

Mineral Resource Land-use Information and Policy

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The Land-use Group consists of a senior planner and a land-use geologist who provide the Minerals and Energy Branch with information, policy and planning services that relate to mineral resources. The Land-use Group provides a link between the provincial government's interests in geoscience and the public's need for information on geology and mineral resources. Policy and regulatory analyses are conducted on land use, resource and environmental planning, and development initiatives that have the potential to affect mineral exploration and development. Principal clients include stakeholders interested in the use of land and resources, such as resource departments, municipal units, community economic development agencies, other non-government organizations and landowners. Activities in 1999 were undertaken in the following areas: (1) information services, (2) mapping and database development, (3) integrated resource management (IRM), (4) policy, assessments and review, (5) committees and administrative functions and (6) initiatives.

Information Services

The group provided clients with information on mineral resources, mineral use, mineral potential, land use, IRM and reclamation through maps, reports and digital products, using a geographic information system (GIS). The range of information services provided can be grouped into general inquiries, presentations and conferences, and promotional initiatives.

General Inquiries

A wide range of requests for information were received from the public, industry and government. Inquiries included issues such as acid drainage from abandoned pits and quarries, aquifer and flood-risk mapping, watershed mapping, land ownership status for prospectors, as well as geological information for community economic development, pipeline corridor planning, community water supply areas and industrial development.

Presentations and Conferences

In 1999, staff of the Land-use Group delivered two papers at conferences. One paper was presented in October to the GIS/GPS Conference held in Sydney, Nova Scotia, at

the University College of Cape Breton entitled "Integrating Mineral Resources and Community Economic Development". The second paper, entitled "Mining, Land Use and Reclamation" was delivered as part of the technical program for the branch conference *Mining Matters for Nova Scotia '99* in November.

Four conferences were attended by members of the Land-use Group, including the annual Canadian Land Reclamation Association (CLRA) Conference, held in Saskatoon. CLRA is a national organization associated with the American Society for Surface Mining Reclamation. Several presentations focused on mining-related projects, including a program for managing abandoned aggregate properties and community involvement programs in mine-site reclamation. Land-use geologist F. J. Bonner became a member of the CLRA Executive in 1999.

An intergovernmental conference on Crown Land-use Planning and a forum on Private Land Stewardship were held in Ontario and attended by planner D. B. Hopper. These back-to-back events were hosted by the Ontario Ministry of Natural Resources and the Federal-Provincial Committee on Land Use. Presentations focused on the process used by the Province of Ontario to develop a land-use strategy for natural resource management on Crown lands. In addition, Ontario showcased their efforts in developing a network of private land stewardship initiatives. A 1999 report was prepared for the annual meeting of the Federal-Provincial Committee on Land Use profiling various land-use programs taking place in Nova Scotia.

Land-use staff attended sessions focused on environmental industries and community economic development using GIS and Internet technology, hosted by the Department of Finance. In addition, a poster presentation was made showing an example of a Mineral Resource Land Use (MRLU) map for the Atlantic Canada ESRI User's Conference, held in Dartmouth.

Promotional Initiatives

Articles were written for the Minerals and Energy Branch newsletter *Nova Scotia Minerals Update* on the subjects of land access, mineral resources and the protected areas agenda. Another article was prepared

for *Planning Developments* to inform the municipal planning community about the department's IRM process.

Mapping and Database Development

The Land-use Group prepares maps and database projects on themes that integrate minerals, geology and land-use planning. The largest project is a set of digital theme maps covering the province, at a scale of 1:50 000, called the "Mineral Resource Land-use Atlas". This is a compilation of digital, mineral-based inventories and other geologic information stored as thematic layers. For example, these layers show locations and distributions of mineral occurrences, sand and gravel deposits, coal seam traces, operating and abandoned mines, quarries and pits, old gold workings, drillholes, geomorphological features, geohazard indicators, mining leases and permits, and special land-use designations. This summer several datasets were added to bring the project closer to completion. These included pit and quarry locations, sand and gravel deposits, points of geological interest, areas with sinkholes or karst topography, Crown limestone areas, protected wilderness areas, surface petroleum shows, eskers, gold mining areas, public beaches, and designated underground gas storage areas.

In other mapping projects, three maps are being brought to completion. The Land Designation and Ownership map, at a scale of 1:500 000, was completed at year-end and planned for release early in the new year as Open File Map ME 2000-1. This map shows a range of land designations that either protect or limit their use for resource development activity. Two other maps are being finalized, including a "Mineral Heritage of Nova Scotia" map and one showing the distribution of land access throughout the province.

