

2025 AAPG ROCKY MOUNTAIN SECTION MEETING

TECHNICAL PROGRAM

MONDAY, OCTOBER 6, 2025

OPENING PLENARY

Room: Shavano Peak

- 8:00-8:10 am **General Chairs – Welcome to RMS-AAPG 2025**
Josh Sigler and Preston Kerr
- 8:10-8:20 am **RMAG President – Welcome to Keystone**
Matt Bauer
- 8:20-8:30 am **RMS President – Stats of the Rocky Mountain Section**
Clayton Schultz
- 8:30-8:50 am **Novi Labs Inventory Analysis in the Rockies**
Jon Ludwig

9:00-9:40 AM

BREAK

GEOLOGIC ASPECTS OF CARBON STORAGE 1

Room: Crestone Peak

Session Chairs: Anna Littlefield & Karen Lechtenberg

- 9:40-10:00 am **Geochemical Monitoring for Carbon Capture and Storage Projects: Quantifying Risk through Statistical Methods**
Anna Littlefield, Colorado School of Mines
- 10:00 -10:20 am **CO₂ Storage: A New Chapter for the Silurian Interlake Formation, Williston Basin, North Dakota**
Remington Leger, University of North Dakota Energy & Environmental Research Center
- 10:20-10:40 am **Evaluating the CO₂ Storage Potential of Deep Jurassic and Permian Sandstone Reservoirs, Eastern Uinta Basin, Utah**
Mike Vanden Berg, Utah Geological Survey
- 10:40-11:00 am **Examining Seals, Compartments, and Fluid Migration in the San Juan Basin (NM) to Better Understand the Subsurface for Carbon Capture and Storage (CCS) Site Selection**
Christopher Smith, Advanced Hydrocarbon Stratigraphy
- 11:00-11:20 am **Frontiers in Geologic Carbon Storage: Targeting Mississippian Carbonates of the Mission Canyon Formation in the Williston Basin**
John Templeton, University of North Dakota Energy & Environmental Research Center
- 11:20-11:40 am **Stratigraphy, Sedimentology, and Paleontology of the Amsden and Broom Creek Formations (Permo-Carboniferous) in the Williston Basin: Characterization of a Conventional Carbon Storage Unit**
Karl Leonard, Minnesota State University Moorhead
- 11:40-12:00 pm **Legacy Wellbore Analysis in Petroliferous Basins: An Example from the Wyoming Carbon SAFE Project North of Gillette, WY**
Dan Eakin, University of Wyoming – School of Energy Resources
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TECHNICAL PROGRAM

ROCKY MOUNTAIN PETROLEUM SYSTEMS: DATA INTEGRATION AND MODELING

Room: Torreys Peak

Session Chairs: Jane Hearon & Lisa Wolff

- 9:40-10:00 am **Modeling the Petroleum Systems of the Piceance Basin**
Rand Gardner, U.S. Geological Survey
- 10:00-10:20 am **Geochemistry of Cretaceous Oils from the Powder River and Denver Basin**
Mohammad (Wahid) Rahman, Independent Consultant
- 10:20-10:40 am **Three-Dimensional Petroleum Systems Modeling of the Greater Green River Basin, Wyoming, Colorado, and Utah**
Jane Hearon, U.S. Geological Survey
- 10:40-11:00 am **Sequence Stratigraphy of the Muddy Sandstone, Wattenberg Field, Denver Basin, Colorado**
Steve Sonnenberg, Colorado School of Mines
- 11:00-11:20 am **The Mowry Shale of the Powder River Basin: Interpretation and Evaluation of a Mudrock Reservoir in a Sequence Stratigraphic Framework**
Jeffrey A. May, Colorado School of Mines; Geological Consultant
- 11:20-11:40 am **Improving Well Results Through LWD Resistivity, Chemical Tracers, and 3D Seismic in the Teapot Formation, Converse County, Wyoming: A Case Study in Under Pressured Low-Permeability Sandstone Reservoirs**
Mark Millard, Rockies Resources, LLC
- 11:40-12:00 pm **Reframing EUR Degradation as a Design Opportunity in the Powder River Basin's Niobrara**
Rex Stout, Sage Butte Energy
- 12:00-1:30 PM LUNCH**

