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A LABORATORY STUDY OF LOW PERMEABILITY GAS SANDS

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ABSTRACT

Multiple tests on more than 100 tight gas sand core samples from five formations indicate that in situ gas permeability is ten to more than a thousand times less than indicated by routine tests owing to the combined effects of overburden pressure, reduced gas slippage, and presence of connate water. The separate influence of each is discussed. Correlations, in equation form, are presented which, utilizing routine core data, may be used for estimating gas permeability under reservoir conditions. The results also indicate that invasion of aqueous drilling or fracturing fluid filtrate has little permanent influence on rock permeability but clean-up times may be extensive because of the low level of formation permeability. The salinity of the invading fluid appears to be of secondary importance.

INTRODUCTION

Yearly compilations of U.S. oil and gas reserves by the American Gas Association[1] show that U.S. gas reserves reached a maximum in 1967 of nearly 290 trillion cubic feet (8×10^{12} m^3). With the exception of the year 1970 when Prudhoe Bay reserves were added, gas reserves have declined at a near constant rate of 10 trillion cubic feet (2.8×10^{11} m^3) per year since then. To help moderate or reverse this trend, the industry is extending its exploration and development efforts to include horizons with permeabilities in about the same range as common cement; i.e., microdarcies. The design of stimulation treatments to achieve commercial rates of production and reliable assessment of potential reserves in such low permeability rocks demands accurate knowledge of their permeability, porosity, and flow properties. Though meager, there is sufficient information already available in the literature to suggest that some of the flow properties of these rocks differ markedly from those of more permeable rocks and thus require closer study.

Results of several different studies of the properties of low permeability gas producing horizons have previously been published. Studies by Thomas and Ward[2] showed that the permeability of cores from the Pictured Cliffs and Fort Union formations were significantly affected by confining pressure. Porosities, however, were not greatly altered. They also reported that the presence of a simulated connate water saturation (about 50%) reduced gas permeabilities to only 10% to 20% of the specific gas permeability. Vairogs et al[3] concluded that very low permeability rocks are affected by stress to a greater degree than those having higher levels of permeability. This agreed with results reported earlier by McLatchie[4].

Tannich[5] mathematically studied liquid removal from fractured gas wells in low permeability horizons and concluded that in very low permeability rocks, clean-up times could be extensive, but that permanent formation damage was not likely. This study, however, provided no measured experimental data of the flow properties of low permeability rocks.

Early wells drilled and cored by Amoco in the Wattenberg Field of Colorado in the Union Pacific Railroad Lease Area indicated the need for further laboratory studies of tight gas sands. Large differences in formation permeabilities, as derived from core analyses and from pressure buildup analysis, were not entirely explainable from data available in the literature. In addition, developments in stimulation design showed the need for reliable reservoir permeability values to prevent overdesign (and cost) of massive hydraulic fracturing treatments. In addition, concern existed over the proper choice of drilling and stimulation fluids to minimize formation damage. The study reported herein is part of an ongoing study by Amoco to provide answers to these and other problems that arise in the development of tight gas sand reserves.

Reported herein are the results of selected laboratory tests that were designed (1) to study the factors that cause routine core analysis permeability values to be different than exist in the reservoir, (2) to study the range of the influence of these factors in low permeability producing horizons in areas of interest to Amoco, (3) to develop, if possible, correlations for predicting reservoir values of permeability from core analysis results, and (4) to evaluate the effects of invasion of fluids of different salinities on the rate of regainment of permeability to gas.

References and illustrations at end of paper.

APPARATUS AND EXPERIMENTAL PROCEDURE

Plug samples 3/4-inch in diameter by 1-inch (1.9 cm D x 2.5 cm L) long drilled parallel to formation bedding planes were tested in Hassler sleeve holders capable of exerting up to 10,000 psi (70 MPa) confining pressure uniformly in all directions (so-called "hydrostatic" test conditions). Permeability to either gas or water could be measured at injection pressures up to 1000 psi (7 MPa) and were measured at flow rates sufficiently low to avoid turbulence. Vacuum deaerated liquids, passing through line filters, were supplied to the cores at constant pressure by nitrogen-driven transfer cylinders designed to prevent diffusion of nitrogen into the driven liquid. Flowing pressures were measured with Bourdon gauges for gas, and variable reluctance diaphragm transducers and indicators for liquid. Confining pressures were exerted by oil and were adjusted to compensate for average pore pressure to obtain a given net confining pressure.

Flow rates of liquids were measured by timing their travel in pipets. Flow rates lower than 10^{-6} cm^3/sec could be measured to allow measuring permeabilities down to 10^{-6} md. Low gas flow rates were measured by timing the passage of the meniscus when displacing oil from a horizontal pipet whose tip was bent downward to discharge under oil. This arrangement, with its constant, slightly negative oil head, insured instant displacement of oil by the gas and avoided complications from the action of interfacial forces either at the meniscus or pipet tip. It is important that the meniscus travel horizontally; if the oil head changes during flow measurement, gas between the core and meniscus will change volume sufficiently to introduce significant error when using small bore pipets. Ten cm^3 pipets however can be operated vertically with less than 1% error if volume between the core and pipet is less than 5 cm^3. Samples were liquid saturated by evacuating them in pressure chambers for 4 hours at pressures less than 1 mm Hg (130 Pa) after which deaerated liquid was admitted and then pressured at 1000 psi (7 MPa) for 16 hours to dissolve remaining traces of gas. Pore volume compressibilities were determined using the Hassler cells and measuring the liquid displaced into calibrated pipets (0.001 cm^3 subdivisions) with time allowed to obtain equilibrium at each step.

Effects of confining pressure on permeability were ordinarily measured in gas flow tests using dry cores. Permeabilities were measured at increasing confining pressure levels up usually to the reservoir net overburden pressure. (Net overburden pressure is taken to be the difference between gross overburden pressure, assumed to increase at 1.0 psi/ft (22.6 kPa/M), and reservoir fluid pressure.) Klinkenberg (no gas slippage) permeabilities were determined at the highest confining pressures by the conventional method of measuring permeabilities at more than one average flowing pressure; preliminary investigations indicate that measurements at two injection pressures provided sufficient data. Gas drive tests were performed using cores which had been saturated with formation water and whose permeability to water had been determined. For reasons discussed in a later section, nitrogen was injected, usually at 1000 psi (7 MPa) (sometimes lower, if needed, to avoid turbulence) until 3500 cm^3 (at ambient pressure) had emitted downstream. Permeability was monitored throughout the test. Hold-up volumes were too great to permit measuring the rate of water production so that saturation data for determining relative permeabilities could not be collected except for end points.

RESULTS

Effect of Confining Pressure on Permeability

The large effect of confining pressure on the permeability of tight gas sands documented earlier[2,3,4] were also found in this study. Hydrostatically applied confining pressures equaling reservoir net overburden pressure (5000 to 6000 psi) reduced permeability nearly 10-fold below the routine values measured under surface conditions in which confining pressure is 150 to 250 psi. Reductions ranged from less than 3-fold to more than 20-fold. Typical results are displayed in Figure 1. The reason that confining pressure has greater effects on tighter sands than on more permeable ones is not well established. A popular conjecture holds that rock compression is distributed as greater fractional changes of the smaller apertures of the tight sands, the effect of which is further increased by the fact that flow depends upon a higher power of the aperture dimension (round capillaries vary as the fourth power and slits by the cube of the dimension).

The experimental data were plotted in a number of ways in search of linear relationships to facilitate data handling, correlation, and ultimately, to simplify testing. For representing behavior between 1000 psi and reservoir net overburden conditions, a plot of the cube root of permeability versus the logarithm of confining pressure was found well suited. Figure 2 shows plots of the cube root of permeability against the logarithm of confining pressure using the data presented in Figure 1 to illustrate the linear character of the above relation. Permeability values are normalized on the basis of permeability measured at 1000 psi net confining pressure to allow direct comparison of the influence of confining pressure independent of permeability level; the slopes of the lines are measures of this influence. A convenient form of the equation for the relation is:

$$k = k_{1000} \left(1 - S \log \frac{P_k}{1000}\right)^3 \quad \ldots\ldots\ldots \quad (1)$$

where S, the magnitude of the negative slope, is given by

$$S = \frac{1 - \left(\frac{k}{k_{1000}}\right)^{1/3}}{\log \frac{P_k}{1000}} \quad \ldots\ldots\ldots\ldots \quad (2)$$

Use of the straight line relation simplifies both testing and handling of data. Permeabilities need be measured at only two confining pressures to fix the slope parameter of the equation well enough for most engineering purposes. Measurements usually are made at 1000 psi (6.90 MPa) and at the reservoir net overburden pressure. The "S" factor, the absolute value of the slope, embodies the effect of confining pressure in a single number convenient for conceptual and correlation purposes. Increasing values of "S" imply increasing effects of confining pressure. Moderate effects of stress, such as seen in testing higher permeability rocks, produce S factors in the vicinity of 0.1 to 0.2. Significant effects, as obtained in most tight gas sand tests, yielded "S" factors in the range of 0.3 to 0.6 with factors over 0.7 indicating large reductions. A rock decreased 10-fold in permeability below routine permeability by reservoir overburden pressure would have an "S" factor of approximately 0.4.

Generally, the lower the core permeability the more it is affected by confining pressure. This is

illustrated in Figure 3-a, a plot of "S" factors of Frontier formation samples against the logarithms of permeabilities measured at 1000 psi (6.895 MPa) net confining pressure. Note also that the data, although scattered, have a linear trend. A best fit straight line through the data afford a compact description of the average effect of confining pressure on permeability of cores from this formation. Figure 3-b shows a similar type of plot of Mesaverde Formation and Cotton Valley formation data in which the data group below that of the Frontier Formation data to indicate lesser effects of confining pressure.

No correlation between permeability and reduction due to confining stress was found which extended down to the 150 to 250 psi net confining pressure condition commonly used in routine core testing; such correlations evidently must be made on an individual formation basis. Permeability measured at 1000 psi net confining pressure usually is between 0.4 to 0.75 times the routine permeability.

Above 2000 psi (14 MPa) net confining pressure the logarithm of permeability versus the logarithm of confining pressure produce fairly linear plots which possibly may be the best correlative relation for use in predicting effects by confining pressure on permeability as reservoirs are depleted.

Gas Slippage

Gas slippage, or Klinkenberg[6] effects, are large in tight gas sands. As an example, a sample with 0.001 md true, or "Klinkenberg", permeability typically would exhibit about 0.003 md with gas injected at 100 (0.6895 MPa) psig and exiting at atmospheric pressure, and more than 0.007 md if upstream pressure were 15 psig (103 kPa). Effective pore radii of sands with less than 0.1 md are indicated by mercury injection data and by gas slippage theory to range downward from 1 μm into the size realm of the mean free paths of the gas molecules. Because of this, there was concern that the conventional extrapolative procedure (in which permeability plotted versus reciprocal arithmetic mean pressure is extrapolated to zero reciprocal pressure) for determining Klinkenberg permeability might not yield a straight line for the very low permeability, tight gas sands. The reason for this concern was that Warburg's model[7], on whose theory Klinkenberg based his development, assumed mean free path length was small compared to capillary radius. Klinkenberg ascribed depressions in "b" factors (the slope of the line connecting a data point to the Klinkenberg permeability in the above plot) determined at reduced pressure to this departure from Warburg's model. In the present study, however, very good straight line Klinkenberg plots were obtained for rocks with Klinkenberg permeabilities even less than 0.0001 md. An example is given in Figure 4, showing the results of a test on an 0.000088 md sample in which upstream pressures ranged from 50 to 1000 psig (0.34 to 6.9 MPa). Both dry Klinkenberg permeabilities and specific permeabilities to a 1.3 cp (MPa·s) refined oil (Soltrol 130) were measured in tests on a series of cores in the 0.001 to 0.01 md range; the results are given in Table 1. Oil permeabilities were equal to or lower than Klinkenberg permeability in every case, averaging 25% less. The agreement is sufficiently close, however, to assume that Klinkenberg permeabilities obtained by the extrapolation procedure are satisfactory for practical application. It is not known which, if either, of the permeabilities is "correct". Oil permeabilities might be low because of interactions between the oil and rock, or Klinkenberg values may trend higher because of departure from the Warburg model.

