

# Success Stories in Kansas - Pryor Oil Company

Eastern Kansas has long been considered an area with low producing rate oil wells and "poor-boy" type operations with no untapped reservoirs remaining to be discovered. Not so! Just ask Jim Pryor, president of Pryor Oil Company. In 1990, Pryor drilled the discovery well on the Donley lease in the mature Colony-Welda field in Allen County, within an area which has produced since early this century. That discovery well came in flowing - over 100 BOPD. Since then, the company has drilled 29 more producing wells and 19 water injection wells. What has resulted is one of the most attractive and well engineered oil leases in Eastern Kansas.

The Squirrel sandstone in the Colony area produces a 29°API crude from a typical depth of 830'-870'. Excellent reservoir properties have led to a large number of successful waterfloods over the years in this area. In June 1993, Pryor began injecting water into a limited number of wells on the lease. Response was timely and the balance of the injectors were drilled and completed in recent months. Current producing rates are in the 110-120 BOPD range and two-thirds of the lease has not yet responded to the waterflood. The lease has recovered 200,000 barrels of oil since discovery. Ultimately, 400-500,000 barrels will be recovered.

Despite all the positive parameters, the Donley has not been without its problems. After several wells had been drilled, and most noticeably after water injection began, it became obvious that the lease was producing from a fractured reservoir. In order to alleviate interwell communication and improve the waterflood sweep efficiency, Pryor contracted Fred Gee of Eureka, Kansas to inject about 90 barrels of cross-linked polymer into each of ten injection wells about six months after initial injection began. Now, three years later, the injection pressure has increased, an obvious oil bank has formed within the polymer-treated portion of the reservoir, and premature interwell communication has been non-existent. The balance of the injection wells will be given a similar treatment, as necessary.

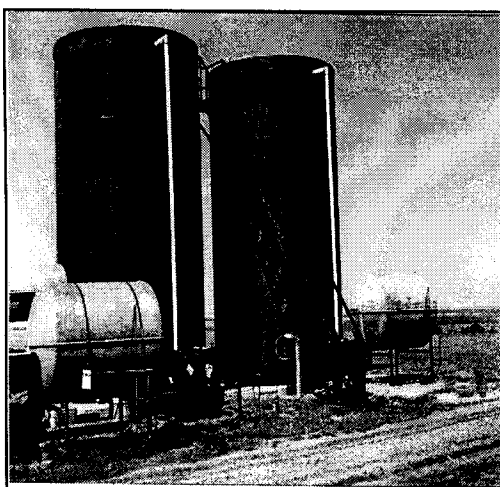
In order to obtain a sufficient water supply, a Mississippian supply well was drilled. Unfortunately, the Mississippian is slightly sour and it has been necessary to treat the injection water with biocide. Prior to controlling the problem, serious iron sulfide formation was causing frequent well servicing and replacement of equipment. Since a stabilized biocide program has been instituted, servicing of injection wells has not been necessary. The produced water is disposed of in a shallow carbonate formation rather than being recycled.

With the assistance of Lancer Oil, Inc., Pryor built a state-of-the-art injection plant. The plant features an individual water line to each injection well, a water treatment plant which requires changing the 10-micron filters only once every two months; and a closed-injection system eliminating oxygen from the entire system. A security and integrity monitoring system within the plant notifies company personnel by telephone in case of excessive pump pressures, improper tank levels, malfunctioning of the water supply well pump or the 3-phase electrical system, and unauthorized entry.

Pryor Oil Company has maximized the potential of this waterflood by using a quality drilling and completion program, excellent equipment, attention to reservoir and chemical properties and workable short-term and long-term operating procedures. The result has been not only a very attractive operation, but an extremely successful economic venture as producing rates are high and operating costs are well below the industry average for comparable waterfloods in Kansas.

Granted, the lease is an exceptionally good one for eastern Kansas, however it remains an excellent example of proper oilfield and reservoir management. The operator's efforts and expense of utilizing the best available services, equipment and personnel have resulted in a substantial increase in revenues.

(Cont. pg. 5)



Corrosion-proof, air-tight water tanks provide two-stage water treatment and excess storage capacity.

| <b>BASIC LEASE PARAMETERS</b>       |                    |
|-------------------------------------|--------------------|
| <b>PRYOR OIL CO. - DONLEY LEASE</b> |                    |
| Producing Formation                 | Squirrel Sandstone |
| Typical Depth                       | 830'-870'          |
| Lease Area                          | 160 acres          |
| Productive Area                     | 80 acres           |
| Average Sand thickness              | 35 feet            |
| Average Porosity                    | 24%                |
| Avg. Connate Water Satn.            | 30%                |
| Oil Gravity                         | 29° API            |
| Current Rate                        | 115 ROPD           |

(Cont. from pg. 4 - Pryor Oil)

The additional profit realized will pay out the incremental expenses many times over. Now that the chemical problems are under control and the remainder of the lease will soon be responding to the expanded lease-wide waterflood, it is anticipated that the producing rate will soon reach about 150 BOPD and hover in that range for possibly as long as two years.

In addition to the companies listed above, the operator wishes to acknowledge Charley Hutton and Chuck Hutton for their valuable input in planning the overall project, and Alan Rader for providing the well completion engineering and electronic monitoring design.