NAZKO CINDER CONE AND A NEW PERLITE OCCURRENCE

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KEYWORDS: industrial minerals, Nazko cinder cone, Holocene volcanics, light-weight aggregate, lava rock, barbecue rock, volcanic glass, perlite

NAZKO CINDER CONE

Location: Lat. 52° 55' 45" Long. 123° 44' 00" 93G1/4. Cariboo Mining Division. Approximately 14 kilometres west of Nazko village, 75 kilometres west of Quesnel.

Access: Via the Michelle Creek forest service road and Baezaeko (Fishpot Lake) road.

Owner: Canada Pumice Corporation.

Operator: Canada Pumice Corporation

Commodities: Lightweight aggregate, lava rock, anti-skid sand, ornamental cinder aggregate.

GEOLOGY

The Nazko cinder cone is the most easterly volcanic centre in the Anahim volcanic belt. The edifice of this Holocene volcano is a product of three main volcanic events, one preglacial, one subglacial and one postglacial (Souther *et al*, 1987). The conical mound of the Nazko cone raises about 120 metres above the surrounding terrain and its circular base is approximately 1000 metres in diameter.

Two pyroclastic ejecta units comprise this composite cone (Figure 1). A conical mound some 100 metres high on the west side of the edifice is made of red basalt tuff-breccia. This unit predates the subaerial, crescent-shaped eastern rims of three craters and has been interpreted as of subglacial origin (Souther *et al*, 1987). Because of its attractive colour, material from this unit is of economic interest for a variety of granular cinder products.

A second unit forms much of the composite cone. It consists of fresh, black scoriaceous basalt tephra with irregular and round-shaped bombs up to 60 centimetres in diameter. On the surface, the black tephra weathers bright yellowish brown. A fine-grained member of this unit forms a gradually thinning eliptical blanket to the northeast of the cone. This blanket extends up to 8 kilometres east and northeast from the vents. According to Souther *et al.* (1987), the eruption which deposited the pyroclastic rocks of this second unit took place about 7200 years B.P. Material from this unit is also processed into general commercial products.

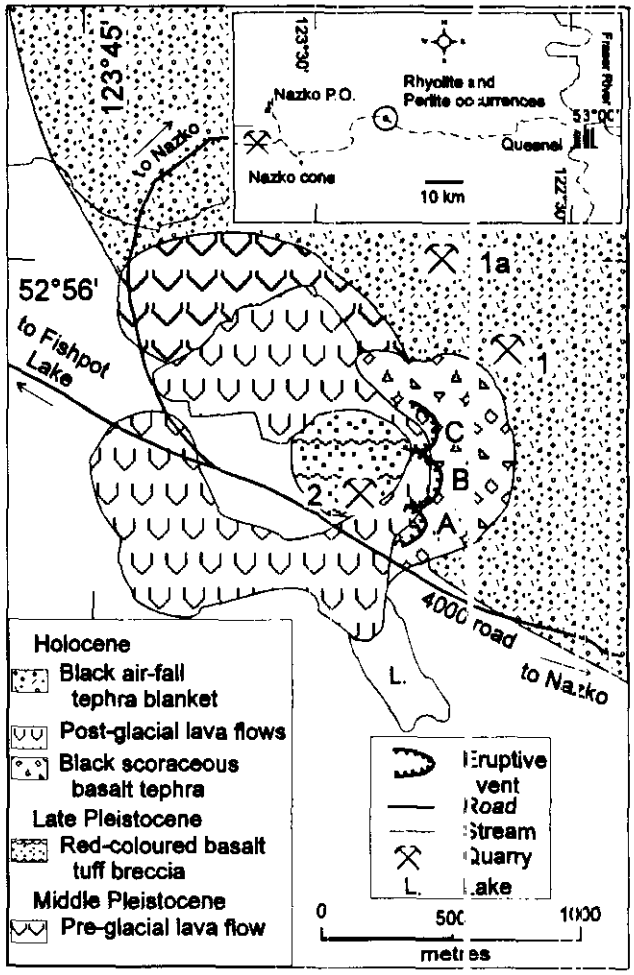

Figure 1. Location map and geology of the Nazko cone (after Souther *et al.*, 1987)

Two lava flows of different ages form part of the composite cone. A basal flow of subaerial basalt is exposed to the north. It predates the Wisconsinan glaciation and is extensively eroded. A K-Ar date of this basalt has been determined as 0.34±0.03 Ma.

