLITES

- British Columbia zeolites are being tested for use in mine and waste water treatment.
- The use of zeolites to increase the solubility of rock phosphate in fertilizers has recently been investigated.
- The porous structure of zeolites allows them to function well as molecular sieves and in cation exchange.
- Zeolites are also used in the following applications: construction industry as pozzolan; agriculture as soil conditioners, fertilizer regulators, deodorizers, and feed supplements; aquaculture in filtering systems; treatment of heavy metals and waste water; oxygen separation; solar energy storage; and domestic use as deodorizers and pet litter.

### KAOLIN

- In Canada, kaolins are a significant component in many industries but the pulp and paper industry is the largest single market area.
- The western North American papermaking industry uses about 300 000 tonnes of kaolin per year, all imported from the southeastern U.S.A. This demand could potentially be supplied by local sources.
- Lang Bay Resources is investigating the use of kaolin as filler in newsprint. Work to date has confirmed that it is feasible to improve the brightness of the Lang Bay kaolin to meet paper-filler specifications.

### DIATOMITE/FULLERS EARTH

- British Columbia has diatomite deposits similar to those developed in Oregon for filtration products.
- A quantity of diatomite, around 10 000 tonnes annually, could possibly be marketed from this area in the future. Demand would likely rise with population growth.
- DIATHERM insulating refractory bricks are exported to aluminum smelters overseas.
- Absorbant products from British Columbia are marketed throughout Western Canada.

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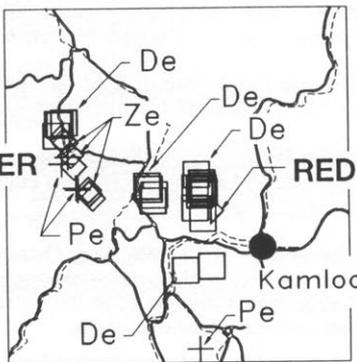
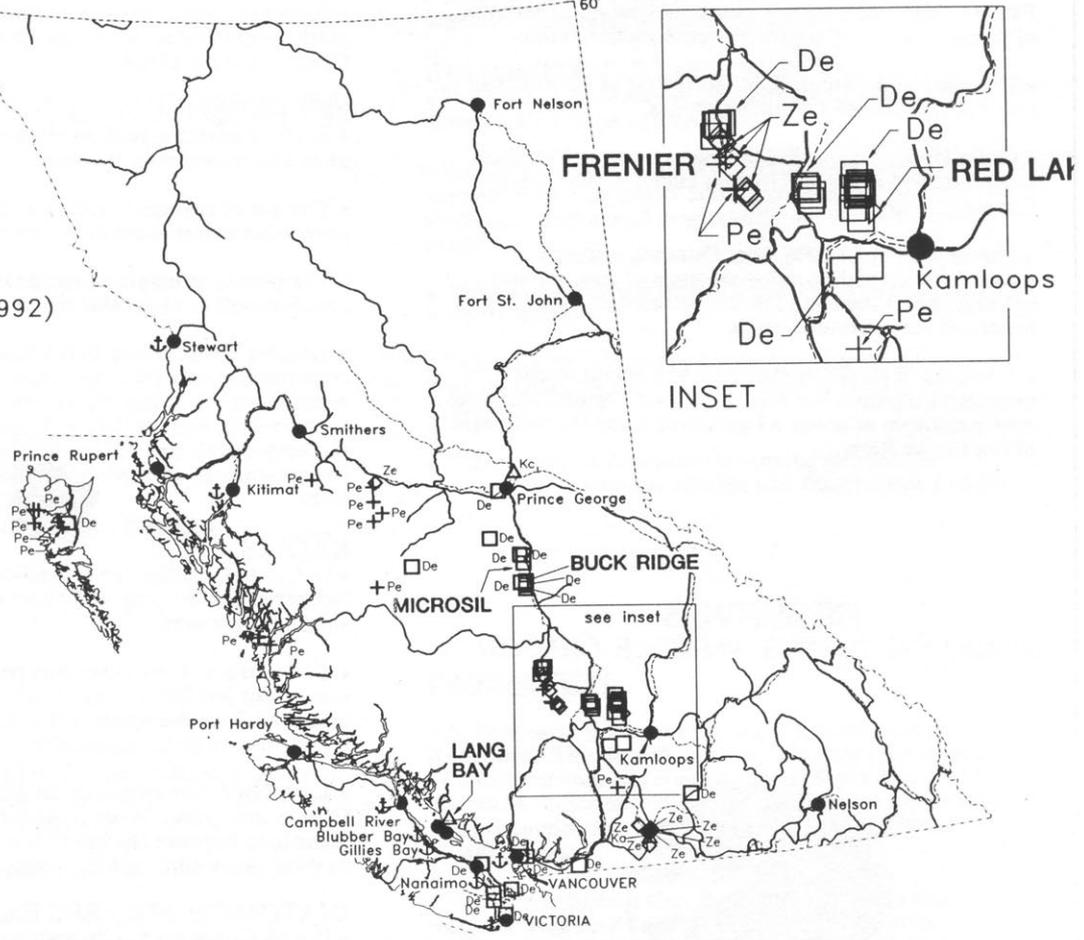
### OCCURRENCES

(FROM MINFILE, 1992)

- DIATOMITE
- △ KAOLINITE
- + PERLITE
- ◇ ZEOLITE
- ▷ FULLERS EARTH

### REFERENCE

- ⊠ MAJOR ROADS
- ▤ RAILWAYS
- MAJOR CITIES
- ⚓ MAJOR PORTS



INSET