

Mining Brines: A Hybrid Exploration and Production Model for the Minerals Extraction Industries

Thomas Smith, GeoBrines International

Thursday August 18, 2022, 9 a.m. Central Time



Thomas Smith, is the Chief Executive Officer with GeoBrines International, LLC. His presentation will be at 9:00 Central Time on Thursday, August 18, 2022. The topic is “*Mining Brines: A Hybrid Exploration and Production Model for the Minerals Extraction Industries.*”

Abstract

How can brine be mined? One first must understand what mining means. Mining, digging, chipping, or simply moving surface sediments has occurred in one form or another for as long as humans and other land mammals have existed on Earth. Fast forward to present - several NASA space programs have focused explicitly on mining or simply rock collecting on nearby asteroids and Mars. Why do we go to such great lengths to mine elsewhere when we have so many mines right here on our planet? Exploration is in our DNA!

What is a hybrid exploration approach? Hybrids result from mixing two different methods hoping to find a better, improved way of doing something. Why is this better? For one, the surface footprint of this type of brine mining operation is usually less than 10 acres in size. In our search for brines which contain valuable minerals, we use a rotary drilling rig typically used to drill for oil, gas, or geothermal water. Once we reach the brine reservoir, we again use tried and true equipment and methods to complete the well to produce the brine and deliver it to surface storage tanks. At that point, the processing step is variable and tailored to the specific minerals to be extracted from the brine. New projects aimed at extracting Lithium from brines are under various stages of planning and development throughout the world. Typical brine mining for Lithium using surface evaporation ponds requires a much larger mine site and is environmentally and logistically challenged in all but a few areas of the world.

GeoBrines International, and a host of other "out of the barrel" thinkers are currently developing processing technology to take CO₂ from the atmosphere and use it in a CCUS process mineral rich brines to permanently store it as an alkaline earth carbonate product, such as aggregate commonly used for road base and in concrete. Demonstration scale testing is planned under a DOE funded project at a suitable in-field site where Calcium and Magnesium Chloride-rich brines are available to further evaluate the efficiency and economic viability of ex-situ CCUS technology as well as the extraction of Energy Relevant Minerals such as Lithium and other battery metals.

Biography

Tom Smith is a registered petroleum engineer who has over 40 years of upstream operations, reservoir, and M&A experience. He joined Marathon Oil in 1981 and was involved with many key new business and technology projects in Wyoming, Utah, Texas, and Colorado. In 2004, he joined Whiting Oil and Gas as a Sr. Operations Engineer managing their non-Bakken Assets in the Rockies. In 2010, assumed the position of Business Development Manager, focusing on drilling JV's and Acquisitions and Divestitures which led to over \$1 Billion in business transactions in the Bakken, DJ, Green River, and Uinta Basins.