

# **RESEARCH PERFORMANCE PROGRESS REPORT**

**U.S. Department of Energy National Energy Technology Laboratory**

**Cooperative Agreement: DE-FE0031558**

**Project Title: Partnership for Offshore Carbon Storage Resources and Technology Development  
in the Gulf of Mexico**

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**Submission Date: August 2, 2018**

**DUNS Number: 170230239**

**The University of Texas at Austin  
Jackson School of Geosciences  
Bureau of Economic Geology  
University Station, Box X  
Austin, Texas, 78713**

**Project Period: April 1, 2018 – March 31, 2022**

**Reporting Period End Date: June 30, 2018**

**Report Frequency: Quarterly**

**Signature Submitting Official: \_\_\_\_\_**

## **EXECUTIVE SUMMARY OF RESEARCH DEVELOPMENTS** **DURING THIS QUARTER**

The Partnership agreement between NETL and the University of Texas at Austin (UT) was fully executed on April 25, 2018. Sub-recipient awards with Lamar University and Louisiana State University (Louisiana Geological Survey) were established.

Starting almost immediately after the NETL – UT agreement was signed, new negotiations began related to augmenting the Partnership's scope commensurate with projected additional funding of between \$4 million and \$10 million. These negotiations were ongoing as of the end of the reporting quarter. Augmentation of the Partnership also included expanding most of the original sub-recipients' research and project objectives and engaging three new organizations as prospective sub-recipients, Aker Solutions, Texas A&M Geochemical and Environmental Research Group (GERG), vendor GfK, and a consultant, Dr. Robert Finley.

The Chandeleur Sound 3D seismic dataset was leased from SEI, Inc., in early June. Data were received and loaded shortly thereafter. The dataset will be an important tool in characterizing the geologic section of the Chandeleur Sound area.

## **Task 1.0 – Project Management, Planning, and Reporting**

On April 11, 2018, co-PI Dr. Tip Meckel presented an overview of the project at NETL headquarters in Pittsburgh, PA. This fulfilled the requirement for a Partnership kickoff meeting. Discussions during Meckel's time in Pittsburgh included the possibility of augmenting the Partnership's funding in the near future.

The Partnership agreement between NETL and the University of Texas at Austin (UT) was fully executed on April 25, 2018. Sub-recipient awards with Lamar University and Louisiana State University (Louisiana Geological Survey) were established. Due to a staff shortage in the Bureau of Economic Geology contracts department as of May 1, 2018, other sub-recipient awards (i.e., Fugro, TDI-Brooks, Inc. Trimeric, LLC and USGS) were still pending as of the end of the quarter. National Laboratory partners at Lawrence Berkeley and Lawrence Livermore received their funding via normal FWP process. An internal UT LoA (letter of agreement) was in process between the Bureau of Economic Geology (BEG) and the UT Institute for Geophysics in order to engage the Gulf Basin Depositional Synthesis (GBDS) group, which will provide the Partnership with longstanding regional geologic expertise of the Gulf of Mexico (GoM) and will focus on the Chandeleur Sound, Louisiana area.

Starting almost immediately after the NETL – UT agreement was signed, new negotiations began related to augmenting the Partnership's scope commensurate with projected additional funding of between \$4 million and \$10 million. These negotiations were ongoing as of the end of the reporting quarter. Augmentation of the Partnership also included expanding most of the original sub-recipients' research and project objectives and engaging three new organizations, Aker Solutions, Texas A&M Geochemical and Environmental Research Group, (vendor) GfK, and a consultant, Dr. Rob Finley.

The NETL project manager agreed that it would be most efficient to wait to update the Partnership PMP until after the augmented scope and funding are in place.

## **Task 2.0 – Offshore Storage Resource Assessment**

### **Subtask 2.2 – Database development:**

#### **Subtask 2.1.1 – Geographic Focus Area A - Lake Jackson, Lake Charles, and Lafayette (OCS) districts**

No activity this quarter.

