

**Final Technical Report for FY2010  
National Geological and Geophysical Data Preservation Program**

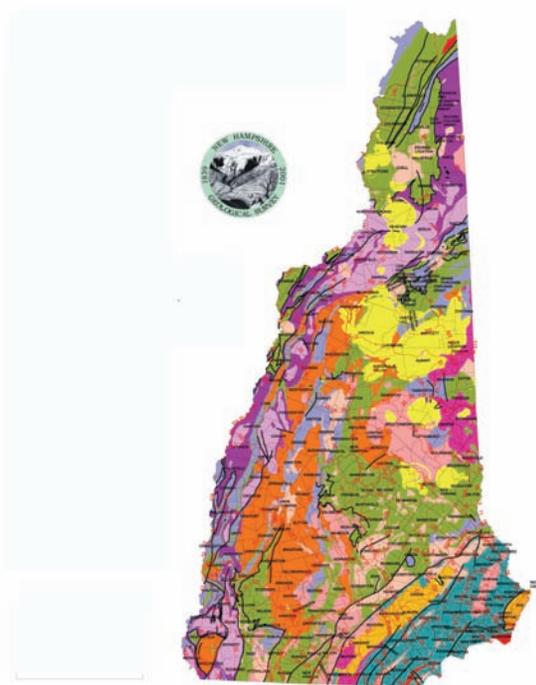
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**Award Number: 10HQPA0012  
Award Period: 7/1/2010 through 6/30/2011  
Date: July 1, 2011**



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### 1.0 Abstract

The New Hampshire Geological Survey (NHGS) completed requirements set by the National Geological and Geophysical Data Preservation Program (NGGDPP) for FY2010. The primary priorities of this grant period were to (a) perform individual-level inventories on three collections entered into the NGGDPP online inventory in FY2009 (b) create metadata for well cutting samples, and (c) digitally convert well completion reports and create associated metadata. This Final Technical Report describes FY2010 project details and includes NHGS's objectives for the FY2011 grant period. In fulfillment of the grant requirements, this final technical report will be submitted to the USGS by September 30, 2011.

### 2.0 Project Summary

For NGGDPP FY2010, NHGS received full funding in the amount of \$32,945 to focus on three program objectives which include:

Priority 1: Conducting a collection-level inventory for bedrock cores, borehole videos and mineral map collections. The two core collections are comprised of strategic mineral cores drilled in the 1970's in New Hampshire. One set of cores was drilled in Lyman, NH at the Copperville Mine (Collection ID P1683 - Photo 1), and the other was drilled in Milan, NH at the Paddock Lead Mine (Collection ID P1682). The Copperville Mine cores contain 229 20-foot long, 1.5" cores, and the Paddock Lean Mine collection contains 112 25-foot long, 1" cores. The two collections were inventoried and available assays were scanned. Additionally, the borehole videos and mineral maps were assessed, inventoried and stored in a temperature controlled cabinet.



Photo 1. Copperville Core Collection

Priority 2: Creating metadata for the National Digital Catalog (NDC) for 195 well cuttings (Collection ID P1538). The bedrock well cuttings, which were part of a drilling project that expanded the NH Groundwater Level Monitoring Network, were preserved in vials and labeled accordingly as a priority in FY2009 (Photo 2). Metadata was created and uploaded to the NDC on 2/28/11 for FY2010.



Photo 2. Bedrock Well Cuttings

Priority 3: Digitally converting paper well completion reports (Collection ID P1611 – Photo 3) to digital format for ten towns (*Hampton, North Hampton, South Hampton, Hampton Falls, Portsmouth, Newcastle, Seabrook, Rye, Raymond, and Kensington*), located in the Seacoast Region, including metadata creation and upload to the NDC. Well completion reports were digitally converted from a paper document to a PDF/A-1b using the ISO 19005-1 standard: Document Management-Electronic document file format for long term preservation. In addition, NHGS uploaded all scanned well completion reports to the Department of Environmental Services (DES) ONESTOP website. Press releases detailing the importance of these reports and how to access this information, were dispatched to news agencies in the region.



Photo 3. Well Completion Reports

Conversion of the well completion reports has been a principal priority, and will continue throughout FY2011, since NHGS is the data steward of the New Hampshire Water Well Inventory Database and associated well completion reports. Original hard copies of the reports are stored on site at NHGS in file cabinets, both for protection and accessibility (Photo 4).



