

FRONTIER FIELD SERVICES, LLC
an AKA Energy Company
Maljamar, New Mexico

Frontier Maljamar Acid Gas Injection Well #2

Frontier Field Services, LLC (Frontier), a subsidiary of AKA Energy (AKA), retained Geolex, Inc.® (Geolex) to evaluate the potential and feasibility for a second Acid Gas Injection (AGI) well in the area of the Frontier Maljamar Gas Plant (Maljamar Plant) located near Maljamar, New Mexico. The Maljamar AGI #2 was drilled as a redundant injection well and the existing Maljamar AGI #1 well will continue to be operated in conjunction with the AGI #2. By utilizing two injection wells Frontier will be able to continue operating their Maljamar Plant and injecting during future maintenance of either injection well. The Maljamar Plant operates under an Air Quality Permit, restricting flaring to five tons of sulfur per day. This restricted the ability to operate the Maljamar Plant at full capacity because it would have exceeded the air quality control limitations. The installation of the Maljamar AGI #1 and AGI #2 allows Frontier to run their plant at full capacity, cease flaring hydrogen sulfide (H₂S) and emitting sulfur dioxide (SO₂) and carbon dioxide (CO₂) to the atmosphere, and reduce consuming significant amounts of natural gas included in the combustion process. Instead, the Maljamar Plant operating at full capacity will permanently sequester approximately 108 tons of CO₂ and 11 tons of H₂S per day. Replacing the flare with the AGI wells for treated acid gas (TAG) disposal increases both the efficiency and the capacity of the Maljamar Plant. The progression for implementing the Maljamar AGI #1 included:

Phase I – AGI Feasibility Study:

Geolex prepared a detailed geological analysis of the area surrounding the Maljamar Plant to identify potential AGI reservoirs using analyses of well logs and 3-D seismic data. This study also included evaluating land uses in the surrounding properties, existing and potential oil and gas production in the area, and a regulatory and permitting review regarding the requirements for successful application for an AGI well from the New Mexico Oil Conservation Division (NMOCD).

Phase II – Permitting:

New Mexico requires a C-108 application be submitted to the NMOCD for authorization to inject. The permit process for the C-108 includes work produced from the feasibility study and notifications to all operators, oil, gas and mineral lessees, and surface owners within the area. Prior to acceptance of the C-108 application an NMOCD hearing took place where Alberto A. Gutiérrez, president of Geolex, provided testimony as an expert petroleum geologist and hydrogeologist in the required public hearing before the NMOCD and later the New Mexico Oil Conservation Commission (NMOCC) to obtain the permit for injection. In conjunction with the C-108 application a Rule 11 H₂S Contingency Plan was submitted to the NMOCD that addresses all H₂S safety hazards. Additionally, Geolex prepared and obtained approval for all Bureau of Land Management (BLM) permits for the well as a result of the surface and mineral ownership being managed by the BLM for the United States.

Phase III – Well Design, Drilling and Completion:

Geolex was responsible for permitting and regulatory compliance during the drilling and completion of Maljamar AGI #2. Collaboration with the drilling engineers in

Major Project Elements:

Phase I:

AGI Feasibility Study

Phase II:

Permitting and Expert Witness Testimony

Phase III:

Well Design, Drilling and Completion Supervision

Commissioning, Training, and Start-up Oversight

Phase IV:

Ongoing Maintenance, Support, and Compliance for existing AGI wells



interpreting geophysical logs and selecting the correct perforation zones was confirmed through reservoir testing; satisfying the reservoirs capacity to accept TAG at the designated rates and injection pressures.

Phase IV – Ongoing Maintenance, Support, and Compliance:

Geolex prepared and obtained approval for a revised H₂S contingency plan to incorporate the AGI #2 into the existing AGI facility. Geolex's ongoing activities include analyzing and reporting injection parameters, annual mechanical integrity tests and other required activities to maintain compliance. These responsibilities include notifying Frontier of any upcoming deadlines, and currently overseeing monitoring and regulatory compliance of the overall Frontier Maljamar AGI system.