DOE QUARTERLY TECHNICAL PROGRESS REPORT

=====

TITLE: CONTINUED SUPPORT OF "THE NATURAL RESOURCES INFORMATION
SYSTEM (NRIS) FOR THE STATE OF OKLAHOMA": INCLUSION OF A
NATIVE AMERICAN FOCUSED EFFORT

Grant No. DE-FG22-94BC14832
Oklahoma Geological Survey (OGS), University of Oklahoma (OU)
Norman, Oklahoma 73019

Grant Initiation Date: September 19, 1994
Anticipated Completion Date: September 18, 1995
Government Award for Current Year: \$300,000

Principal Investigators:
Charles J. Mankin, OGS
Mary K. Banken, OU

Technical Project Officer (TPO):
R. Michael Ray
Bartlesville Project Office

Reporting Period: April 1, 1995 - June 30, 1995

=====

RECEIVED
USDOE/PEITC
95 AUG 21 AM 11:25
ACQUISITION & ASSISTANCE DIV.

Objective

The objective of this research program is to continue developing, editing, maintaining, utilizing and making publicly available the Oil and Gas Well History file portion of the Natural Resources Information System (NRIS) for the State of Oklahoma. This grant funds that ongoing development work as a continuation of earlier grant numbers DE-FG19-88BC14233, DE-FG22-89BC14483, and DE-FG22-92BC14853. The Oklahoma Geological Survey, working with Geological Information Systems at the University of Oklahoma Sarkeys Energy Center, has undertaken to construct this information system in response to the need for a computerized, centrally located library containing accurate, detailed information on the state's natural resources. Particular emphasis during this phase of NRIS Well History development is being placed on oil and gas data for Osage County, which is under the authority of the Osage Tribal Council.

Summary of Technical Progress

The NRIS Well History file contains historical and recent completion records for oil and gas wells reported to the Oklahoma Corporation Commission on Form 1002-A, and reported to the Osage Tribal Council on the Osage County completion form. At the start of this quarter, the Well History file contained 393,158 records, providing geographical coverage for all of Oklahoma except the eastern portion of Osage County. Data elements on this file include API well number, lease name and well number, location information, elevations, dates of significant activities for the well and formation items (e.g., formation names, completion and test data, depths and perforations). In addition to the standard

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

Well History file processing, special projects are undertaken to add supplemental data to the file from well logs, scout tickets, and core and sample documentation.

Processing of Oklahoma's oil and gas well completion reports (Form 1002-A & the Osage County form) is proceeding smoothly. Presently, well records are being prescanned, keyed and edited for Osage County and for all new (or previously missing) records obtained from the Oklahoma Corporation Commission. Approximately 6,450 well records were keyed and added to the file this quarter. Thus, as of June 1995, there were 399,613 records on the database. The Well History file progress is shown below by NRIS Regional Division. The current record counts by county are displayed in the attached map (Figure 1).

<u>AREA OF COVERAGE</u>	<u>START OF GRANT</u>	<u>START OF QUARTER</u>	<u>CURRENT</u>	<u>QUARTER INCREASE</u>
Southeast Region:	67,883	68,265	68,425	160
Southwest Region:	72,955	73,517	73,680	163
Northeast Region:	140,766	154,130	160,028	5,898
Northwest Region:	34,103	34,468	34,601	133
North Central Region:	62,536	62,778	62,879	101
Total # Well Records	378,243	393,158	399,613	6,455

Both general and specialized edit procedures were continued on the well data. Search strategies are used to research well records with incorrect location data, and well records that should be cross referenced. Oklahoma Tax Commission lease numbers are being assigned to well records through a combined machine and manual matching process between the lease and well files. Field names and codes are also added to well records based on a matching process with field location data.

Although the geographical coverage for most of Oklahoma is now considered complete, it is also recognized that across the state there are areas in which well completion reports are missing. Special efforts are undertaken to identify these areas and obtain data on the missing wells. For example, the Lease file/Well file matching efforts described in the above paragraph continues as a means of identifying areas with missing 1002-A forms. Identified wells that are not on the Well History file are sent to Sooner Well Log Service, and any "missing" 1002-A's available through their collection are obtained and added to the file.

