Award Number G12AP20128

National Geological and Geophysical Data Preservation Program

Preservation of Geologic Data and Collections in Illinois: Compilation, Documentation and Planning

Final Technical Report

Fiscal Year 2012

8/15/2012-8/14/2013

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September 27, 2013

Abstract

This report summarizes the work performed for the Illinois State Geological Survey FY12 NGGDPP project:

- Metadata records were created for 3 collections: Field Notes, Lead-Zinc District Boring Logs, and Well Records.
- We scanned our “Printed” Field Notes, and expanded the project to include the much larger “Original” Field Notes collection as well.
- As part of the Well Records project, we assembled, organized, and documented the historic George Otto collection of borehole records.
- Existing metadata records for other non-static collections were updated.
- All new or modified metadata records were uploaded to the NGGDPP National Catalog.

We believe the collection metadata generated and uploaded for this project represents an appropriate and successful use of the resources provided under the project contract.

Collections Processed in FY12

The following collections were processed for FY12. Student hourlies were used to perform most tasks, including pre-processing/organization, scanning, and data entry.

Field Notes: “Printed” Collection and “Original” collection

The ISGS field notes collection contains information that survey scientists have recorded for over 120 years. Field notes provide an account of geologic information for specific sites without the need to visit the sites personally. They provide background and a starting point for research, often for sites that are no longer accessible. This information is invaluable for geological mapping, mineral resource evaluation, paleontological research, and environmental assessment.

This project year we proposed to scan our “printed” field notes, these notes were created circa 1980-2005. The start of this period coincided with the discontinuance of formal manual typing support for notes, as well as with the dawn of the personal computer era. While these notes were originally entered into various PC word processing systems and computer files for subsequent printing, virtually none of these computer files have survived the many iterations of computers, software, and storage formats over the years.

We scanned the printed paper notes into PDF files. Where feasible for these volumes, we scanned and georeferenced the corresponding field maps, spotting each marked location in GIS in order to create a geodatabase of precise coordinates corresponding to notes. Other locations were entered into a database using PLSS township, range, section, and quarters, and subsequently converted to coordinates. These locations, along with volume and page number facilitate lookup of the note referencing a specific point.

The “printed” field notes are an approximately 50 volume subset of our “original” field notes collection. We decided to expand scanning to cover all the “original” field notes that had not been covered by the “typed” subset, which we processed the previous fiscal year. These “original” field notes volumes, numbering over 300, were more challenging and time consuming to scan than the “printed” notes. In most cases they are the original handwritten notebooks as recorded by geologists in the field (some over a century old), in numerous sizes, shapes, and types of bindings (many permanent). After scanning, the locations covered by each volume were captured in a database.

In total 384 Field Notes volumes with 43,134 pages were scanned, and 11,586 metadata records corresponding to specific locations or general localities were uploaded to NGGDPP.

Lead-Zinc District Boring Logs

The lead-zinc district of northwestern Illinois continues to draw attention for both the history of mining in the area and for being a possible source of lead in the local groundwater system. The large amount of drill data obtained from many decades of mining in the area will expand our existing database on the geology and distribution of ore minerals. The data could also be used to delineate possible relationships that might exist between ore deposits and/or mining and lead contamination of the local groundwater system.

We scanned detailed typed logs created in the 1950's +/- by the Industrial Minerals section. These boreholes were drilled by mining companies and have very detailed information, including metal estimates and in many cases actual assay data, with precise locations. For each log, we entered formations/depths and Lead, Zinc and Iron data into our Wells and Borings database. For various reasons a small percentage of the boreholes had partial data entered into the database over the years, so each borehole required careful cross-checking to avoid duplication of the primary "header" record. A total of 20 logbooks of 9,654 pages were scanned and 2,547 new metadata records representing borehole logs and mineral data were uploaded to NGGDPP.

Historic Well Boring Records (General)

The ISGS is the state repository for well boring records, which arrive in paper format. New paper records have been entered into our database since the 1980's; these records are discoverable and available to researchers and the public on our website. However, due to lack of resources many older non-oil (mostly water well) boring records have never been entered into the database and thus are not available to researchers or the public unless they come to our records facility and manually search the paper files.

We entered basic well data and driller's logs for 13,874 water wells into our Wells and Borings database and uploaded corresponding metadata records to NGGDPP.

Historic Well Boring Records (George Otto Collection)

In the 1940's and 1950's ISGS geologist George Otto assembled substantial boring data for the greater Chicago area. This data was never properly curated and consisted of several disorganized boxes of folders, logs, maps, and other records. We assembled, organized, and documented this collection, this included searching for and locating additional items. A new collection was created in the NGGDPP database.

Updates to Existing Metadata

In addition to the collections previously described, the following collections were updated to include new data and data revisions (static collections were not updated). With these updates, all of our collections with metadata in the National Catalog are current as of September 2013.

- Rock Cores
- Rock Cuttings
- Thin Sections

Comparison of Proposal Goals with Project Accomplishments

Field Notes: “Printed” Collection and “Original” Collection

Goals: scan and enter metadata for the “printed” field notes, a set of mostly computer-printed field notes in about 50 volumes, generated from about 1980 to about 2005 in varying formats and page sizes.

Results: We completed scanning and data entry for the “printed” collection, and expanded the project to include the remainder of the “original” field notes that had not been covered by a previous project. In all 384 volumes totaling 43,134 pages were scanned. 11,586 metadata records corresponding to the locations covered by the volumes were uploaded to NGGDPP.

Lead-Zinc District Boring Logs

Goals: Scan 15 logbooks, enter location, driller’s logs / formations, geochemical analysis, and other pertinent information into our Wells and Borings database.

Results: We completed scanning and data entry for all boreholes in the 15 logbooks. In addition we processed boreholes in 5 additional volumes that were discovered after the project started. A total of 20 volumes and 9,654 pages were scanned, and 2,547 metadata records corresponding to the boreholes were uploaded.

Historic Well Boring Records (General)

Goals: Systematically search for and enter missing paper log data into the Wells and Borings database. This involves going through our paper indexes, looking up paper records for wells that do not have database information and entering the information. This is an extensive multi-year task for part-time students, which we are prioritizing by counties where we see the most near-term benefit.

Results: We entered basic well data and driller’s logs for 13,874 water wells into our Wells and Borings database and uploaded 13,874 metadata records corresponding to these well locations to NGGDPP. We are continuing this effort in FY2013.

Historic Well Boring Records (George Otto Collection)

Goals: Organize and inventory this collection to help us determine the best course of action for utilizing and preserving this collection. If time allows, consider scanning and/or entering data.

Results: We retrieved, assembled, organized, and documented this collection. Time and resources did not allow further work in this fiscal year, primarily because we decided to

expand the work in the Field Notes collection instead. In addition, after retrieval and review of all items, the scope of the project turned out to be larger than originally estimated, with over 5,000 items compared with original estimates of <1,000.

Summary of FY12 metadata record goals versus actual:

Metadata Records		
Collection Name	**Estimated**	**Created and Uploaded**
Field Notes	~ 5,000	11,586
Lead-Zinc District Boring Logs	~ 3,000	2,547
Historic Well Boring Records (General)	~5,000-15,000	13,874
Historic Well Boring Records (Optional)	<1,000/TBD	n/a

Conclusion

We believe the collection metadata generated and uploaded for this project represents an appropriate and successful use of the resources provided under the project contract.