For this study, Klinkenberg permeabilities and "b" factors were calculated from permeabilities measured usually at 100 psig (0.7 MPa) and 1000 psig (7 MPa) upstream pressure and atmospheric pressure downstream. Lower pressures were used when necessary during tests of the more permeable samples to avoid turbulence. The measurements were made at net confining pressures equalling reservoir net overburden pressures. Confining pressure was increased sufficiently to offset average increase in pore pressure to keep confining pressure essentially constant during determination of the Klinkenberg permeability. Klinkenberg's "b" factor was calculated from the data using the Klinkenberg equation

$$k_a = k_\infty \left(1 + \frac{b}{\bar{p}}\right) \quad \ldots\ldots\ldots\ldots\ldots \quad (3)$$

As indicated by the equation, the "b" factor is an index of the magnitude of the gas slippage effect. It is often regarded as the fractional increase in apparent permeability which would be observed when measuring permeability with gas at atmospheric pressure.

The results of measurements made on more than 100 tight gas sand samples are given in Figure 5 as a plot of the logarithm of "b" factor against the logarithm of Klinkenberg permeability, a method used by Heid et al[8] for presenting results of the 1950 study by Penn State for the API. The tight gas sand data are scattered closely about a straight line not greatly different from an extrapolation of the best fit straight line through the higher permeability 1950 Penn State data, the equation for which is

$$b = 0.777\, k_\infty^{-0.39} \quad \ldots\ldots\ldots\ldots\ldots \quad (4)$$

The best line through the tight gas sand data given in this study is:

$$b = 0.86\, k_\infty^{-0.33} \quad \ldots\ldots\ldots\ldots\ldots \quad (5)$$

As discussed in the 1950 Penn State study, for ideal cases consisting of a parallel capillary bundle, "b" should vary inversely as the square root of permeability, which would yield a slope of -0.5 cycles/cycle. The -0.39 slope was regarded as nearly corresponding to this idealized view. The -0.33 slope obtained in this tight gas sand study is reminiscent of the cube root relation arising from Lamb's[9,10] expression for flow through ducts and suggests that apertures controlling flow in the tight sands may be slit-like rather than round.

The tight gas sand correlation, Equation 5, yields values of "b" factor sufficiently accurate for many practical purposes. The correlative power function may be substituted for "b" in Klinkenberg's equation as follows:

$$k_a = k_\infty \left(1 + \frac{0.86\, k_\infty^{-0.33}}{\bar{p}}\right) \quad \ldots\ldots\ldots\ldots \quad (6)$$

This expression can be used as a starting point for generating graphs or numerical solutions for calculating Klinkenberg permeabilities and "b" factors from ordinary permeability data, provided the pressures used in the measurements are known. An expression originating from the above equation from which k_∞ may be estimated from permeabilities (k_a) measured at 100 psig (0.7 MPa) upstream pressure is

$$k_{\infty} = 10^{(-.0398 \log^2 k_a + 1.067 \log k_a - 0.0825)} \quad 0.0001 \text{ md} < k_a < 1 \text{ md} \quad \ldots (7)$$

which agrees with equation (6) within a few percent over the k_a range of 0.0001 md to 1 md.

Pore Volume Compressibility

The chief reason for measuring pore volume compressibility was to determine if porosity values measured in routine tests were significantly greater than under reservoir conditions. It was found that the behavior of tight gas sands was similar to higher permeability, consolidated rocks and that the porosity measured at the surface was not appreciably greater than at depth. Pore volume diminished usually between 5 and 10 percent; a rock exhibiting 10 percent porosity under surface conditions would, in the reservoir, have 9.0 to 9.5 percent porosity. For many purposes, the effect of overburden pressure on porosity can be ignored. Multiplying porosity by a factor of 0.95 will correct most data sufficiently close to reservoir condition porosity for all but the most exacting purposes. Pore volume compressibility averages about 6×10^{-6} vol/vol/psi (vol/vol/6895 Pa).

Results of a typical test are shown in Figure 6. The percent decrease in pore volume is given as a function of increasing confining pressure. The pore volume compressibility at reservoir stress level is calculated from the slope of the curve at the reservoir net overburden pressure, taking also into account the pore volume decrease up to that point. Table 2 presents the data from a number of such tests, showing both pore volume compressibility and total effect on pore volume.

Effect of Water on Core Permeability

Water greatly reduces permeability of tight gas sands and in a manner different from its effect on higher permeability sands. Brine causes almost as great a reduction in permeability as fresh water. For example, a 60,000 ppm NaCl solution will reduce permeability typically 85% below Klinkenberg permeability of the dry core; introduction of distilled water will cause further reduction, but only in the order of another 10% for a total reduction of about 95%. Examples of such test results are given in Table 3. A more permeable water-sensitive sand, such as Berea, would lose about 50% permeability upon introducing the above brine but would lose more than 49% additional permeability upon exposure to distilled water for a total reduction of more than 99%. Fresh water has a lesser proportionate effect on tight gas sands possibly because otherwise dispersible clays or mineral fines may tend to be mechanically locked or wedged in place in the smaller pores of the fine-textured rocks and are thereby inhibited from moving to form obstructions. The reason that even highly saline solutions can severely reduce permeability is, however, not easily explained. There are several existing theories which alone or in combination may offer explanation. The most popular theory, although subject to much controversy concerning the magnitude of the effects, holds that water adjacent to high energy surfaces becomes ordered to result in viscosity increase or even solidification sufficient to significantly reduce effective pore diameter. Calculations based upon Poiseuille's and Lamb's laws applied to pore radii calculated from Klinkenberg "b" factors[6,8] indicate that fixed layers of water would need to be in the order of 0.01 μM (100 Å) or more to account for the minimum reduction observed in 0.001 to 0.1 md samples of this study.

Smectites exfoliate and most clays and many other mineral fines associate with water in going from the dry to the moistened state (even in brine) to increase the volumes of aggregates. Apertures could be reduced by this mechanism sufficient to impede flow.

The specific permeabilities to formation water of more than 100 tight gas sand samples were measured. Klinkenberg permeabilities were measured with the samples dry prior to the water flow tests. All tests were made at net confining pressure equaling reservoir net overburden pressures. The results are given in Figure 7 as a plot of the logarithm of water permeability versus the logarithm of Klinkenberg permeability. Two features are evident: The trend is linear and, the lower the permeability the more water reduces permeability. A line centered in this data is the power function.

$$k_w = k_{\infty}^{1.32} \quad k < 1 \text{ md} \quad \ldots (8)$$

This correlative function may be used to calculate the average effect of water on permeability. Plots such as these of data from single formations or rock types may be less scattered meaning that in particular cases, laboratory data from samples selected from a range of permeabilities can be used to determine the exponent applicable for use in the water-effect power equation for that formation. Examination of Figure 7 shows that the boundary of minimum effect appears well defined, a line along this boundary has a slope of about 1.13 cycles/cycle. A line bounding most of the data below 0.1 md dry Klinkenberg permeability on the side of maximum effect has a slope of about 1.5 cycles/cycle. This function can be used in conjunction with the correlations describing effects of stress and slippage to obtain estimates of in situ gas permeability from routine permeability values. This is discussed in a later section.

Clay content was not found to correlate with effect of water on permeability. Large clay content usually forecasts large effects of water but low clay content does not forecast low effects. Cores with large amounts of clay were probably affected most because of the low permeability resulting from the presence of clay rather than by effects of the clay per se.

The fact that water of even high salinity can seriously affect tight gas sand permeability but, that in contrast, fresh water has relatively less additional effect has obvious practical significance. Limiting entry of water during drilling or stimulation should help preserve reservoir permeability and hasten clean-up time. Filtrate invasion from muds can be reduced by maintaining mud weights close to balance, or even underbalanced, with respect to reservoir pressure. Minimizing post-fracture shut-in times might also reduce fracturing fluid invasion and prove beneficial. Another point implied since fresh water is not a great deal more harmful than brines, is that less concern is needed regarding the chemical composition of fracturing fluids or mud filtrates.

Effect of Partial Water Saturation on Gas Permeability

Those tight gas sands whose specific water permeabilities are a great deal less than the Klinkenberg permeabilities of the dry samples also have correspondingly low gas permeabilities in the presence of simulated connate water saturations. As a first approximation, effective gas permeability under reservoir

conditions can be taken as equal to specific permeability to water measured under reservoir stress conditions. Experiments demonstrating this observation are discussed below.

Relative permeability apparatus suitable for testing tight gas sands was not available at the initiation of the study. Exploratory gas drive experiments showed, however, that gas injected usually at 1000 psi (6.9 MPa) into the plug samples (2.5 cm L x 1.9 cm D) for a time sufficient to produce 3500 cm^3 downstream at atmospheric pressure reduced water saturations to an average of 40% pore space. Under these conditions most of the water is removed by displacement not more than 10% pore space of the water was evaporated. No attempt was made to measure or account for saturation gradients which may have existed. An example of the development of permeability with time in a gas drive test of this type is shown in Figure 8. Results of 22 gas drive tests are given in Table 4 in which are compared Klinkenberg permeabilities of the dry cores, specific permeability to water, and effective gas permeability at the indicated water saturations. There is a degree of bias in that testing of higher permeability samples was favored because of the inordinate lengths of time required for tests of samples with less than 0.001 md permeability. Examination of the data shows that effective gas permeability in every case is nearer the specific water permeability, most often by a large margin, than to the Klinkenberg permeability of the dry samples. In more than three-quarters of the cases, effective gas permeability is within a factor of two of the specific permeability to formation water. Effective gas permeability averaged about 35% higher than specific water permeability. This suggests, as mentioned earlier, that the more easily obtained water permeability values could be used for estimating formation gas permeability. Gas drive tests are lengthy and must be closely attended while, on the other hand, several specific water permeability tests may be conducted simultaneously by one person, usually faster than a sample per cell per day.

The Combined Effects of Confining Pressure, Gas Slippage, and Water on Permeability

The individual effects of stress, gas slippage, and water on tight gas sand permeability have been described in the preceding sections. Also, the measurement of specific formation water permeability under reservoir stress conditions was suggested as a core test for estimating effective gas permeabilities under reservoir conditions. This section deals with methods of estimating reservoir-condition gas permeability using routine core analysis data.

Routine permeabilities are inexpensive and consequently plentiful, but because they are measured on dry cores at low stress levels, and at low flowing gas pressures, they poorly represent in situ tight gas permeabilities. Routine values range from ten to more than a thousand times too high. Also, because of variability in response, routine values cannot be depended upon for comparison purposes. Frontier sand samples, compared to Mesaverde sand samples for example, commonly exhibit higher routine values but lower effective gas permeabilities under reservoir conditions of stress, presence of water saturation, and elimination of slippage. Methods for correcting routine permeability values to reservoir-condition permeability must therefore not only compensate for the large changes but also for the wide range of rock variability.

