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NATIONAL GEOSCIENCE DATA REPOSITORY SYSTEM PHASE III: IMPLEMENTATION AND OPERATION OF THE REPOSITORY

Quarterly Technical Progress Report
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NGDRS Phase III — Implementation

Third Quarter Progress Report

October 1998

Overview

The NGDRS steering committee met at Unocal's offices on October 1, 1998 in Sugar Land, Texas to review and discuss issues of data transfer and the continued development of the Stapleton prospect for establishment of a national core repository. Company representatives reaffirmed their commitment to donate geoscience data to the NGDRS once appropriate facilities are available.

AGI has signed a letter of intent (LOI) with the Stapleton Development Corporation for acquisition of a major hanger facility at Denver's former Stapleton Airport. AGI determined that the Stapleton facility was the most appropriate facility, based on size and initial cost estimates, for the development of a national repository. A 120-day due-diligence period is currently underway in which the facility is being assessed for repair, build-out, operational costs, and environmental liabilities.

Development and operation of the metadata catalog continues since its opening on May 14, 1998. Users around the world continue to access the system. A number of conference presentations were made related to the NGDRS and the metadata catalog. We expect that continued presentations and development of a user information packet will accelerate usage of the metadata catalog system.

Work on a back-up system at AGI headquarters continues. Porting of the GeoTrek server software to the new systems has begun. Once operational, this system will be used to serve the NGDRS needs during periods when access to the site in Houston is down, as well as a test center for integration of new data types and establishing cost effective strategies to encourage state and regional repositories to adopt GeoTrek locally for their catalog-component of the NGDRS.

Several data transfer projects are underway. A number of transfers of well logs and scout tickets to the Texas Bureau of Economic Geology have been coordinated by the NGDRS. The State of Oregon has pledged to transfer their metadata concerning listing their 400 oil and gas well and 50 geothermal well cores and logs to the NGDRS metadata catalog.

Program Activities Summary

1.0 NGDRS Steering Committee Meetings

The NGDRS steering committee met at the Unocal/Spirit Energy offices in Sugarland, Texas on October 1, 1998. Twenty-seven members of the steering committee attended the meeting, including representatives from 16 companies, the USGS, MMS, BLM, DOE, Texas BEG, and Texas Railroad Commission.

The meeting focused on identifying and addressing issues concerning transfer of data into the NGDRS, and particularly a central core facility at the former Stapleton Airport in Denver. Formal topics presented during the meeting were:

1. Overview and review of the NGDRS to date
2. Update on the NGDRS metadata catalog, GeoTrek™.
3. Overview of the proposed National Geoscience Data Repository and Research Center
4. Discussion of letter of intent signed by AGI and Stapleton Development Corporation
5. Discussion of the appraisal of value of core and other geoscience data

From these items and the general discussion, a number of identified action items were identified.

1. The committee must focus on getting commitments for 2 million boxes of core, along with the needed endowment contribution to ensure that the central facility becomes a reality
2. Need to clarify the position of IHS (PI/Dwights) and Tobin for releasing the API number, Lat/Long and well numbers for use by the companies.
3. All companies should work with their vendors to encourage them to provide lat/long on all wells as part of the log header.
4. Participation of government agencies in the metadata catalog could bring into question whether they are competing with data providers. Susan Cisco of the Texas Railroad Commission plans to look into this issue.
5. A pro forma agreement and information packet must be developed and distributed to all of the companies to enable them to make data contribution commitments to the NGDRS.
6. Companies need a better understanding of the IRS's position on the deductibility of core donations.
7. A standard listing contract and terms for vendors to list materials on the NGDRS needs to be more widely circulated.
8. More commercial vendors are needed to join the NGDRS to establish a centralized, more efficient data shopping mechanism for the companies. The companies feel they can assist in trying to encourage vendors to join in the metadata catalog.
9. AGI needs to develop a user information packet on the NGDRS for distribution to companies to distribute to their staff and other logical users of the system.