#### **Subtask 2.1.2 – Geologic Characterization of Chandeleur Sound, LA**

The Chandeleur Sound 3D seismic dataset was leased from SEI, Inc., in early June. Data were received and loaded shortly thereafter. Figures 2.1.2.1 and 2.1.2.2 show the location of the dataset in Louisiana state waters. The dataset will be an important tool in characterizing the geologic section of the Chandeleur Sound area.

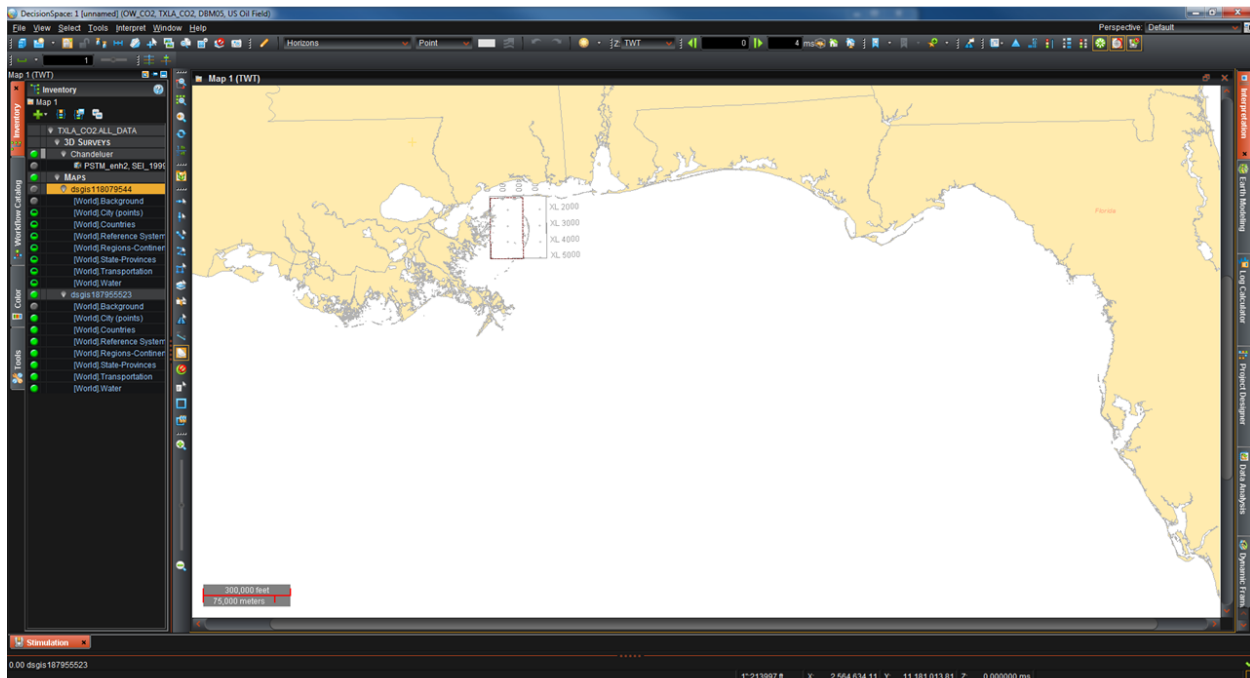


Figure 2.1.2.1 – Basemap of the north-central and northeastern Gulf of Mexico. The location of the Chandeaur Sound 3D dataset is outlined by the red rectangle.

