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CHUCK CARR BROWN, PH.D.
SECRETARY

State of Louisiana
DEPARTMENT OF ENVIRONMENTAL QUALITY

ENVIRONMENTAL SERVICES

SEP 2 1 2022

Brady Trahan
T. Baker Smith, LLC
107 Global Circle
Lafayette, LA 70503

AI No.: 232059
Activity No.: CER20210001

RE: Hackberry Carbon Sequestration, LLC – Hackberry Carbon Sequestration Project
Water Quality Certification WQC 211229-01
Corps of Engineers Permit MVN-2021-01265-WQQ
Coastal Use Permit P20210822
Calcasieu and Cameron Parishes

Dear Mr. Trahan:

The Louisiana Department of Environmental Quality, Water Permits Division (LDEQ), has reviewed the application to clear, grade, dredge, and place spoil to construct a carbon sequestration well, 12" injection pipeline, and 16" suction pipeline. Sediment dredged during construction will be placed in a beneficial use spoil placement area adjacent to the project site. Work will occur in and around Black Lake off Cameron Parish Road 649 in Hackberry.

The information provided in the application and the additional information received April 13, 2022, has been reviewed in terms of compliance with State Water Quality Standards, the approved Water Quality Management Plan and applicable state water laws, rules and regulations. LDEQ determined that the requirements for a Water Quality Certification have been met. LDEQ concludes that the deposit of spoil will not violate water quality standards as provided for in LAC 33:IX.Chapter 11. Therefore, LDEQ hereby issues Hackberry Carbon Sequestration, LLC – Hackberry Carbon Sequestration Project Water Quality Certification, WQC 211229-01. The Rationale for Decision and comment response summary are attached which address significant comments received regarding the water quality certification.

Should you have any questions concerning any part of this certification, please contact Elizabeth Hill at (225) 219-3225 or by email at elizabeth.hill@la.gov. Please reference Agency Interest (AI) number 232059 and Water Quality Certification 211229-01 on all future correspondence to this Department to ensure all correspondence regarding this project is properly filed into the Department's Electronic Document Management System.

Sincerely,

A handwritten signature in blue ink that reads "Bliss M. Higgins".

Bliss M. Higgins
Assistant Secretary

c: IO-W

ec: amy.l.oestringer@usace.army.mil
jessica.stowe@la.gov

**LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL SERVICES
PUBLIC COMMENTS RESPONSE SUMMARY**

RATIONALE FOR DECISION

**HACKBERRY CARBON SEQUESTRATION, LLC
HACKBERRY CARBON SEQUESTRATION PROJECT
AGENCY INTEREST (AI) NO. 232059
ACTIVITY NO. CER20220001**

**WATER QUALITY CERTIFICATION 211229-01
CORPS OF ENGINEERS PERMIT MVN-2021-01265-WQQ**

HACKBERRY, CAMERON PARISH

The Louisiana Department of Environmental Quality (LDEQ or the Department), Office of Environmental Services (OES), through this decision, issues a water quality certification (WQC) to Hackberry Carbon Sequestration, LLC – Hackberry Carbon Sequestration Project (Project). Hackberry Sequestration, LLC (HCS) proposes to clear, grade, dredge, and place spoil to construct a carbon sequestration well, 12" injection pipeline, and 16" suction pipeline. Sediment dredged during construction will be placed in a beneficial use spoil placement area adjacent to the project site. Work will occur in and around Black Lake off of Cameron Parish Road 649 in Hackberry, LA.

In accordance with the Clean Water Act, 33 U.S.C. §1341 *et. seq.*, any applicant for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into "navigable waters,"¹ shall provide the licensing or permitting agency a certification from the State in which the discharge originates or will originate. To conduct an activity that may lead to a discharge into "navigable waters," an applicant must receive authorization via a permit issued by the U.S. Army Corps of Engineers as per the Clean Water Act, 33 U.S.C. § 1344. The activity proposed by HCS will result in a discharge into "navigable waters," specifically wetlands. Therefore, HCS is required to obtain a federal permit from the U.S. Army Corps of Engineers and a water quality certification from LDEQ.

