

The Logdgepole- Bakken-Three Forks Petroleum System: A Field Seminar for Geologists, Engineers, and Operators in Western Montana



Type:	Classroom, Core and Outcrop
Instructors:	P. Ted Doughty and George W. Grader
Location:	Three Forks, Montana
Price:	USD 3,800/person all-inclusive (USD 3,500/person Double Occupancy if it can be accommodated)
Length:	4 days
Time:	August 28-31, 2018
Registration:	July 30, 2018

Course Summary

The course begins with a ½ day introduction to Late Devonian-Mississippian basins and strata (Bakken-Sappington-Exshaw) in the northwestern U.S. and southern Canada. The lecture concludes with a detailed discussion of Sappington Formation stratigraphy and sedimentology—demonstrating that it is equivalent to the Bakken in most respects and a nearly perfect analog.

Day one concludes with a visit to the Sappington-Three Forks Type section near Three Forks, MT. Days two and three are spent entirely in the field examining sections of the Sappington and Three Forks Formations. Attendees may also examine the overlying Lower Mississippian Lodgepole Formation at most stops. The field part of the course is organized so that each outcrop is examined and discussed in terms of its correlation with the productive Bakken and Three Forks Formations in the subsurface. Local well logs, outcrop gamma ray logs, detailed measured sections, and geochemical data are used at each section to support the field lectures and regional correlations. Excellent outcrops illustrate how facies, reservoir properties, and rock properties can vary along a lateral well bore. Engineers, geologists, and operators will find this especially interesting.

The course is located just north of Yellowstone National Park in an area of world-famous geysers, wildlife, scenery, and fishing. The Three Forks-Bozeman area of Montana also is the classic type section for the Three Forks and Sappington Formations.

Instructors

P. Ted Doughty received his B.A. from Washington University in St. Louis (1986), his M.S. from the University of Montana (1990), and his Ph.D. from Queen's University (1995). After stints with Amoco and Exxon Production Research Company, he achieved the rank of associate professor at Eastern Washington University before forming PRISEM Geoscience in 2005. PRISEM has worked extensively in the Rockies, Mid-Continent and Caribbean and has been researching and leading fieldtrips on Bakken outcrops in Montana since 2008.



P. Ted Doughty



George W. Grader, has studied the Devonian and Mississippian stratigraphy of Montana and Idaho for nearly 25 years. Dr. Grader received his Ph.D. in stratigraphy from the University of Idaho in 1998. With PRISEM since 2008, he has consulted with numerous clients on Devonian-Mississippian stratigraphy of Montana and North Dakota

George W. Grader

Learning outcomes

The attendee will gain a working knowledge of the following in the Lodgepole-Bakken-Three Forks Petroleum System:

- Bakken and Three Forks reservoir sedimentology and facies
- Sequence stratigraphy and basin architecture of the Bakken-Sappington and Three Forks
- Characteristics of key sequence boundaries
- Geology and engineering aspects of Bakken-Three Forks reservoirs
- Geochemistry and depositional environments of Bakken source rocks and seals
- Lateral facies changes and reservoir changes along horizontal transects
- Late Devonian-Mississippian tectonics and basin histories of western North America
- Regional geology of western Montana
- Stratigraphy and petroleum geology of the lower Lodgepole (incl. Scallion).

Itinerary

Day 1: Classroom and Field Three Forks

- Morning: Introductory lecture on the Bakken and Sappington formations followed by a introduction to sequence stratigraphy and core examination.
- Afternoon: Field excursion to see the section and introduction to Bakken sedimentology at the old type section

Day 2: Field Three Forks

- Full day in the field examining four outcrops along a proximal to distal facies transect.



Day 3: Core and Field Three Forks

- Morning: Core description exercise and correlation of Bakken well log exercise.
- Afternoon: Field excursion to see additional facies not seen on days one and two.

Day 4: Field Three Forks - Bozeman

- ¾ of day in the field driving 100 miles east to see a spectacular Three Forks outcrop and return.
- Final wrap-up in the late afternoon.
- Group Dinner

Workshop Information

Logistics: Overnights in hotels, class room training in hotel meeting room, field trip with van

Physical demand: moderate, road outcrops and some hiking

Pricing: Price for the workshop is per participant for the entire course

Included:

- Hotel for 4 nights with breakfast in Three Forks, MT
- Last night dinner in Three Forks, MT
- Lunches for 4 days
- Transportation Bozeman – Three Forks - Bozeman
- Manuals and maps

Not included:

- Transportation to and from Bozeman, MT
- Hotel for the night after the course. We can help you find accommodation for this night if requested.
- Dinners except last night dinner in Three Forks, MT