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NATIONAL GEOSCIENCE DATA REPOSITORY SYSTEM

PHASE III: IMPLEMENTATION AND OPERATION OF THE REPOSITORY

PROGRESS REPORT DE-FG22-97BC-14847

**2nd Quarter
April - June, 1997**

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NGDRS Phase III — Implementation

Second Quarter Progress Report

July 1997

Overview

Activities during the second quarter dealt with the deployment of the NGDRS technological infrastructure (hardware, software and network components). Orders were placed for all major items (Sun servers and Xyplex 9000 data router). Sun servers are expected to be delivered during the week of July 21. Setting up of NGDRS continued with the development of the front-end pages for web site and with the development of software items that permit or facilitate the tasks of NGDRS users. Activity on Project Task 1.0, the conversion and installation of electronic databases, continues at a slower pace until the basic Metadata Repository infrastructure is in place. The additional contacts established with PGS, BEG, Kansas Geological Survey (KGS), Oklahoma Geological Survey (OGS), and Minerals Management Service have led to good progress. A NGDRS project meeting was held on June 18 in Houston to review progress, discuss new targets and define new steps.

Progress by Specific Project Tasks

1.0 ESTABLISHING THE CLEARINGHOUSE

Task 1.1 - Project Plan and Management

The following projects had their project plan sheets opened or updated:

PROJECT NAME	PROJECT TYPE	PROJECT STATUS
1. Houston Core Facility Project	Transfer of Core and Cuttings	Underway
2. Well Log Data Tape Conversion Project	Transfer of Digital Data	<i>Not defined</i>
3. Seismic Data Tape Conversion Project	Transfer of Digital Data	<i>Not defined</i>
4. BEG Project	Electronic Database Transfer	Underway
5. PGS Project	Electronic Database Transfer	Underway
6. Kansas Geological Survey Project	Electronic Database Transfer	Planned
7. Mobil Seismic Sales Project	Electronic Database Transfer	<i>Not defined</i>
8. Metadata Repository Infrastructure	Creation of the Metadata Repository	Underway
9. Metadata Repository Utilization	Utilization and Operations of the Metadata Repository	Underway
10. Mineral Management Services (MMS)	Electronic Database Transfer	Opened
11. Oklahoma Geological Survey (OGS)	Electronic Database Transfer	Opened

At the suggestion of R. Graebner we have changed the format and content of the Phase III project monitoring and reporting. The changes include modifications on the project data sheets, and the addition of four new summary reports that attempt to present concisely the effort and dollars spent in Phase III. The new, revised project data sheets now show the following data:

- Month-by-month Actual and Cumulative (to-date) figures
- Variances of the Actual versus (DOE) Budget figures
- Variances of Actual versus (Project Manager) Forecast figures

Two separate sets of project data sheets are now available. One set shows effort in M-months and the other presents the corresponding Dollar figures. The concept of a rolling forecast was also introduced to contrast with the established DOE budget figures. This forecast will be updated monthly to reflect project overruns and the demands of new projects.

The new summary charts were designed to help manage both the staff efforts and financial aspects of the project. The four new charts are:

- **Chart 1:** The summary for all projects; histogram and spreadsheet displaying (in M-days) the actual to-date, DOE budget and project forecast figures.
- **Chart 2:** The summary for all projects; histogram and spreadsheet displaying (in Dollars) the actual to-date, DOE budget and project forecast figures.
- **Chart 3:** Month-to-month financial summaries; spreadsheet showing (in Dollars), the expenditures for staff, travel/supplies, and leases/rentals.
- **Chart 4:** Month-to-month financial summaries; histogram showing (in Dollars), expenditures for staff, travel/supplies, and leases/rentals.

These new charts will facilitate the job of the Phase III management team, permitting a better understanding of where the project resources are being directed.

On June 18 a **project review meeting** was held in Houston. It was attended by Marcus Milling (MM), Jan van Sant (JVS), Glenn Breed (GB), Robert Graebner (RG) and Alfredo Eloy (AE). The following are the main action items agreed during the meeting:

The MMS and OGS will become additional targets for the NGDRS in 1997.

