

FY 2008 NCGDPP FINAL TECHNICAL REPORT
Award No. 08HQGR0111

Virginia Geologic Information Catalog

Report Prepared By:

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Budget Period: 08/01/08 – 07/31/09

August 15, 2009

Abstract

The Virginia Division of Geology and Mineral Resources (DGMR) is responsible for creating, maintaining, and preserving information pertaining to the geology, mineral, and energy resources of Virginia, and for delivering this information in a timely and efficient manner. DGMR has developed a long range data preservation plan to help organize and manage all of its data collections and substantially improve the ability of staff and customers to search for and access key data sets. With the support of the U.S. Geological Survey (USGS) National Geological and Geophysical Data Preservation Program (NGGDPP), DGMR has begun to standardize and consolidate its geologic information into the Virginia Geologic Information Catalog and to create site-specific metadata. In FY 2008, with financial support from NGGDPP, DGMR added four high priority data collections with the associated metadata to the Virginia Geologic Information Catalog. A map-based interface to the Catalog, which remains in development, will enable DGMR staff and customers to conduct searches based on keywords and geographic coordinates. As a key deliverable, DGMR uploaded approximately 9,780 metadata records for these four priority data collections to the National Digital Catalog using the USGS web site <http://datapreservation.usgs.gov/>.

Introduction

As part of the Department of Mines, Minerals and Energy, the Division of Geology and Mineral Resources (DGMR) collects, maintains, and distributes information related to the geology, mineral and energy resources, and geologic hazards of Virginia. Our customers include the general public, schools and educational programs, mineral and energy production industries, construction industries, land use planning authorities, and local, state, and federal government agencies.

DGMR seeks to improve our customers' ability to locate and wisely develop or conserve rock, mineral, water, and energy resources. A key strategy to achieve this objective is to enhance the organization and accessibility of the geologic information contained in the DGMR archives. The archives comprise a variety of collections of geologic materials and data that vary in format, size, and complexity. The format of our published and unpublished map products that depict geologic, geophysical, geochemical, mineral and energy resources data includes hard copy media (paper, mylar, sepia, etc) and digital data. The collections also include historic photographs, rock thin sections, results of petrographic and microscopic analyses, geochemical laboratory results, reports on groundwater and mineral spring characteristics, historic and out-of-print publications, well logs, well cuttings, drill cores, and extensive collections of rock, mineral, and fossil specimens. These collections will continue to grow as DGMR gathers new data.

Supported by a FY 2007 Phase 1 grant from the U.S. Geological Survey (USGS) National Geological and Geophysical Data Preservation Program (NGGDPP), DGMR identified and characterized existing inventories of physical materials, maps and data sets. In FY 2008, and again supported by NGGDPP grant funds, DGMR began standardizing and consolidating high priority data collection inventories into a centralized system called the Virginia Geologic Information Catalog (VGIC). This catalog is expected to improve the ability to search for and access geologic information, and will also provide site-specific metadata through a web-based search tool.

FY 2008 Goals

In the proposal for FY 2008, DGMR outlined three primary goals for work to be completed. The goals and anticipated time lines were the following:

Task 1: Comprehensive VGIC database design for DGMR's data collections.

(August 1, 2008 – January 1, 2009)

- a. Establish database platform.
- b. Establish database fields, table structure, relationships, indices, and predefined queries and/or views.
- c. Develop user interfaces entry, querying and viewing
- d. Establish data quality standards.
- e. Establish sample collection site-specific metadata for each collection.

Task II. Implement database.

(January 1, 2009 – July 31, 2009)

- a. Populate the database using existing data sets.
- b. Test the database for proper data migration.
- c. Enter data for collections without existing digital data.
- d. Conduct quality assurance and quality control for the databases and sample collection site-specific metadata.

Task III: Upload metadata to the National Digital Catalog.

(by July 31, 2009)

Metadata records for four prioritized data collections to be uploaded to the USGS National Digital Catalog using the web portal <http://datapreservation.usgs.gov/>. Metadata records to be formatted to meet the National Catalog Metadata Product requirements.

FY 2008 Results

The VGIC was designed as a customized Microsoft SQL-Server database application by DMME programming support staff. Table structure, relationships, and other design criteria were established, together with user interface screens to allow data entry, querying, and reporting. The database is hosted on a DMME server currently located in the Big Stone Gap office. It is anticipated that the VGIC will be web-enabled to allow distribution and publication from the DMME web site at a future date.

The four data collections targeted for FY 2008 included: (1) an indexed database of DGMR publications, (2) database describing the contents of the rock repository, (3) database describing the contents of the conventional core repository, and (4) unpublished geologic maps database. These data collections were used to populate the VGIC and provide the means for initial performance testing. Quality control measures included systematic cross checking of all data records in the four collections, making corrections where necessary. Following is a brief summary of each of the four collections.

The **DGMR Publications Index** consists of a key worded database with information on DGMR's publications. This includes all formal publications as well as open file reports. The index will be very useful to DGMR staff and customers searching for information on specific geologic topics pertaining to Virginia. The database has over 950 entries and contains spatial information about each publication. Anticipated customers for this collection include citizens, consultants, university researchers, other government agencies, and industry. Quality control measures were completed to ensure that all entries were complete and accurate.

The **Rock Repository Collection** consists of over 7,500 rock hand samples collected across the Commonwealth of Virginia. The samples are stored in the Auxiliary Storage Facility (ASF) building adjacent to the Natural Resources building and were collected for reference during the course of geologic mapping and field studies. The overall condition of the collection is good, with the majority of the samples stored on permanent shelving and in stable, indexed sample boxes. This collection is available for study by scientists, citizens, government agencies, and by

industry. Quality control measures were completed to ensure complete and accurate information concerning the sample ID, location, unit, mineralogy, and other key attributes.