LDEQ's issuance of a water quality certification is a determination that the project as proposed to the U.S. Army Corps of Engineers, New Orleans District (Corps) will not violate Louisiana's Water Quality Standards and is in accordance with Louisiana's Water Quality Management Plan and all applicable state water laws, rules, and regulations. Official records referenced in this document are located in the LDEQ's Electronic Document Management System (EDMS).²

FACILITY INFORMATION

A. Description of the Project and Site Selection

HCS is proposing to develop a carbon sequestration facility in Cameron Parish, Louisiana. HCS proposes to clear, grade, excavate, and place spoil to construct a carbon sequestration well, 12" injection

¹ "navigable waters" is defined in 33 U.S.C. § 1362.

² EDMS is the LDEQ's electronic repository of official records. Documents can be searched for and retrieved from EDMS via LDEQ's website at <http://edms.deq.louisiana.gov/app/doc/querydef.aspx>.

pipeline, and 16" suction pipeline. Sediment dredging during construction will be placed in a beneficial use spoil placement area adjacent to the project site.

The proposed project has been designed to handle captured carbon oxides from the various industries in southwest Louisiana. The site for the proposed project was selected based on factors including favorable geology, controlled pore space storage rights, numerous industrial facilities with sequestration needs, and existing pipeline right of ways by which to transport the captured gases for disposal. The well will be located on surface acreage, with CO₂ injected into and sequestered, in subsurface pore space controlled by HCS. The proposed injection well location is restricted to the interior of HCS's property and access to the proposed well location is limited. The proposed access route will impact the least amount of wetlands compared to a direct route from the Gulf Intracoastal Water Way (GIWW) to the north; there are no land options for access. The pipeline will have no permanent impact to wetlands.

HCS is developing the project to capture carbon from nearby liquefied natural gas (LNG) and industrial facilities, and sequester the carbon by injecting into porous formations. The Project will capture and compress low-pressure CO₂ and transport it by pipeline to the new Hackberry processing facility. The Hackberry Pump Station will be constructed for this project on land owned by LA Storage, LLC, a subsidiary of Sempra Infrastructure. At the Hackberry Pump Station, CO₂ will be compressed and transported to the injection well via proposed high-pressure pipeline. The injection well will be drilled on land controlled by HCS. At the injection well, the CO₂ will be injected into intervals spanning over the approximately 1,700 net feet of clean, porous and permeable Miocene sands found under the site. The Project will be sized to permanently store up to 2 million tons per year of CO₂. Initially, HCS will be working with Cameron LNG, LLC (Cameron LNG) to handle and sequester captured CO₂ from their Cameron export facility.

B. Project Operations

The Project facilities, with the exception of the pipelines, will be constructed and operated on property entirely under the control of HCS.

Hackberry Pump Station:

The Hackberry Pump Station will occupy about 10 acres within a 160-acre parcel owned by LA Storage. The CO₂ will be delivered to the Hackberry Pump Station via a pipeline from the Cameron LNG facility. At the Hackberry Pump Station, this gas will be compressed and the pressurized CO₂ will be pumped to the injection site, approximately 5 miles away.

Equipment and facilities at the Hackberry Pump Station will likely include:

- Supercritical CO₂ pumps
- Small office, shop, and warehouse

Injection Site:

At the Injection Site, the supercritical CO₂ will be injected into subsurface formations for sequestration. The facilities installed at the Injection Site will include:

- Injection well
- Pile supported above water well platform (approximately 60 feet by 50 feet)
- Backup solar power and associated batteries
- Meter, valves, and solar power on the platform

Materials and equipment will be transported to the Injection Site by barge.

