

## Application for Authorization to Inject

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- VI. Attached is a tabulation of all wells of public record that fall within the  $\frac{1}{2}$  mile radius of the SWD well, the U.D. Sawyer #11. This investigation has further shown that all these wells have a good cement seal around their casing shoe and will therefore prevent the upward migration of the disposed water into any potable water zone. The U.D. Sawyer #11 was converted to SWD in the lower Crossroads Siluro Devonian under Administrative Order SWD-662 in June, 1997. The lower Crossroads Siluro Devonian is taking limited amounts of water, and the additional capacity of the upper Crossroads Siluro Devonian is necessary to continue to produce the offset producers. Injection into the upper Crossroads Siluro Devonian will be limited to an amount equal to the withdrawals in the offset producers.
- VII. The proposed average daily injection rate for the subject well is 5,000 BWPd; the maximum daily injection rate would be 7,500 BWPd. This will be a closed system with an average pressure of zero and a maximum pressure of 2400 psi. Only produced Devonian water will be injected in the proposed well, so incompatibility will not be a problem.
- VIII. The injection zone is a dolomite known as the Devonian. The top of the Devonian in this well is at 12,000', and is approximately 300' thick. The zone will be selectively perforated from 12,007' - 12,154'. The main source of drinking water in this area comes from the Cretaceous formation, the base of which is at 180'. The Ogallala overlies the Cretaceous, but pinches out in certain areas around the zone of interest. There are no known sources of drinking water underlying the injection interval.
- IX. After perforation, the well will be stimulated with 3000 gallons of 15% NEFE HCl and ball sealers.
- X. Log and test data is on file with the Division.
- XI. Attached is an analysis of the water from a water well approximately 1 mile northwest of the proposed disposal. This is the only well which could be located.
- XII. Saga Petroleum LLC has examined the available geologic and engineering data and can find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.
- XIII. The required "Proof of Notice" is attached.
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