Two methods for estimating reservoir-condition gas permeability are suggested. The first involves correcting sequentially for stress, slippage, and finally for the presence of connate water and is the more flexible of the two because adjustments can be made for the individual effects. The second method is derived from the first in which all effects are compounded into a single "stadium" equation (providing "ballpark" values) with two parameters which are varied simultaneously over the range from minimum to very large effects of stress, water, and slippage. Neither method, at least at present, appears capable of high precision but do provide more reasonable values for reservoir gas permeability than the routine permeability values.

The first method requires five steps: correction of routine permeability to that at 1000 psi confining pressure; calculation of "S" factor (influence of pressure), calculation of effect of overburden pressure using the "S" factor, correction for gas slippage; and last, calculation of the effect of water. Core tests over a range of permeability values for each rock type can be used to evaluate necessary parameters which may then be applied to existing routine results. For scoping studies, values of the necessary parameters may be assumed; only three estimates are necessary; the correction of routine permeability to 1000 psi confining pressure (a factor usually of 0.4 to 0.75), selection of an S factor equation between defined upper and lower limits, S = (0.1 to 0.3) - (0.1 to 0.23) log k_{1000}, and selection of a water-effect exponent for Equation 8 which also lies within the reasonably well defined limits of 1.13 to 1.5; k_w is then assumed equal to k_g.

The above method was used to generate a series of curves ranging from minimum effect of stress and water to maximum, assuming that rocks most affected by stress were also most affected by water. These calculations all generated gently curving, almost linear curves in plots of the logarithms of routine permeablity against the logarithms of the calculated reservoir-condition gas permeability. Straight lines were fitted by eye to these curves which lay within a few percent of the calculated value over the range of 0.02 to 0.55 md routine permeability. The intercepts and the slopes of these lines are the coefficients and exponents used in the stadium equation:

$$k_g = a\,k^b \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (9)$$

$$0.02 \text{ md} < k < 0.55 \text{ md}$$

in which k_g is effective gas permeability under reservoir conditions and k is routine permeability. The coefficient "a" varies from 1/5 to 1/20 and the exponent "b" varies from 1.5 to 2.7 as the effect of stress and water increases.

Severity of Effects of Stress and Water	"a"	"b"
Minimum	1/5	1.5
Moderate	1/7.5	1.9
Great	1/12	2.3
Very Great	1/20	2.7

Examples of formations having lower effect of stress and water are clean Mesaverde and Cotton Valley sands. Those moderately affected are shaly Cotton Valley Sand samples and cleaner Frontier sands. Most Frontier samples studied exhibited large effects and some experienced very large effects. Lesser effect tends to accompany increased induration, while increased clay

content appears associated with larger effects. Parameters of "a" equaling 7.5 and "b" equaling 1.9 are reasonable values for use as first approximations in the absence of other information.

CONCLUSIONS

Results of compressibility and flow tests on more than 100 tight gas sand core samples from five formations indicate:

1. Confining pressure simulating net reservoir overburden pressure reduces permeability of tight gas sands two to more than 10 times, depending on permeability and rock type. The cube root of permeability was found to be a linear function of the logarithm of confining pressure; the slope of the line being indicative of the intensity of the effect of stress was found correlatable with permeability with correlations varying with rock type. Lower permeability rocks were more affected by stress than higher ones.

2. Gas slippage (Klinkenberg) effects were found to be substantial, as would be anticipated for lower permeability rocks. Slippage effects were found correlatable with an expression not greatly different from an earlier expression derived from more permeable rocks.

3. Water (including brine) severely reduced permeability with the effect more pronounced in the lower permeability rocks. This indicates that preservation of permeability in an invaded zone in a reservoir would be assisted by minimizing invasion of water during drilling and fracturing. Water permeability was found correlatable with Klinkenberg permeability.

4. Specific water permeability measured at the reservoir level of confining pressure was found useful as an approximation of effective gas permeability under conditions of reservoir stress, gas slippage, and partial water saturation.

5. Despite large permeability reductions caused by brine, reducing salinity has comparatively less additional effect to suggest that the chemical composition of mud filtrates or fracture fluids is ordinarily of secondary importance in preventing permeability impairment.

6. Pore volume compressibility of tight gas sands is of the same order as more permeable sands. Pore volume under reservoir overburden conditions was indicated to average 93% of that under no stress for the samples tested.

7. Effects of stress, gas slippage, and water were found correlatable with permeability but not directly with clay content. Lower permeability rocks experienced large effects with both low and high clay contents. Large effects observed with clay-laden rocks are attributed to the low permeabilities accompanying the high clay content, not to the fact that the fine material was clay.

8. Correlations were found to enable estimating in situ effective gas permeability from routine core analysis data by taking into account the separate effects of stress, gas slippage, and partial water saturations.

NOMENCLATURE

b	=	Klinkenberg "b" factor, atmospheres
k	=	permeability, md
k_a	=	apparent gas permeability, md
k_g	=	effective permeability to gas, partial water saturation present, md
k_o	=	specific permeability to oil, md
k_w	=	specific permeability to water, md
k_∞	=	Klinkenberg (no gas slippage) permeability, md
k_{1000}	=	permeability measured of dry core at 1000 psi (6.895 MPa) net confining pressure, md
$\bar{P}$	=	arithmetic mean of gas pressure in core during flow of gas, atm.
P_k	=	confining pressure, psi

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TABLE 1

COMPARISON OF KLINKENBERG AND OIL PERMEABILITIES

Formation	Net Confining Pressure, psi	k_∞, md	k_o, md
Mesaverde	5100	0.0092	0.0092
Mesaverde	5200	0.0040	0.0032
Frontier	5400	0.0018	0.0013
Frontier	5500	0.0018	0.0010
Frontier	5500	0.0039	0.0037
Frontier	5500	0.0026	0.0023
Frontier	5700	0.0066	0.0050

TABLE 2

PORE VOLUME COMPRESSIBILITY

Formation	Porosity, %	Net Confining Pressure, psi	Perm. to H_2O, md	Pore Volume Decrease, %	Pore Volume Compressibility Vol/Vol/psi X 10^6
Mesaverde	12.8	5200	--	5.7	5.4
Mesaverde	12.1	5200	0.00057	5.8	5.0
Mesaverde	10.6	5200	0.0025	6.6	6.0
Mesaverde	13.6	5200	--	3.8	5.1
Mesaverde	13.4	5200	0.0015	5.6	4.3
Frontier	13.2	5400	0.0073	7.8	5.7
Frontier	14.3	5700	0.00029	9.5	5.7
Frontier	11.6	5700	0.012	10.4	3.5
Frontier	7.0	5500	0.00091	4.3	2.7
Frontier	10.0	5500	--	8.5	6.1
Frontier	11.1	5500	--	10.4	9.0
Frontier	10.8	5500	0.000069	9.8	9.1
Frontier	12.1	5500	0.00041	4.6	3.2
Frontier	13.6	5500	--	9.6	7.7
Frontier	13.8	5500	--	7.1	5.9
Frontier	13.5	6700	--	8.1	3.3
Frontier	14.0	5700	0.00052	7.0	5.5
Muddy "J"	10.8	4000	0.0012	8.3	9.2
Spirit River	10.2	4000	0.0099	8.1	15.7

TABLE 3

EFFECT OF FRESH WATER ON PERMEABILITY

Formation	Net Confining Pressure, psi	k_{∞}[1], md	k_w[2], md	k_{H_2O}[3], md
Lewis	2000	0.0077	0.00094	0.00027
Lewis	2000	0.0070	0.00094	0.00034
Mesaverde	5300	0.0031	0.00032	0.00010
Mesaverde	5300	0.0063	0.0021	0.00080
Mesaverde	5300	0.014	0.0040	0.00064
Mesaverde	6000	0.0039	0.00055	0.00036
Mesaverde	6000	0.091	0.076	0.041
Mesaverde	6000	0.0040	0.0011	0.00037
Frontier	2000	--	0.0026	0.0009
Frontier	2000	0.092	0.016	0.0047
Frontier	2000	0.089	0.033	0.0090
Frontier	2000	0.0090	0.00029	0.00013
Frontier	6700	0.010	0.00084	0.00051
Frontier	5700	0.0065	0.0010	0.00026
Spirit River	4000	0.033	0.011	0.0037
Spirit River	4000	0.0068	0.0010	0.00091
Spirit River	4000	0.0011	0.000031	0.000022

[1]Klinkenberg permeability of dry core at indicated confining pressure.
[2]Specific permeability to formation water at indicated confining pressure.
[3]Specific permeability to distilled water at indicated confining pressure following flow of 60,000 ppm NaCl solution to sensitize clays.

TABLE 4

COMPARISON OF EFFECTIVE GAS PERMEABILITY TO SPECIFIC WATER PERMEABILITY

Formation	Net Confining Pressure, psi	k_{∞}, md	k_w, md	k_g, md @ S_w, %
Mesaverde	5100	0.0092	0.0050	0.0028 40
Mesaverde	5200	0.0032	0.00057	0.00079 29
Mesaverde	5200	0.0035	0.00041	0.00010 29
Mesaverde	5200	0.0096	0.0025	0.0033 34
Mesaverde	5200	0.0068	0.0015	0.0020 34
Frontier	5100	0.0067	0.000065	0.000054 44
Frontier	5400	0.0017	0.00010	0.000070 47
Frontier	5400	0.024	0.0073	0.0083 60
Frontier	5700	0.0039	0.00029	0.00071 33
Frontier	5700	0.047	0.012	0.029 60
Frontier	5500	0.0027	0.00091	0.00075 43
Frontier	5500	0.0012	0.000069	0.000073 49
Frontier	5500	0.0043	0.00041	0.0011 33
Frontier	6700	0.016	0.0011	0.0028 40
Frontier	5700	0.010	0.00052	0.0015 52
Muddy "J"	4000	0.0050	0.0012	0.0015 38
Cotton Valley	4900	0.0014	0.00040	0.00026 45
Cotton Valley	4900	0.044	0.022	0.018 32
Spirit River	4000	0.030	0.011	0.010 41
Spirit River	4000	0.023	0.011	0.010 38
Spirit River	4000	0.033	0.0037*	0.0063 40
Spirit River	4000	0.0068	0.00091*	0.0011 39

*Distilled water following 60,000 ppm NaCl

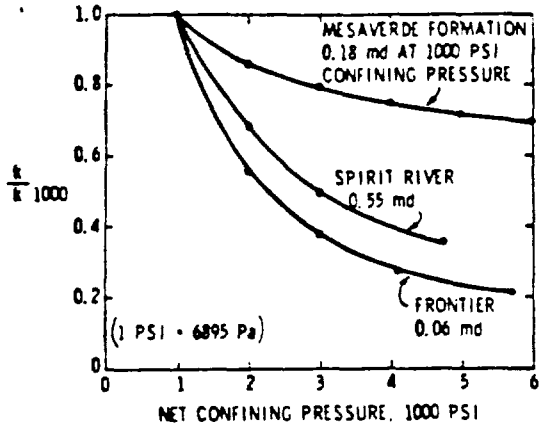

Fig. 1 - Effect of confining pressure on tight gas sand permeability.

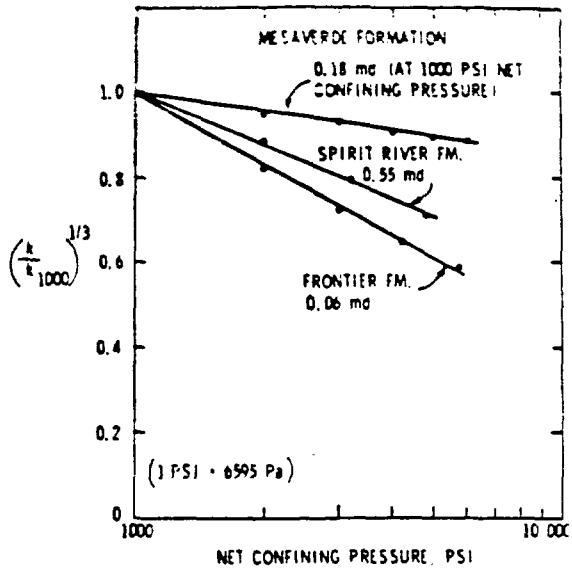

Fig. 2 - The cube root of permeability as a linear function of the logarithm of confining pressure.