Efforts are ongoing to standardize the formation names on the Well History file. A PC-based program uses a conversion table to standardize spellings, and allows the user to interactively build new entries for the conversion table as new spelling variations are encountered. Over 95% of the reported names in the state have been standardized through these efforts. This formations-editing process is further enhanced by the addition of a table to determine the standard "Franklinized" abbreviation for each reported name, following the convention with which industry users are familiar.

One goal of the NRIS system involves efforts to "assign" leases and wells to fields, based on the official field outlines as designated by the Mid-Continent Oil and Gas Association's Oklahoma Nomenclature Committee (ONC). Some areas exist in which significant field extension drilling has taken place, but the ONC has had insufficient resources to update the field boundaries accordingly. To assist the ONC in updating their field outlines, information packages are produced from the NRIS system for selected areas; these packages include well data listings and well spot maps. Based on this input, the Committee began by first updating several gas field boundaries; emphasis has now shifted to oil field boundaries as work proceeds on a separate DOE project involving the identification and evaluation of Oklahoma's fluvial-dominated deltaic reservoirs. Overall,

unassigned gas production has been reduced to 7% of the annual average production, while 12% of the oil production is unassigned.

The Well History file was prepared this quarter for the August data release. The file was "frozen" and final edit and quality assurance steps were performed. Documentation of new data elements, which were added to the file last quarter, was finalized and will be released along with the data.

Technology and Information Transfer

Efforts have been made since early 1991 to disseminate NRIS information through meetings, workshops, OGS annual reports and mass mailings to numerous individuals, companies and organizations. As a result, a dramatic response to the release of NRIS data began during the summer of 1991 and has continued. Feedback from the public continues to reflect a great deal of enthusiasm about this new resource for the oil and gas industry in Oklahoma. Data and analyses have been provided that would not have been feasible prior to construction of the NRIS system.

Two commercial firms subscribe to the Well History file, and several inquiries are received each quarter from small companies and independents who typically acquire NRIS subsets for particular project areas. NRIS well data are made available through the Oklahoma City Geological Society Library with very positive results. The high level of interest by library members has led to the acquisition of thousands of records by dozens of members each quarter, as well as constructive feedback on user-detected data anomalies. The Library is cataloging their extensive well log collection and tying each log to the corresponding NRIS well record, which enhances efforts to locate missing well records.

The Oklahoma Geological Survey has established a computing facility to promote user access to the NRIS data by Survey staff and by the public. This facility was opened to industry on June 1, 1995. Visual Basic user interfaces, along with a PC-level relational database management system (Oracle), are being used to allow menu-driven retrieval systems customized to NRIS data. A Novell network system has been installed in order to allow multi-user access to the databases. A large digitizer, large plotter and desk-top scanning equipment enhance the capabilities available through computer mapping software, such as ARC/INFO and GeoGraphix. Users in the computing facility can benefit from multi-user access to contour mapping, and production and log analyses programs that are widely used in industry today. Additionally, Platte River Associates has donated their digital landgrid, which includes all of the sections and townships for Oklahoma

NRIS data factor significantly in several other in-house projects. For example, the lab described in the previous paragraph is the central location for NRIS data access and distribution in the Survey's role as Regional Lead Organization for the Southern Mid-Continent under the Petroleum Technology Transfer Council (PTTC) program. Another project funded by DOE involves the study of Oklahoma's fluvial-dominated deltaic (FDD) oil reservoirs, and also includes technology transfer as an underlying goal. The first of several scheduled workshops was held this quarter in order to transfer FDD information and technology to selected operators. The OGS computing facility was opened in conjunction with this workshop giving operators the opportunity to learn how the NRIS data can help them with many of their reservoir analyses problems.

FIGURE 1

JUNE 30, 1995