

Field Study to Determine the Feasibility of Developing Salt Caverns for Hydrocarbon Storage in Western North Dakota

Submitted by:

Energy & Environmental Research Center (EERC)

☐ **Total Funding Request - \$9,500,000**

Total Project Costs - \$10,000,000

Project Duration: 2 years

PROJECT DESCRIPTION

“Pursuant to the continuing appropriation under section 57-51.1-07.3, the industrial commission shall use up to \$9,500,000, or so much of the sum as may be necessary, from the oil and gas research fund to contract with the energy and environmental research center for an underground energy storage study. The study must include consideration of the potential capacity of salt caverns in geological formations in North Dakota for the development of underground storage of energy resources, including natural gas, liquified natural gas, NGLs, and hydrogen. The energy and environmental research center may collaborate with other entities as needed on the study. Prior to contracting with the energy and environmental research center, the commission must receive from at least one nonstate entity assurance of financial or other types of support that demonstrate a commitment to the study. During the 2021-22 interim, the energy and environmental research center shall provide quarterly reports to the industrial commission and at least one report to the legislative management regarding the results and recommendations of the study.”

The EERC proposes to validate the suitability of salt formations for cavern development. The project will use field-, laboratory-, and modeling-based efforts to assess the nature of selected salt formations and develop engineering design recommendations for future pilot studies.

Technical Reviewers' Rating Summary					
		Technical Reviewer			
Statement	Weighting Factor	<u>G-54-02A</u>	<u>G-54-02B</u>	<u>G-54-02C</u>	<u>Average Weighted Score</u>
Objectives	9	4	5	4	36
Achievability	7	4	3	3	21
Methodology	8	5	4	3	32
Contribution	8	5	4	4	32
Awareness / Background	5	4	4	2	15
Project Management	3	4	4	3	9
Equipment / Facilities	2	3	3	3	6
Value / Industry-Budget	4	4	3	3	12
Financial Match – Budget	4	2	2	3	8
Average Weighted Score		206	188	162	185
Maximum Weighted Score				250 possible points	

TECHNICAL REVIEWER TOTALS

- G-54-02A

Average Weighted Score: **206 out of 250**

FUND

- G-54-02B

Average Weighted Score: **188 out of 250**

FUND

- G-54-02C

Average Weighted Score: **162 out of 250**

FUNDING TO BE CONSIDERED

TECHNICAL REVIEWER COMMENTS

Reviewer G-54-02A

The scientific and technical contribution with respect to OGRC goals is extremely significant. With little exploration having been conducted in the Williston Basin in North Dakota concerning salt storage options, this study will be extremely impactful if successful and will accurately demonstrate the capacity for subsurface salt storage. With large sources of hydrocarbons and limited or costly infrastructure related to production from the Bakken/Three Forks Formations, utilization and local processing options will add to the local economy and maximize the production potential in North Dakota.

Recommendation: FUND

Reviewer G-54-02B

This is a good program, and necessary to determine the feasibility of salt cavern storage of natural gas, NGL, LNG, and hydrogen gas. This storage technology is necessary for development of a viable petrochemical, EOR, and energy storage industry in North Dakota. Incorporating the UND Petroleum Engineering Department in the project also leverages access to their world class laboratory, simulation, and testing laboratories, as well.

Recommendation: FUND

Reviewer G-54-02C

This study is designed to address a significant component of North Dakotas petroleum and industrial gas infrastructure. The idea of constructing subsurface repositories is one possible solution. However, the geologic component's location, depth and sealing capacity of adjacent units will need to be thoroughly evaluated.

Recommendation: FUNDING TO BE CONSIDERED

Recommendation:

Director's Recommendation with contingency

Fund in the amount of \$9,500,000 with the contingency that

- **EERC establishes an industry advisory group that includes at least two experienced companies in the construction and operation of underground salt caverns for hydrocarbon and/or hydrogen storage.**