Wetland Impacts:

The overall Hackberry Carbon Sequestration Project will result in a net gain in wetland acreage. Up to 37 acres of coastal marsh will be created during the initial dredging and maintenance dredging of the proposed access route for the injection well. The wetland impacts for the construction of the project are outlined in the table below.³

Acres of Wetlands Affected by the Carbon Sequestration Project				
Impact Type (Acres)				
	Temporary	Permanent	PFO/PSS⁴ Conversion	Total Impacted Acres
Brackish Marsh (E2EM)	15.76	0.17	0.00	15.93
Scrub/Shrub Wetlands (PSS)	0.03	0.00	0.00	0.03
Tallow Dominated Bottomland				
Hardwood Forest (PFO)	0.52	0.00	0.46	0.98
Total	16.31	0.12	0.46	16.90

Beneficial Use of Dredged Material:

HCS proposes to utilize the approximately 211,035 cubic yards of dredged material beneficially to create up to 37 acres of coastal marsh. The dredged material will be hydraulically dredged and pumped via floating pipeline to one of the two designated beneficial use of dredged material (BUDM) areas. The two BUDM areas were sized to accommodate the initial dredging, as well as one additional maintenance dredge cycle. The maintenance dredging will allow for access to the injection well site for

³ EDMS document 13246880

⁴ PFO Palustrine forested (PFO) wetlands; PSS Palustrine scrub-shrub

a minimum of five years. In addition to the BUDM areas, HCS is planning to create additional marsh acreage through excavation. The access channels to the horizontally directional drilling (HDD) locations will be completed via excavation and not hydraulic dredging. The material excavated from the channel accessing the HDD exit near LA Highway 27 will be placed adjacent to the dredged channel in a manner conducive to marsh establishment.⁵

I. PUBLIC NOTICE AND COMMENT

In this *Public Comments Response Summary*, the Louisiana Department of Environmental Quality (LDEQ) has responded to written comments submitted during the public comment period for the water quality certification. A public notice was published by The U.S. Army Corps of Engineers, New Orleans District (Corps) on their public web page. This notice included the requirement of certification that the proposed activity will not violate applicable water quality standards.⁶ The notice was published January 17, 2022, and allowed for a 20 day comment period. The water quality certification application,⁷ additional information,⁸ and public notice⁹ are available for review at the LDEQ Public Records Center in Baton Rouge and on the LDEQ permits public notice webpage. The information was also accessible to the public in the LDEQ's EDMS.

This document responds to pertinent statements (questions and/or comments) relevant to the water quality certification regarding the impact of discharges on water quality from Hackberry Carbon Sequestration, LLC located in Cameron Parish. Issues identified from the commenter's statements have been numbered below. Comments have been summarized from written statements and appear as italicized text. Documents containing the commenter's complete statements are located in EDMS.

Issue #1:

What is clear is that the project involves extensive dredging for miles across areas of marsh and interior open waters in an area of Louisiana's coast undergoing significant impacts from hurricanes and storm surge, as well as previous hydrological modifications from canal dredging and other activities.¹⁰

A full consideration of the public interest in this setting would also include projections of future trends such as hurricane intensity and sea-level rise. The CMP contains maps of current and future storm surge vulnerability for the coast in which the same area is subject to 13-15 feet of surge flood depth, with areas to the south (adjacent to the Gulf of Mexico) subject to over 15 feet of surge depth. A National Oceanic and Atmospheric Administration (NOAA) May 2021 report on the impacts of Hurricane Laura concluded that the area west of Calcasieu Lake received about 3 feet of storm

⁵ EDMS Document 13246880

⁶ EDMS Document 13229099

⁷ EDMS Document 13151209

⁸ EDMS Document 13228500

⁹ EDMS Document 13229099

¹⁰ EDMS Document 13143271, page 2 of 9

surge inundation in that event, but estimated that a shift of the storm's track 20 miles to the west would have resulted over 9 feet.¹¹

LDEQ Response:

LDEQ's issuance of a water quality certification is a determination that the project as proposed to the U.S. Army Corps of Engineers, New Orleans District (Corps) will not violate Louisiana's Water Quality Standards and is in accordance with Louisiana's Water Quality Management Plan and all applicable state water laws, rules, and regulations. The water quality certification is not a permit.

HCS is proposing to utilize the approximately 211,035 cubic yards of dredged material beneficially to create up to 37 acres of coastal marsh. In addition to the BUDM areas, HCS is planning to create additional marsh acreage through excavation. The access channels to the HDD location will be completed via excavation.