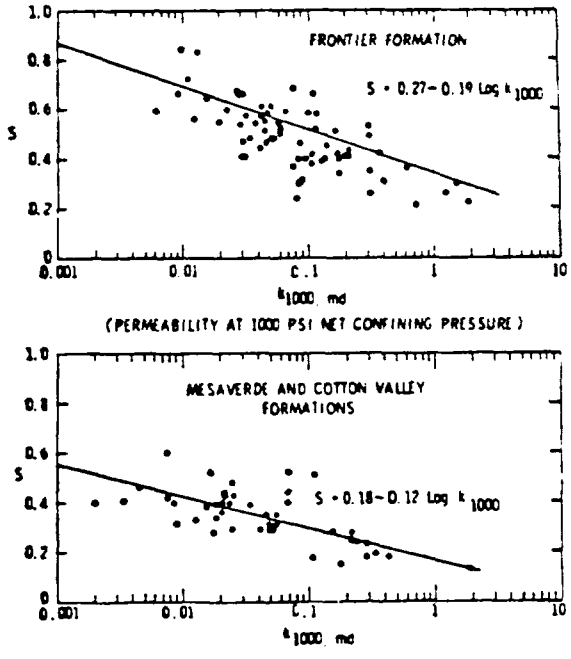

Fig. 3 - Correlation of permeability stress factor, s, with permeability.

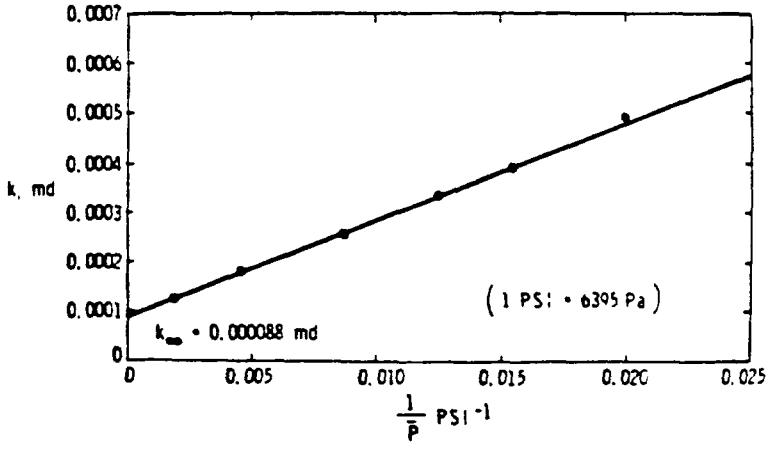

Fig. 4 - Determination of Klinkenberg permeability.

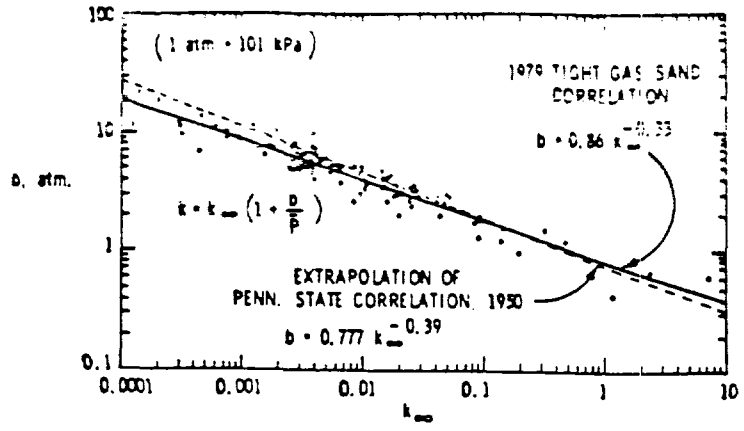

Fig. 5 - Klinkenberg "b" factor as a function of Klinkenberg permeability.

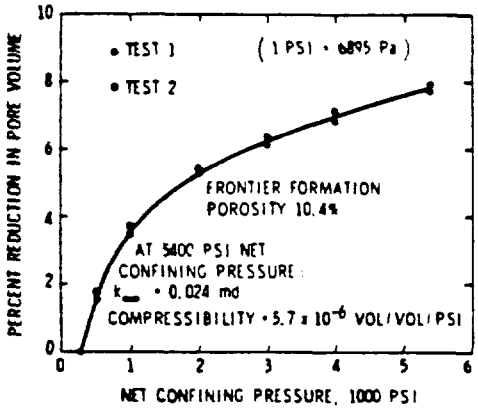

Fig. 6 - Pore volume compressibility of typical tight gas sand sample.

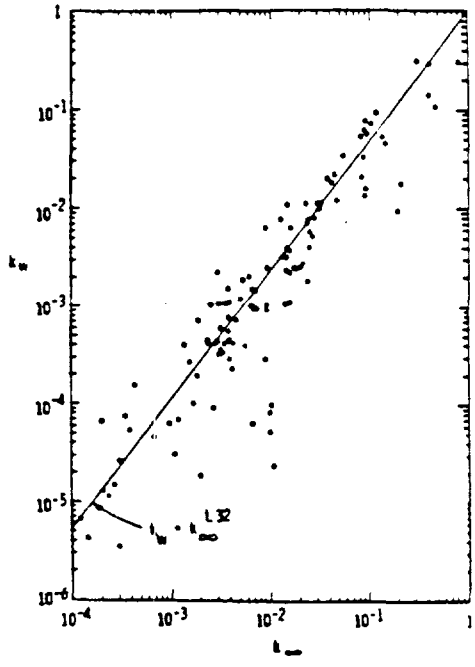

Fig. 7 - Specific water permeability as a function of Klinkenberg permeability.

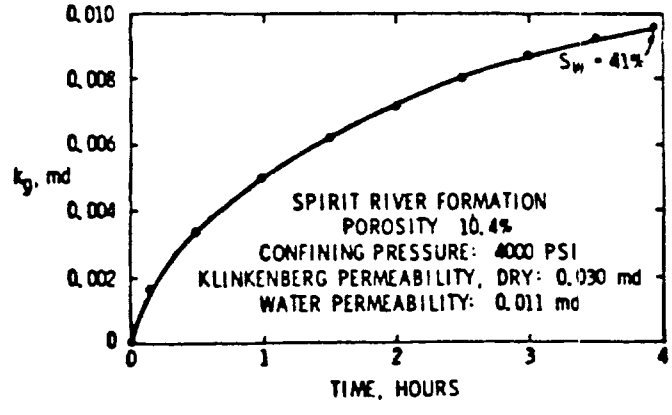

Fig. 8 - Establishment of gas permeability during displacement of water by gas.

EXHIBIT 7A - 7Q

CORE PERMEABILITY DATA SUMMARY
Lybrook Tight Formation Area

Well Name & No.	Qtr	Qtr	Sec	Twp	Rng	CORED INTERVAL Lab Perm	CORED INTERVAL Kmod	CORED INTERVAL Kvg	NET PAY>6% Lab Perm	NET PAY>6% Kmod	NET PAY>6% Kvg
Mc Bee #1	SE	NW	7	23	6	0.473	0.0509	0.0196	0.485	0.0531	0.0208
BCO Dunn #1	SW	SW	10	23	7	0.353	0.0319	0.0126	0.0369	0.0334	0.0132
Nancy "B" #14-1	NW	NE	14	23	7	0.154	0.0109	0.0047	0.230	0.0170	0.0076
Fed Elkins #1	SW	NE	13	23	7	0.163	0.0198	0.0117	0.238	0.0343	0.0212
Rogers #24-1	NW	SW	24	23	7	0.328	0.0262	0.0115	0.350	0.0282	0.0124
Sperling #30-1	NE	SE	30	24	6	0.078	0.0061	0.0028	0.088	0.0082	0.0044
Bobby "B" #2	NW	NE	31	24	6	0.408	0.0366	0.0112	0.465	0.0430	0.0137
Blakely #6-23	SW	NW	23	24	7	0.269	0.0279	0.0091	0.439	0.0475	0.0157
Fed #24-1	NE	NW	24	24	7	0.143	0.0072	0.0009	0.157	0.0082	0.0011
Ernest #1	NW	NW	27	24	7	0.151	0.0167	0.0100	0.196	0.0271	0.0189
Connie #29-3	NE	SW	29	24	7	0.055	0.0037	0.0012	0.075	0.0056	0.0018
Betty "C" #1	SW	SE	31	24	7	0.115	0.0057	0.0009	0.119	0.0064	0.0009
S. Blanco Navajo #25-1	SE	SE	25	24	8	0.073	0.0039	0.0008	0.062	0.0017	0.0001
S. Blanco Federal #25-5	NW	SW	25	24	8	0.096	0.0074	0.0027	0.111	0.0101	0.0052
S. Blanco Federal #26-7	SW	NE	26	24	8	0.136	0.0084	0.0015	0.271	0.0157	0.0019
State #36-21	NE	NW	36	24	8	0.105	0.0091	0.0028	0.431	0.0491	0.0171
AVERAGE:						0.194	0.0170	0.0065	0.2346	0.0243	0.0098

EXHIBIT 7a

MC BEE No. 1 SEC 7 T23N R6W

INTERVAL TOP	INTERVAL BOTTOM	CORE POROSITY	ROUTINE PERMEABILITY (MILLIDARCYS)	** OVERBURDEN & KLINKENBERG** **CORRECTED PERMEABILITY VALUES** MODERATE EFFECT PERMEABILITY (MILLIDARCYS)	MAXIMUM EFFECT PERMEABILITY (MILLIDARCYS)
5450	5451	9.60%	0.800	0.0912	0.0274
5451	5452	5.40%	0.080	0.0018	0.0001
5452	5453	6.90%	0.170	0.0066	0.0004
5453	5454	9.30%	0.320	0.0192	0.0023
5454	5455	8.70%	0.260	0.0135	0.0013
5455	5456	7.00%	0.190	0.0079	0.0006
5456	5457	8.30%	0.350	0.0224	0.0029
5457	5458	7.80%	0.220	0.0102	0.0008
5458	5459	7.20%	0.800	0.0912	0.0274
5459	5460	9.90%	0.470	0.0369	0.0065
5460	5461	9.00%	0.430	0.0318	0.0051
5461	5462	9.50%	0.440	0.0330	0.0054
5462	5463	11.00%	0.260	0.0135	0.0013
5463	5464	10.90%	0.480	0.0383	0.0069
5464	5465	13.20%	0.320	0.0192	0.0023
5465	5466	10.00%	1.300	0.2083	0.1015
5466	5467	13.10%	0.630	0.0608	0.0144
5467	5468	8.80%	0.710	0.0745	0.0198
5468	5469	10.20%	0.800	0.0912	0.0274
5469	5470	11.50%	0.380	0.0257	0.0037
5470	5471	9.90%	0.290	0.0163	0.0018
5471	5472	8.10%	0.240	0.0118	0.0011
5493	5494	6.50%	0.540	0.0468	0.0095
5494	5495	7.10%	1.000	0.1333	0.0500
5495	5496	6.20%	0.170	0.0066	0.0004
5496	5497	10.30%	0.570	0.0513	0.0110
5497	5498	11.80%	0.550	0.0483	0.0100
5498	5499	11.90%	0.800	0.0912	0.0274
5500	5501	11.70%	1.000	0.1333	0.0500
5501	5502	7.90%	1.900	0.3970	0.2829
5502	5503	8.10%	0.380	0.0257	0.0037
5503	5504	7.60%	0.290	0.0163	0.0018
5504	5505	6.00%	0.450	0.0343	0.0058
5505	5506	6.60%	0.250	0.0126	0.0012
5506	5507	6.00%	0.320	0.0192	0.0023
5507	5508	8.10%	0.800	0.0912	0.0274
5508	5509	9.50%	2.000	0.4332	0.3249
5509	5510	10.50%	0.670	0.0675	0.0170
5510	5511	10.60%	0.650	0.0641	0.0156
5511	5512	10.00%	0.690	0.0710	0.0184
5512	5513	9.80%	0.340	0.0213	0.0027
5513	5514	6.80%	0.480	0.0383	0.0069
5514	5515	6.90%	0.550	0.0483	0.0100
5515	5516	6.60%	1.500	0.2656	0.1494
5516	5517	7.90%	0.430	0.0318	0.0051
5517	5518	6.60%	0.230	0.0110	0.0009
5518	5519	7.10%	0.450	0.0343	0.0058
5519	5520	7.00%	0.430	0.0318	0.0051