GEOLOGIC ASPECTS OF CARBON STORAGE 2

Room: Crestone Peak

Session Chairs: Anna Littlefield & Karen Lechtenberg

- 1:30-1:50 pm **Beyond Injectivity: What Really Drives Pore Space Value?**
Autumn Eakin, Center for Economic Geology Research, School of Energy Resources, University of Wyoming
- 1:50-2:10 pm **Unified Geologic Workflows for Carbon Sequestration Assurance**
KC Oren, GeoStar CCS Partners
- 2:10-2:50 pm **Panel Discussion: CCUS in the Rockies**
Moderator: Katerina Yared, 3M
Participants: Anna Littlefield, Colorado School of Mines, Caitlin Olsen, University of North Dakota Energy & Environmental Research Center, Cat Campbell and Jessica Gregg, Tall Grass Energy, Cathy Stevens, Harvestone Low Carbon Partners

ISSUES AROUND ORPHANED & ABANDONED WELLS

Room: Torreys Peak

TECHNICAL PROGRAM

Session Chair: Nick Gianoutsos & Rand Gardner

- 1:30-1:50 pm **The Path to Understanding Corrective Action Needs for Potentially Leaking Artificial Penetrations at Deep Geologic Carbon Storage Sites**
Danielle Kingham, GSI Environmental Inc.
- 1:50-2:10 pm **Identifying the Source of Methane Emissions from Leaking Orphan Wells on the Kevin-Sunburst Dome, Toole County, Montana**
Nick Gianoutsos, U.S. Geological Survey
- 2:10-2:30 pm **Impacts from Orphan Well Sites: A Local Government's Perspective**
Gregory Dean, DPX Resource Exploration
- 2:30-2:50 pm **Analyzing Methane Emission Measurements from Orphan Wells in the Rockies**
Rand Gardner, U.S. Geological Survey

LOWER GREEN RIVER, UINTA BASIN: GEOLOGY AND RESOURCES 1

Room: Shavano Peak

Session Chair: Lisa Wolff

- 1:30-1:50 pm **Utah's Paleogene Depocenters: Fluvial and Lacustrine Stratigraphic Relationships Between the Uinta Basin and Sevier Thrust Front (Flagstaff, Colton-Wasatch, and Green River Formations)**
Ryan Gall, Utah Geological Survey
- 1:50-2:10 pm **Production Allocation and Well Communication in the Uteland Butte Member of the Green River Formation, Uinta Basin**
Stephen P Phillips, Wasatch Energy Management
- 2:10-2:30 pm **Chronostratigraphic Surfaces in the Lacustrine Castle Peak Member of the Eocene Green River Formation, Uinta Basin, Utah**
Riley Brinkerhoff, HIVE Partners
- 2:30-2:50 pm **Evidence of Lake Level Fluctuations and Exposure Surfaces in the Uteland Butte Member of the Eocene Green River Formation, Uinta Basin, Utah**
Chris Perfili, Wasatch Energy Management
- 2:50-3:20 pm BREAK**

GEOHERMAL AND CRITICAL MINERALS RESOURCES IN THE WEST

Room: Crestone Peak

Session Chair: Ryan Cahalan

- 3:20-3:40 pm **Geothermal Potential of Orphan Wells in the Rocky Mountains**
Rand Garner, U.S. Geological Survey
- 3:40-4:00 pm **Evaluating Enhanced Geothermal Systems: Assessment Methodology, Great Basin Results, and Plans for Midcontinent Basins**
Justin Birdwell, U.S. Geological Survey
- 4:00-4:20 pm **Detecting Hidden Sedimentary Geothermal Systems in the Upper Colorado River Basin**
Rand Garner, U.S. Geological Survey
- 4:20-4:40 pm **Examination of Geologic Thermal Energy Storage (GeoTES) and Ambient Direct-Use Geothermal Resource Potential for International Airports in Albuquerque, NM and Phoenix, AZ, USA**
Ryan Cahalan, U.S. Geological Survey
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TECHNICAL PROGRAM

4:40-5:00 pm **Direct Lithium Extraction (DLE) in the Western United States: Technical and Regulatory Challenges, and Potential Environmental Implications**
Roberta Russell, GSI Environmental

HELIUM RESOURCES IN THE ROCKIES

Room: Torreys Peak

Session Chair: Rachel Asiner Williams

3:20-3:40 pm **Developing a Tool for Helium Prospecting with 10 Legacy Cores: Relating Residual Helium and Other Volatiles in Decades Old Core to Helium Tests**
Christopher Smith, Advanced Hydrocarbon Stratigraphy

3:40-4:00 pm **Helium Industry in 2025**
Steve Tedesco, Running Foxes Energy

4:00-4:20 pm **Morrowan Helium in the Las Animas Arch Area of Colorado and Kansas: Production and Potential**
Mike Poirier, Apogee Exploration

4:20-4:40 pm **Source, Seal, Trap: Lessons from Helium Exploration in De-risking Subsurface Uncertainty**
Tim Rynott, Four Corners Helium, LLC

