Mineral Inventory Studies on Cape Breton Island, 2005

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Industrial mineral occurrences were the focus of the Cape Breton Island Mineral Inventory Project in 2005. Metallic mineral occurrence records for most of Cape Breton Island were completed prior to 2004, but recently released assessment files are reviewed on a regular basis, and any new mineral occurrence data found in them are compiled and added to the database.

In the summer and fall of 2005, site visits were made to the west zone of the Glendale carbonate deposit, the Graham River sandstone deposit and the Eden clay deposit. A new Cu-Fe occurrence was also investigated in a road cut located along the Point Tupper Industrial Park access road.

Community Economic Development and outreach activities became a significant component of the Cape Breton Mineral Inventory Project this year. Since 2000, DNR has been working with the Strait-Highlands Regional Development Agency (SHRDA) and the Nova Scotia Office of Economic Development (OED) to define and promote development opportunities for the industrial mineral resources of Cape Breton Island. A resource evaluation study of the Kennedys Big Brook (River Denys) red marble deposit was the first joint venture. It culminated in the development of the MacLeod Resources Marble Quarry, an operation which has shipped Cape Breton stone as far away as Russia. This operation is expected to reach a point of economic sustainability in 2006. We anticipate future quarry development by this company as it expands its operation to obtain new stone types for its growing markets. The Mineral Occurrences Database contains information on stone deposits located throughout the province. These resources could be developed in the future as new or existing companies expand their operations to meet the growing consumer demand for natural stone products.

The MacLeod Resources model was used to identify new activities for joint ventures in 2005. Detailed mineral resource assessments were undertaken on the Eden clay and Graham River sandstone deposits. A summary of results for these two studies are provided below.

Eden Clay Deposit

Study pf the Eden clay deposit continued in 2005. Details of how the project was developed and a geological description are discussed in a previous report (DeMont, 2005). Trenching and diamond-drilling surveys were completed in December 2005. This work helped to define the overall thickness of the clay unit, and to expand considerably the potential clay resource available in this deposit. Samples collected are currently being analyzed. Once the report is written, the Geological Services Division will work with SHRDA and OED to market the deposit to private sector investors and developers. The clay is suitable for use as a capping or liner material for landfills, as well as a construction material for the manufacture of bricks and terra-cotta tiles.

Graham River Sandstone

A red sandstone deposit suitable for the production of high-quality dimension stone was first identified at this site in the early 1900s. Unfortunately the location where blocks were extracted for local use is found along the bank of the river, in a position which is not accessible for quarry development. The only opportunity for quarrying lies in tracing the sandstone units along strike from the river bank exposures. Due to land owner concerns regarding development of the southern section of the deposit, the studies focused on the area located north of the river.

An excavator trenching survey was completed on the north side of Graham River, on property owned by Stora Forest Products. The trenches revealed a thick glacial deposit on top of the sandstone. The trenching survey was terminated without encountering bedrock. While this poses a

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problem for development, it may not be an insurmountable one, because the glacial deposit has potential for development as a source of aggregate for local road construction. Removal of this surface material would allow access to the underlying sandstone.

Funding for the project was not confirmed until December 2005, a time when weather conditions place constraints on the positioning of trenches. After the 2005 survey wrapped up a location for new trenches was identified south of the 2005 trenches, in an area of exposed sandstone bedrock. This site will be tested during the dry season of 2006.

Other Activities

In 2005, communities around Nova Scotia worked to prepare asset mapping documents. The data collected during this exercise will be used to define future economic opportunities, as well as barriers to community development. The communities of Judique, Cheticamp and Isle Madame requested and received assistance from the Geological Services Division in defining mineral resource potential in their respective study areas. Documents prepared by the author also included information on geological hazards which might pose problems for future community development. The reports were well received by the communities and incorporated into their asset mapping databases. The task of preparing these reports was assigned to the author because the Mineral Occurrences Database contains much of the information required to prepare the documents. Other tools used were bedrock and surficial geological maps, and DNR geophysical and geochemical databases. The division's GIS databases facilitated analyses of data required to prepare the discussion documents. The division has recently received another request for an asset mapping report from Victoria County. This document will be prepared early in 2006.

Tourism, while often seen to be in direct competition with mineral resource development, can benefit greatly by using geology as a tool to enhance the tourism experience in Nova Scotia. This new opportunity was pursued in 2005 by the author, on behalf of the Geological Services Division. Peggy's Cove is adding an education component, in the form of panels and brochures, to enhance the tourism experience at what is often referred to as Nova Scotia's "flagship" tourism site. Geologists of the Geological Services Division and Nova Scotia Museum of Science worked as a team to provide technical support to the writer of the geological panels. We hope this will open the door to new partnerships with other tourism groups in the future. One such opportunity has already appeared on the horizon. The community group that arranged for construction of the education panels and gazebo at the Canso Causeway site has expressed interest in having a panel or two describing the geology of Porcupine Mountain and the deep water aggregate operation added to the existing display.

Reference

DeMont, G. J. 2005: Mineral inventory studies in Cape Breton Island; *in* Mineral Resources Branch, Report of Activities 2004; Nova Scotia Department of Natural Resources, Report ME 2005-1, p. 1-2.