

PROJECT FACT SHEET

CONTRACT TITLE: Reservoir Characterization of the Lower Green River Formations, Southwest Unita Basin, Utah/Fundamental Geoscience Award

ID NUMBER: DE-AC26-98BC15103

B&R CODE: AC1005000

CONTRACTOR: Utah Geological Survey

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PROJECT SITE

CITY: Salt Lake City **STATE:** UT
CITY: **STATE:**
CITY: **STATE:**

CONTRACT PERFORMANCE PERIOD:

9/30/1998 to 9/29/2001

PROGRAM: Supporting Research
RESEARCH AREA:
PRODUCT LINE: ADIS

FUNDING (1000'S)	DOE	CONTRACTOR	TOTAL
PRIOR FISCAL YRS	335	76	411
FISCAL YR 1999	300	76	376
FUTURE FUNDS	10	76	86
TOTAL EST'D FUNDS	645	228	873

OBJECTIVE: The Lower Green River reservoirs will be characterized at the microscopic, well, interwell, unit, and regional scales. Reservoir characterization and geostatistical and numerical simulation modeling can improve primary production and secondary recovery operations and encourage exploration.

PROJECT DESCRIPTION:

Background: The project is a reservoir characterization of the Lower Green River Formation, Southwest Uinta Basin, Utah. Regional correlation of the transgressive-regressive cycles in the subsurface and in outcrop will help researchers understand the distribution of deltaic deposits and basin evolution through early Green River time. Calculating fracture height, width, and length created by acid-frac treatments and incorporating that data into the reservoir modeling will increase the understanding of fluid flow at the near wellbore scale. Thin section, XRD, and SEM analyses of core and outcrop samples from throughout the southwest Uinta Basin region will help researchers determine diagenetic histories of the lower Green River reservoirs. Geostatistical models will be developed to scale up microscopic, well, and interwell data into unit and regional scale numerical simulation models.

Work to be Performed: Subsurface correlations, outcrop studies, petrophysics, diagenesis, geologic modeling, hydraulic fracture analysis, geostatistics, and numerical simulation modeling will be performed.

PROJECT STATUS:

Current Work: Correlation of well logs is continuing. The first phase of the field work is completed. We are currently writing, interpreting, and incorporating the field data into the other aspects of the project. Most of the well core has been described and thin sections made of key beds. Analysis of the thin sections is continuing and some SEM will be conducted after analysis of the thin sections is completed. Facies interpretation of the core will be incorporated into the well log and outcrop correlations. We are beginning to incorporate the data from the outcrop and core into the geostatistical and reservoir simulation models.

Scheduled Milestones:**Accomplishments:** greenriv.htm.

Regional cross sections were constructed and correlations established.

A cycle-based correlation scheme and nomenclature were established.

The first meeting with the Technical Advisory Board was held in Denver, Colorado.

Material highlighting aspects of the project was displayed at the UGS exhibitor booth at the National AAPG Meeting in San Antonio, Texas (April 1999) and at the Regional AAPG Meeting in Bozeman, Montana (August 1999). A poster was presented at the Regional AAPG Meeting (1999) showing the regional well-log correlations and how they tie into the outcrop.

Regional correlations of key beds exposed in Willow Creek and Nine Mile Canyons were carried out.

A detailed study site was selected and work was started.

Eighteen log-based cycles in the Middle Member and four log-based cycles in the Lower Member of the Green River Formation were identified and correlated throughout the study area on regional cross sections. A correlation scheme and nomenclature were established and sent to all the Technical Advisory Board Members for review. Tops for all the cycles and total sandstone and feet-of-porosity have been determined for more than 600 of the 1100 wells in the study area.

Gamma-ray data has been collected from more than 3700 feet of outcrop. The data has been used to generate curves and correlate them to gamma-ray curves from well logs. Key marker beds have been correlated on the surface in Willow Creek and Nine Mile Canyons. A detailed study site was selected, photographed, and 7 sections measured. Core from 30 wells has been described and sampled. Thin sections have been made from the core and from important beds exposed in Nine Mile Canyon. Analysis of the thin sections has begun.

Hydraulic fracture data has been compiled and has been incorporated into the geostatistical model.