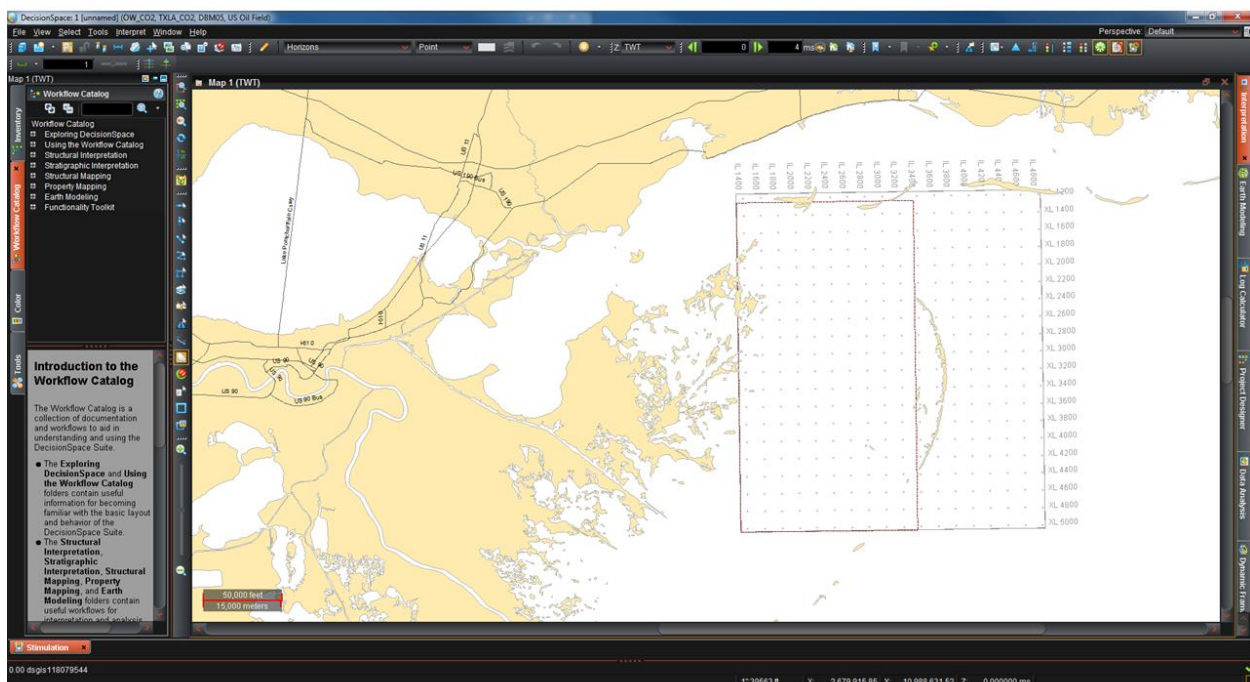


Figure 2.1.2.2 – Basemap of the northeastern waters of the State of Louisiana. The location of the Chandeaur Sound 3D dataset is outlined by the red rectangle.

**Subtask 2.1.3 Geologic Characterization of High Island, TX**

No activity this quarter.

**Subtask 2.2 – Data Gap Assessment**

No activity this quarter

**Subtask 2.2.1: Data gap assessments will focus on regionally relevant analog settings**

No activity this quarter

**Subtask 2.3 – Offshore and reservoir storage Enhanced Oil Recovery (EOR) Potential**

No activity this quarter

**Subtask 2.3.1 Texas (High Island area of Lake Jackson district) and Louisiana (Lake Charles and Lafayette districts)**

**Task 3.0 – Risk Assessment, Simulation and Modeling**

**Subtask 3.1 – Risk Assessment and Mitigation Strategies**

No activity this quarter.

**Subtask 3.1.1 Assess the adaptation of existing tools to offshore settings**

No activity this quarter.

**Subtask 3.2 – Geologic Modeling**

No activity this quarter.

**Subtask 3.2.1 – Reservoir modeling**

No activity during this quarter.

**TASK 4.0: Monitoring, Verification, and Assessment (MVA)**

**Subtask 4.1: MVA Technologies and Methodologies**

No activity during this quarter.

**Subtask 4.1.1 Geochemical Monitoring of Seabed Sediments**

No activity during this quarter.

**Subtask 4.1.2 UHR3D Seismic**

No activity during this quarter.

#### **Subtask 4.1.3 Distributed Acoustic Sensors**

No activity during this quarter.

#### **Subtask 4.1.4 Pipeline MVA**

No activity during this quarter.

