

**NATIONAL GEOSCIENCE  
DATA REPOSITORY SYSTEM**

**PHASE III: IMPLEMENTATION AND OPERATION  
OF THE REPOSITORY**

**PROGRESS REPORT  
DE-FG26-99BC-15115**

**2<sup>nd</sup> Half FY00  
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## **NGDRS Phase III Part 2— Implementation**

### **Second Half FY00 Progress Report**

December 2000

#### **Overview**

In the past six months the NGDRS program has seen a new spike in activity, particularly in October 2000. This new spike in activity is the result of increased activities in the petroleum sector, including new funding to examine infrastructure issues facing many of the companies over the long-term. With industry conditions continuing to rapidly change and evolve, the primary core and cuttings preservation strategy has evolved as well. With the severe lack of available public data repository space and the establishment of a major national geoscience data repository facility unlikely in the near future, the focus is on increasing public awareness and access to non-proprietary company data holdings that remain in the public and private sector. Efforts still continue to identify and facilitate the entry of new repository space into the public sector. Additionally, AGI has been working with the National Academy of Sciences Board on Earth Sciences and Resources staff to initiate a study and workshop to develop a policy recommendation on geoscience data preservation and prioritization of efforts.

Additional data transfer efforts were undertaken during the second half of FY00. Altura's Permian Basin core was contributed to the Texas BEG's facility in Midland. Transcription and evaluation of selected seismic data from the Santa Barbara Channel previously owned by Phillips was completed. Additionally, Chevron has released over 180,000 boxes of cores to the public through the NGDRS metadata catalog.

Additionally, redesign of the GeoTrek metadata catalog was completed, including both a redesign of the user interface as well as making GeoTrek fully a broker, accessing multiple databases at remote locations in real time.

#### **Program Activities Summary**

##### **1.1 Pre-planning of Geoscience Data Preservation Workshop – National Academy of Science**

The Board on Earth Sciences and Resources staff of the National Academy of Science secured sufficient funding in the Fall 2000 to commence a study on the issue of geoscience data preservation. The study will formally begin in the first quarter of 2001, with a target completion within 18 months. The expected outcome will be a report of the National Academy of Science detailing a recommended national geoscience data preservation strategy, including an assessment of the need and priorities for preservation. It now appears the study will be initiated in 2000.

The Board on Earth Sciences and Resources has raised support for this study from various agencies and private organizations, including the US Department of Energy, US Geological Survey, National Science Foundation, Smithsonian, POSC, and AGI.

## 1.2 NGDRS Steering Committee

A steering committee meeting for the NGDRS was held on November 30, 2000 in Houston Texas, chaired Robert Merrill of Samson. The committee discussed the current status of the NGDRS, recent data transfers, improvements in GeoTrek, and future directions for the program. Representatives from major companies, federal and state agencies, including DOE, and several smaller companies were present. A full report of the committee meeting will be included in the next status report.

## 1.3 Discussions with DOSECC

Discussions with DOSECC began in the second quarter of 1999. DOSECC is a consortia of 48 universities and research laboratories who are engaged in research on onshore crustal studies and drilling techniques. Given DOSECC's interest in onshore cores, AGI made contact with their Executive Director, Dennis Neilson.

DOSECC currently has two major operations underway, drilling 5000 meters of core from the flank of Mauna Kea and deploying a mobil floating drill rig for coring of lake bottoms, such as the Great Salt Lake. DOSECC recognizes the long term scientific core preservation issues and recognizes that all projects face similar circumstances in being unable to find data repositories willing to accept the core for curation. This situation represents a potential point of collaboration.

With their focus on core and equipment, DOSECC has found itself with an immediate need for storage space. DOSECC, in communication with AGI, contacted the agent for the former Toole Army Depot west of Salt Lake City to inquire about potential storage space. At this point the property prices are too high to be viable for acquisition by either DOSECC or the NGDRS. However, DOSECC is leasing a smaller lot within the same property now for storing cores and equipment in sea containers. Depending on the success of commercializing Toole, DOSECC and AGI are keeping the option of a facility in Utah open.

