

# Review of the 2023 ROCKY MOUNTAIN SECTION AAPG ANNUAL MEETING IN BISMARCK, NORTH DAKOTA

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## INTRODUCTION

The Rocky Mountain Section of the American Association of Petroleum Geologists (RMS-AAPG) annual meeting was held in Bismarck, North Dakota for the first time in 35 years. This meeting was initially prompted in 2019 by the Rocky Mountain Section of the Geological Society of America (GSA), who approached the RMS-AAPG to co-host a meeting in North Dakota during 2023. However, the ensuing global Covid-19 pandemic shifted the timings of both organizational annual meetings, and the 2023 meeting became a standalone RMS-AAPG event. Between the 35-year hiatus of running an RMS-AAPG meeting in North Dakota and multiple Covid-19 ripple effects, there were many questions about this 2023 meeting.

## WHAT IS THE ROCKY MOUNTAIN SECTION?

The Rocky Mountain Section AAPG is the loose affiliation of geological societies and associations spanning the Rocky Mountain region of the United States from New Mexico to North Dakota and Montana. The RMS-AAPG Annual Meeting rotates locations annually and over the past decade has been held in Grand Junction (CO), Salt Lake City (UT), Cheyenne (WY), Billings (MT), and Denver (CO). When the RMS-AAPG Annual Meeting is held in Denver, attendance is usually 600-800 people. Outside of Denver, attendance is usually on the order of a few hundred. The technical agenda of RMS-AAPG meetings usually has a strong petroleum geology base, but in recent years has been expanded to include non-petroleum topics such as geothermal and CCUS (carbon capture utilization and storage). Attendance of RMS-AAPG annual meetings is largely comprised of geologists from industry, government, and academia.

## 2023 MEETING AGENDA

The meeting theme, *Energy and Plains Solutions*, was meant to be a play on words that touched on the geographic location and a few of the main technical agenda components of the meeting. *Energy* was meant to encompass both the ongoing importance of oil and gas resources as well as growing efforts in geothermal energy. The unconventional Bakken oil play reshaped the economic and physical landscape of the greater Williston Basin area and was one key technical agenda component. Being held in North Dakota, this year's technical agenda had a Williston Basin focus, which is positioned in the northern Great Plains of North America.

*Solutions* related to multiple carbon sequestration projects progressing in the plains of North Dakota (and beyond) to minimize CO<sub>2</sub> emissions. Additional technical material extended throughout the Rocky Mountain region, including multiple sessions on the Uinta Basin, and beyond.

## PRE-MEETING SHORT COURSE AND CORE WORKSHOP

While the main portion of this meeting was June 4th-6th at the Bismarck Event Center, pre- and post-conference programming stretched for a full week from June 2nd to June 8th. The first official component tied to the conference was a short course on Friday, June 2nd led by retired geologist Bob Lindsay titled "*How to Describe a Core.*" This short course was run with both in-person and virtual attendees (per request) and had 15 total attendees. Next, a two-day Williston Basin core workshop was run on Saturday-Sunday (June 3-4), which was attended by 45 people including registrants, sponsoring entities, and presenters. A total of 13 core-based presentations were run spanning the Cambrian (Deadwood Formation) to Permian (Broom Creek Formation) sedimentary units within the Williston Basin (fig. 1). The first workshop agenda day included core-based presentations on units including the Deadwood, Red River, Interlake, and Amsden Formations as well as the Mississippian Madison Group. The second day consisted exclusively of Bakken-Three Forks content, with core samples and presentation material spanning North Dakota, Saskatchewan, and Manitoba's portions of the prolific Bakken-Three Forks play.



**FIGURE 1.**

Dan Kohlruss (Saskatchewan Geological Survey) leading a core workshop session on the Bakken Formation from the Saskatchewan portion of the Williston Basin.

