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Area Three Team - Farmington, New Mexico

**To:** James Strickler & Allan Alexander  
**From:** Tom Mullins  
**Date:** October 14, 1995  
**Subject:** Sanchez A Com # 2 FTC/PC  
**Administrative Downhole Commingle**

This is a revised summary of data that may be requested during the administrative downhole commingle process on the Sanchez A Com # 2 located in section 16 of township 28 north, range 9 west.

The Sanchez A Com # 2 was mud drilled, cased with 5-1/2" pipe, cable tool openhole completed from 2265' to 2322', and was sand water stimulated with 22,000# sand in the Pictured Cliffs formation in December of 1955. The wellbore has cumulative production of 579 MMCF, with an estimated material balance ultimate recovery of 1,021 MMCF (442 MMCF remaining). The attached production decline curve demonstrates the inefficient openhole completion production history, last of 30 MCFD. The wellbore has been inactive since August 1994; pressures taken May 18, 1995 of 340 psi tubing and 342 psi casing verify the casing integrity. Reservoir pressure for both the Fruitland Coal and Pictured Cliffs are estimated from this data to be 382 psi at 2100' common datum (.02 psi/ft gradient).

The Pictured Cliffs is currently uneconomic to operate at 30 MCFD against 250 psi pipeline pressure. Installation of a sales compressor to the current Pictured Cliffs wellbore would also result in an estimated uneconomic rate of 50 MCFD, due to the added cost of compression (\$1,000+/month). In order to economically restore the Pictured Cliffs wellbore to producing status additional hydrocarbons must be recovered through the addition of Fruitland Coal reserves.

#### **Pictured Cliffs:**

Restimulation of the Pictured Cliffs to a rate of 100 MCFD on wellsite compression is anticipated. An offset wellbore, the Lackey B Ls # 1 (sec20) was restimulated in the Pictured Cliffs in 1986. The corresponding production increase from 10 MCFD to 120 MCFD is demonstrated on the attached production curve.

The Sanchez A Com # 2 Pictured Cliffs restimulation should allow for an efficient recovery of the remaining 442 MMCF through an exponential decline rate of 7.170%. All gas production volume greater than this initial 100 MCFD rate is allocated to the Fruitland Coal. The proposed allocation formula is attached.

#### **Fruitland Coal:**

This well is located in an area characterized by gentle 0.6 degree NE structural dip and a SW-NE oriented FTC initial production anomaly (> 200 MCFD). Abundant bright, well cleated, high volatile A bituminous coal, which suggests excellent FTC reservoir quality, is indicated from mudlog sample descriptions in the recent 1994 Reid # 7R (sec19), located within 2 miles of the subject wells. In addition, the Reid # 7R wellbore has produced gas with an average gas content of 10.5%.

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(using the standard 1.40 basin wide correction factor) of 171 SCF/ton and a tonnage factor of 1836 tons/acre-ft. This recompletion is located within 1.5 miles of two successful and analogous 1994 FTC/PC downhole commingle projects, the Reid # 13 (sec 18/250 MCFD) and Reid # 14 (sec 07/250 MCFD).

Fruitland Coal reserves are estimated using offset completions and volumetrics. Using ambient Fruitland Coal gas content canister desorption data from the Reid # 7R (sec 19/1994) in conjunction with recent area recompletions/commingle data Reid # 13 (sec 18/1994) & Reid # 14 (sec 7/1994) approximate 577 MMCF gross recoverable Fruitland Coal reserves. Fruitland Coal spacing is 320 acres, although engineering evidence indicates that, 160 acres are being efficiently drained. Further area study is necessary to verify effective 320 acre drainage.

Recoverable gas = 160 acres \* 1836 tons/acre-ft \* 46' \* 171 SCF/ton \* 0.25 (Recovery Factor).  
577 MMCF

**General:**

In order to reestablish economic Pictured Cliffs gas sales production from this lease, a downhole commingle approval is necessary. Due to the greater amount of Pictured Cliffs data available, the Pictured Cliffs production is utilized as the basis for production allocation. No waste of hydrocarbon resource should occur, instead the remaining, currently non-economical, Pictured Cliffs reserves will be produced and correlative rights will be protected. Formation fluids should be non-damaging, and crossflow between producing zones should not occur. A combined initial downhole commingled Pictured Cliffs and Fruitland Coal gas sales rate of 300 MCFD is anticipated.