

St. James Oil Corporation - “The Use of Acid Stimulation for Restoring to Production Shut-in Oil Fields”

St. James Oil Corporation of Laguna Hills, California, will use a new acid solution to treat shut down wells in the Las Cienegas Field in downtown Los Angeles in order to restore oil production. Las Cienegas Field wells that have been shut down for extended lengths of time (a year or more) and then returned to production typically produce at rates 30 to 50 percent less than rates prior to being shut down. The wells in the Las Cienegas Field were shut down two years ago because of unprofitable operations due to low oil prices at the time. During production prior to being shutdown, these wells had a tendency to suffer from considerable corrosion and severe calcium carbonate scale formation. St. James thinks calcium carbonate from the water that is produced with the oil may participate and form scale in the well and in the surrounding oil producing rock formation because of temperature and pressure changes that occur when the wells are shutdown. This scale then plugs up the surrounding rock, restricting the flow of oil into the well when the well is started back up.

St. James has had prior success in treating producing wells in another of their fields with a hydrochloric acid implemented with phosphonic acid to dissolve and remove calcium carbonate scale from the wells and believes that a similar acid treatment could be used to restore production in the Las Cienegas Field shut down wells. Hydrochloric acid is known to dissolve scales such as calcium carbonate and is used extensively in oil field operations throughout the world. The phosphonic acid reacts with minerals in the rock to form a temporary protective film, which allows deeper penetration and more effective reaction from the hydrochloric acid, and also reduces the formation of additional calcium carbonate scale.

Five shut down wells in the Las Cienegas Field have been selected for treatment with the new acid system to determine if the acid can be used to clean up the well and restore oil production. Each well will first be started up and produced for a period of time to determine their pre-treatment production capacities. Each well will then be shut down and an appropriate volume of the hydrochloric-phosphonic acid solution will be pumped into the well and out into the surrounding rock formation. The wells will be left shut down overnight, restarted, and monitored to determine their post-treatment production capacities which will be compared to pre-treatment rates to establish the effectiveness of the acid treatment. Successful demonstration of the ability of the hydrochloric-phosphonic acid solution to effectively restore and maintain oil production could result in restarting hundreds of shut down wells throughout the area.

Total Project Cost: \$ 205,000

DOE Share: \$ 100,000

St James Oil Corp: \$ 105,000 (Cost share 51 %)

Length of Project: 15 months.

Point of Contact: Richard. C. Russell 25431 Cabot Road, Suite 107, Laguna Hills, CA 92653;

Phone: (949) 461-5213, Email: RCRSJOC@aol.com