The core workshop included approximately 15 tons or 3,600 feet of core sample and stratigraphic units important to petroleum resources and carbon sequestration. Having served a pivotal role in the emergence of the Bakken unconventional oil play, many of the workshop presenters and attendees commented on the importance of the Wilson M. Laird Core & Sample Library which holds over 90 miles of core samples from North Dakota's subsurface.

## MAIN CONFERENCE

The main conference began with an opening Icebreaker event in the conference exhibit hall Sunday night which was attended by approximately 130 registered people and provided an initial opportunity for attendees to network with one another as well as the 21 conference exhibitors. The meeting technical program kicked off on Monday morning during the single-track opening plenary session with Timothy Nesheim (RMS-AAPG President and General Chair of the meeting) providing a welcome to attendees with an overview of the RMS-AAPG and a Williston Basin geologic overview that touched on the main technical themes of the conference. By mid-morning, three concurrent presentation sessions were running covering a variety of geologic and/or economic themes.

The technical program consisted of more than 85 oral and poster presentations on various topics including numerous petroleum geology-related topics from across the Rocky Mountain region with a Williston Basin focus. Additionally, there were more than thirty Energy Transition abstracts including CCUS (10), geothermal (11), critical minerals/Li (8), and hydrogen storage (4). Many attendees consistently commented very positively on the strong quality, quantity, and diversity of presentation topics.

By Tuesday morning, the final day of the 2023 RMS-AAPG annual meeting, the total registration/attendance of the conference had grown to over 200 people. Technical presentations continued through late Tuesday afternoon and closed with a single-track session titled "The Bakken After Action Report." This final session looked back at the early years of the prolific Bakken unconventional petroleum play which re-shaped the Williston Basin.

The energy and engagement of the attendees throughout the meeting was exceptionally strong from start to finish. The opening plenary Monday morning was strongly attended with standing room only (140 seats). Both keynote luncheon events on Monday and Tuesday (fig. 2), the Monday night museum social/RMS awards ceremony (fig. 3), and the Tuesday Presidents Reception had very strong turnouts of 60-70 attendees, which is a very high turnout for a conference of approximately 200 people. Even the final presentation of the closing session late Tuesday afternoon still held a solid attendance of approximately 50 people.

## POST-MEETING FIELD TRIP

Following the conference, Levi Moxness (North Dakota Geological Survey) led a two-day field trip through the Little Missouri Badlands of western North Dakota. Starting at the Cretaceous/Paleogene contact (dinosaur extinction event),



**FIGURE 2.**

Tuesday luncheon featuring a keynote presentation by Kathy Neset, reviewing her 40+ year professional history, most of which occurred in North Dakota.



**FIGURE 3.**

David Petty (left) receiving the Julie LeFever Award from the Rocky Mountain Section AAPG, received in part for his multi-decade publication and presentation history on the Mississippian Madison Group section within the Williston Basin. Timothy Nesheim (2023 RMS-AAPG President and General Chair) is pictured on the right.

this post-conference field trip provided an overview of North Dakota's pre-glacial stratigraphy and geologic history. Key field trip stops included Mud Buttes (Cretaceous Hell Creek and Paleogene Ludlow Formations), Logging Camp Ranch (coal-bearing Bullion Creek Formation), and the Petrified Forest within the Theodore Roosevelt National Park. Multiple field trip highlights included numerous dynamic discussions around outcrops, pushing one of the vans up a hill near the Logging Camp Ranch stop, and exploring for and collecting Oligocene fossils at the Fitterer Ranch.

## CLOSING COMMENTS

RMS-AAPG Annual Meetings have expanded in recent years to not only include petroleum resource technical focus, but also non-petroleum resources as well. The 2023 RMS-AAPG meeting touched on numerous non-petroleum components including coal, potash, geothermal, lithium, and other critical elements/minerals, and carbon sequence storage targets. The upcoming RMS-AAPG Annual Meeting will be in Utah during the fall of 2024 and will look to continue to build on the success of the recent meeting in Bismarck!