

RESERVE ANALYSIS

Remaining Hydrocarbon Target

The remaining secondary recovery target is the hydrocarbon target in the CDU. All of the wells in the proposed unit are at or are past the primary EUR. The remaining secondary target is based on the following:

$$\text{Remaining Secondary} = \text{Total EUR} - \text{Current Cumulative Production}$$

$$\text{Total EUR} = \text{Primary} + \text{Secondary EUR}$$

$$\text{Secondary EUR} = \text{Primary EUR (i.e., 1:1 Sec/Prim)}$$

The proposed unit wells will recover 802 MBO as of July 1, 1998. The estimated primary production for these wells is significantly less at 531 MBO. The production volumes beyond this primary EUR is attributable to the flood response from the West Corbin #4 disposal volumes. Attached, as exhibits 9 - 16, are the production curves for the seven unit area wells. Also marked on the production curves are the primary EUR and the estimated cumulative production to July 1, 1998.

(Note: July 1, 1998 chosen as the cumulative production date for tract participation)

Original Oil in Place

The original oil in place for the proposed unit is 2.83 MMSTB. The estimated primary recovery of 531 MSTB is 18.7% of OOIP and the total EUR of 1.06 MMSTB is 37.5% recovery of oil in place.

The original oil in place was determined by volumetric analysis based upon the hydrocarbon pore volume maps. The hydrocarbon pore volume was determined by digitizing each log and using the net pay thickness, porosity, and water saturation in the "Lower YZ", "A", and "B" sands for each well. The data was then mapped and planimetered. Back up data for this calculation is located in the Platt Sparks study.

Primary Recovery

The proposed unit has a primary EUR of 531 MSTB. This primary EUR was estimated using decline curve analysis and excluding the waterflood effect from the West Corbin #4 disposal well.

The waterflood effect seen on Exhibits 9 - 16, are seen as the change in slope for GOR and oil rate.