LOWER GREEN RIVER, UINTA BASIN: GEOLOGY AND RESOURCES 2

Room: Shavano Peak

Session Chair: Lisa Wolff

3:20-3:40 pm **Using Mass-Balance Organic Geochemistry to Spatially Delineate the Spectrum of Hybrid Unconventional Plays in the Lower Green River Formation, Uinta Basin**
William Drake, Kimmeridge Energy

3:40-4:00 pm **Reservoir Characterization of the Upper Douglas Creek Member in the Green River Formation, Western Uinta Basin, Utah**
Travis Plemons, Crescent Energy Company

4:00-4:20 pm **Integrating Rock, Oil, and Water Geochemistry of the Uinta Basin Targets for Improved Fluid Characterization**
Stamatina Hunter

4:20-4:40 pm **Harvesting the Garden Gulch – Exploring the Newest Play in the Uinta Basin**
Riley Brinkerhoff, HIVE Partners

4:40-5:00 pm **Variability in Lacustrine Source Rocks Within and Crude Oils from Different Intervals of the Green River and Wasatch Formations, Uinta Basin, Utah**
Justin Birdwell, U.S. Geological Survey

5:00-7:00 pm **EVENING RECEPTION AND AWARDS CEREMONY**

TUESDAY, OCTOBER 7, 2025

THE MOWRY SHALE IN WYOMING: PLAY DEVELOPMENTS AND RESOURCE RECOVERY

Room: Shavano Peak

Session Chair: Tim Fischer & Alexa Socianu

TECHNICAL PROGRAM

8:00-8:20 am	The Full Value Chain Sweet Spot in the Mowry Shale: A Cross-Disciplinary Research Initiative at the University of Wyoming <i>Tim Fischer, School of Energy Resources – University of Wyoming</i>
8:20-8:40 am	A Numerical Study on the Interactions between Hydraulic Fracture and the Bentonite Layer in Mowry Shale <i>Md Mahruf Hossain, University of Wyoming</i>
8:40-9:00 am	Data-Driven Sweet Spot Identification in the Mowry Formation: Integrating Machine Learning and Geostatistical Modeling <i>Himadri S. Das, Department of Energy and Petroleum Engineering, University of Wyoming</i>
9:00-9:20 am	Outcrop to Subsurface Characterization of the Mowry Shale Along the North Flank of the Uinta Mountains <i>Brent Greenhalgh, Wexpro Company</i>
9:20-9:40 am	Mowry Shale Geology, Sweet Spot Delineation, and Production Evaluation in the Powder River Basin, Wyoming <i>Matthew B. Johnson, School of Energy Resources – University of Wyoming</i>

GEOCHEMISTRY OF ROCKY MOUNTAIN PETROLEUM SYSTEMS

Room: Torreys Peak

Session Chair: Jason Flaum

8:00-8:20 am	Using XRF to Determine Geologic Parameters and Drill Bit Condition in Real Time, Jonah Gas Field, Wyoming, USA <i>Peter Blomquist, Diversified Well Logging</i>
8:20-8:40 am	Geochemical and Petrographic Characterization of a Shallow Drill Core through the Pierre Shale and Niobrara Formation in the Denver-Julesburg Basin, Colorado <i>Michelle Johnston, U.S. Geological Survey</i>
8:40-9:00 am	An Integrated DeltaLogR Study of the Petroleum System of the Greenhorn Formation Across the Southern Denver-Julesburg Basin <i>Jason Flaum, U.S. Geological Survey</i>
9:00-9:20 am	Utilizing Geochemical Drainage Profiles to Efficiently Drain Stacked Pay in DJ and Uinta Basins <i>Jana Bachleda, RevoChem</i>
9:20-9:40 am	Proximal-Distal Trends of TOC Concentration in the Lewis Formation, Greater Green River Basin, Wyoming <i>Mark Nell, Enbridge Wexpro</i>

ROCKIES EXPLORATION & REGIONAL MAPPING

Room: Crestone Peak

Session Chair: Mark Millard

8:00-8:20 am	Ah Shoal! Characterization and Mitigation of all that Comes with the Irregular Oolitic Grainstone Facies of the Middle Bakken, Mountrail and Burke Cos, ND. <i>Joe Bauman, Hunt Oil Company</i>
8:20-8:40 am	Spectral Tools for Sharper, Smarter Fault Detection in Unconventional Plays <i>Mark Morford, Lumina Geophysical</i>
8:40-9:00 am	Renewed Exploration in the Red River Formation (Williston Basin) using 3-D Seismic <i>Tim Nesheim, North Dakota Geological Survey</i>