The commenter has raised concerns regarding impacts from hurricanes and storm surge. LDEQ recognizes these concerns; however, these comments do not present a water quality related issue. LDEQ's Water Quality Certification is a determination of whether the placement of dredged material will result in a violation of state water quality standards as provided for in LAC 33:IX,Chapter 11. Under both 33 U.S.C. §1341 and the Louisiana Water Quality Regulations, LDEQ is only authorized to review a water quality certification application for compliance with applicable water quality standards, rules, and regulations.

Issue #2:

All of the project's excavating, dredging, trenching, spoil dumping and other disruptions and destructions in this wetland area are highly-detrimental to the ecosystem despite the contention on your Public Notice PDF Page 3 that zero acres of Essential Fish Habitat will be destroyed, altered or disturbed. It is amazing you would say such a thing. If you are going to give the public notice of proposed projects with the legal promise to the public that their comments will be honestly considered then the least you can do is TRY to fulfill that assigned duty.¹²

In contrast to the "Vicinity Map" for the project, perusal of Google Earth/Maps, as well as the plat images of Access and Pipeline Dredging for the project show that the areas around Black Lake contain significantly more open water than the map in question suggests. Much of the dredging would be occurring in open water in these areas.¹³

Extensive dredging will occur in channels through wetlands and connected water.

LDEQ Response:

HCS has designed the project to avoid and minimize impacts. The project proposes to impact

¹¹ EDMS Document 13143271, page 7 of 9

¹² EDMS Document 13114334, page 1 of 4

¹³ EDMS Document 13143271, page 7 of 9

approximately 330 acres, of which 290.1 acres are in open water. The total wetland impact is 16.8 acres with 16.68 acres of temporary impacts and 0.12 acres of permanent impacts. The project will generate over 41 acres of dredged material that will be used to create up to 37 acres of marsh.

Because of the short-term duration of the project construction, the project, as proposed, is only expected to result in short term impacts to turbidity. As provided for in LAC 33:IX.1113.B.9.c, the administrative authority may exempt for short periods certain activities permitted under Section 404 of the Clean Water Act that the state determines are necessary to accommodate legitimate uses.

Any impacts to water quality that may occur as a result of this project have been deemed to be temporary and the project, as proposed, is not expected to cause any long-term impacts to water quality. It was determined that the project, as proposed, will not violate water quality standards as provided for in LAC 33:IX.Chapter 11.

Issue #3

Beyond the terrible impact to the ecosystem, which should be obvious to anyone not blinded by some narrow monetary agenda or bureaucratic laziness, there is the Hackberry Salt Dome safety issue that I raised in the Coastal Use Permit comments.¹⁴

The location for the “Proposed Facility” ... is adjacent to, and it is within 200 feet of the lake which has been formed by solution of the salt beneath the caprock as the edge of the dome pushed up higher than the freshwater pervious zones. To operate the “Proposed facility” would required driving many pilings to support a boathouse and gangplank. Driving pilings that close to the thin edges of the Pelican salt caverns presents an undeniable risk of creating cavern collapse. A collapse there could spread eastward and northward triggering cascading collapses of the walls and ceilings of the Strategic Petroleum Reserve Caverns. Even more pilings will be attempted at the Injection Well Platform. A 50' by 75' platform will require a lot of piledriving earthshaking and noise along with muddying up of the lake, more trouble for creatures that will be helpless if you rubberstamp this applicant’s dream.¹⁵

The major fault that lies almost directly beneath the proposed project area, the Lake Arthur fault, could be activated by the pressure of injection at the location proposed. Sudden shifts in that fault, could have disruptive effects on the Strategic Petroleum Reserve and other activities at both the Hackberry and Vinton Salt Domes, at the Gulf Intracoastal Waterway, the Ellender Bridge, and the Sempra LNG site itself. Fracking the Lake Arthur Fault is not worth the risk to any one of those places.¹⁶

LDEQ Response:

The well site location was selected for its geology, controlled pore space storage rights, existing pipeline right-of-ways, and industrial facilities need. This site and access were chosen to minimize

¹⁴ EDMS Document 13114334, page 2 of 4

¹⁵ EDMS Document 13114334, page 2 of 4

¹⁶ EDMS Document 13114334, page 3 of 4

impacts to wetlands. The location of the well is restricted to the interior of the property. The access routes chosen propose the least amount of impacts. Pipeline placement was based upon the most direct route that parallels proposed projects.¹⁷

A water quality certification does not convey any property rights of any sort, or any exclusive privilege, nor does it authorize any injury to private or public property, nor any infringement of federal, state, or local laws or regulations. The water quality certification is granted to ensure the proposed project will not violate Louisiana's Water Quality Standards and is in accordance with Louisiana's Water Quality Management Plan and all applicable state water laws, rules, and regulations.