This brings to four the number of (public sector) databases, that are now targeted for installation with FY96 funds, the other two being the KGS and the BEG. The MMS was added because of breath of data available from them and the OGS because of presume technical readiness they have achieved. In addition to the four public sector databases, the project also contemplates conversion and installation PGS and Mobil, from the private sector. Since only 3 databases were budgeted for installation, we have updated our forecast figures. We have estimated that an additional 52 m-days of effort will be required to cover the two new targets (MMS and OGS).

Modifications on the project reporting will be discussed by RG and AE and implemented.

The discussions took place on June 25 and all the suggestions proposed by RG were introduced with this report, as described above.

Task 1.2 - Houston Core/Cuttings Facility (HCF)

MM provided the team with an update on the current status of the Houston Core Facility project, specifically the discussions with Amoco management. Discussions are continuing and appear to be promising that Amoco may contribute its Houston repository facility to the NGDRS.

Amoco may want to keep their current paleo laboratory facilities. However, they have over 20 acres available where a new building could be erected. Amoco management has promised an answer regarding the facility and possible endowments during August 1997.

Task 1.3 - Digital Data Media Conversion

No further decisions were made regarding the tape conversion projects (projects 2 and 3) pending the decision on the HCF project.

Task 1.4.1 - BEG - Databases Conversion

Doug Ratcliff informed us that the BEG servers and client platforms were acquired and installed during June. Oracle software has also arrived; installation will be done by Rodney Heathcott (Database Consultant) in July. Rodney will also get in touch with us in July to complete to plan the BEG upcoming activities.

Task 1.4.2 - PGS - Databases Conversion

This project was continued with additional conversations with PGS Management (Jacob Loga) in preparation to receive and load the seismic data sets that were promised to the project. Meetings are now scheduled with Chris Bearce to begin the technical aspects of the data transfer.

Task 1.4.3 - Kansas Geological Survey (KGS) - Databases Conversion

Timothy R. Carr, Chief, Petroleum Research at the KGS visited The Store on June 18. Marcus Milling took the opportunity of Tim's presence in Houston, to attend the DOE contractor workshop, and invited him for a GeoTrek™/PetroTrek™ presentation and general discussions regarding the participation of KGS in the NGDRS project. Tim's department is responsible for the petroleum research data records, which are about 98 percent of the digital records managed at KGS. Kurt Look (KGS Database Administrator, programmer), contacted by AE in May, is working for

Tim as part of their current efforts to display Kansas technical data in the web. Tim offered to involve himself in the process at KGS and to help us also with the activities at Kansas Geological Society, a private organization that holds considerable amount of well data.

After Tim's visit we spent time analyzing, in some detail, the KGS web site. KGS has a very comprehensive site depicting their Digital Petroleum Atlas (that includes regional data beyond Kansas borders) and the Kansas Atlas. Each atlas includes data and information structured and oriented (efficiently) for user access but making use of the traditional (HTML) web page technology that is very maintenance intensive. The effort is sponsored by the DOE through an annual grant (\$250K). We believe the GeoTrek implementation can complement very well their current efforts. As part of our web search we also discovered that the KGS leads the effort, in the state of Kansas, for the establishment of geographic information systems (GIS). The Data Access & Support Center (DASC), created by the state government to support the state GIS needs, is managed by a member of the KGS — Kenneth Nelson.

Considering the new insights provided by Tim, we are now trying to organize a meeting at Lawrence, probably in early August, that will include several entities and groups (KGS technical management and IT organization, DASC and Kansas Geological Society) to discuss NGDRS and the fit of GeoTrek/PetroTrek in their environments.

Task 1.4.4 - MOBIL Seismic Sales Organization - Databases Conversion

This project saw no activity during the period. Plan to contact Mobil in August.

Task 1.4.5 - OGS - Databases Conversion

We had some additional conversations with Jane L. Weber (Coordinator, Departmental Computer Systems). She proposed to send us a magnetic tape containing their existing database of core data; fundamentally the same data that appears on the OGS Special Publication 92-1, Petroleum Core Catalog. They view the installation of a test data set as a logical first step. Once we load their data, we will plan a visit to OGS in Norman for delivering a GeoTrek presentation and charting a course of action for the next steps.

Task 1.4.6 - MMS - Databases Conversion

We have started looking through the various many MMS data sets of the GOM well data to decide what data to load onto the NGDRS.