Establishing the Clearinghouse

2.1 Project status

The ongoing component projects for the NGDRS and their status:

Project Name	Project Type	Status
Metadata Repository Infrastructure	Creation of the Metadata Repository	Completed
Metadata Repository Utilization	Utilization and Operations of the Metadata Repository	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
Seismic Data Tape Conversion Project	Transfer of Digital Data	Underway
BEG Project	Electronic Database Transfer	Underway
Mobil Seismic Surveys	Electronic Database Transfer	Underway
Central Core Facility Project	Transfer of Core and Cuttings	Underway
Unocal/Spirit Energy Cores and Cuttings	Transfer of Core and Cuttings	Underway
Oregon Department of Geology & Mineral Industries	Electronic Database Transfer	Underway
Kansas Geological Survey Project	Electronic Database Transfer	Delayed
Well Log Data Tape Conversion Project	Transfer of Digital Data	Not defined

2.2 Data Targeting and Transfer

AGI signed a letter of agreement with Oil Data of the Hays Business Services Group, Houston, Texas to assist in identifying digital seismic data for the NGDRS. Oil Data is contacting individual companies and data vendors on AGI's behalf to solicit seismic data contributions to the NGDRS. They will assess and inventory the potential seismic data contributions and provide a summary of results for AGI's review and prioritization.

2.2.1 Data Transcription Criteria

Oil Data will also provide recommendations to AGI related to the following items:

- Transcription options
- Data format standards
- Archive media selection
- Archive media indexing criteria
- Multi-line per original input treatment criteria
- Support data treatment considerations

2.2.2. Data Contributions

Locklin Oil Company of Tyler, Texas contributed 9,000 well logs and 40,000 PI scout tickets to the Texas Bureau of Economic Geology in April 1998. Estimated replacement cost of these data is $150,000.

In January 1998, Bryan Winberly, Midland, Texas contributed six file-boxes and two map-boxes containing reports, maps, well logs, and scout information concerning the Gulf Coast area. The value of these data has not been assessed.

James Thorne of Pleasanton, Texas transferred a total of 20,000 well logs to the Texas Bureau of Economic Geology. These data were primarily from the Texas Railroad Commission District #1 area. Estimated value of these contributions, which contained many logs that had not been previously released, is $80,000.

2.3 Stapleton Repository Site Assessment

AGI has assessed potential repository property sites in Houston, San Antonio, and Dallas, Texas, Tulsa, Oklahoma and Denver, Colorado. Based on available quality and cost efficiency for a 200,000 to 300,000 square foot facility, the Denver Stapleton site best fits the needs for a central repository.

After extensive discussions with Stapleton Development Corporation personnel, AGI executed a letter of intent (LOI) with the Stapleton Development Corporation for purchase of a major hanger complex at Denver's former Stapleton Airport. The complex consists of 233,000 square feet of high ceiling hanger space and 141,000 square feet of quality office space. The facility has the capacity to store 3.5-4.0 million boxes of core and other sample materials. It includes appropriate space for laboratories, examination rooms, classrooms, and administrative offices. The AGI-Stapleton Development Corporation LOI provides for a 120-day due diligence period of the building and adjacent property, followed by a 60-day period to negotiate and execute a purchase agreement. AGI is currently assessing costs of build out, repairs, operations, and environmental liabilities for the facility.

Marcus Milling and Christopher Keane met several times during the third quarter with Guido DeHoratius and Sandra Waisley of the Department of Energy concerning the progress on establishing a central core repository in Denver.

2.4 Oregon Department of Geology and Mineral Industries

The Oregon Department of Geology and Mineral Industries has agreed to transfer a copy of their electronic database of cores records for 400 oil and gas wells and 50 geothermal wells. They are currently geocoding the data and expect to have the project completed and a copy of the data transferred for integration into the NGDRS by the end of 1998.

Utilizing the metadata repository

3.1 Operating the Metadata Catalog

The operation of the metadata catalog continued during the third quarter of 1998. The system experienced some growth in overall traffic, including a increased interest from companies and

users from outside of the United States. 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

PGS has opted to delay listing their holdings on the metadata catalog until they can provide sufficient quantity and quality of sample seismic sections for online viewing. A number of additional vendors are considering adding their catalogs to the NGDRS system as well.