The second flow unit comprises two separate lava streams that issued through narrow breaches on the west flank of the cone. These flows are a product of the same volcanic episode which resulted in accumulation of pyroclastics on the eastern flank of Nazko cone and the tephra blanket to the east.

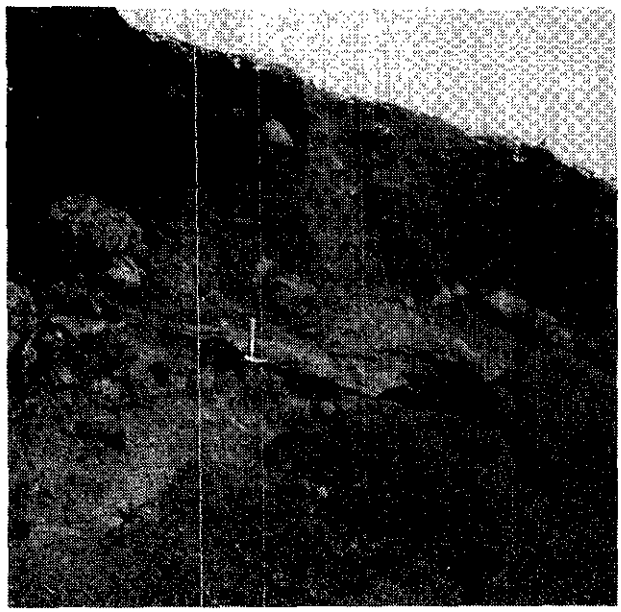

Photo 1. Unsorted nature of pyroclastic deposit. Black, scoriaceous basalt tephra, pit 1

Photo 2. View of pit 1a, opened in fine pyroclastic layer

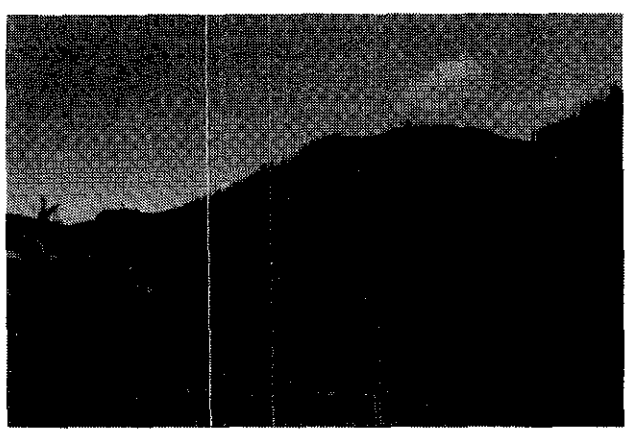

Photo 3. Subglacial mound of pyroclastic ejecta, source of the red cinder products