### **Subtask 4.2: Plans for Testing of MVA Technologies**

#### **Subtask 4.2.1 Priority list for MVA Technologies and testing methods**

No activity during this quarter.

## **TASK 5.0: Infrastructure, Operations and Permitting**

### **Subtask 5.1: CO<sub>2</sub> Transport and Delivery**

No activity during this quarter

#### **Subtask 5.1.1 Data assessment near-shore sites**

### **Subtask 5.2: Scenario Optimization**

No activity during this quarter

#### **Subtask 5.2.1 Analog Site Optimization**

### **Subtask 5.3: Communication**

No activity during this quarter

## **TASK 6.0: Knowledge Dissemination**

No activity during this quarter

### **Subtask 6.1: Stakeholder Outreach**

### **Subtask 6.2: Technical Outreach**

### **Subtask 6.3: Advisory Committee**

In late June planning began for an Advisory committee meeting to be held via conference or video-conference call sometime in July.

## **PLANS FOR THE NEXT PROJECT QUARTER**

In the next quarter, work will continue on:

#### ***Task 1***

- Finalize negotiations for Partnership SOPO and funding augmentation.
- Implement sub-recipient awards.
- Establish an LoA (letter of agreement) with the UT Petroleum and Geosystems Engineering Department.

**Task 2** Establish well and seismic databases.

**Task 6** Initiate plans for stakeholder and technical outreach. Implement plans.

## STATUS OF PROJECT SCHEDULE AND MAJOR GOALS/MILESTONES OF PROJECT

### Schedule/Timeline

The project schedule/timeline is shown in the following Gantt chart.

Partnership for Offshore Carbon Storage Resources and Technology Development in the Gulf of Mexico		BUDGET PERIOD 1								BUDGET PERIOD 2							
		YEAR 1 (2018)			YEAR 2 (2019)				YEAR 3 (2020)				YEAR 4 (2021)				2022
Task	Tasks	qtr2	qtr3	qtr4	qtr 1	qtr2	qtr3	qtr4	qtr 1	qtr2	qtr3	qtr4	qtr 1	qtr2	qtr3	qtr4	qtr 1
		A-M-J	J-A-S	O-N-D	J-F-M	A-M-J	J-A-S	O-N-D	J-F-M	A-M-J	J-A-S	O-N-D	J-F-M	A-M-J	J-A-S	O-N-D	J-F-M
1	<b>Project Management, Planning, and Reporting</b>	M1		M2													
	Revision and Maintenance of Project Management Plan	D1a	D1b						G-NG								
	Progress Report	Q	Q	Q	Q/A	Q	Q	Q	Q/A	Q	Q	Q	Q/A	Q	Q	Q	Q/A/FF
2	<b>Offshore Storage Resources Characterization</b>					M4									M8		
2.1	Database Development		D2.1a		M3		D2.1b				D2.1c				D2.1d		
2.2	Data Gap Assessment		D2.2a				D2.2b				D2.2c				D2.2d		
2.3	Offshore EOR Potential		D2.3a				D2.3b				D2.3c				D2.3d		
3	<b>Risk Assessment, Simulation and Modeling</b>								M5				M6				
3.1	Risk Assessment and Mitigation Strategies				D3.1a				D3.1b				D3.1c				D3.1d
3.2	Geologic Modeling				D3.2a				D3.2b				D3.2c				D3.2d
4	<b>Monitoring, Verification, Accounting (MVA) and Assessment</b>												M7				
4.1	MVA Technologies and Methodologies				D4.1a				D4.1b				D4.1c				D4.1d
4.2	Plans for Field Testing of MVA Technologies				D4.2a				D4.2b				D4.2c				D4.2d
5	<b>Infrastructure, Operations, and Permitting</b>																
5.1	CO2 Transport and Delivery			D5.1a				D5.1b				D5.1c				D5.1d	
5.2	Scenario Optimization			D5.2a				D5.2b				D5.2c				D5.2d	
5.3	Communication			D5.3a				D5.3b				D5.3c				D5.3d	
6	<b>Knowledge Dissemination</b>																M9
6.1	Stakeholder Outreach	D6.1a				D6.1b			D6.1c				D6.1d				
6.2	Technical Outreach	D6.2a				D6.2b			D6.2c				D6.2d				
6.3	Advisory Panel				D6.3a			D6.3b				D6.3c					6.3d

