

Mine Development Assessment Process

MT. MEAGER PUMICE PROJECT

A report summarizing the reasons for the decision relating to the issuance of a Mine Development Certificate, outlining commitments and permit, licence and approval information requirements.

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Province of British Columbia
Ministry of Energy, Mines
and Petroleum Resources
Ministry of Environment,
Lands and Parks

1.0 PURPOSE OF REPORT

In July 1994, an application for a Mine Development Certificate (MDC) was submitted to the province's Mine Development Assessment Process by Great Pacific Pumice Inc. (Great Pacific) for the development of the Mt. Meager Pumice project.

The purpose of this report is to outline the reasons for the decision to issue a MDC to Great Pacific for this project. It also identifies the commitments made or agreed to by Great Pacific, and information requirements related to various permits, licences and approvals that will be required as project development proceeds.

This report is based on the comments provided by provincial and federal review participants on consultation with public and aboriginal groups, and on the documents submitted in support of the application for a MDC. Review participant comments are attached in Appendix A to this report.

2.0 MINE DEVELOPMENT ASSESSMENT PROCESS OVERVIEW

The Mine Development Assessment Process (MDAP) integrates environmental protection with economic development by facilitating technically sound and environmentally acceptable mining ventures in British Columbia. Under the Mine Development Assessment Act, the assessment process sponsors and implements a comprehensive procedure for project review and approval by providing a "one window" point of contact, early identification of issues, and public and Aboriginal consultation programs.

The MDAP consists of two phases: pre-application and application. To facilitate the preparation and review of an application, companies are expected to submit a prospectus in the pre-application phase. This document briefly describes the project, potential environmental and socio-economic impacts, and proposed public and aboriginal consultation programs. Based on a review of the prospectus, terms of reference are developed to assist the company in preparing its application. Applications contain a detailed plan of the proposed mine development, as well as a detailed assessment of the impacts and mitigation programs proposed to address issues raised in the prospectus review. A MDC is issued when all policy and technical issues have been identified and resolved, or are determined to be resolvable at the permitting stage. A MDC allows a mining company to proceed to the permitting phase, where it may apply for all the statutory licences, permits and approvals required as project development proceeds.

3.0 AREA HISTORY AND PROJECT DESCRIPTION

The pumice deposits and associated hot springs of the Upper Lillooet Valley, where the Mt. Meager project is located, have been known since at least 1910. During 1977 to 1983, significant geothermal exploration occurred in the Mt. Meager area by B.C. Hydro, including the construction of roads which now provide access to the current project, as well as a

comprehensive environmental inventory and assessment. From 1981 to 1984, the pumice deposit was quarried, then processed and trucked to Vancouver. Production ceased in 1984 with the wash-out of the B.C. Hydro bridge over the Lillooet River, and the lease was abandoned.

The current Mt. Meager project is located 65 km northwest of Pemberton, B.C. (Figure 1). The main pumice deposit is located on the southwest side of the Lillooet River. The pumice reserve identified for the Mt. Meager project comprises an area approximately 1300 m long and 180 m wide, with proven and probable reserves calculated to more than 3 million bank cubic m.

The current mine plan proposes to mine about 1.5 million cubic m over a mine life of at least 20 years. The pumice to be mined is inert, stable and slightly alkaline, and with a sulphur content of 0.028%, does not have a significant potential for acid generation.

The Mt. Meager project will be operated using conventional loading, dozing and haulage equipment. The pumice will be excavated and hauled from the quarry to the processing site during the late summer and fall. After initial stockpiling of the raw materials to assist in reducing the moisture content, the pumice will be crushed and screened, and trucked to an offsite storage area or directly to the customer.

4.0 REASONS FOR THE DECISION

Pursuant to section 2 of the Mine Development Assessment Act, Great Pacific's application for a MDC has been reviewed by provincial and federal government agencies, local governments, the public and local First Nations groups.

The Minister of Energy, Mines and Petroleum Resources, with the concurrence of the Minister of Environment, Lands and Parks, has determined that, based on the technical review of the application, the potential adverse environmental impacts that may be caused by the project can be managed through existing legislation and programs. Consequently, a MDC has been issued for the Mt. Meager Pumice project.

