

## **Final Technical Report**

**Project Title:** Creation of NNGDPP-compliant metadata for individual items in geological collections and data in Minnesota

**Prepared by:** Harvey Thorleifson ([thorleif@umn.edu](mailto:thorleif@umn.edu)) and Tim Wahl ([tewahl@umn.edu](mailto:tewahl@umn.edu)), Minnesota Geological Survey, 2642 University Ave W, St Paul, MN 55114-1057 USA

**Prepared for:** United States Geological Survey (USGS) National Geological and Geophysical Data Preservation Program (NNGDPP) under Award Number G09AP00055

**Date:** 8 November 2010

**Submitted to:** Grants Program Manager, Frances Pierce ([fpierce@usgs.gov](mailto:fpierce@usgs.gov)), cc: Contracting Officer, Margaret Eastman ([mrussell@usgs.gov](mailto:mrussell@usgs.gov))

### **Table of Contents**

- a) Abstract
- b) Introduction
- c) Purpose and Justification
- d) Description of accomplishments
- e) Planned future activity

(a) **Abstract:** In 2009, the USGS NNGDPP provided matching funds to support development of a catalog for individual samples within Minnesota Geological Survey (MGS) collections previously entered into the NNGDPP on-line survey. Metadata satisfying NNGDPP requirements were developed for priority uncatalogued or partially catalogued MGS physical collections, specifically field notebooks, hand samples, and thin sections. A commitment was made to catalog the portion of the collections for which location information was readily at hand. At the outset, it was anticipated that this would include all field notebooks, and about two-thirds of the MGS collection of hand samples and thin sections. During completion of the project, it was thought best to also catalog items for which location was not readily available, such that locations could be gradually added in coming years. A total of 322 field notebooks were cataloged, 237 of which could be georeferenced to an approximate project centroid. A total of 7870 thin sections were cataloged according to specimen identification. Of these, about 3900 could readily be given field locations at least to a project area. To facilitate the hand sample portion of the project, MGS undertook an unforeseen major effort to restructure the hand sample collection, including substantial revision of floor plans, relocation of cabinets, acquisition of shelving, and transfer of hundreds of containers of rocks to newly designed, and newly acquired containers optimized for the role. Having established this new arrangement, 823 trays of rocks were then cataloged according to project name, brief content descriptions, and shelf location. A total of 248 of these trays could be given a field location based on the project name. Future plans for the three collections discussed here, field notebooks, hand samples, and thin sections, now underway at a slow pace, will include completion of the individual item catalog for the hand samples, and gradual addition of additional field location and associated information for all three.

(b) **Introduction:** The Energy Policy Act of 2005 (Public Law 109-58, Sec. 351) established the NNGDPP in the U.S. Geological Survey (USGS) and outlined goals for the program to archive geological, geophysical, and engineering data, maps, well logs, and samples, to provide a national catalog of archived materials, and to provide technical and financial assistance to State geological surveys and relevant Department of the Interior (DOI) bureaus for archived materials (<http://datapreservation.usgs.gov/>).

In 2007, the program provided matching funds to Minnesota Geological Survey that permitted completion of an assessment of preservation needs, and a long-range plan, for geologic collections and data in Minnesota. In association with this project, nineteen collections were reported to the NNGDPP National Digital Catalog.

In 2009, NNGDPP provided matching funds to support the work reported on here, which involved development of a catalog for individual samples within collections previously entered into the on-line survey, including metadata satisfying NNGDPP requirements for uncatalogued or partially catalogued MGS physical collections. The collections that were cataloged to the extent possible in the circumstances included field notebooks, hand samples, and thin sections. In addition, the authors attended the 2009 NNGDPP meeting in Indiana with the support of the program.

(c) **Purpose and Justification:** MGS was established by the State as part of the University of Minnesota in 1872 to serve the needs of the people of Minnesota for systematic geoscience surveys required to ensure their prosperity, health, and security through stewardship of water, land, and mineral resources. The format of this mapping and research has evolved with the progress of science and technology, its use has been optimized through outreach, and MGS works closely with university, government, industry and community partners to ensure that these ongoing geological, geophysical, and geochemical surveys respond to the evolving needs of societal applications.

The collections of materials and data such as those discussed in this report are retained by MGS to support this institutional mission.

In the case of drill core and mineral exploration files, however, responsibility for these roles has been assigned to the Minnesota Department of Natural Resources, and MGS seeks to support DNR in this activity.

In the case of the state paleontological collection, responsibility for this role is held by the University of Minnesota Department of Geology and Geophysics, and MGS similarly has contributed materials and seeks to support the Department in this role.

(d) **Description of accomplishments:** The principal activity reported on here was development of catalogs, including metadata satisfying NNGDPP requirements, for uncatalogued or partially catalogued MGS physical collections, specifically field notebooks, hand samples, and thin sections.

In addition, Thorleifson and Wahl attended the July 2009 NNGDPP meeting in Indiana.

To accompany this digital Final Technical Report, required digital metadata have been satisfactorily submitted to the NNGDPP National Digital Catalog (NDC).

A commitment was made to catalog the portion of the collections for which location information was readily at hand. At the outset, it was anticipated that this would include all field notebooks, and about two-thirds of the MGS collection of hand samples and thin sections. This was found to be an optimistic expectation.

During completion of the project, it was thought best to also catalog items for which location was not readily available, such that locations could be gradually added in coming years. Those that had location readily available were given actual field locations, while those that did not were given the Minnesota Geological Survey building as a temporary location.

A total of 322 field notebooks were cataloged, benefiting from the previous excellent efforts of University of Minnesota Archives. A total of 237 of these notebooks could be georeferenced to a project centroid, using location names in the notebook title.

A total of 7870 thin sections were cataloged according to specimen identification, along with shelving information. Of these, 3900 could readily be given field locations.

To facilitate the hand sample portion of the project, MGS undertook a major effort to restructure the hand sample collection, including substantial revision of floor plans, acquisition of shelving and containers, and transfer of hundreds of containers of rocks to the new, optimized containers.

As a result, all trays of rocks, a total of 823, were cataloged according to project name, brief content descriptions, and shelf location. A total of 248 of these trays could be given a field location based on the project name.

As anticipated, many of the hand samples and thin sections could only be located to a quadrangle, project area, or county, and the location is the centroid of the specified area.

The metadata files were submitted to the National Digital Catalog portal. It will be the intention of MGS to augment the files with new data on perhaps an annual basis, with appropriate attention to specification of versions, and to submit the annual updates to the national catalog according to the requirements of the day.

This activity contributed significantly to the previously submitted long-range data-preservation plan that was meant to ensure that worthy geological collections and databases will be preserved and accessible for appropriate use.

(e) **Planned future activity:** Future activity on the collections discussed here will include completion of an individual item catalog for the hand samples, and gradual addition of additional field locations for the three collections discussed here. The cataloging of individual items in the hand sample collection has now progressed to tray 34 out of a total of 823. Much effort remains on linking the hand samples to the thin sections, and adding location and other field metadata.