## Establishing the Clearinghouse

### 2.1 Project status

The ongoing component projects for the NGDRS and their status:

<b>Project Name</b>	<b>Project Type</b>	<b>Status</b>
Metadata Repository Infrastructure	Creation of the Metadata Repository	Completed
Metadata Repository Utilization	Utilization and Operations of the Metadata	Completed
Mineral Management Services (MMS)	Electronic Database Transfer	Completed
Oklahoma Geological Survey (OGS)	Electronic Database Transfer	Completed
PGS Project	Electronic Database Transfer	Completed
Eastern Gulf Region PTTC	Electronic Database Transfer	Completed
BEG Cores and Cuttings	Electronic Database Transfer	Completed
Seismic Data Tape Conversion Project	Transfer of Digital Data	Completed
Altura Midland Core Facility	Transfer of Cores and Cuttings	Completed

Mobil Seismic Surveys	Electronic Database Transfer	Underway
Unocal Onshore Cores & Cuttings Metadata	Electronic Database Transfer	Completed
Unocal/Spirit Energy Cores and Cuttings	Transfer of Core and Cuttings	Completed
Oregon Department of Geology & Mineral Industries	Electronic Database Transfer	Underway
Phillips Seismic Surveys	Transfer of Digital Data	Completed
Chevron Cores and Cuttings	Cataloging and Opening of Data	Completed
State of Arizona Core and Well Log Records	Electronic Database Transfer	Underway
State Survey Integration Project	Electronic Database Transfer	Underway
Utah Geological Survey Cores and Cuttings	Electronic Database Transfer	Underway

## Data Transfers through 30 November 2000 by the NGDRS

### NGDRS Cores and Cuttings Transfers

Source	Boxes
Unocal	2,082
Chevron	180,181
Shell	450,000
Altura	85,000
<b>Total To Date</b>	<b>717,263</b>

### NGDRS Seismic Data Transfers

Source	Line-miles
Phillips	961

### Public Data Integrated into the NGDRS

Source	Boxes/Logs
Texas BEG cores	100,656
Texas Well Logs	87,772
Texas RRC	552,524
Alabama	1,091
Oklahoma	4,604
MMS	44,455
<b>Total</b>	<b>791,102</b>

## 2.2 Data Targeting and Transfer

### 2.2.1 Unocal/Spirit Energy Cores and Cuttings

Unocal's onshore cores and cuttings are now cataloged in the NGDRS metadata catalog. The metadata is housed at the American Geological Institute in its database servers. This transfer covered 2082 cores from across the nation. Quality control by AGI allowed the inclusion of 1198 core records into the metadata catalog. Additional work on the data has determined the geolocating of the additional 884 cores is not possible given the existing metadata. However, the data is included in the system for those queries not dependent on geographic location. Unocal continues to store their core and cutting holdings at C&M Storage in Schulemberg, Texas. Users of the

GeoTrek metadata catalog can arrange for access to listed cores by contacting C&M Storage directly.

### **2.2.2 Unocal/Spirit Energy Utah Core Transfer**

The NGDRS is assisting in the transfer of Unocal's Utah cores and cuttings from Shulemburg, Texas to the new core repository at the Utah Geological Survey. Unocal has made as a condition of this transfer, that all of Utah's data holdings, including the Unocal data, need to be listed in GeoTrek. Discussions were suspended by the UGS until a new Director at the Utah Geological Survey was named. However, logistical planning of the metadata transfer has resumed with integration of the UGS data in the first quarter of 2001.

### **2.2.3 Chevron Cores and Cuttings**

Chevron transferred over 180,000 core and cuttings to the NGDRS. Similar to the arrangement by Unocal, Chevron is maintaining the cores and cuttings at the C&M Storage facility. However, all of the cores and cuttings in the database are now released to the NGDRS for inclusion in the metadata catalog. The metadata records of the Chevron cores and cuttings are undergoing quality control at this time. Full integration of the data into the metadata catalog should occur in first quarter of 2001.

### **2.2.4 Altura Midland Core Facility**

Altura has transferred ownership of some 80,000 boxes of core and cuttings to the Bureau of Economic Geology at the University of Texas at Austin in 2000. The construction of a new repository in Midland was completed and physical movement of core and cuttings boxes began in October 2000. The metadata records for the Altura core was processed and integrated into the BEG's metadata catalog under direction of the NGDRS. The consolidated BEG catalog will be reintegrated into GeoTrek.

### **2.2.4 Phillips Seismic Tapes**

Phillips Petroleum has transferred selected seismic holdings for the Santa Barbara Channel in California to the NGDRS. AGI completed a pilot project to evaluate the feasibility and costs for digitizing and transcribing the analog data to current media and format. The data was stored on 1-inch analog tapes, for which there are few known working readers. A selected number of tapes, representative of the Santa Barbara channel were transcribed and processed to check for validity. The processed seismic lines demonstrated excellent quality and provide a new set of data for the geoscience community to use. Copies of the tapes are available on request for private sector and academic researchers.