EXHIBIT 7b

5520	5521	8.40%	0.360	0.0235	0.0032
5521	5522	8.90%	0.690	0.0710	0.0184
5522	5523	6.00%	0.590	0.0544	0.0120
5523	5524	9.10%	1.200	0.1818	0.0818
5524	5525	10.00%	1.600	0.2964	0.1779
5525	5526	17.40%	1.700	0.3286	0.2095
5526	5527	13.00%	0.550	0.0483	0.0100
5527	5528	9.60%	0.480	0.0383	0.0069
5528	5529	11.60%	1.000	0.1333	0.0500
5529	5530	14.40%	0.800	0.0912	0.0274
5530	5531	12.60%	0.800	0.0912	0.0274
5531	5532	14.30%	0.680	0.0692	0.0176
5532	5533	13.50%	1.000	0.1333	0.0500
5533	5534	11.90%	0.320	0.0192	0.0023
5534	5535	11.30%	0.500	0.0410	0.0077
5535	5536	8.30%	0.360	0.0235	0.0032
5536	5537	10.10%	0.500	0.0410	0.0077
5537	5538	15.40%	0.320	0.0192	0.0023
5538	5539	10.60%	0.410	0.0293	0.0045
5539	5540	8.90%	0.650	0.0641	0.0156
5540	5541	10.60%	0.360	0.0235	0.0032
5541	5542	7.50%	1.000	0.1333	0.0500
5542	5543	7.50%	0.250	0.0126	0.0012
5543	5544	7.00%	0.250	0.0126	0.0012
5544	5545	7.70%	0.250	0.0126	0.0012
5545	5546	7.00%	0.598	0.0556	0.0125
5546	5547	6.20%	0.340	0.0213	0.0027
5547	5548	7.00%	0.280	0.0153	0.0016
5548	5549	7.00%	0.250	0.0126	0.0012
5549	5550	5.60%	0.230	0.0110	0.0009
5550	5551	7.40%	0.250	0.0126	0.0012
5551	5552	7.10%	0.250	0.0126	0.0012
5552	5553	5.20%	0.250	0.0126	0.0012
5553	5554	5.90%	0.290	0.0163	0.0018
5554	5555	6.40%	0.320	0.0192	0.0023
5560	5561	7.10%	0.050	0.0008	0.0000
5561	5562	7.30%	0.070	0.0015	0.0000
5562	5563	6.80%	0.120	0.0036	0.0002
5563	5564	6.50%	0.260	0.0135	0.0013
5564	5565	8.40%	0.130	0.0042	0.0002
5565	5566	9.40%	0.160	0.0059	0.0004
5566	5567	9.00%	0.290	0.0163	0.0018
5567	5568	6.60%	0.220	0.0102	0.0008
5568	5569	5.30%	0.290	0.0163	0.0018
5569	5570	9.10%	1.200	0.1818	0.0818
5570	5571	8.80%	0.210	0.0094	0.0007
5571	5572	9.20%	0.340	0.0213	0.0027
5572	5573	7.40%	0.180	0.0072	0.0005
5573	5574	8.50%	0.380	0.0257	0.0037
5574	5575	8.10%	0.100	0.0027	0.0001
5575	5576	7.60%	0.130	0.0042	0.0002
5576	5577	8.40%	0.130	0.0042	0.0002
5577	5578	7.00%	0.140	0.0047	0.0002

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5578	5579	6.50%	0.070	0.0015	0.0000
5579	5580	8.40%	0.220	0.0102	0.0009
5580	5581	7.00%	0.050	0.0008	0.0000
5581	5582	6.80%	0.140	0.0047	0.0002
5582	5583	9.20%	0.040	0.0006	0.0000
5583	5584	9.30%	0.340	0.0213	0.0027
5584	5585	8.60%	0.100	0.0027	0.0001
5585	5586	7.50%	0.150	0.0053	0.0003
5586	5587	10.60%	0.090	0.0022	0.0001
5587	5588	9.10%	0.440	0.0330	0.0054
5588	5589	9.20%	0.050	0.0008	0.0000
5589	5590	7.10%	0.640	0.0624	0.0150
5590	5591	8.50%	0.470	0.0369	0.0065
5591	5592	7.70%	0.130	0.0042	0.0002
CORED INTVL AVG:		8.75%	0.473	0.0509	0.0196
NET PAY AVERAGE:		8.99%	0.485	0.0531	0.0208
TOTAL GROSS PAY:		115 FEET	NET PAY > 6%:		107 FEET

DUNN No. 1 SEC 10 T23N R7W

INTERVAL TOP	INTERVAL BOTTOM	CORE POROSITY	ROUTINE PERMEABILITY (MILLIDARCYS)	** OVERBURDEN & KLINKENBERG** **CORRECTED PERMEABILITY VALUES** MODERATE EFFECT PERMEABILITY (MILLIDARCYS)	MAXIMUM EFFECT PERMEABILITY (MILLIDARCYS)
5713	5714	12.90%	0.042	0.0005	0.0000
5714	5715	15.20%	5.000	0.5000	0.2500
5715	5716	8.90%	0.570	0.0513	0.0110
5716	5717	14.70%	0.570	0.0513	0.0110
5717	5718	15.00%	0.450	0.0343	0.0058
5718	5719	14.10%	0.400	0.0281	0.0042
5719	5720	13.60%	0.420	0.0305	0.0048
5720	5721	15.90%	0.630	0.0608	0.0144
5721	5722	14.60%	0.390	0.0269	0.0039
5722	5723	11.40%	0.460	0.0356	0.0061
5753	5754	8.00%	0.160	0.0059	0.0004
5754	5755	6.80%	0.020	0.0002	0.0000
5755	5756	5.60%	0.010	0.0001	0.0000
5756	5757	6.10%	0.030	0.0003	0.0000
5757	5758	6.70%	0.040	0.0006	0.0000
5758	5759	7.20%	0.020	0.0002	0.0000
5759	5760	7.10%	0.040	0.0006	0.0000
5760	5761	7.30%	0.280	0.0153	0.0016
5761	5762	1.90%	0.100	0.0027	0.0001
5762	5763	8.20%	2.900	0.2900	0.1450
5763	5764	10.00%	0.060	0.0011	0.0000
5764	5765	8.50%	0.900	0.1115	0.0376
5765	5766	7.90%	0.080	0.0018	0.0001
5766	5767	7.20%	0.020	0.0002	0.0000
5767	5768	8.90%	0.060	0.0011	0.0000
5768	5769	8.10%	0.030	0.0003	0.0000
5769	5770	7.50%	0.550	0.0483	0.0100
5770	5771	8.10%	0.060	0.0011	0.0000
5771	5772	6.50%	0.060	0.0011	0.0000
5772	5773	8.40%	0.200	0.0086	0.0006
5773	5774	9.00%	0.060	0.0011	0.0000
5774	5775	9.20%	0.120	0.0036	0.0002
5775	5776	10.20%	0.210	0.0094	0.0007
5776	5777	9.50%	0.160	0.0059	0.0004
5777	5778	10.10%	0.100	0.0027	0.0001
5778	5779	11.50%	0.060	0.0011	0.0000
5779	5780	5.80%	0.020	0.0002	0.0000
5780	5781	9.80%	0.050	0.0008	0.0000
5781	5782	9.30%	0.050	0.0008	0.0000
5782	5783	8.50%	0.100	0.0027	0.0001
5783	5784	7.90%	0.060	0.0011	0.0000
5784	5785	6.60%	0.120	0.0036	0.0002
5785	5786	7.70%	1.300	0.2083	0.1015
5786	5787	6.90%	0.100	0.0027	0.0001
5787	5788	7.50%	2.300	0.2300	0.1150
5788	5789	6.70%	0.190	0.0079	0.0006
5789	5790	8.70%	0.080	0.0018	0.0001
5790	5791	10.40%	0.080	0.0018	0.0001

EXHIBIT 7c

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5791	5792	12.50%	1.000	0.1333	0.0500
5792	5793	10.40%	0.160	0.0059	0.0004
5793	5794	9.10%	0.050	0.0008	0.0000
5794	5795	9.60%	0.050	0.0009	0.0000
5795	5796	9.60%	0.030	0.0003	0.0000
5796	5797	10.40%	0.110	0.0031	0.0001
5797	5798	11.90%	0.060	0.0011	0.0000
5798	5799	9.80%	0.060	0.0011	0.0000
5799	5800	10.00%	0.050	0.0008	0.0000
5800	5801	12.70%	0.050	0.0008	0.0000
5801	5802	12.00%	0.050	0.0008	0.0000
5802	5803	12.30%	0.070	0.0015	0.0000
5805	5806	7.30%	0.070	0.0015	0.0000
5806	5807	5.70%	0.030	0.0003	0.0000
5807	5808	9.30%	0.030	0.0003	0.0000
5808	5809	9.70%	0.110	0.0031	0.0001
5809	5810	9.50%	0.410	0.0293	0.0045
5810	5811	9.50%	0.170	0.0066	0.0004
5823	5824	13.40%	0.240	0.0118	0.0011
5824	5825	16.10%	0.120	0.0036	0.0002
5825	5826	15.10%	0.110	0.0031	0.0001
5826	5827	13.90%	0.100	0.0027	0.0001
5827	5828	11.70%	0.150	0.0059	0.0004
5828	5829	15.20%	0.080	0.0018	0.0001
5829	5830	10.50%	0.070	0.0015	0.0000
5830	5831	10.20%	0.070	0.0015	0.0000
5831	5832	9.30%	0.070	0.0015	0.0000
5832	5833	8.50%	0.070	0.0015	0.0000
5833	5834	9.00%	0.150	0.0053	0.0003
5834	5835	9.80%	1.000	0.1333	0.0500
5835	5836	8.00%	1.000	0.1333	0.0500
5836	5837	10.60%	0.270	0.0144	0.0015
5837	5838	12.10%	3.200	0.3200	0.1600
5838	5839	11.80%	0.100	0.0027	0.0001
5839	5840	11.00%	0.250	0.0126	0.0012
CORED INTVL AVG:		9.81%	0.353	0.0319	0.0126
NET PAY AVERAGE:		10.06%	0.369	0.0334	0.0132
TOTAL GROSS PAY:		83 FEET	NET PAY > 6%:		79 FEET