Task 1.5 - Hardcopy Data Media Conversion

This project has no funds allocated in the FY96 budget. No activity is planned at this time.

2.0 CREATING THE METADATA REPOSITORY

The effort included the procurement and acquisition of the hardware, software, and wide area network components. In summary, the following was achieved:

Sun Microsystems

Orders are now in place for all major items from Sun. Except for the backup tape unit all items were ordered and are expected to be delivered during the week of July 21.

The delay in ordering the servers was caused by two main reasons:

- Financial considerations and negotiations; discussions are still going on with CSI (leasing company) and CoAmerica Bank regarding the more cost-effective option to acquire the equipment.
- Configuration changes required by new products from Sun Microsystems. Several of the product codes were no longer valid.

Sun loaned the NGDRS a workstation (Sparc/5) that is being used for testing several of the Internet software components described below. This unit, however, is not sufficiently powerful and is not configured for loading large amounts of technical data.

Oracle Corporation

All items ordered from Oracle were received. Installation of the Oracle database management system (DBMS) on the NT server was completed successfully. The installation of the DBMS on the Unix servers will start when the Sun Ultra servers are delivered.

Wide Area Networking (PSI, Xyplex)

Work in the installation frame-relay communications line by Southwestern Bell was completed during June. The next tasks will be completed by PSI at their facilities. We expect to be in position to check all the components of PSI's InterFrame System during the month of July.

We have placed the order for the Xyplex Network 9000 router hardware. This hardware will handle NGDRS data traffic between the Sun Ultra/2 servers and the PSI network computers. We expect to have it delivered around July/7-9.

Internet Software Components Development

The front-end page of NGDRS is now under development by Tom Woolley. An initial structure was created for how the system might work. Programming for how to handle user registration, etc., will begin in July. Initial work is concentrating on the graphics, and the "look and feel" for this web site. In addition, the front page will include a requirement list containing the items needed by users, in their client platform, to access the NGDRS System. A performance tester Java applet is being developed and will be included on this page (refer below to item 3).

Three new features, required by the NGDRS, are under development by the software team headed by Iain Morison:

1. A Java applet was developed to allow remote data sources to be accessed via GeoTrek/PetroTrek front-end interface. This feature will permit the access to remote datasets at (remote) data centers (such as the BEG or KGS).
2. Round-robin platform address capabilities (technically known as "round-robin DNS") were added to the NGDRS environment. This Java application, that will run as part of the front-end pages, will perform dynamic load balancing of the two Sun Ultra/2 servers. Users entering the system will (automatically) alternate between one server and the other.
3. A Java applet was developed aimed at displaying the performance of the client platform environment (PC or workstations). This applet is capable of diagnosing and informing users if their client environment, is appropriate or not.

3.0 UTILIZING THE METADATA REPOSITORY

This project saw activity with marketing activities around the Phase III and the GeoTrek/PetroTrek system. The following is a list of events that have been identified as part of the marketing campaign:

EVENT	WHERE	WHEN	RESPONSIBLE
1. Repositories Meeting	Calgary	June, 16-17	Tom Woolley
2. DOE Contractors Workshop	Houston	June, 20	MM, and GB
3. PTTC Board Meeting	Washington, DC	July, 13-15	GB
4. AGI/NGDRS Steering Committee Meeting	Houston - The Store	September	Not defined
5. POSC/AGI Standards Workshop	DC	Sep/Oct (?)	MM, D. Archer
6. GSA Meeting	Salt Lake City	Oct, 20-23	Not defined
7. SEG Annual Meeting	Dallas	Nov, 2-7	Not defined

Below are brief descriptions of events 1 and 2 that were held during the period:

Repositories Meeting - Calgary, Canada - June 16-18

On behalf of the NGDRS Phase III project, Tom Woolley attended the meeting of the organizations establishing geosciences data repositories. The meeting was held in Calgary during June 16-17, and the attendance included 22 representatives from many national repositories projects around the world. A set of notes on the meeting was published by Tom Woolley in an e-mail dated June 19.

DOE Contractors Workshop - Houston - June 20

M. Milling made a presentation at the DOE Contractors workshop on June 20. The presentation updated DOE staff and contracts on the project progress and it was well received. The set of slides for this presentation was put together earlier in the week by MM, GB and AE.