

“Conceptual Design for Chlor-Alkali and Valuable Materials Production from Oilfield Brine”

Submitted by:

Barr Engineering Co.

- Request for - \$110,000; Total Project Costs - \$220,000
Project Duration: 12 months**

PROJECT DESCRIPTION

- This project will develop a preliminary base plant design, products list, and economic assessment for a near-term commercial facility that produces at least 1 million gallons per week of 35% hydrochloric acid solution along with a corresponding amount of caustic soda. The process will be designed in a modular way such that its capacity can be scaled up later to produce additional materials from brine. Module additions would be a future retrofit, if deemed economically beneficial. Finally, this project will also evaluate the feasibility of recovering other high-value materials, such as lithium, magnesium, rare earth elements, iodine, potassium, and bromine from the brines. The outcome will propose a vetted technology such that investment marketing and establishment of a commercial facility can commence relatively quickly. This is a low risk project that could provide an outsized economic return to the State of North Dakota.
- Barr Engineering Co. (Barr) will be the lead organization for this project. The University of North Dakota Institute for Energy Studies (UND IES) and Triple 8 LLC will partner with Barr, the former will provide process modeling and laboratory analysis to support the process design, and the latter is the private business interested in commercializing the proposed technology, will provide matching funds and in-kind support. OneCor Services LLC supports this initiative and would utilize the local supply of HCl.

TECHNICAL REVIEWERS' RATING SUMMARY

		Technical Reviewer			
Statement	Weighting Factor	<u>G-45-01A</u>	<u>G-45-01B</u>	<u>G-45-01C</u>	<u>Average Weighted Score</u>
Objectives	9	4	3	1	18
Achievability	7	3	2	3	14
Methodology	8	3	2	4	24
Contribution	8	4	2	4	24
Awareness / Background	5	4	2	2	10
Project Management	3	3	3	3	9
Equipment / Facilities	2	4	3	3	6
Value / Industry-Budget	4	5	3	3	12
Financial Match – Budget	4	5	3	4	16
Average Weighted Score		190	122	147	153
Maximum Weighted Score				250 possible points	

TECHNICAL REVIEWER TOTALS

- G-45-01A

Average Weighted Score: **198 out of 250**

FUND

- G-45-01B

Average Weighted Score: **122 out of 250**

DO NOT FUND

- G-45-01C

Average Weighted Score: **147 out of 250**

CONSIDER FUNDING

DIRECTOR'S RECOMMENDATIONS

To consider funding in the amount of \$110,000.