NANCY B NO. 14-1 SEC 14 T23N R7W

INTERVAL TOP	INTERVAL BOTTOM	CORE POROSITY	ROUTINE PERMEABILITY (MILLIDARCYS)	** OVERBURDEN & KLINKENBERG** **CORRECTED PERMEABILITY VALUES** MODERATE EFFECT PERMEABILITY (MILLIDARCYS)	MAXIMUM EFFECT PERMEABILITY (MILLIDARCYS)
5396	5397	3.30%	0.050	0.0008	0.0000
5397	5398	6.20%	0.050	0.0008	0.0000
5398	5399	5.90%	0.060	0.0011	0.0000
5399	5400	7.40%	0.090	0.0022	0.0001
5400	5401	7.00%	0.090	0.0022	0.0001
5401	5402	7.30%	0.060	0.0030	0.0030
5402	5403	7.30%	0.180	0.0090	0.0090
5403	5404	3.90%	0.020	0.0002	0.0000
5404	5405	9.10%	1.200	0.0600	0.0600
5405	5406	6.10%	0.070	0.0015	0.0000
5406	5407	7.80%	0.170	0.0066	0.0004
5407	5408	6.90%	0.090	0.0022	0.0001
5408	5409	6.00%	0.050	0.0025	0.0025
5409	5410	5.80%	0.020	0.0010	0.0010
5410	5411	5.80%	0.020	0.0002	0.0000
5411	5412	6.20%	0.170	0.0066	0.0004
5412	5413	6.50%	0.030	0.0003	0.0000
5413	5414	6.00%	0.050	0.0008	0.0000
5414	5415	3.60%	0.720	0.0763	0.0206
5415	5416	4.90%	0.050	0.0008	0.0000
5416	5417	8.70%	0.020	0.0002	0.0000
5508	5509	4.60%	0.010	0.0001	0.0000
5509	5510	10.50%	0.140	0.0047	0.0002
5510	5511	13.30%	0.300	0.0172	0.0019
5511	5512	12.70%	0.420	0.0210	0.0210
5512	5513	12.70%	0.230	0.0110	0.0009
5513	5514	8.90%	0.380	0.0190	0.0190
5514	5515	13.60%	0.420	0.0305	0.0048
5515	5516	10.50%	7.400	0.7400	0.3700
5516	5517	13.90%	0.230	0.0110	0.0009
5517	5518	10.00%	0.060	0.0011	0.0000
5518	5519	9.70%	0.080	0.0018	0.0001
5519	5520	8.80%	0.210	0.0105	0.0105
5520	5521	10.90%	0.080	0.0018	0.0001
5521	5522	7.80%	0.290	0.0163	0.0018
5522	5523	7.00%	0.070	0.0015	0.0000
5554	5555	6.00%	0.020	0.0002	0.0000
5555	5556	5.70%	0.060	0.0011	0.0000
5556	5557	6.40%	0.010	0.0001	0.0000
5557	5558	6.50%	0.070	0.0015	0.0000
5558	5559	6.30%	0.010	0.0001	0.0000
5568	5569	10.40%	0.470	0.0369	0.0065
5569	5570	11.00%	0.490	0.0397	0.0073
5570	5571	8.10%	0.290	0.0163	0.0018
5571	5572	9.30%	0.090	0.0022	0.0001
5572	5573	6.10%	0.070	0.0015	0.0000
5573	5574	9.00%	0.090	0.0022	0.0001
5574	5575	6.50%	0.090	0.0022	0.0001

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5575	5576	5.60%	0.090	0.0022	0.0001
5576	5577	9.00%	0.250	0.0126	0.0012
5577	5578	8.00%	0.240	0.0135	0.0013
5578	5579	5.00%	0.010	0.0001	0.0000
5579	5580	7.20%	0.030	0.0003	0.0000
5580	5581	6.80%	0.020	0.0002	0.0000
5581	5582	3.60%	0.010	0.0001	0.0000
5582	5583	4.60%	0.010	0.0001	0.0000
5583	5584	4.60%	0.020	0.0002	0.0000
5584	5585	5.10%	0.010	0.0001	0.0000
5585	5586	4.90%	0.020	0.0002	0.0000
5586	5587	5.60%	0.010	0.0001	0.0000
5587	5588	6.90%	0.020	0.0002	0.0000
5588	5589	3.20%	0.010	0.0001	0.0000
5589	5590	2.80%	0.030	0.0003	0.0000
5590	5591	3.70%	0.040	0.0006	0.0000
5591	5592	9.10%	0.020	0.0002	0.0000
5592	5593	6.50%	0.250	0.0126	0.0012
5593	5594	9.40%	0.050	0.0008	0.0000
5594	5595	10.00%	0.050	0.0008	0.0000
5595	5596	7.20%	0.020	0.0002	0.0000
5596	5597	5.30%	0.030	0.0003	0.0000
5597	5598	8.30%	0.070	0.0015	0.0000
5598	5599	7.40%	0.110	0.0031	0.0001
5599	5600	8.80%	1.000	0.1333	0.0500
5600	5601	8.40%	0.090	0.0022	0.0001
5601	5602	7.70%	0.010	0.0001	0.0000
5602	5603	5.40%	0.010	0.0001	0.0000
5603	5604	4.80%	0.010	0.0001	0.0000
5604	5605	7.20%	0.020	0.0002	0.0000
5605	5606	6.30%	0.010	0.0001	0.0000
5606	5607	6.90%	0.010	0.0001	0.0000
5607	5608	7.60%	0.010	0.0001	0.0000
5608	5609	6.70%	0.010	0.0001	0.0000
5609	5610	6.10%	0.010	0.0001	0.0000
5610	5611	4.40%	0.020	0.0002	0.0000
5611	5612	6.10%	0.070	0.0015	0.0000
5612	5613	5.90%	0.140	0.0047	0.0002
5613	5614	4.40%	0.020	0.0002	0.0000
5614	5615	5.40%	0.020	0.0002	0.0000
5615	5616	6.40%	0.030	0.0003	0.0000
5616	5617	2.40%	0.010	0.0001	0.0000
5617	5618	6.10%	0.010	0.0001	0.0000
5618	5619	7.80%	0.010	0.0001	0.0000
5619	5620	7.80%	0.030	0.0003	0.0000
5620	5621	6.50%	0.010	0.0001	0.0000
5621	5622	6.70%	0.010	0.0001	0.0000
5622	5623	6.00%	0.030	0.0003	0.0000
5623	5624	7.60%	0.070	0.0015	0.0000
5624	5625	8.00%	0.230	0.0110	0.0009
5625	5626	9.30%	0.100	0.0027	0.0001
5626	5627	9.00%	0.070	0.0015	0.0000
5627	5628	9.80%	0.020	0.0002	0.0000

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5628	5629	6.80%	0.020	0.0002	0.0000
5629	5630	5.20%	0.150	0.0057	0.0003
5630	5631	7.10%	0.010	0.0001	0.0000
5631	5632	6.70%	0.020	0.0002	0.0000
5632	5633	5.10%	0.020	0.0002	0.0000
5633	5634	4.30%	0.040	0.0006	0.0000
5634	5635	6.00%	0.010	0.0001	0.0000
5635	5636	5.30%	0.010	0.0001	0.0000
5636	5637	5.70%	0.010	0.0001	0.0000
5637	5638	5.80%	0.010	0.0001	0.0000
5638	5639	3.10%	0.040	0.0006	0.0000
5639	5640	3.90%	0.010	0.0001	0.0000
5640	5641	6.20%	0.050	0.0008	0.0000
5641	5642	7.00%	0.070	0.0015	0.0000
5642	5643	6.10%	0.030	0.0003	0.0000
5643	5644	7.00%	0.070	0.0015	0.0000
5644	5645	5.30%	0.040	0.0006	0.0000
5645	5646	5.40%	0.010	0.0001	0.0000
5646	5647	4.00%	0.010	0.0001	0.0000
5647	5648	5.40%	0.010	0.0001	0.0000
5648	5649	5.60%	0.010	0.0001	0.0000
5649	5650	3.00%	0.070	0.0015	0.0000
5650	5651	5.00%	0.010	0.0001	0.0000
5651	5652	5.40%	0.010	0.0001	0.0000
5652	5653	5.30%	0.160	0.0059	0.0004
5653	5654	5.10%	0.010	0.0001	0.0000
5654	5655	5.00%	0.010	0.0001	0.0000
5655	5656	5.30%	0.050	0.0008	0.0000
CORED INTVL AVG:		6.77%	0.154	0.0109	0.0047
NET PAY AVERAGE:		8.09%	0.230	0.0170	0.0076
TOTAL GROSS PAY:		129 FEET	NET PAY > 6%:		76 FEET

FED ELKINS No. 1 SEC 13 T23N R7W

INTERVAL TOP	INTERVAL BOTTOM	CORE POROSITY	ROUTINE PERMEABILITY (MILLIDARCYS)	** OVERBURDEN & KLINKENBERG** **CORRECTED PERMEABILITY VALUES** MODERATE EFFECT PERMEABILITY (MILLIDARCYS)	MAXIMUM EFFECT PERMEABILITY (MILLIDARCYS)
5459	5460	6.90%	0.010	0.0001	0.0000
5460	5461	5.50%	0.100	0.0027	0.0001
5461	5462	8.00%	0.150	0.0053	0.0003
5462	5463	8.10%	0.070	0.0015	0.0000
5463	5464	8.70%	0.070	0.0015	0.0000
5464	5465	7.80%	0.050	0.0008	0.0000
5465	5466	8.40%	0.060	0.0011	0.0000
5466	5467	8.20%	0.070	0.0015	0.0000
5467	5468	7.20%	0.050	0.0008	0.0000
5468	5469	7.40%	0.050	0.0008	0.0000
5469	5470	7.90%	0.040	0.0006	0.0000
5470	5471	7.00%	0.040	0.0006	0.0000
5471	5472	6.70%	0.080	0.0018	0.0001
5472	5473	5.70%	0.100	0.0027	0.0001
5473	5474	6.00%	0.130	0.0042	0.0002
5474	5475	6.60%	0.030	0.0003	0.0000
5475	5476	6.20%	0.040	0.0006	0.0000
5476	5477	6.20%	0.030	0.0003	0.0000
5477	5478	6.00%	0.050	0.0008	0.0000
5478	5479	5.80%	0.010	0.0001	0.0000
5479	5480	7.10%	0.020	0.0002	0.0000
5480	5481	5.90%	0.020	0.0002	0.0000
5481	5482	6.00%	0.050	0.0008	0.0000
5482	5483	5.80%	0.020	0.0002	0.0000
5483	5484	7.60%	0.130	0.0042	0.0002
5487	5488	10.30%	0.110	0.0031	0.0001
5488	5489	13.70%	0.260	0.0135	0.0013
5489	5490	6.30%	0.500	0.0410	0.0077
5490	5491	6.50%	1.900	0.3970	0.2829
5491	5492	7.30%	0.100	0.0027	0.0001
5492	5493	5.40%	0.180	0.0072	0.0005
5493	5494	6.20%	0.020	0.0002	0.0000
5494	5495	4.70%	0.030	0.0003	0.0000
5495	5496	4.70%	0.220	0.0102	0.0008
5496	5497	7.90%	1.300	0.2083	0.1015
5497	5498	7.80%	1.900	0.3970	0.2829
5498	5499	7.20%	0.050	0.0008	0.0000
5499	5500	6.40%	0.030	0.0003	0.0000
5500	5501	5.90%	0.040	0.0006	0.0000
5501	5502	5.60%	0.070	0.0015	0.0000
5502	5503	6.10%	0.030	0.0003	0.0000
5503	5504	5.60%	0.040	0.0006	0.0000
5504	5505	6.00%	0.040	0.0006	0.0000
5505	5506	6.60%	0.040	0.0006	0.0000
5506	5507	6.30%	0.060	0.0011	0.0000
5507	5508	6.00%	0.100	0.0027	0.0001
5508	5509	7.10%	0.150	0.0053	0.0003