## MAJOR GOALS / MILESTONES

Task/ Subtask	Milestone Number and Title	Planned Completion Date	Verification method
1.0	M18-1: Partnership Fact Sheet	8/30/2018	Fact Sheet file
2.0	M18-2: Data submitted to NETL-EDX	12/15/2018	List of data submitted
2.0	M19-1: Identification of geologic storage prospects & data gaps	5/30/2019	Summary Report
3.0	M19-2: Risk assessment, simulation and modeling of prospects	10/31/2019	Summary Report
3.0	M20-1: Modified risk assessment, simulation and modeling of prospects	10/31/2020	Summary Report
4.0	M20-2: Modified MVA technologies and testing plan identified for prospects	11/30/2020	Summary Report

2.0	M21-1: Refinement of geologic storage prospects & data gaps	5/30/2021	Summary Report
6.0	M21-2: Summary of Advisory Committee recommendations	12/15/2021	Letter Report

### **3. PRODUCTS**

Publications, conference papers, and presentations.

None generated to date.

Websites

None generated to date.

Technologies or techniques

None generated to date.

Inventions, patent applications, and/or licenses

None generated to date.

Other products

None to date.

### **4. PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS**

#### **UT Bureau of Economic Geology, GCCC**

Name: Susan Hovorka, PhD

Project Role: co-Principal Investigator

Nearest person month worked: 1

Contribution to Project: Leadership in planning and negotiating

Name: Tip Meckel, PhD

Project Role: Principal Investigator

Nearest person month worked: 1

Contribution to Project: Dr. Meckel presented the overview at the kick-off meeting

Name: Ramón Treviño

Project Role: co-Principal Investigator (project manager)

Nearest person month worked: 1

Contribution to Project: Mr. Treviño provided project management and project reporting; he acted as the primary contact for the DOE project manager and contracting specialist.

### **5. IMPACT:**



## **6. CHANGES/PROBLEMS**

Changes in approach and reasons for change: **None**

Actual or anticipated problems or delays and actions or plans to resolve them:

- **Lack of staff in the BEG contracts department caused delays in sub-contracting sub-recipients. Co-PI Trevino participated in the interview committee that interviewed contract specialist candidates. A new contract specialist was selected and accepted a job offer with a start date early in the upcoming quarter.**

Changes that have a significant impact on expenditures: **None**.

Change of primary performance site location from that originally proposed: **None**.

## **7. SPECIAL REPORTING REQUIREMENTS**

Respond to any special reporting requirements specified in the award terms and conditions, as well as any award specific requirements.

## **8. BUDGETARY INFORMATION**

### **Cost Plan Status Report**

Financial Status  
**University of Texas at  
Austin**

Baseline Reporting Quarter	Budget Period 1	
	4/1/2018-06/30/2018	
	Q2	Cummulative Total
<b>Baseline Cost Plan</b>		
Federal Share	\$312,500	\$312,500
Non-Federal Share	\$147,156	\$147,156
Total Planned	\$459,655	\$459,655
<b>Actual Incurred Costs</b>		
Actual Federal Share	\$12,650.50	\$12,650.50
Total Federal Actual Quarterly Cost	\$12,650.50	
Actual non-Federal Share	\$73,577.75	\$73,577.75
Total Actual Quarterly Cost	\$73,577.75	
Total Incurred Costs	\$86,228.25	\$86,228.25
<b>Variance</b>		
Variance Federal Share	\$299,849.00	\$299,849.00
Variance non-Federal Share	\$73,577.75	\$73,577.75
Total Variance Cumulative	\$373,426.75	\$373,426.75