Integrated Resource Management

The need to integrate geological and mineral resource interests with other land-use and resource planning is clearly identified in the province's Mineral Policy, Nova Scotia's Sustainable Development Strategy and the department's Integrated Resource Management (IRM) process. This year the land-use staff continued to contribute to the IRM process by providing planning and process advice, and digital mapping support to the regional teams.

The land-use geologist worked with regional geologists in representing geological and mineral-based interests, and the senior planner continued to provide planning and process advice to the regional IRM teams and IRM-Land-use Committee, including work on the IRM framework document.

Policy, Assessments and Reviews

The Land-use Group reviews and advises on land-use matters and policy initiatives as they affect mineral and energy resources and related environmental issues. This involves monitoring, reviewing and advising on land, environmental and natural resource policy, planning and development initiatives. The objective is to ensure the protection of mineral resources, land access and mineral tenure for mineral exploration in Nova Scotia. Local land-use priorities, land access, tenure and environmental issues are also monitored and considered in mineral resource management, exploration, mining and reclamation programs. The group also participates in various intra- and inter-departmental land-use, environmental planning, and strategic development initiatives. This service includes reviews and commentary on environmental assessment documents as well as development initiatives conducted by other departments. This year the Land-use Group began to develop a policy on the use of mapping information generated by DNR that shows the extent of underground coal workings below urban areas. Preparatory work was also provided toward a public review of the mineral policy action plan.

Aquaculture licenses and leases continued to be reviewed and input to a database. These license and lease applications are monitored to prevent undue conflict between the aquaculture industry and mineral resource interests.

Several requests came from the provincial Department of Transportation and Public Works for mineral resource and geological information needed in new highway development projects. A route location process gathers key data to screen out constraints such as geological hazards and prevent conflicts with mineral resources, including current and potential activity. Each request was provided with resource mapping information including (1) the Sydney to St. Peter's Corridor, Cape Breton Regional Municipality; (2) the proposed new Highway 113 bypass, which will link Highways 102 and 103; (3) a road re-alignment in the Digby-Weymouth area; and (4) proposed twinning of a

section of Highway 101 between Ellershouse and Hortonville.

In addition, environmental assessment registration documents were reviewed, including the Thorburn Coal Development Project, the Maritimes and Northeast Pipeline (Halifax and Pt. Tupper laterals), and the Georgia Pacific Melford Gypsum Quarry project. Other reviews conducted involved the Department of Environment's Watershed Management Strategy and the Federal Government's initiative on Ocean Mining Regulations.

Committees and Administrative Functions

Participation on committees included work with the State of the Environment Report Committee (interdepartmental), the Restricted and Limited Land Use Database Committee (DNR), the Statement of Provincial Interest Mapping Committee (interdepartmental), the Miller Report Implementation Committee, the Information Technology Committee (DNR), and the Occupational Health and Safety Committee (DNR). The land-use geologist also coordinated the 1999 program for summer student employment.

1999 Initiatives

This year saw a greater focus on targeting community economic development agencies. Initial plans were discussed for organizing and presenting geological and mineral resource information to communities and local

businesses. The Western Valley Development Agency was approached first as it is the only Regional Development Agency with mineral resource management identified in their strategic plan. An outcome of this meeting was the possibility of preparing mineral resource information kits for Regional Development Agencies. These could be used as part of a marketing package to provide information on the geology, mineral resources and geotourism features of Regional Development Agency jurisdictions.

The Land-use Group also met with representatives of the Town of Springhill to discuss the potential for developing a community-based project aimed at reclaiming the town's coal "duff" waste banks.

A new project was initiated in 1999 with the goal of compiling an inventory of the existing digital maps of abandoned surface mines (including pits and quarries) to determine their potential and priority for reclamation. Preliminary work included the development of a framework, goals and objectives and strategic actions. Work began on pilot studies with a client, Halifax C&D Recycling Ltd., to reclaim "acid-producing slate pits". Slate is a common road building material. Some slate units contain a significant amount of sulphide minerals (mainly pyrrhotite and pyrite). When sulphide minerals are exposed to oxygen and water an acidic solution is produced which may severely affect aquatic life downstream (e.g. fish kills). Two sites were initially selected in Halifax County: a slate pit on the Old Guysborough Road owned by Kimberley Clark and a pit located within Dollar Lake Provincial Park. The proposal for both of these projects is to use a manufactured soil cover derived from clean construction waste for reclaiming and re-contouring the land.