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5509	5510	5.90%	0.100	0.0027	0.0001
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5511	5512	5.90%	0.050	0.0008	0.0000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	5515	[illegible]	[illegible]	0.0059	0.0004
5515	5516	5.90%	0.040	0.0006	0.0000
5516	5517	5.90%	0.090	0.0022	0.0001
[illegible]	5518	[illegible]	[illegible]	[illegible]	[illegible]
5518	5519	5.90%	0.040	0.0006	0.0000
5519	5520	5.90%	0.050	0.0008	0.0000
CORED INTVL AVG:		6.69%	0.163	0.0198	0.0117
NET PAY AVERAGE:		7.44%	0.238	0.0343	0.0212
GROSS PAY:		58 FEET	NET PAY > 6%:		32 FEET

HOLCOMB ROGERS 24-1 SEC 24 T23N R7W

INTERVAL TOP	INTERVAL BOTTOM	CORE POROSITY	ROUTINE PERMEABILITY (MILLIDARCYS)	** OVERBURDEN & KLINKENBERG** **CORRECTED PERMEABILITY VALUES** MODERATE EFFECT PERMEABILITY (MILLIDARCYS)	MAXIMUM EFFECT PERMEABILITY (MILLIDARCYS)
5310	5311	8.30%	0.130	0.0072	0.0005
5311	5312	10.50%	0.510	0.0424	0.0081
5312	5313	7.50%	0.170	0.0066	0.0004
5313	5314	8.80%	0.090	0.0022	0.0001
5314	5315	9.90%	0.510	0.0424	0.0081
5315	5316	10.20%	0.160	0.0080	0.0080
5316	5317	7.60%	0.710	0.0355	0.0355
5317	5318	6.40%	0.130	0.0042	0.0002
5318	5319	10.30%	1.000	0.1000	0.0500
5319	5320	7.80%	0.280	0.0153	0.0016
5320	5321	9.30%	0.280	0.0153	0.0016
5321	5322	10.50%	0.210	0.0094	0.0007
5322	5323	10.30%	0.030	0.0015	0.0015
5323	5324	8.10%	1.000	0.0500	0.0500
5324	5325	10.30%	0.230	0.0110	0.0009
5325	5326	8.80%	0.160	0.0059	0.0004
5326	5327	8.90%	0.800	0.0912	0.0274
5327	5328	5.50%	0.120	0.0036	0.0002
5328	5329	10.50%	0.300	0.0172	0.0019
5332	5333	11.00%	0.170	0.0066	0.0004
5421	5422	5.90%	0.090	0.0022	0.0001
5422	5423	4.50%	0.030	0.0003	0.0000
5423	5424	10.60%	0.200	0.0086	0.0006
5424	5425	11.20%	0.170	0.0066	0.0004
5425	5426	12.70%	1.000	0.0500	0.0500
5426	5427	12.50%	0.430	0.0318	0.0051
5427	5428	11.50%	6.100	0.6100	0.3050
5428	5429	10.30%	0.550	0.0483	0.0100
5429	5430	10.20%	0.250	0.0126	0.0012
5430	5431	12.60%	6.000	0.6000	0.3000
5431	5432	11.50%	0.740	0.0799	0.0222
5432	5433	9.10%	0.230	0.0110	0.0009
5433	5434	10.70%	0.240	0.0120	0.0120
5434	5435	10.20%	0.330	0.0202	0.0025
5435	5436	8.60%	0.120	0.0036	0.0002
5436	5437	6.70%	0.090	0.0022	0.0001
5437	5438	6.40%	0.060	0.0011	0.0000
5438	5439	8.00%	0.070	0.0015	0.0000
5439	5440	6.70%	0.210	0.0094	0.0007
5440	5441	6.50%	0.040	0.0006	0.0000
5441	5442	6.60%	0.070	0.0015	0.0000
5487	5488	10.20%	0.050	0.0008	0.0000
5488	5489	10.20%	0.060	0.0011	0.0000
5489	5490	11.60%	0.060	0.0011	0.0000
5490	5491	10.60%	0.040	0.0006	0.0000
5491	5492	11.70%	0.040	0.0006	0.0000
5492	5493	10.20%	0.200	0.0086	0.0006
5493	5494	10.10%	0.080	0.0018	0.0001

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5494	5495	9.50%	0.060	0.0011	0.0000
5495	5496	13.20%	0.160	0.0059	0.0004
5496	5497	10.80%	0.130	0.0042	0.0002
5497	5498	12.40%	0.110	0.0031	0.0001
5498	5499	12.70%	0.080	0.0018	0.0001
5499	5500	9.00%	0.030	0.0003	0.0000
5500	5501	9.10%	0.040	0.0006	0.0000
5505	5506	6.40%	0.050	0.0008	0.0000
5506	5507	7.90%	0.120	0.0036	0.0002
5507	5508	16.20%	0.170	0.0066	0.0004
5508	5509	6.60%	0.130	0.0042	0.0002
5509	5510	6.20%	0.050	0.0008	0.0000
5510	5511	13.80%	0.120	0.0036	0.0002
5511	5512	15.10%	0.160	0.0059	0.0004
5512	5513	17.00%	0.300	0.0172	0.0019
5513	5514	12.40%	0.140	0.0047	0.0002
5514	5515	8.80%	0.040	0.0006	0.0000
5515	5516	7.60%	0.100	0.0027	0.0001
5516	5517	10.20%	0.060	0.0011	0.0000
5517	5518	12.80%	0.260	0.0135	0.0013
5518	5519	10.50%	0.160	0.0059	0.0004
5519	5520	11.70%	0.120	0.0036	0.0002
5520	5521	9.30%	0.190	0.0079	0.0006
5521	5522	9.90%	0.050	0.0008	0.0000
5522	5523	9.10%	0.210	0.0094	0.0007
5523	5524	7.80%	0.050	0.0008	0.0000
5524	5525	10.40%	2.400	0.2400	0.1200
5525	5526	8.50%	0.130	0.0042	0.0002
5526	5527	11.20%	0.190	0.0079	0.0006
5527	5528	9.30%	0.060	0.0011	0.0000
5528	5529	9.40%	0.020	0.0002	0.0000
5529	5530	4.90%	0.010	0.0001	0.0000
5530	5531	8.60%	0.190	0.0079	0.0006
5531	5532	9.10%	0.080	0.0018	0.0001
5532	5533	7.90%	0.050	0.0008	0.0000
5533	5534	6.50%	0.090	0.0022	0.0001
5534	5535	6.60%	0.040	0.0006	0.0000
5535	5536	6.80%	0.170	0.0066	0.0004
5536	5537	7.00%	0.030	0.0003	0.0000
5537	5538	8.00%	0.040	0.0006	0.0000
5538	5539	8.00%	0.050	0.0008	0.0000
5539	5540	6.70%	0.040	0.0006	0.0000
5540	5541	7.20%	0.060	0.0011	0.0000
5541	5542	7.70%	0.040	0.0006	0.0000
5542	5543	6.70%	0.060	0.0011	0.0000
5543	5544	6.60%	0.010	0.0001	0.0000
5544	5545	7.50%	0.040	0.0006	0.0000
5545	5546	9.70%	0.060	0.0011	0.0000
5546	5547	8.90%	0.050	0.0008	0.0000
5547	5548	8.50%	0.050	0.0008	0.0000
5548	5549	6.20%	0.050	0.0008	0.0000
5549	5550	5.50%	0.010	0.0001	0.0000
5550	5551	4.00%	0.020	0.0002	0.0000

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5551	5552	5.60%	0.010	0.0001	0.0000
5552	5553	4.90%	0.070	0.0015	0.0000
5553	5554	8.10%	0.040	0.0006	0.0000
5554	5555	8.60%	0.670	0.0675	0.0170
5555	5556	9.40%	0.090	0.0022	0.0001
5556	5557	7.90%	2.300	0.2300	0.1150
5557	5558	6.10%	1.300	0.2083	0.1015
5558	5559	6.80%	0.040	0.0006	0.0000
5559	5560	7.40%	0.060	0.0011	0.0000
5560	5561	5.70%	0.056	0.0010	0.0000
CORED INTVL AVG:		9.05%	0.328	0.0262	0.0115
NET PAY AVERAGE:		9.35%	0.350	0.0282	0.0124
TOTAL GROSS PAY:		111 FEET	NET PAY > 6%:		103 FEET

SPERLING 30-1 SEC 30 T24N R6W

INTERVAL TOP	INTERVAL BOTTOM	CORE POROSITY	ROUTINE PERMEABILITY (MILLIDARCYS)	** OVERBURDEN & KLINKENBERG** **CORRECTED PERMEABILITY VALUES** MODERATE EFFECT PERMEABILITY (MILLIDARCYS)	MAXIMUM EFFECT PERMEABILITY (MILLIDARCYS)
5330	5331	3.30%	0.270	0.0144	0.0015
5331	5332	6.00%	0.010	0.0001	0.0000
5332	5333	6.10%	0.100	0.0027	0.0001
5333	5334	6.10%	0.010	0.0001	0.0000
5334	5335	5.70%	0.270	0.0144	0.0015
5335	5336	5.80%	0.010	0.0001	0.0000
5336	5337	6.50%	0.360	0.0235	0.0032
5337	5338	6.60%	0.020	0.0002	0.0000
5338	5339	4.80%	0.010	0.0001	0.0000
5339	5340	4.00%	0.020	0.0002	0.0000
5340	5341	4.00%	0.360	0.0235	0.0032
5341	5342	3.20%	0.080	0.0018	0.0001
5342	5343	4.40%	0.020	0.0002	0.0000
5343	5344	4.40%	0.010	0.0001	0.0000
5344	5345	4.00%	0.090	0.0022	0.0001
5345	5346	4.90%	0.080	0.0018	0.0001
5346	5347	7.20%	0.190	0.0079	0.0006
5347	5348	5.30%	0.010	0.0001	0.0000
5348	5349	4.30%	0.010	0.0001	0.0000
5349	5350	4.00%	0.060	0.0011	0.0000
5350	5351	3.60%	0.010	0.0001	0.0000
5351	5352	4.90%	0.280	0.0153	0.0016
5352	5353	5.30%	0.010	0.0001	0.0000
5353	5354	4.00%	0.010	0.0001	0.0000
5354	5355	4.80%	0.010	0.0001	0.0000
5355	5356	3.30%	0.070	0.0015	0.0000
5356	5357	6.20%	0.020	0.0002	0.0000
5423	5424	8.90%	0.040	0.0006	0.0000
5424	5425	9.30%	0.010	0.0001	0.0000
5425	5426	10.50%	0.010	0.0001	0.0000
5426	5427	8.50%	0.020	0.0002	0.0000
5427	5428	5.10%	0.010	0.0001	0.0000
5428	5429	8.30%	0.080	0.0018	0.0001
5429	5430	6.70%	0.040	0.0006	0.0000
5430	5431	3.00%	0.010	0.0001	0.0000
5431	5432	10.50%	0.050	0.0008	0.0000
5432	5433	8.90%	0.040	0.0006	0.0000
5433	5434	3.80%	0.010	0.0001	0.0000
5434	5435	3.40%	0.010	0.0001	0.0000
5435	5436	9.70%	0.020	0.0002	0.0000
5436	5437	10.10%	0.090	0.0022	0.0001
5437	5438	9.50%	0.150	0.0053	0.0003
5438	5439	6.30%	0.020	0.0002	0.0000
5439	5440	9.30%	0.020	0.0002	0.0000
5440	5441	10.00%	0.010	0.0001	0.0000
5441	5442	10.10%	0.040	0.0006	0.0000
5442	5443	6.40%	0.010	0.0001	0.0000