TECHNICAL PROGRAM

- 9:00-9:20 am **The Great Plains Field, Lincoln Co., Colorado**
Steve Tedesco, Running Foxes Energy
- 9:20-9:40 am **Identifying Faults Using Drill Cuttings, Examples from Jonah Gas Field, Wyoming, USA**
Peter Blomquist, Diversified Well Logging

9:40-10:10 am BREAK

THE MOWRY SHALE IN WYOMING: GEOCHEMISTRY OF ROCKS AND OILS

Room: Shavano Peak

Session Chair: Tim Fischer & Alexa Socianu

- 10:10-10:30 am **Detailed Elemental Geochemistry from Outcrop, Core and Cuttings of the Mowry Shale in the Southwestern Wyoming Region, and Implications for Organofacies Distribution and Unconventional Exploration Potential**
Sam Hudson, Brigham Young University
- 10:30-10:50 am **Discriminating Mowry vs. Niobrara Oils Using Biomarkers and QQQ Geochemistry**
Alex Zumberge, GeoMark Research
- 10:50-11:10 am **Thermal Maturity and Hydrocarbon Expulsion of the Mowry Shale in the Greater Green River Basin**
Brad Taylor, Brigham Young University Department of Geological Sciences
- 11:10-11:30 am **Biomarker Analyses of the Mowry Shale: Assessing Paleoenvironmental Conditions Impacting Organic Matter in the Powder River Basin**
Amber Rivera, University of Wyoming
- 11:30-11:50 am **Integrated Geochemical and Mineralogical Characterization for Sweet-Spot Identification in the Mowry Shale, Powder River Basin**
Tarek Ismail, North Dakota Geological Survey

RECENT DEVELOPMENTS IN WILLISTON BASIN

Room: Torreys Peak

Session Chair: Tim Nesheim

- 10:10-10:30 am **A Novel Enhanced Oil Recovery (EOR) in the Bakken Formation using Class C Fly Ash Nanoparticles (FANPs) in Supercritical CO₂ Foam**
Raphael Noel-Berje, University of North Dakota
- 10:30-10:50 am **Middle Bakken Stratigraphy and Sedimentology: a Depositional History of Low Depositional Accommodation Combined with Far-Field (Distal) Tectonics**
John Hohman
- 10:50-11:10 am **Numerical Investigation of Microfracture Development in the Upper Bakken Shale Reservoir**
Fatemeh (Aram) Saberi, Department of Energy & Petroleum Engineering, University of North Dakota
- 11:10-11:50 am **Structural Evolution of the Williston Basin, Late Precambrian to Recent Time**
Dean Potter, DPX Resource Exploration

THE MANCOS SHALE IN SAN JUAN BASIN AND BEYOND

Room: Crestone Peak

Session Chair: Riley Brinkerhoff & Josh Sigler

TECHNICAL PROGRAM

10:10-10:30 am	Unlocking Insights into the San Juan Basin and the Four Corners Platform Petroleum System by Analyzing Volatiles Entrained in Legacy and Fresh Cuttings and Core <i>Christopher Smith, Advanced Hydrocarbon Stratigraphy</i>
10:30-10:50 am	Paleoenvironmental Interpretation of Upper Cretaceous Source Rock Deposition in Western Colorado Based on Geochemical Characterization of the USGS Candy Lane 1 drill core <i>Justin Birdwell, U.S. Geological Survey</i>
10:50-11:10 am	A Tale of Two Basins: The Juana Lopez Compared Between the Uinta and San Juan Basins <i>Riley Brinkerhoff, HIVE Partners</i>
11:10-11:30 am	The Shale from La Mancos: Evaluating the Regional Implications of Modern Horizontal Developments in the Mancos Shale <i>Josh Sigler, 406 Energy, LLC</i>
11:50 -1:00pm	LUNCH

THE MOWRY SHALE IN WYOMING: GEOMECHANICAL PROPERTIES AND FUTURE DIRECTIONS

Room: Shavano Peak

Session Chair: Tim Fischer & Alexa Socianu

1:00-1:20 pm	Fundamental Geomechanical Behavior of Mowry Shale Under Laboratory Conditions <i>Ehsan Dabbaghi, University of Wyoming</i>
1:20-1:40 pm	Hydro-mechanical Modeling of Triaxial Testing for Mowry Shale using Continuum Damage Mechanics <i>Md Mahmudul Hasan Mollah, University of Wyoming</i>
1:40-2:00 pm	Extending the Mowry Unconventional Play from the Powder River Basin to the Green River Basin, Wyoming <i>Mark Nell, Enbridge Wexpro</i>
2:00-2:20 pm	Production Forecast for Major Unconventional Reservoirs in Wyoming: A Focus on the Mowry Shale <i>Timothy Considine on behalf of Maryam Lakjaa, University of Wyoming</i>
2:20-3:00 pm	Panel Discussion: Public-Private Partnerships for Mowry Development in Wyoming <i>Moderator: Tim Fischer, School of Energy Resources – University of Wyoming</i> <i>Participants: Soheil Saraji, University of Wyoming, Jane Hearon, U.S. Geological Survey, WYGS-Rep, Mark Nell, Wexpro Company</i>