The commenters have raised concerns about nearby geologic formations and related potential safety issues. LDEQ recognizes these concerns; however, these comments do not present a water quality related issue. LDEQ's Water Quality Certification is a determination of whether the placement of dredged material will result in a violation of state water quality standards as provided for in LAC 33:IX.Chapter 11. Under both 33 U.S.C. §1341 and the Louisiana Water Quality Regulations, LDEQ is only authorized to review a water quality certification application for compliance with applicable water quality standards, rules, and regulations.

Issue #4

Any honest biologist would know that the project's turbidities, noise, alteration of hydrologic flow patterns, shifting of vegetative species, and interferences with migrations are exactly the things that 404 Permit considerations and Water Quality Certifications are meant to address, not to be disregarded and declared inconsequential.¹⁸

Creating new channels will change water flow patterns. Creating new spoil banks will change water flow patterns. Both of those things will change how and where organisms will be able to exist and move around. It is wrong to make life more difficult for wetland creatures.¹⁹

LDEQ Response

Because of the short-term duration of the project construction, the project, as proposed, is only expected to result in short term impacts to turbidity. As provided for in LAC 33:IX.1113.B.9.c, the administrative authority may exempt for short periods certain activities permitted under Section 404 of the Clean Water Act that the state determines are necessary to accommodate legitimate uses.

Any impacts to water quality that may occur as a result of this project have been deemed to be temporary and the project, as proposed, is not expected to cause any long-term impacts to water quality. It was determined that the project, as proposed, will not violate water quality standards as provided for in LAC 33:IX.Chapter 11.

¹⁷ EDMS Document 13246880

¹⁸ EDMS Document 13114334, page 1 of 4

¹⁹ EDMS Document 13114334, page 3 of 4

Comment #6

The maps show numerous places where the proposed new trenching crosses existing pipelines. Should some of those "foreign pipelines" be carrying oil and get punctured or ripped wide open by this applicant there will be a horrendous release into the already-stressed Cameron marshland. The applicant would hope to be able to dig down eight and a half feet and still miss an underlying pipeline by three feet while admitting that it might have to support that "foreign utility" with sandbags to keep it from fracturing. That surely sounds like risky business that the Corps and LDEQ should make sure they do not join by giving any approvals.²⁰

LDEQ Response

The commenter has raised concerns about a potential unpermitted discharge during construction of the facility. LDEQ recognizes these concerns; however, these comments do not present a water quality related issue arising from the project as proposed. LDEQ's Water Quality Certification is a determination of whether the placement of dredged material will result in a violation of state water quality standards as provided for in LAC 33:IX.Chapter 11. Under both 33 U.S.C. §1341 and the Louisiana Water Quality Regulations, LDEQ is only authorized to review a water quality certification application for compliance with applicable water quality standards, rules, and regulations.

CONCLUSION

Therefore, based on review and evaluation of the administrative record, which includes the Corps permit application²¹, additional information from the applicant²², and public comments, the Louisiana Department of Environmental Quality, Office of Environmental Services finds the Hackberry Carbon Sequestration, LLC – Hackberry Carbon Sequestration Project, as proposed, is not expected to cause or contribute to violations of Louisiana's Water Quality Standards and is expected to comply with Louisiana's Water Management Plan and all applicable state water laws, rules and regulations.



Bliss M. Higgins

Assistant Secretary



September 21, 2022

Date

²⁰ EDMS Document 13114334, page 2 of 4

²¹ EDMS Document 13151209

²² EDMS Document 13228500