Photo 4. On-site Storage Cabinet with Well Completion Reports

Well completion reports contain information on well construction including well location, total well depth, depth to bedrock, and water yield. Some reports also contain general lithologic descriptions. Real estate agents and lending institutions regularly use the well data during the course of property transactions. NHGS uses the data extensively in the process of mapping surficial and bedrock geology. The data also are a key component of both groundwater quantity and groundwater quality assessments, and aquifer mapping. Private sector hydrogeologic consultants find the data to be invaluable when siting new public drinking water supply wells, and geotechnical engineers use the data when planning new construction projects. Ultimately, the data support a range of water resources and infrastructure planning activities and the development of public policy. NHGS receives several well report data requests per week, which often necessitate perusal of, and access to, existing archived information.

Well reports scanned in FY2010 were made web accessible, immediately following quality control protocols, through the DES website. The New Hampshire Water Well Inventory Database currently contains over 118,000 well records. NHGS will continue preservation efforts in the Seacoast Region of New Hampshire, because this is one of the most stressed areas of groundwater use in the state due to population growth, land development, and its proximity to the ocean. In addition, some Seacoast Region groundwater has naturally occurring arsenic contamination; in some areas, one-third of all private wells exceed the 10 microgram EPA MCL for arsenic. This focus on the Seacoast Region was supported by the NNGDPP review panels in FY2009 and FY2010. Currently, there are over 25,000 wells in the New Hampshire Water Well Inventory Database for the Seacoast Region. A total of 4,026 well completion reports were scanned and those containing georeferenced coordinates were uploaded to the NDC in CSV format by June 30, 2011 completing FY2010 grant requirements.

### 3.0 Progress

FY2010 goals which were set by NHGS were exceeded. NHGS digitally converted 4,026 well completion reports, which included the ten proposed Seacoast towns and three additional towns. Metadata was uploaded for 2,552 of the reports which contain georeferenced coordinates. This number exceeds the originally proposed number of 1,600 well completion reports. Three additional towns (*Dover, Madbury and Newington*), not originally proposed, were digitally converted and metadata uploaded to USGS. This increase in productivity is due to a) a highly productive intern who was hired in the winter, and b) improved equipment used to digitally convert the reports. An Epson GT-20000 scanner was purchased with FY2010 funds, which not only improves scanning time, but also noticeably improves the quality of the scans.

In addition, NHGS made progress on data preservation goals including making digital collections accessible to the public through the NHDES/NHGS ONESTOP website earlier than projected and contacting other agencies to locate geological and geophysical data for preservation (i.e. DOT for physical samples and drilling logs).

#### 4.0 Goals

Funding through the NNGDPP has been critical in supporting NHGS geologic data preservation goals during the past four grant years. For NNGDPP FY2011 grant year, NHGS will digitally convert well completion reports and create metadata for approximately 6,000 well completion reports in the New Hampshire Seacoast Region. Additionally, NHGS will digitally convert and create metadata for 10 bedrock and surficial geologic publications and associated maps, and create metadata for the two core collections, borehole videos and sand and gravel maps. These items will be made accessible as soon as practicable on the DES ONESTOP website. NHGS will again advertise these collections to the public through press releases and in-house email announcements. Once metadata for the above collections is created and all QA/QC has been completed, it will be submitted to the USGS NDC in CSV format according to the NNGDPP guidelines. A technical report summarizing NHGS's efforts will be submitted within 90 days of completion of the grant period.

#### 5.0 Conclusion

Requirements set by USGS for the FY2010 Data Preservation Grant were exceeded. Currently, NHGS has thousands of individual items entered as 10 individual collections in the USGS Inventory of Geologic and Geophysical Collections (Table 1). For FY2011, NHGS will focus on creating digital infrastructure and metadata for collections in the online inventory and ensure the public has access to these items as soon as practicable.

**Table 1. NHGS Collections Included in the National Digital Catalog**

Collection ID#	Collection Name	Total Number in Collection
P1509	Paper Collection NHGS	170
P1517	Highway Maps	63
P1538	Rock Cuttings	195
P1611	Well Completion Reports	+118,000
P1652	Field Maps	61
P1655	Well completion reports and well logs for Ground Water Network	9
P1680	Strategic Mineral Maps	102
P1681	Bedrock Borehole Videos	13
P1682	Rock Cores	112
P1693	Rock Cores	231