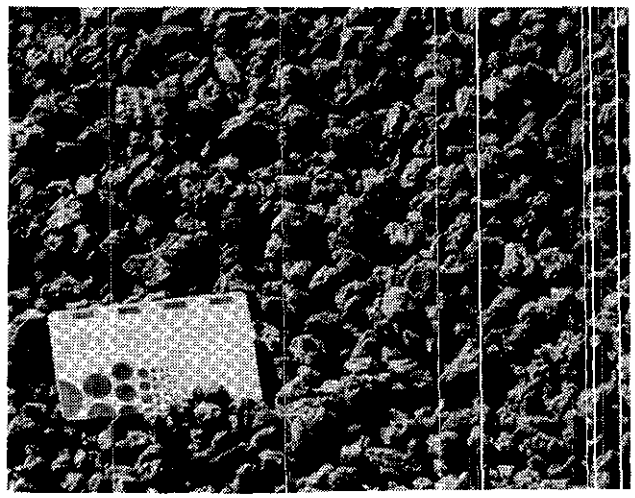

Photo 4. Sized red scoria - landscaping aggregate

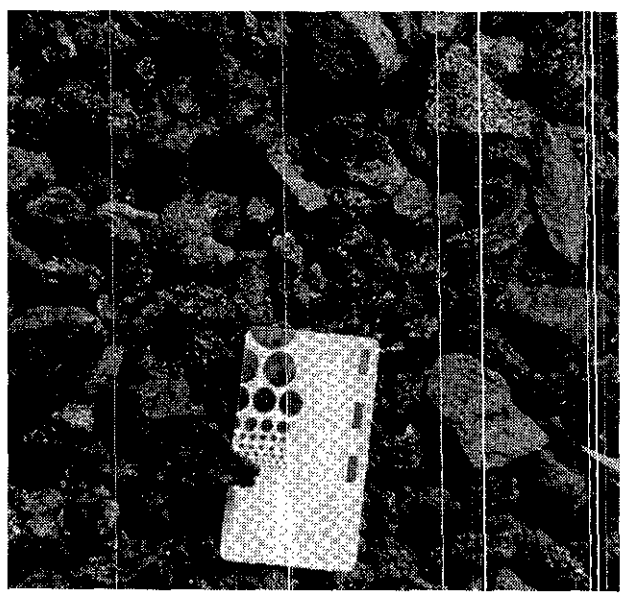

Photo 5. Sized black scoria - barbecue rock

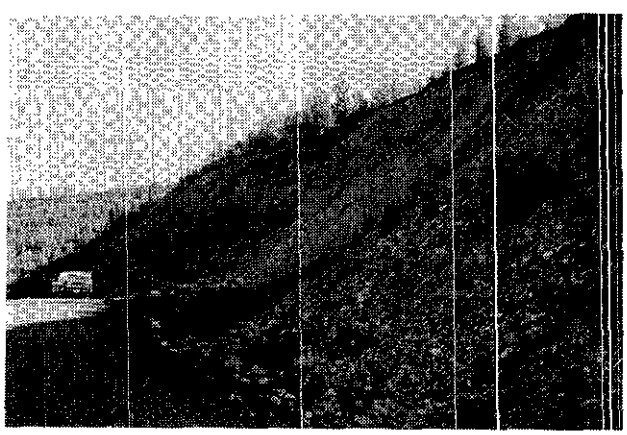

Photo 6. Glacial outwash face with abundant perlite boulders and cobbles.

PRODUCTION AND DEVELOPMENT

Canada Pumice Corporation has developed three production sites in the Nazko cone area. The first is a small pit at the north side of the toe of the volcanic mound (Photo 1). Because of a large number of volcanic bombs in the unsorted pyroclastic material, this source of black scoria is now abandoned and has been reclaimed. The company opened a new pit several hundred metres to the north, where there are no large bombs (Photo 2). On the south side of the Nazko cone, the company operates another pit as a source of red scoria (Photo 3).

Production equipment consists of a 2 by 3-metre, minus 10-centimetre grizzly, a Powerscreen double deck portable screen, a Cat 980B loader and a Cat D8 bulldozer. Typical production is about 115 cubic metres (150 cu. yards) per day with current annual production of 11 475 cubic metres (15 000 cu yard). Products are available in four screened sizes and also as oversize landscaping rocks. Most of the present production is used in decorative applications for landscaping (Photo 4), sand traps on golf courses and barbecue lava rock (Photo 5).

Other applications include anti-skid highway traction sand and light-weight aggregate. While both colours, black and red, are readily available, the greatest demand so far has been for red cinder products.

PERLITE

Location: Lat. 53° 01' 30" Long. 123° 12' 05" 93B/14. Cariboo Mining Division. Approximately 59 kilometres west of Quesnel.

Access: From Quesnel on Nazko road.

Commodities: Perlite, volcanic glass.

A previously unreported occurrence of perlite has been found during a cursory examination of large rhyolite outcrops and an adjacent bank of glacial outwash exposed in a cut on the road from Quesnel to Nazko (Photo 6).

While no bedrock outcrops containing volcanic glass are known in the area, abundant clasts of perlitic rock can be found throughout the outwash deposit. The large size of many of the perlite boulders (50 cm in diameter), low physical strength of the rock and proximity to a large exposure of Eocene rhyolites (Rouse and Mathews, 1988; Tipper, 1961), points to a nearby source most probably associated with the adjacent rhyolite outcrops.

The perlite rock is black to dark green, with microfractures resulting in platy, rod-like and isometric fragments. Four distinct types of volcanic glass were collected for expansion tests.

A sample of each of the four types was crushed to less than 1-centimetre size fragments, which were then placed under a propane torch flame for about 1 minute. All types expanded, increasing the volume of individual particles from approximately two to four times their original size.

The significance of this perlite occurrence is that it is the logistically best-located and accessible site in the British Columbia interior, and the authors believe that prospecting will locate the bedrock source of perlite rock in nearby Eocene rocks.

ACKNOWLEDGEMENTS

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REFERENCES

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