### **2.2.6 Marathon Oil Cores and Cuttings**

Marathon Oil approached AGI concerning the contribution of their cores and cuttings to the NGDRS from the Littleton, CO facility. That facility has been slated for closure, and their Permian Basin cores and cuttings were also in danger of being discarded. After initial discussions with Marathon representatives, the company decided to contract with C&M Storage to hold and

maintain their data holdings in Schulemberg, TX. Discussions are ongoing regarding the incorporation of non-proprietary holdings of Marathon into GeoTrek using similar arrangements as those with Chevron and Unocal. Approximately 100,000 boxes of core are at issue in these discussions.

### 2.2.7 Texaco/Chevron Midland Proposal

Texaco's Midland operations have approached AGI concerning the development of a Permian Basin-wide core facility, including identification of non-proprietary cores and cuttings for release to the public. Texaco convened a meeting in October with the major Permian Basin operators, the Texas Bureau of Economic Geology, New Mexico Bureau of Mines and Mineral Resources, and AGI to discuss this concept. Both Texaco and Chevron have indicated a strong desire to move forward expeditiously with this process. The other operators, including Marathon, are taking it under consideration. Two potential approaches to this effort are evident. First, if only Texaco and Chevron are willing to proceed, they could arrange with the Texas BEG through the NGDRS to construct a new building at the former Shell Midland facility and endow the data's maintenance. However, if other companies commit to the program, identification of a new site in Midland is planned with the development of a regional public repository, run either by an NGDRS/AGI developed organization or the Texas BEG. Action on this proposal is expected in first quarter 2001.

## Utilizing the metadata repository

### 3.1 Operating the Metadata Catalog

The operation of the metadata catalog continued during the second half of 2000. The following databases are currently available on the metadata catalog:

- Fairfield Seismic
- A2D Well Logs
- MMS Well Logs
- Alabama Eastern Gulf PTTC Well Logs
- BEG Well Logs
- BEG Cores
- Oklahoma Geological Survey Cores
- MMS Block and Lease Boundaries
- Texas Railroad Commission Well Logs
- Unocal Onshore Cores and Cuttings

**The current access statistics are provided, as well as Project to Date (PTD).**

	<b>1998</b>	<b>1999</b>	<b>1H00</b>	<b>2H00<sup>(*)</sup></b>	<b>PTD</b>
<b>NGDRS Website Hits</b>	30,911	61,152	19,266	24,492	135,821
<b>Unique Visitors to NGDRS</b>	1331	4336	3044	2661	11,372

<sup>(\*)</sup> Statistics to 30 Nov 2000

### **3.2 Redesign of GeoTrek**

GeoTrek, the metadata catalog for the NGDRS went through an entire redesign. This redesign revolved around 2 areas: backend remote database integration and an improved user interface.

The back-end remote database change was completed and implemented with the integration of the Unocal cores. The system now is capable of querying remote database systems over the Internet, allowing data holders to control the availability and extent of data accessible through the metadata catalog. Additionally, it allows transparent integration of additional information, such as core disposition, core photos, analytical data, etc., to be readily accessible by the end-user.

The user interface is in final testing and editing, responding to suggestions provided by users of the system. Most importantly, the bulk of the data management is now handled by the back-end servers, thus minimizing performance problems on client machines. Additionally, the system now uses a wizard interface, stepping novice users through the process of identifying data, while still permitting speed and efficiency for expert users. Full public access to the new front end is expected by the start of 2001.

### **3.3 Enhanced targeting of public databases**

In 2001, AGI will be accelerating its efforts to integrate existing public databases into GeoTrek, mainly through interactions with the State Geological Surveys. Among the primary targets for full integration into the system include:

- U.S.G.S. Core and Cuttings, Denver, Co
- Kansas Geological Survey Cores and Cuttings, Lawrence, KS
- Utah Geological Survey Cores, Salt Lake City, UT
- Kentucky Geological Survey Cores and Cuttings, Lexington, KY
- Kentucky Geological Survey Coal Sample Cores, Lexington, KY
- Illinois Geological Survey, Bloomington, IN
- Indiana Geological Survey, Champaign, IL
- West Virginia Economic and Geological Survey, Morgantown, WV