The **Conventional Core Collection** consists of approximately 137 drill cores, ~ 40,072 feet of core and the accompanying core logs for the majority of the holes. This core was drilled for mineral and fossil fuel exploration, geotechnical engineering work, and for environmental work. The core is stored in the ASF building adjacent to the Natural Resources building. The overall condition of the collection is good, with the majority of the core stored on permanent shelving and in stable core boxes. Quality control measures that were completed included verifying and correcting information about core hole locations, depths, units, core sizes, and other key attributes. Remaining tasks to be completed are the scanning of all geologic and other logs associated with this collection and establishing the permanent physical storage requirements of core that has not already been permanently archived.

The **Unpublished Geologic Map Collection** consists of field maps, compilation maps, field books, and other regional geologic maps that were produced during the course of geologic mapping and field studies at various scales, but have not been formally published by DGMR. The maps are primarily in paper format although there are documents on other media such as sepia, mylar, etc. Approximately 555 maps have been scanned and inventoried as part of DGMR's digital archive, yet an estimated two-thirds remain unexamined. This collection will continue to increase as field maps and field books are added. Some maps in this collection are irreplaceable because no other geologic map covers the area. The condition of this collection is considered satisfactory. Maps are stored in the Natural Resources building, and are of great interest to citizens, consultants, university researchers, other government agencies, and industry. Quality control measures were initiated during FY 2008, but not completed, and included the re-organization and verification of maps in proper storage files, assessment of map location information, and scanning. Work will continue on this data collection.

Metadata records were created using the guidelines provided in the USGS document, *Metadata Profile for the National Digital Catalog*. A total of 14,070 records were uploaded to the National Digital Catalog using the USGS web site portal <http://datapreservation.usgs.gov/>. These records appear to include duplicates, and work to eliminate these is presently in progress.

Figure 1 shows a screen shot of Virginia's NGGDPP collections in the USGS National Digital Catalog, and indicates the number of estimated records and the number of uploaded records for each of the four prioritized collections targeted during FY 2008. Due to formatting issues, metadata records for the DGMR Publications Index contain a number of duplicate entries. Once these records are consolidated, it is expected that the total number of metadata records provided for the four collections will be approximately 9,780.

CSC - Microsoft Internet Explorer

Address: <http://my.usgs.gov/cschnggdp/state/VA>

List View

Department of Mines, Minerals and Energy, Division of Mineral Resources (18 collections)

Search these Collections

Contact: Edward E Erb (edward.erb@dmme.virginia.gov) (434) 951-6350

Action	State	COLLECTIONID	Unique ID	Title-Description	# Estimated	# Loaded	Type	Category	Media	Link?
	VA	1089008	P1229	Collection of Hand samples from VA The Rock Repository Collection consists of over 7,500 rock hand samples collected across the Commonwealth of Virginia. The samples in this collection were collected for reference during the course of geologic mapping and field studies. This collection is available for study by scientists, citizens, government agencies, and by industry. Data Owner: Department of Mines, Minerals and Energy, Division of Mineral Resources - Edward E Erb (edward.erb@dmme.virginia.gov) Metadata Steward: Matthew Stanley (Matt.Stanley@dmme.virginia.gov)	7511	7712	Physical Geoscience	Hand samples	Physical	No
	VA	1088878	P1111	Collection of Paper reports from VA The DGM Publications Index consists of a keyworded database with information on DGM's publications. This includes all formal publications as well as open file reports. The index will be very useful to DGM staff and customers searching for information on specific geologic topics pertaining to Virginia. The database has over 950 entries and contains spatial information about each publication. This index will be added to the online web-based application for DGM's geologic data. Data Owner: Department of Mines, Minerals and Energy, Division of Mineral Resources - Edward E Erb (edward.erb@dmme.virginia.gov) Metadata Steward: Matthew Stanley (Matt.Stanley@dmme.virginia.gov)	946	5241	Derived and Indirect Geoscience Data	Paper reports	Digital	No
	VA	1553803	P1442	Collection of Maps from VA Data Owner: Department of Mines, Minerals and Energy, Division of Mineral Resources - Edward E Erb (edward.erb@dmme.virginia.gov) Metadata Steward: Matthew Stanley (Matt.Stanley@dmme.virginia.gov)	745	670	Derived and Indirect Geoscience Data	Maps	Paper	No
	VA	1087809	P637	Collection of Rock cores from VA The Division of Mineral Resources, conventional core collection consists of core from across the Commonwealth of Virginia. This collection is available for study and sampling by scientists, citizens, government agencies, and by industry. DMR maintains this collection to support the wise use of Virginia's resources by providing quality geologic and mineral resource information. The conventional core collection consists of ___ drill holes, ~ 40,072 feet of core and the accompanying core logs for the majority of the holes. This core was drilled for mineral and fossil fuel exploration, geotechnical engineering work, and for environmental work. The core is stored in ___ square foot section of the ASF building adjacent to the Natural Resources building. This facility does contain space for core examination and sampling. The conventional core collection is accessible Monday-Friday from 8 am to 4:30 pm, however, advance appointments are requested in order to insure staff availability for assistance. To make an appointment contact Amy Gilmer at (434) 951-6368. Data Owner: Department of Mines, Minerals and Energy, Division of Mineral Resources -	140	447	Physical Geoscience	Rock cores	Physical	No

FIGURE 1: FY 2008 Metadata Records for Virginia Collections in the USGS National Digital Catalog