MINERAL INVENTORY PROJECT

G.J. Stapleton, J.L. Smith and T. Adams Mineral Deposits Section

ABSTRACT

The primary mandate of the Mineral Inventory Project is to document all geological and mineral resource information on the Province's mineral occurrences and to make the information available to the public. A secondary responsibility is in the area of land-use planning. Mineral Inventory personnel review all Provincial Government land-use applications and environmental assessment projects with the objective of minimizing their impact on the Province's documented mineral resources and areas of high mineral potential.

INTRODUCTION

The Mineral Inventory Project is the principal repository for geological information on the Province's mineral resources and is a two-part infobase consisting of the Mineral Occurrence Data System (MODS), which is a digital mineral occurrence database, and a collection of mineral occurrence maps (Stapleton *et al.*, 2000).

The MODS comprises summaries of data including; geological descriptions, mineralogy, deposit type, bibliography, work histories, resource and/or reserve statistics and analytical results on known mineral occurrences. It is an important mineral exploration and research tool that offers fast and easy access to mineral occurrence descriptions covering all of Newfoundland and Labrador. The main delivery point for the MODS data is the Geological Survey of Newfoundland and Labrador website (http://www.nr.gov.nl.ca/nr/mines/Geoscience/index.html). Clients are able to search the database using either the 'Mineral Deposit (MODS) Index Search Form' or 'Geoscience Atlas'.

MINERAL OCCURRENCE DATA SYSTEM (MODS)

MODS (ORACLE)

The MODS data are housed within the Oracle database management system; however, data entry is achieved using an application of Microsoft-Access database software (Stapleton *et al.*, 2005). Data are reviewed to ensure compliance with the MODS coding standards. Microsoft-Access connects to the Oracle database using object database connectivity technology. In addition to increasing the security of the MODS data, Oracle is the common database platform for all of the Geological Survey's databases, which enables efficient sharing of information between the databases. The MODS internet application is dynamically linked to the Oracle database, giving clients same-day access to updated information.

DELIVERY MECHANISMS

GeoScience OnLine

Most MODS users access the system *via* the internet from the Geological Survey's website. Detailed MODS data can be queried and viewed in a map environment in conjunction with other geoscientific datasets online, using the Geoscience Atlas map viewer.

MapInfoTM and ArcViewTM

Selected fields (Table 1) from the mineral occurrence database are available upon request in both MapInfoTM and ArcViewTM formats. MODS GIS datasets are also available for download from the Geoscience Atlas.

MINERAL OCCURRENCE MAPS

Mineral occurrence maps on geological bases have been published at 1:250 000 scale, and selected areas have been published at 1:50 000 and 1:100 000 scales. An industrial minerals map for insular Newfoundland, at 1:1 000 000 scale, on a coloured geological base, is also available. These maps provide the location, minerals present and status of each occurrence. Mineral occurrence locations are also plotted on 1:50 000-scale topographic maps and are available for viewing at the Geological Survey's offices in St. John's, NL.

Utmzone

UTM Zone

Depname	Usual name
Altname	Alternate name
Recid	Record ID number
Nmino	National mineral inventory number
Comname	Major commodity present
Modslabel	Symbol for major commodity present
Commods	Secondary commodities present
Deptype	Deposit type; coded genetic classification of
1 .1	deposit
Desc	Description of deposit type
Status	Indicating amount of work done and hence
	the amount of information available on a
	deposit
	Producer - Commodity is extracted for sale
	Developed Prospect - Reserves or
	demonstrated resources of the
	commodity can be calculated but the
	commodity has not yet been produced
	(<i>i.e.</i> , three dimensional data plus grade)
	Past Producer Dormant - The commodity is
	no longer produced, although there are
	known reserves or demonstrated
	resources
	Past Producer Exhausted - The commodity is
	no longer produced and there are no
	longer reserves or demonstrated
	resources
	Prospect - Two dimensional data and grade
	are available but not enough data to
	calculate reserves
	Showing - Mineralization exists in outcrop
	with little information known about its
	spatial extent. Assay data exists
	Indication - An indication of the existance of
	the commodity, <i>i.e.</i> , field observation,
	map symbol
Depchar	Deposit description
Geoprov	Geological province
Tectbelt	Tectonostratigraphic zone
Strunit	Stratigraphic unit
Stratigrap	Stratigraphic age of the host unit
Rocks	Rock type(s) associated with deposit
Trench	Trenching? y = trenching done
DDH	Number of drillholes into the deposit
Working	Type of mine workings
	Underground - u
	Open Pit or Quarry - o
	Underground and Open Pit - uo
Adit	Adit? $y = adit present$
Shaft	Shaft? $y = shaft present$
Utmeast	Easting coordinate
Utmnorth	Northing coordinate

