Eunice Monument South Unit Expansion

Lea County, New Mexico

Initial Plan of Development and Operation

Chevron as operator of the Eunice Monument South Unit and representative of the Eunice Monument West Unit Study Area Working Interest Owners proposes the initiation of the Eunice Monument South Unit Expansion. The unitization and subsequent waterflooding of the subject area is initiated to improve the ultimate recovery of hydrocarbons and prevent hydrocarbon waste from the proposed 3,000 acre unit area. The initiation of this project has the potential of recovering an additional 13.5 MM stock tank barrels of oil that would not otherwise be recovered under present operations.

The initial plan of development for the proposed project calls for the drilling and completion of five new Eunice Monument South Unit Expansion Area wells. Four of the five wells will be replacement wells for either currently active, economic Eumont gas wells or an uneconomic re-entry, plug and abandoned Eunice Monument well. The remaining proposed new drill will be located in a previously undrilled 40 acre tract.

EMSU Expansion #881 - Replaces active Eumont gas well Texaco State K. #1
EMSU Expansion #887 - Undrilled 40 acre tract. SW/4 SW/4 Sec. 14.
EMSU Expansion #892 - Replaces P&A'd Eunice Monument Texaco State K #2
EMSU Expansion #894 - Replaces active Eumont gas well Chevron's R.R. Bell G #1
EMSU Expansion #924 - Replaces active Eumont gas well Amoco's Gillully A Gas Com. #7.

Ultimately, EMSU Expansion wells 881, 887 and 924 are planned to be injectors. Initially, EMSU Expansion No. 887 will be an injector; however, it is anticipated that EMSU Expansion No.'s 881 and 924 will be utilized as producers until leaseline agreements are arranged with the offset operators. At that time, with approval, the wells will be converted to injection.

Twenty-one existing proposed unit area wellbores will initially be converted to injection. Nineteen of these conversions are located in the interior of the unit. The remaining two conversions consist of one southwest unit boundary well (SW/4 NW/4 Sec. 23) and one EMSU leaseline well (SW/4 SW/4 Sec. 24).

The conversion workovers will primarily consist of clean outs, deepenings, logging, setting liners on select wells if necessary and equipping for injection. Generally, 2 3/8" IPC tubing with an injection packer will be run and set at approximately 50-100 feet above the top perforation or casing shoe. Corrosion inhibiting fluid will be circulated in the casing tubing annulus to protect both strings of pipe.

It is anticipated that the initial injection rate will be maintained at 600-700 barrels of water per day per injector. This rate corresponds to the current average injection in the existing Eunice Monument South Unit injectors. The surface injection pressure will initially be limited to 0.2 psi/ft; however, it is planned to perform tests, such as step rate tests to determine if the formation parting pressure changes. Later in the life of the unit, if it is so determined that the formation parting pressure has increased, due to increased pore pressure as a result of injection, the upper surface injection pressure limit may be re-defined, per OCD approval, to approximately 0.3 psi/ft.

Reconditionings will initially be performed on 49 or all of the remaining unit area wells. These reconditionings will consist of clean outs, deepenings, logging, setting liners where necessary, perforating productive intervals and equipping for production. Size-up of pumping equipment will be performed when required.

After the initial phase of waterflood development is completed, the unit will consist of 53 production and 22 injection wells. The ultimate development plan for the unit allows for a total of 38 injectors and 37 producers. Leaseline agreements will be pursued on potential leaseline conversions which indicate favorable engineering and economic feasibility. Currently, the highest potential leaseline injectors are located on the west, south and southeast edges of the proposed unit. The remaining potential leaseline injectors will be evaluated after a detailed Reservoir Characterization study has been completed.

The existing Eunice Monument South Unit injection facility will be utilized to supply pressured injection water to the Expansion Area. A 10" main injection trunk line, running to the north of the existing EMSU injection facility will be tied-into and a new, tapered 10", 8", 6" trunk line extension will be run to provide the expansion area with injection water. Laterals will be run to individual expansion area injection wells, through injection manifolds. Individual injection well choking capabilities will be provided for at each injection manifold.

The existing EMSU injection facility has the capability of delivering approximately 130,000 barrels of pressurized water per day. The existing EMSU currently utilizes 86,000 BWPD for injection. After initiating the expansion area flood, the total facility injection requirements will increase to just over 100,000 BWPD.

Water supply (make-up water) for the existing EMSU and proposed EMSU expansion sources from six San Andres water supply wells located within the existing EMSU. These six wells are produced from a very prolific water productive San Andres interval at approximately 4,250' to 5,000'. With the existing submersible pumping equipment, these wells are capable of producing a total of 105,000 BWPD with very little drawdown. (Pumps located at approximately 2,500 feet).

The current EMSU water supply demand is approximately 68,000 BWPD. Water supply requirements for the expansion area are estimated to be 13,000 to 18,000 BWPD depending on the number of leaseline conversions.

As evidenced above, both the injection facility and water supply system are more than adequate in servicing both the existing EMSU and proposed EMSU Expansion.

After unitization, it is planned to dismantle all existing production batteries and serve the expansion area with only one satellite and a central tank battery. The satellite battery, which will be located near the north end of the unit, will consist of test vessels and a surge vessel for gas sales. Production will be combined in the surge vessel and ultimately pumped to the central tank battery. The central tank battery will consist of test vessels for the south end wells, primary separating equipment and oil storage vessels for sale through on site LACT units. Additionally, there will be a 500 barrel skim oil/water transfer tank, 100 barrel skimmed oil tank and a 5,000 barrel overflow tank. Produced water will be pumped down a 6" poly-line to the EMSU injection facility for processing.

Long term plans for the expansion area call for possible future, field wide infill drilling, waterflood pattern realignment and tertiary CO_2 projects. These transitional projects are in the very early feasibility study phase. It is anticipated that these projects will be evaluated in a more rigorous fashion after portions of the unit achieve fillup and the economic feasibility of the project is established.

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