

# Bluebonnet Sequestration Project (FE00032338) CarbonSAFE Phase III

Bluebonnet Sequestration Hub, LLC

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**MAKE A DIFFERENCE.** 

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# **PROJECT OBJECTIVES**

Bluebonnet Sequestration Hub seeks to demonstrate the technical and commercial feasibility of a large-scale  $CO_2$  sequestration hub in Texas Gulf Coast for permanent storage of  $CO_2$  in a deep geologic formation.

- The Bluebonnet Hub is ideally located between Port Arthur/Beaumont and Houston area, two of the largest industrial CO<sub>2</sub> emissions clusters in Texas.
- The project will get custody of the CO<sub>2</sub> captured by these emitters through offtake agreements and transport the captured CO<sub>2</sub> via a third-party pipeline to the site, where the CO<sub>2</sub> will be stored.
- The Bluebonnet Hub will display that the geologic sequestration process can be deployed safely, ensuring retainment of the injected CO<sub>2</sub> within the intended storage reservoir and protection the underground sources of drinking water (USDW).
- The Bluebonnet Hub has the potential to become one of the largest CO<sub>2</sub> sequestration hubs in Texas. Designing Phase I with capacity to sequester about 8 million metric tons of CO<sub>2</sub> per year for 15 years.

### **PARTICIPANTS**







## **PROJECT LOCATION AND OVERVIEW**



Initial area for characterization

Stratigraphic Well

#### **PORE SPACE**

- ~70,000 acres of pore space secured in the area
- The pore space located in Chambers, Jefferson, and Liberty counties
- Stacked Lower Miocene and Frio/Hackberry targets
- Excellent storage capacity and injectivity
- Supportive communities and stakeholders

#### **MIDSTREAM & EMITTERS**

- Partnering with major pipeline operators for the development of CO<sub>2</sub> transport infrastructure
- Progressing agreements with multiple CO2 sources

#### **KEY MILESTONES**

- Drilled Encanto 01 stratigraphic well in Q4 2022.
- Submitted first Class VI permit for the Hub in September 2023 and two additional in July 2024.
- Submitted Frio/Hackberry applications to TRRC.

### **BLUEBONNET HUB STORAGE COMPLEX**



monitoring wells.

#### **INJECTION ZONES**

- Frio, Hackberry and Lower Miocene
- More than 700 ft of net sand.
- Effective porosity range 6-35%
- Permeability range 0.3-3 Darcies.

#### HIGHLIGHTS

- Multiple confining zones and composite confining systems between the injection target and the USDW.
- No major faults penetrating the confining zones.
- Data from 152 legacy wells included in the models.
- 193 sq miles of licensed 3D seismic data use for characterization.
- Surface facility infrastructure sited in mostly dry, upland areas, with limited wetland.
- Region with the lowest seismic hazard risks in the U.S. according to U.S. Geological Survey (USGS).





Dry + Wet Cuttings

Whole core



# **2024 SIMULATION MODEL**



Figure No 1





Figure No 2



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### **CARBONSAFE III PROJECT**

The primary objective of the CarbonSAFE III project is to complete the site characterization, FEED, permitting, and environmental approvals required to achieve construction readiness for the Bluebonnet Sequestration Hub. The Project will demonstrate the technical and commercial feasibility of a large-scale CO<sub>2</sub> sequestration hub for permanent storage of CO<sub>2</sub> in a deep geologic formation.

### **OBJECTIVES:**

- Completion of detailed characterization required for preparing and submitting all federal, state, and local permit requirements
- Acquisition of baseline data for monitoring programs
- Perform complete risk assessment of the storage complex
- Conduct Pipeline FEED Study for internal distribution lines
- Creation of field development, business, and financial plans
- Submission of applications for Class VI permits to construct
- Completion of the NEPA process for the CO<sub>2</sub> sequestration hub
- Completion of a Community Benefits Plan for the CO<sub>2</sub> sequestration hub

# **HIGH LEVEL EXECUTION PLAN**





## **COMMUNITY BENEFITS PLANS**

The project will implement a Community Benefit Plan in accordance with the Diversity, Equity, Inclusion, and Accessibility Plan, the Justice40 Plan, the Community Engagement Plan, and Quality Jobs Plan

- Create a pipeline for students at HBCUs to enter the carbon management industry
- □ Increase collaboration, inclusion, and contracting with underrepresented groups
- Create a certification program for carbon capture and storage skills
- Expand relationships and enhance programs at local community colleges, HBCUs and MSIs
- Create an outreach program in nearby high schools; and hosting public forums, panel discussions, and town hall meetings to engage with the community