Great Pacific's application for a MDC consisted of the following documents:

- Application for a Mine Development Certificate for the Mt. Meager Pumice Project, July 1994, Great Pacific Pumice Inc.;
- Letter from M. Fisher (MDF Mining Consultants Ltd.) to V. Preto (Manager, Prospectors Assistance, Ministry of Energy, Mines and Petroleum Resources), Oct. 12, 1994; and
- Letter from M. Fisher to K. Johansen (Habitat Technical Officer, Department of Fisheries and Oceans), October 12, 1994.

economic impact assessment was not submitted as part of the review process. The company did provide an overview of the local economy as part of its prospectus/application.

The nearest community to the Mt. Meager project is Pemberton, located 75 km to the southeast. The population of the greater Pemberton area is 2,500, of which about 800 are First Nations people. The local economy is based on forestry and farming, with evolving recreational services. Great Pacific has made a commitment to work with local groups to ensure that the project contributes positively to the community. This includes the hiring of suitably qualified local workers and the acquisition of local goods and services.

The province accepts the company's assurance that it will, to the fullest extent possible, obtain its work force, and goods and services locally.

4.3 Management of Impacts at the Minesite

The following agencies provided written review comments on the project:

- Ministry of Forests;
- Ministry of Environment, Lands and Parks;
- Ministry of Small Business, Tourism and Culture;
- Ministry of Energy, Mines and Petroleum Resources; and
- Department of Fisheries and Oceans/Environment Canada.

The comments submitted by the above agencies on the company's application for a MDC focussed on the following strategic issues:

- information on geology and reserves;
- water management; and
- wildlife management.

4.3.1 Geological and Ore Reserves Information

The Bridge River Assemblage, within which the Mt. Meager deposit is located, consists of three primary lithologies (in order of deposition): airfall pumice; pyroclastic block and ash flow; and dacite lavas. The eruption which created this deposition is believed to have originated from the northeastern shoulder of Plinth Peak at an elevation of approximately 1500 metres.

The pumice deposit can be described as being composed of angular, well-sorted pumice clasts forming a matrix free, open framework. The pumice itself is light in colour, usually white to reddish/orange and fibrous in texture.

The pumice deposit is well known, and has been defined as being greater than two square kilometres in area on the south bank of the river. Visual observations of exposures in the existing quarry, cutbank and access roads; and limited thickness measurements support the presence of this significant deposit.

The area considered appropriate for reserve determination for the potential quarry site, comprises an area approximately 1300 metres in length by about 180 metres in width. Based on measurements taken in the field, the proven and probable reserves have been calculated to be more than 3 million bank cubic metres. With a maximum production of 50,000 tonnes per year, the company did not consider it practical or necessary to expend revenue on further thickness measurements outside of the area reviewed. Although it is not essential to the viability of the project, it is probable that the pumice deposit, as indicated by the Geological Survey of Canada, could potentially contain more than 20 million tonnes.

The Mt. Meager mine shows the reserves accessible to this project are about 1,500,000 cubic metres. In the very unlikely event that unusual localised thinning of the pumice occurs, and additional reserves are needed, access to additional areas of pumice to the east of the existing quarry will ensure the sustained viability of the project.

The company was requested to provide more specific information with regard to the dimensions, interval nature and bulk density of the deposit to better support calculations of what constitutes a mineable reserve. The company's geotechnical consultant responded in a letter dated October 12, 1994, to V. Preto providing clarification on the following:

- how the deposit thickness' were measured, and by whom;
- how much of the mineable pumice is proven and how much is probable; and
- what the specific gravity of the material to be mined is.

The information satisfactorily addressed the points raised by review agencies.

4.3.2 Water Management

The pumice deposit is a source of significant silt deposition in the Lillooet River. Continual sloughing and failures of the existing cutbank deposit pumice materials at base of the cutbank. During spring runoff, or other high water periods, this material is scoured by the fast flowing river and carried downstream.

The pumice is inherently inert, consisting mainly of silica and alumina, with small quantities of calcium, magnesium, iron and potassium, but the effects of such large volumes being carried downstream are visually detrimental. The company states that a positive side effect of the proposed mine plan is that, as the lower benches of the quarry are mined, some of the pumice that presently erodes and falls down towards the river will be mined and, as a result, will reduce the annual sediment load in the river.

The pumice, due to its structure and composition, is very porous, such that water is readily absorbed into the ground. The pumice body also acts like a filtration system to trap and filter out the smaller particles of suspended solids in the water. If running water were to occur in the quarry site, any suspended solids being carried by this flowing water would be pumice.