FY 2011 NGGDPP Final Report

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Name of the State Geological Survey:	**Indiana Geological Survey**
Project Title:	**Indiana Data Preservation Program 2011**
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Abstract

The Indiana Geological Survey (IGS) proposes to create metadata for individual geochemical physical samples and to preserve about 8,000 sediment samples of the remaining 55,000 samples. The geochemical processed samples will be linked to data records and metadata will be created.

The geochemistry carbonate collection dates back to the mid-1940s and is housed in two locations within the IGS. A geochemistry database will be built to store carbonate chemical analysis. These data are in a series of spreadsheets in various formats and use a variety of taxonomies. Each spreadsheet will be modified to predetermined standards and imported into a Microsoft Access database. A Web-based interface will be developed for internal use and will be released to the public when at least 50 percent of the available records has been processed and tested through internal use. Metadata will be produced, and an XML application will be built to transform the metadata into the required U.S. Geological Survey National Digital Catalog (NDC) format.

The IGS identified approximately 55,000 sediment samples that still need to be preserved. Of those, we propose to begin with 8,000 sediment samples that will be preserved by bagging, labeling, and placing in core boxes. The samples are currently stored in open paper cups in an un-weatherized, deteriorating off-site building. Moisture is damaging the integrity of the paper cups and the samples are being contaminated by insect and rodent droppings. A number of the cups have spilled, rendering the samples useless.

Our preservation efforts will produce inventory records that will be entered into the USGS NDC and into internal inventories of IGS data collections to provide greater access to and an enhanced understanding of the materials held in the collections.

Data Preservation

Grant Objective 2 – This grant period was used to perform a final check on the physical geochemistry samples. The chip samples were processed into 4-ounce jars, stored in core boxes, and archived in the Physical Testing Facility building. The powder samples were stored in 1-ounce or 4-ounce jars, arranged alphabetically by scientist's name and then chronologically in museum ranges in the basement of the IGS main building. All individual jars were labeled and all containers housing the jars were labeled with a Quick Response (QR) code. There are a total of 80,286 samples in 238 containers. Each box or museum range drawer has a unique identifier that was entered into the IGS Materials Tracking Database.

After the IGS geochemistry section was closed, the scientists' documents were boxed and stored. At the time, we did not identify what materials were in digital format and which analysis results were rock, water, etc. When it was time to go through the analysis lab books the services of the retired IGS geochemists were not available due to downsizing and closure of that section. The one remaining IGS water geochemist was consulted and asked to assist by looking through the defunct section documents. The documents were divided into material analysis types, administrative documentation, and personal materials. Some of the rock analysis had been converted into digital format. Because of the various laboratory analysis methods used over time and the various lab technicians analyzing these data the data were difficult to decipher. Without well-informed staff to consult and to interpret the analysis, and to build a geochemistry analysis database, it was decided to bar code the original analyses books and record

in a spreadsheet the sample numbers. Twenty percent of the rock analyses were processed into the spreadsheet for this grant. The project will continue as time and staffing permits.

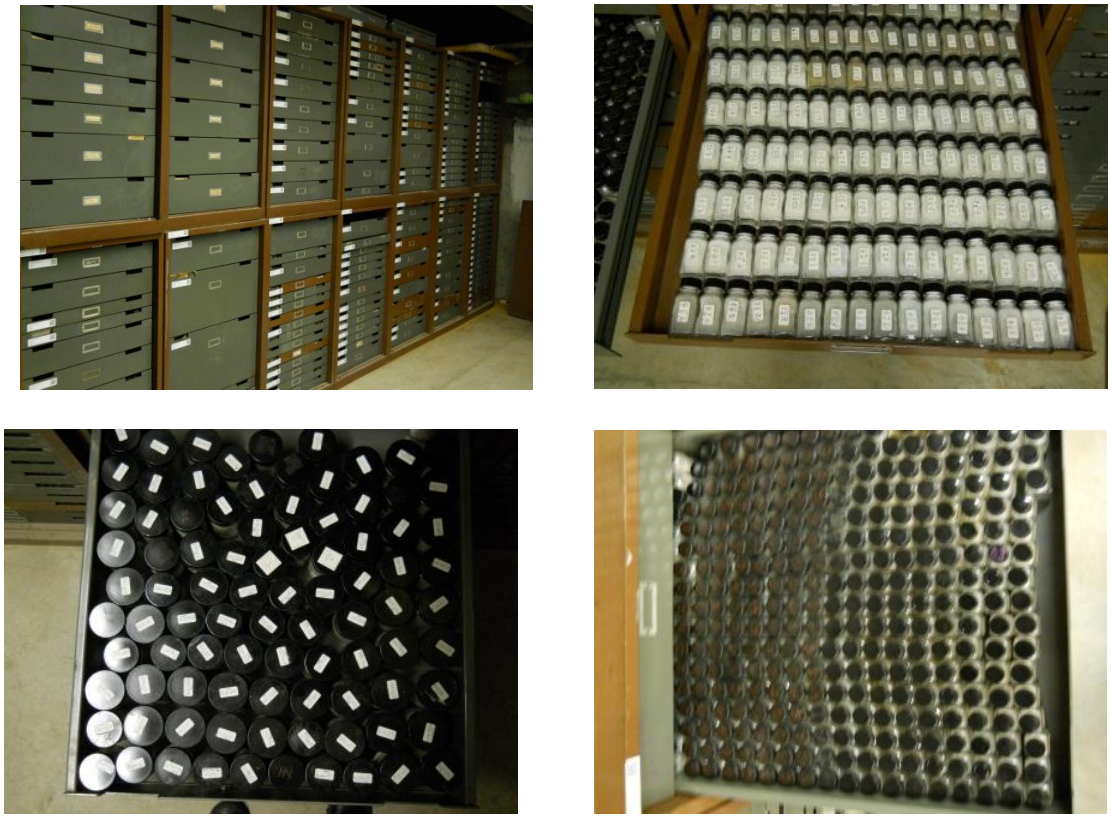

Figure 1. The photographs show the geochemistry powder sample jars stored in range-cabinet drawers and the stacked range-cabinets. Each jar is labeled, each drawer is labeled, and each range-cabinet is labeled.

Figure 2. The geochemistry chip samples are stored in labeled jars and the jars stored in shelved boxes. Each box is labeled with a QR code linked to the IGS Materials Tracking Database.

Grant Objective 4 – A total of 8,348 sediment samples were processed into 429 boxes that have been labeled with QR codes and entered into the IGS Materials Tracking Database and archived in the Ideal Laundry Building. This brings the total number of samples processed under NGGDPP grants to 14,443 located in 876 containers/core boxes. There is a concurrent spreadsheet being built as the samples are processed recording the log unique identifier, depth range, and driller's notes. The logs that have been archived have been noted in the gamma-log database. The gamma-log layer in the IndianaMap Website identifies the logs that have archived samples and can be viewed at http://maps.indiana.edu. Select the *Layers* button, and then select *Geology* and *Surficial Gamma Ray Logs*. In the dropdown window on the right hover over the layer name Surficial Gamma Ray Logs and click on *Browse*. Select a log ID number to see the attributes of that log and if archived samples are available.

Figure 3. Sediment samples collected during drilling are stored in labeled cups to dry. Afterward the sediments are moved to whirl bags, labeled, and stored in boxes. Each box is labeled with a QR code linking it to the IGS Materials Tracking Database and gamma-log database