QUARTERLY NEWSLETTER

Texas-Louisiana Carbon Management Community **Q3 2025**

TXLA CMC Universities

Lamar University

Louisiana State University

Texas A&M University-Corpus Christi

Texas A&M University-Kingsville

The University of Texas at Austin

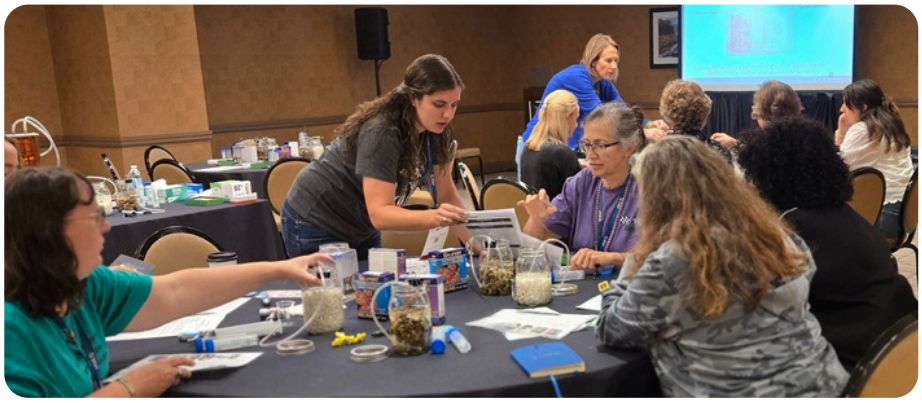
University of Houston

Join our Phonebook

Click or Scan

Our phone book connects you to others in the CCS community, enabling meaningful outreach and collaboration. Please feel free to share our newsletter with anyone interested in joining the directory to foster connections.

This project is funded for 2024 through 2026 by the Department of Energy's National Energy Technology Laboratory (DOE-NETL) project DE-FE32361.



Kristyn Stovall, Chemistry Teacher at Tatum ISD, and Christy Ross, AP Environmental Teacher at La Vernia ISD, teach GCCC's groundwater monitoring lab at the 2025 Conference for the Advancement of Science Teaching

Educating the Next Generation

This quarter, we highlight our educational achievements, showcasing how our group continues to bring Carbon Capture and Storage (CCS) sciences into classrooms, labs, and lecture halls. From designing and presenting a CCS groundwater monitoring lab for high school students to teaching advanced courses at universities, we remain committed to preparing the next generation of geoscientists and environmental scientists. We also contribute to broader knowledge sharing through published white papers and continued community outreach, ensuring that our expertise supports both academic learning and broader public understanding.

Resources for K-12 teachers

We're excited to share our new **Groundwater Monitoring Lab** for high school chemistry and environmental science. If you know a teacher who may be interested, please share this newsletter to sign up for future opportunities in the **link to the right**. More details are included in the attached one-page summary.

TEXAS Geosciences
The University of Texas at Austin
Jackson School of Geosciences
Bureau of Economic Geology

GCCC
GULF COAST CARBON CENTER

TXLA CMC
Texas-Louisiana Carbon Management Community

K-12 Outreach and Education for Carbon Dioxide Capture and Storage

Learn about CCS through Groundwater Monitoring
Chemistry and Environmental Science Lab

In this hands-on lab, students will simulate a controlled leakage of injected carbon dioxide and explore how it interacts with underground groundwater aquifers. By introducing CO_2 into two different groundwater environments representing a silicate aquifer and a more reactive carbonate aquifer, students will observe and compare geochemical changes over time.

This lab bridges chemistry and environmental science, helping students understand how CCS works to reduce atmospheric CO_2 and how it must be carefully monitored to protect our underground sources of drinking water.

Carbonate Aquifer Silicate Aquifer

Water Quality Monitoring Parameters

Parameter	What it tells us
pH	Acidity due to carbonic acid
TDS	Mineral/ion concentration
Alkalinity	Buffering capacity
Hardness	Concentration of calcium ions

$$H_2O + CaCO_3 + CO_2 \leftrightarrow 2HCO_3^- + Ca^{2+}$$

Water Limestone Carbon Dioxide Bicarbonate Calcium ions

Students will be able to understand the role of CCS in climate mitigation, explore acid-base chemistry and mineral dissolution, analyze real-world environmental monitoring techniques, and interpret data to draw conclusions about aquifer behavior.

