GasGun™ Update

March 23, 1999

In spite of current low prices for oil, there continues to be significant demand for GasGun well stimulations. We are very encouraged by the steady successes and the consistency in positive results reported. Some delays were encountered this past winter in propellant manufacture, causing a short interruption in providing stimulations. But inventories have been replenished, and the wireline companies fielding the GasGun are now ready when you are.

Recent Results

Last summer, **five** shallow (530') wells in Madison County, Illinois, were stimulated with the GasGun. These wells were drilled in the 50's and originally shot with nitroglycerine. They were produced for a time and later plugged with cement. The cement was drilled out in the 80's and the wells were put on pumps. Some wells received some acid treatment, without much response. Some waste gases were injected, and formation pressure was raised to 200 psi. Each of the five wells produced about **1 BOPD**. Two of the wells were perforated and three were open hole. All five wells were shot with the GasGun and each made **5 to 6 BOPD** immediately afterward. After several months of pumping, production continues to be sustained at **4 to 5 BOPD**. The consistency with which this set of wells responded to the GasGun treatment is very encouraging.

In our last update we reported on a GasGun stimulation of an open hole Rose Run sand at 4230' in Hocking County, Ohio. The well had been making **3 to 5 BOPD** and made **40 BOPD** after the stimulation. We are pleased to report that this production level has been sustained.

In November, an oil well in Fayette County, Illinois, was stimulated with the GasGun. This well was completed open hole in the Upper Mississipian Sand at a depth of 1475 feet. Hydraulic fracturing was ruled out because a water-bearing zone is only a few feet below the oil formation. The well was making **3 BOPD** prior to stimulation, and is now making a sustained **10-14 BOPD**, without any increase in water production. On the downside, there was apparently some damage done to the casing. The gun was placed within one foot of the bottom of the casing, and there was a partial collapse in the last two feet. It is surmised that nitro "block shots" that had been used in a previous stimulation attempt damaged the cement and allowed gases from the GasGun to get behind the casing. Fortunately, this is not interfering with production in this well.

In December, a gas well in Lake County, Ohio, was stimulated with the GasGun. This well was completed open hole in the Oriskany Sand at a depth of 1567 feet. The well has been produced since 1985, and recently production had fallen from 40 MCF/D to **10 MCF/D**. The GasGun stimulation was successful in increasing gas production to **160 MCF/D**.