The third quarter statistics for the use of the metadata catalog and the associated web pages concerning the NGDRS are as follows:

	July	August	September	YTD
NGDRS Website Hits	3919	4040	5857	17,624
Unique Visitors to NGDRS	76	61	58	406
Unique GeoTrek Users	42	31	31	152
Number of GeoTrek Searches	468	282	313	1948
Total GeoTrek databases transactions	4971	3885	1892	17,603

3.2 Identifiable Clients

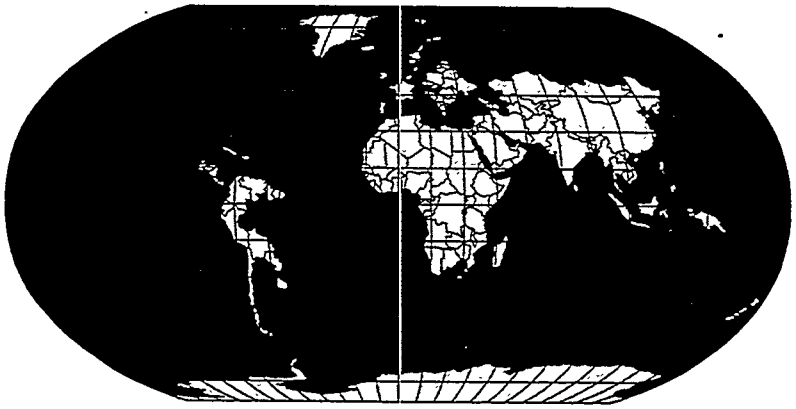
A wide variety of education, government, and private organizations have accessed the NGDRS web pages and metadata catalog.

Summary use of the system includes:

- 54 U.S. petroleum companies
- 52 U.S. universities
- 23 Countries

The geographic distribution of world-wide use of the system is shown in figure 1.

Figure 1. Geographic Distribution of GeoTrek™ Users



3.2 Advertising the metadata catalog

Access to the metadata catalog is expected to steadily increase as efforts to promote the metadata catalog, especially as a user packet is developed and distributed.

On September 3, 1998, Marcus Milling and Christopher Keane met with a Department of Interior working group concerning the coordination of efforts between the NGDRS and the various agencies of the Department of Interior.

A presentation was made at the GEOINFO VI conference in Washington, DC on September 19, 1998 concerning the overall mission of the NGDRS. A demonstration of the design and use of the metadata catalog was also conducted for an audience of approximately 75 geoscience information specialists.

Christopher Keane presented a paper on the NGDRS and the GeoTrek™ metadata catalog system to the annual meeting of the Geoscience Information Group of The Geological Society held at the British Geological Survey in Keyworth, England. The meeting was attended by approximately 100 geoscientists from around the world involved in the archiving, management, and preservation of geoscience data, both digital and physical. Discussions were held concerning the similarities of the NGDRS project to other initiatives in Europe, including issues of data preservation and metadata management and access. A meeting was also held with the manager of the BGS Geoscience Data Repository in Keyworth. Discussions centered on the design and operational issues that the BGS has encountered in establishing and running a national geoscience data repository housing a diverse set of cores, cuttings, and samples.

3.3 Software

The GeoTrek server software is currently stable and has been deployed in production environments. The browser software is also very stable, especially on Windows 95, Windows NT 4.0, Solaris 2.4, and Linux 2.0.31+.

3.4 Back-up System Deployment

A back-up system is being configured at AGI headquarters in Alexandria, Virginia. The main web pages for the NGDRS are hosted at this site, and an installation of GeoTrek, including a mirror of the databases held in Houston will be available. This system will be available in cases where access to the NGDRS metadata catalog in Houston is unavailable from the rest of the Internet. Additionally, experiments with new data types, such as publication citations will be explored on the AGI site. Also, AGI is looking at developing turn-key, low-cost solutions for installation at State Geological Survey's to enable their active participation in the NGDRS metadata catalog effort.