Our Resources Online

Guidance videos for the monitoring lab

Lesson plans

Learning standards related to CCS

Classroom materials

Future training opportunities

More Information

https://forms.office.com/r/6kxd639nLc?origin=lprLink

https://gccc.beg.utexas.edu/put-it-back/

Fall 2025—Education and Outreach

Texas A&M University—Kingsville

This fall, Dr. Jong-Won Choi taught a new graduate course on carbon capture and storage, introducing master's students to the science, technology, and career pathways of this emerging industry. The course covers key CCS concepts and provides students with the foundation and knowledge to pursue opportunities in carbon management.

Building on this classroom experience, Dr. Choi recently launched a digital badge program that recognizes students who excel in CCS and geomechanics coursework. Looking ahead, work is underway to expand this into a multidisciplinary certificate program that will bring together departments across engineering and science—from chemistry and chemical engineering to mechanical, natural gas, and environmental engineering. Students completing a set of core and elective courses will earn a CCS certificate, creating a clear educational pathway into one of the fastest-growing fields in energy and climate solutions.

The University of Texas at Austin

The GCCC's graduate-level, project-based course, taught by Dr. Hailun Ni, Dr. Susan Hovorka, and Dr. Alex Bump, takes students through the complete life cycle of developing a carbon storage site. The curriculum covers aspects such as geologic characterization, reservoir mechanics, containment assurance, risk assessment, monitoring strategies, and economic evaluation. Students work with real-world data and industry tools to design a CO_2 storage site, evaluate its technical and financial feasibility, and prepare a proposal that meets regulatory requirements. The course emphasizes practical application through collaborative projects and milestone exercises, culminating in group presentations and a final written report.

A textbook is currently being developed to complement the course materials and provide an integrated learning resource.

In addition, the GCCC contributed to the Ground Water Protection Council short course for Class VI state regulators, serving as educators on Class VI modeling and related topics around Class VI wells, reflecting continuous efforts to support regulators with technical training in CCS. The team also helped launch the Network of National CCUS Centres of Excellence in the Global South in partnership with IEAGHG. This initiative connects institutions across the Global South to build carbon capture usage and storage (CCUS) capacity, foster technology transfer, and strengthen policy collaboration by addressing financing, data, and regulatory gaps through peer-to-peer learning and shared best practices.

University of Houston

Dr. Ramanan Krishnamoorti and the UH team launched a new graduate certificate program in CCUS, jointly taught by Geosciences and Petroleum Engineering professors. Fifteen students are participating, marking an important step in building structured CCS education pathways. In addition, the team published a white paper on CO_2-EOR and welcomed the eighth cohort of the CCUS Executive Micro-Credential program, now serving twenty seven enrolled students.

Beyond the classroom, the group hosted two major workshops. The Workforce of the Future event brought together 15 companies, 200 high school students, and 250 university students to explore careers in robotics, AI, and CCUS. A second career readiness workshop connected over 500 University of Houston students with 50 companies, offering practical guidance on entering the evolving energy workforce. Together, these initiatives highlight the group's commitment to advancing CCUS education and preparing students for opportunities in the changing energy landscape.

Louisiana State University

Dr. Mehdi Zeidouni's Subsurface CO_2 Storage fall course introduced students to the science and engineering of carbon storage, covering topics such as target formations, trapping mechanisms, fluid behavior, rock–fluid interactions, injectivity, and monitoring. Alongside technical instruction, the class also emphasized the importance of community engagement through service-learning, incorporating a lecture from Dr. Sarah Becker on how to communicate CCS impacts to stakeholders.

Beyond the classroom, activities included mentoring an undergraduate researcher, submitting and securing IRB approval for related work, and participating in a community and stakeholder meeting with GeoDura. Together, these efforts highlight the integration of technical training with real-world outreach, preparing students to evaluate storage projects not only for capacity and containment but also for their broader societal context.

Lamar University

Lamar University's team continued support for local CCS projects, Rose Carbon Capture, by providing testimony at the Texas Railroad Commission's public meeting. The hearing drew a mix of perspectives from industry representatives, environmental groups, and community members. Questions were raised about potential risks to aquifers, salt dome integrity, and local impacts. Additionally, the team continued K-12 outreach, reaching around a hundred 4^{th}-7^{th} grade students in demonstrating CCS and energy transition technologies.

On the research front, the team is working on revisions for their manuscript "CFD Modeling of Hypothetical CO_2 Pipeline Release at High Island 10L, Gulf of Mexico" and is collaborating with the Energy & Environmental Research Center - University of North Dakota on studies of CO_2 impurities and stream specifications.