STRATIGRAPHY & SEDIMENTOLOGY

Room: Crestone Peak

Session Chair: Ellen Wilcox

1:00-1:20 pm	Integrated Stratigraphic Analysis for Enhanced Environmental Remediation <i>Casey Reid, Burns and McDonnell</i>
1:20-1:40 pm	Constraining Fracture Stratigraphy in Grain-Rich Mixed Carbonate Slope Deposits for Subsurface Applications <i>Rachel Aisner Williams, Colorado School of Mines</i>

TECHNICAL PROGRAM

1:40-2:00 pm	Random or Regulated? Decoding Fluvial Patterns in the Castlegate Sandstone <i>Olivia Tatum, Brigham Young University</i>
2:00-2:20 pm	Geology & Drilling Departments Collaborate Saving \$1.0 MM Per Well <i>Jim Jacobsen, IPT Well Solutions</i>
2:20-2:40 pm	Sedimentology and Stratigraphy of Cambrian-Ordovician Deadwood Formation in Central North Dakota: Implications toward Reservoir Presence and Quality <i>Ismail H. Faruqi, North Dakota Geological Survey</i>
2:40-3:00 pm	A Review of the Paleozoic Petroleum System and Reservoir Facies of the Northern DJ (Alliance) Basin, Nebraska <i>Nathaniel Gilbertson, pondi Resources, LLC</i>
3:00-3:30 pm	BREAK

FUTURE OF EXPLORATION IN THE ROCKIES

Room: Shavano Peak

Session Chair: Justin Birdwell

3:30-4:00 pm	Looking beyond the Bakken at emerged/emerging plays in the Williston Basin during 2010-2025 <i>Tim Nesheim, North Dakota Geological Survey</i>
4:00-4:30 pm	Perspective from Utah <i>Mike Vanden Berg, Utah Geologic Survey</i>
4:30-5:00 pm	Future of Development in the Powder River, Wind River, and Bighorn Basins <i>Timothy J. Considine, University of Wyoming</i>
5:00-5:10 pm	Closing Remarks – See you in 2026! <i>Clayton Schultz</i>

ALL MEETING POSTERS

Exhibit Hall: Red Cloud Peak

Subsurface Contaminant Pathways and Terrain Instability in Legacy Oil and Gas Wells with Implications for Environmental Risk and Remediation <i>Kelechi Nnaji Eze, University of Nigeria, Nsukka</i>	Poster 1
Ultra-High Resolution Core Characterization Leads to Better Constraints on Vertical and Lateral Heterogeneity in Subsurface Reservoirs <i>Zane Jobe, Colorado School Mines</i>	Poster 2
Preliminary Geochemical Characterization of the Pronghorn Member as a Supplemental Source Rock in the Bakken Petroleum System, Williston Basin, North Dakota <i>Ismail H. Faruqi, North Dakota Geological Survey</i>	Poster 3
Missing Well-Log Data Prediction Using a Hybrid U-Net and LSTM Network Model <i>Benard Sasu Oppong, University of Wyoming</i>	Poster 4

TECHNICAL PROGRAM

Porosity Evolution in Mowry Shale Under Exposure Subject to Low-Ionic Strength-Acidic Stimulation Fluid Blends <i>Larissa Santos, Department of Chemical and Biomedical Engineering- University of Wyoming</i>	Poster 5
Quantifying Spatial Trends in Oil Sample Color using Color Distance Metrics <i>Julie Robinson, Wasatch Energy Management</i>	Poster 6
Martian Basin Modeling: Geothermal and Liquid Water Potential <i>Rand Gardner</i>	Poster 7
Thermal Modeling of U.S. Sedimentary Basins <i>Rand Gardner, U.S. Geological Survey</i>	Poster 8
Overview of USGS Research Drilling Projects from 2010 through 2024 <i>Justin Birdwell & Jason Flaum, U.S. Geological Survey</i>	Poster 9
Natural Hydrogen Prospectivity Mapping (USGS) <i>Jane Hearon & Sarah Gelman, U.S. Geological Survey</i>	Poster 10