 Table 1. Fields and field descriptions from MODS for GIS record

The Mineral Inventory Project has also published six, thematic mineral occurrence maps on geological bases, which are produced on demand. These are, Epigenetic Gold and Related Mineralization, Newfoundland; Copper and Associated Mineralization, Newfoundland; Zinc–Lead and Related Mineralization, Newfoundland; Mississippi Valley Type Lead–Zinc Mineralization, Newfoundland; Volcanogenic Massive Sulphide Deposits, Dunnage Zone, Newfoundland; and Metallic Mineral Occurrences of the Avalon Zone, Newfoundland.

All maps are available, upon request, from the Geological Survey's Geoscience Publications and Information Section.

MINERAL COMMODITIES SERIES PROJECT

Since the late 1990s, the Geological Survey has produced several 'Mineral Commodities Brochure' reports, which are short summaries of particular commodities with emphasis on their geological settings and exploration potential. The primary information base for developing such reports is the MODS and work continued in 2013 on three reports. These reports include barite, fluorite and molybdenum-tungsten-tin (a combined treatment).

The latest contribution on fluorite to the 'Mineral Commodities Series' was initiated in 2012 and completed in 2013. A report for barite was also initiated in 2012 and is currently in the publication process. These reports (Figure 3) provide a brief summation of fluorite and barite commodities within the Province, including their geological setting and production history. Use of the MODS served as a critical foundation in the creation of the reports and provided location data, and occurrence descriptions. Data downloaded from the MODS provided a basis for map construction showcasing significant occurrences of barite and fluorite in the Province.

The commodity series reports are intended to act as a bridge between summary information of a promotional nature and the detailed information that is accessable through MODS and in the Geofiles library

UPDATES

The main objective of the Mineral Inventory Project is to update information on existing mineral occurrences and to document new discoveries. During 2013, updates were implemented on a Province-wide basis by accessing mineral deposit information from mineral industry press releases and assessment reports as they gained public-domain status. NTS map areas 1L, 1M, 1N, 2C, 2D, 2E, 3D, 11O, 12A,



Figure 1. NTS areas updated, Newfoundland.

12B, 12G, 12H (Newfoundland) (Figure 1) and 13A, 13D, 13E, 13F, 13G, 13L, 23B, 23G, 23H, 23J and 23O (Labrador) (Figure 2) were updated, in part.

This update of the database provides the mineral exploration community with a more current, high-quality, on-line mineral deposit dataset that will help guide mineral explo-



Figure 2. NTS areas updated, Labrador.

ration efforts in the Province. The data generated by the Mineral Inventory Project will contribute toward longer term benefits evidenced by increased investment in the provincial mineral exploration and mining industries. In 2013, consistent delivery of new information through both the Online Query Form and the Geoscience Atlas continued with updates occurring on a 24-hour basis.



Figure 3. Barite/Fluorite Mineral Commodity Brochure covers.

LAND-USE PLANNING

The MODS is used daily by government geologists in land-use planning. Advice is given to various government

departments through the Interdepartmental Land Use Committee referral process and the Environmental Assessment registration process on establishing wilderness areas, hydro developments, provincial and national parks, cottage developments, water reservoirs, etc., so that, where possible, these developments proceed in areas of low mineral potential. In 2013, project personnel reviewed over 1200 land-use applications and over 50 environmental assessment registrations.

MODS USERS

The MODS is used by mineral-exploration company personnel and consultants, independent prospectors, personnel and students of academic organizations and the general public.

The MODS data are made available to various federal government agencies such as the Minerals and Metals Sector and the Geological Survey of Canada of Natural Resources Canada, and the Mineral Deposits Subgroup of the Canadian Geoscience Knowledge Network (Stapleton and Smith, 2004).

REFERENCES

Stapleton, G.J. and Smith, J.L.

2004: Mineral Occurrence Data System. *In* Current Research. Newfoundland Department of Mines and Energy, Geological Survey, Report 04-1, pages 265-267.

Stapleton, G.J., Smith, J.L. and Parsons, W.K. 2005: Mineral Occurrence Data System. *In* Current Research. Newfoundland and Labrador Department of Natural Resources, Geological Survey, Report 05-1, pages 253-256.

Stapleton, G., Smith, J.L., Pollock, J.C. and Way, B.C. 2000: Mineral Occurrence Data System. *In* Current Research. Newfoundland Department of Mines and Energy, Geological Survey, Report 2000-1, pages 341-348.