Recent News

Texas gains primacy

November 12, 2025

The U.S. Environmental Protection Agency has approved Texas' application for Class VI Underground Injection Control (UIC) primacy, granting the Railroad Commission of Texas (RRC) primary authority to regulate wells used for permanent carbon dioxide storage. This decision recognizes the RRC's long history of overseeing injection wells and its technical expertise, bringing decades of combined industry and regulatory experience. The RRC has already received 18 applications and anticipates additional projects as industry interest grows.

With this approval, Texas becomes one of only six states to hold Class VI primacy, now administering UIC programs across all well types (Class I–VI). The final rule will become effective on **December 15, 2025.**

"This approval by the EPA recognizes RRC's expertise to add Class VI wells to our UIC program, to continue our work of protecting Texans and our natural resources."

Wei Wang, RRC Executive Director, Railroad Commission
Read More Here

Final Rule

RRC Notice of projects

Louisiana pauses new applications

October 15, 2025

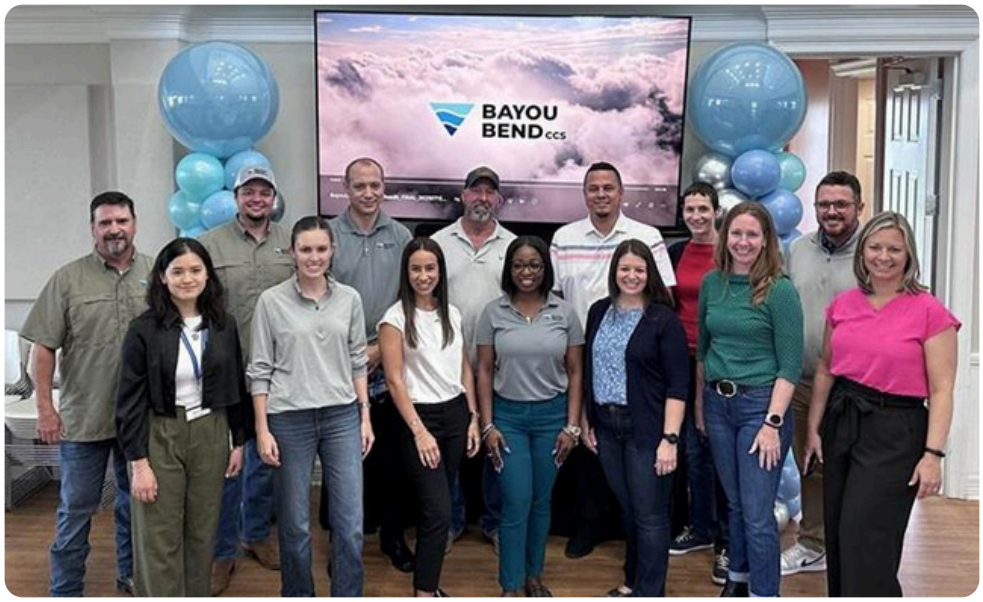
On October 15, 2025, Louisiana Governor Jeff Landry issued an executive order halting the review of all new Class VI Underground Injection Control well permits, directing the Louisiana Department of Conservation and Energy (LDCE) to focus on pending applications. Since gaining Class VI primacy in 2023, Louisiana has experienced a surge in demand, with 32 applications covering more than 100 wells—the highest in the nation. The moratorium is intended to allow regulators to prioritize select projects, strengthen compliance with safety standards, and expand public engagement, giving greater weight to local government and landowner concerns.

While some projects tied to other industries may continue under different rules, the halt raises uncertainty for pending CCS projects. The LDCE is currently focusing on the following permits:

- Goose Lake and Minerva South (Calcasieu and Cameron Parishes)
- Hackberry Sequestration (Cameron Parish)
- Louisiana Green Fuels (Caldwell Parish)
- River Parish Sequestration – RPN 1 (Ascension Parish)
- Capio Sequestration LLC – Sherburne (Pointe Coupee Parish)

LDCE Class VI Program

Executive Order



Representatives from Lamar University and UT Austin attended Bayou Bend's outreach meetings in Port Arthur to bring CCS knowledge to local residents

As part of the TXLA CMC's ongoing efforts for community outreach and knowledge sharing, members from UT Austin and Lamar University attended and presented at three town hall meetings. During these meetings, they addressed general questions around "What is CCS?" and shared knowledge about carbon capture and storage technologies to help build understanding among community members.

Each meeting drew around 20 residents, with elected officials and media members also attending. While most attendees already had some awareness of CCS, the sessions provided an opportunity to deepen understanding and positively shape perceptions.

Questions or Comments?

Reach us at the Gulf Coast Carbon Center at the Bureau of Economic Geology.

Email: TXLACMC@beg.utexas.edu

Leave a Comment: https://forms.office.com/r/xAGXyxRtJt?origin=lprLink

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