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SPERLING 30-1 SEC 30 T24N R6W

5443	5444	5.40%	0.040	0.0006	0.0000
5444	5445	4.00%	0.010	0.0001	0.0000
5445	5446	4.80%	0.100	0.0027	0.0001
5446	5447	11.60%	0.100	0.0027	0.0001
5447	5448	11.70%	0.040	0.0006	0.0000
5448	5449	12.90%	0.080	0.0011	0.0000
5449	5450	14.10%	0.040	0.0006	0.0000
5450	5451	5.00%	0.010	0.0001	0.0000
5451	5452	12.00%	0.020	0.0002	0.0000
5452	5453	8.30%	0.040	0.0006	0.0000
5453	5454	10.00%	0.050	0.0008	0.0000
5454	5455	10.50%	0.020	0.0002	0.0000
5455	5456	10.80%	0.020	0.0002	0.0000
5456	5457	9.90%	0.030	0.0003	0.0000
5457	5458	7.90%	0.020	0.0002	0.0000
5458	5459	9.90%	0.050	0.0008	0.0000
5459	5460	8.60%	0.020	0.0002	0.0000
5460	5461	9.40%	0.020	0.0002	0.0000
5461	5462	9.40%	0.040	0.0006	0.0000
5462	5463	8.60%	0.020	0.0002	0.0000
5463	5464	6.30%	0.010	0.0001	0.0000
5464	5465	10.60%	0.120	0.0036	0.0002
5465	5466	9.00%	1.700	0.3286	0.2095
5466	5467	13.00%	0.100	0.0027	0.0001
5467	5468	13.10%	0.080	0.0018	0.0001
5468	5469	10.30%	0.050	0.0008	0.0000
5469	5470	15.20%	0.080	0.0018	0.0001
5470	5471	12.00%	0.090	0.0022	0.0001
5471	5472	6.30%	0.070	0.0015	0.0000
5472	5473	3.20%	0.010	0.0001	0.0000
5473	5474	9.70%	0.030	0.0003	0.0000
5474	5475	7.00%	0.020	0.0002	0.0000
CORED INTVL AVG:		7.49%	0.078	0.0061	0.0028
NET PAY AVERAGE:		9.38%	0.088	0.0082	0.0044
GROSS PAY:		79 FEET	NET PAY > 6%:		49 FEET

BOBBY "B" No. 2 SEC 31 T24N R6W

INTERVAL TOP	INTERVAL BOTTOM	CORE POROSITY	ROUTINE PERMEABILITY (MILLIDARCYS)	**CORRECTED PERMEABILITY VALUES** MODERATE EFFECT PERMEABILITY (MILLIDARCYS)	MAXIMUM EFFECT PERMEABILITY (MILLIDARCYS)
5468	5469	4.20%	0.380	0.0257	0.0037
5469	5470	5.60%	0.250	0.0126	0.0012
5470	5471	4.10%	0.450	0.0343	0.0058
5471	5472	7.30%	0.100	0.0027	0.0001
5472	5473	7.80%	0.600	0.0559	0.0126
5473	5474	12.10%	1.700	0.1700	0.0850
5474	5475	7.00%	0.370	0.0246	0.0034
5475	5476	8.40%	0.160	0.0059	0.0004
5476	5477	11.50%	0.580	0.0528	0.0115
5477	5478	11.10%	0.120	0.0036	0.0002
5478	5479	9.00%	0.670	0.0675	0.0170
5479	5480	14.90%	0.800	0.0912	0.0274
5480	5481	14.00%	1.400	0.1400	0.0700
5481	5482	9.60%	0.670	0.0675	0.0170
5482	5483	12.90%	0.620	0.0592	0.0138
5483	5484	16.30%	0.290	0.0163	0.0018
5484	5485	13.20%	0.150	0.0053	0.0003
5485	5486	7.90%	0.070	0.0015	0.0000
5486	5487	12.80%	0.630	0.0608	0.0144
5487	5488	15.60%	0.660	0.0658	0.0163
5488	5489	12.30%	0.800	0.0912	0.0274
5489	5490	15.00%	0.710	0.0745	0.0198
5490	5491	16.30%	0.250	0.0126	0.0012
5491	5492	16.10%	0.300	0.0172	0.0019
5492	5493	9.40%	0.320	0.0192	0.0023
5493	5494	12.10%	0.190	0.0079	0.0006
5494	5495	8.00%	0.740	0.0799	0.0222
5495	5496	8.00%	0.130	0.0042	0.0002
5496	5497	10.00%	0.020	0.0002	0.0000
5497	5498	9.40%	0.650	0.0641	0.0156
5498	5499	6.60%	0.410	0.0293	0.0045
5499	5500	6.80%	0.380	0.0257	0.0037
5500	5501	6.00%	0.550	0.0483	0.0100
5501	5502	6.30%	0.070	0.0015	0.0000
5502	5503	6.30%	0.050	0.0008	0.0000
5503	5504	6.30%	1.000	0.1333	0.0500
5504	5505	5.70%	0.120	0.0036	0.0002
5505	5506	4.80%	0.070	0.0015	0.0000
5511	5512	5.60%	0.010	0.0001	0.0000
5512	5513	6.70%	0.040	0.0006	0.0000
5513	5514	5.90%	0.050	0.0008	0.0000
5514	5515	5.10%	0.060	0.0011	0.0000
5515	5516	5.90%	0.020	0.0002	0.0000
5516	5517	6.70%	0.130	0.0042	0.0002
5517	5518	8.10%	0.100	0.0027	0.0001
5518	5519	8.20%	1.300	0.1300	0.0650
5519	5520	7.70%	0.020	0.0002	0.0000
CORED INTERVAL AVG		9.16%	0.408	0.0366	0.0112
NET PAY AVERAGE:		10.21%	0.465	0.0430	0.0137
TOTAL GROSS PAY:		47 FEET		NET PAY > 6%:	37 FEET

EXHIBIT 7h

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INTERVAL TOP	INTERVAL BOTTOM	CORE POROSITY	ROUTINE PERMEABILITY (MILLIDARCYS)	** OVERBURDEN & KLINKENBERG** **CORRECTED PERMEABILITY VALUES** MODERATE EFFECT PERMEABILITY (MILLIDARCYS)	MAXIMUM EFFECT PERMEABILITY (MILLIDARCYS)
5462	5463	4.40%	0.100	0.0027	0.0001
5463	5464	1.10%	0.070	0.0015	0.0000
5464	5465	4.00%	0.060	0.0011	0.0000
5465	5466	6.60%	0.050	0.0008	0.0000
5466	5467	5.80%	1.000	0.1333	0.0500
5467	5468	6.00%	0.100	0.0027	0.0001
5468	5469	6.60%	1.000	0.1333	0.0500
5469	5470	8.10%	0.130	0.0042	0.0002
5470	5471	8.00%	0.070	0.0015	0.0000
5471	5472	6.80%	0.050	0.0008	0.0000
5472	5473	9.20%	0.050	0.0008	0.0000
5473	5474	8.40%	0.360	0.0235	0.0032
5474	5475	6.80%	0.050	0.0008	0.0000
5475	5476	7.10%	0.090	0.0022	0.0001
5476	5477	5.70%	0.040	0.0006	0.0000
5477	5478	4.60%	0.020	0.0002	0.0000
5478	5479	4.30%	0.020	0.0002	0.0000
5479	5480	4.60%	0.010	0.0001	0.0000
5480	5481	5.00%	0.010	0.0001	0.0000
5481	5482	4.20%	0.030	0.0003	0.0000
5482	5483	3.00%	0.010	0.0001	0.0000
5483	5484	5.00%	0.070	0.0015	0.0000
5484	5485	5.00%	0.030	0.0003	0.0000
5485	5486	4.80%	0.080	0.0018	0.0001
5486	5487	4.20%	0.030	0.0003	0.0000
5487	5488	4.20%	0.020	0.0002	0.0000
5488	5489	4.80%	0.600	0.0559	0.0126
5489	5490	3.70%	0.010	0.0001	0.0000
5490	5491	4.80%	0.120	0.0036	0.0002
5491	5492	5.40%	0.020	0.0002	0.0000
5492	5493	4.50%	0.050	0.0008	0.0000
5493	5494	6.20%	0.040	0.0006	0.0000
5494	5495	5.10%	0.010	0.0001	0.0000
5495	5496	3.70%	0.010	0.0001	0.0000
5496	5497	3.40%	0.010	0.0001	0.0000
5497	5498	3.70%	0.010	0.0001	0.0000
5498	5499	3.70%	0.010	0.0001	0.0000
5499	5500	4.10%	0.010	0.0001	0.0000
5500	5501	3.50%	0.010	0.0001	0.0000
5501	5502	3.90%	0.010	0.0001	0.0000
5589	5590	3.80%	0.100	0.0027	0.0001
5590	5591	8.70%	1.000	0.1333	0.0500
5591	5592	8.70%	0.110	0.0031	0.0001
5592	5593	7.40%	0.200	0.0086	0.0006
5593	5594	9.80%	0.380	0.0257	0.0037
5594	5595	8.40%	0.027	0.0003	0.0000
5595	5596	8.60%	0.110	0.0031	0.0001
5596	5597	7.90%	0.160	0.0059	0.0004

EXHIBIT 7i

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5597	5598	8.80%	1.100	0.1568	0.0647
5598	5599	10.90%	0.630	0.0608	0.0144
5599	5600	7.60%	0.640	0.0624	0.0150
5600	5601	12.70%	1.000	0.1333	0.0500
5601	5602	9.40%	0.300	0.0172	0.0019
5602	5603	10.30%	0.200	0.0086	0.0006
5603	5604	12.90%	1.000	0.1333	0.0500
5604	5605	13.10%	0.290	0.0163	0.0018
5605	5606	12.80%	0.620	0.0592	0.0138
5606	5607	11.60%	0.540	0.0468	0.0095
5607	5608	8.00%	1.000	0.1333	0.0500
5608	5609	7.20%	1.000	0.1333	0.0500
5609	5610	3.80%	0.060	0.0011	0.0000
5610	5611	10.60%	1.000	0.1333	0.0500
5611	5612	11.00%	0.220	0.0102	0.0008
5612	5613	9.20%	0.100	0.0027	0.0001
5613	5614	13.30%	1.000	0.1333	0.0500
5614	5615	10.10%	0.170	0.0066	0.0004
5615	5616	4.00%	0.020	0.0002	0.0000
5616	5617	9.80%	0.850	0.1011	0.0322
5617	5618	10.30%	0.270	0.0144	0.0015
CORED INTVL AVG:		6.88%	0.269	0.0279	0.0091
NET PAY AVERAGE:		9.25%	0.439	0.0475	0.0157
TOTAL GROSS PAY:		69 FEET	NET PAY > 6%:		36 FEET

FED 24 No. 1 SEC 24 T24N R7W

INTERVAL TOP	INTERVAL BOTTOM	CORE POROSITY	ROUTINE PERMEABILITY (MILLIDARCYS)	** OVERBURDEN & KLINKENBERG** **CORRECTED PERMEABILITY VALUES** MODERATE EFFECT PERMEABILITY (MILLIDARCYS)	MAXIMUM EFFECT PERMEABILITY (MILLIDARCYS)
5439	5440	9.40%	0.550	0.0483	0.0100
5440	5441	12.50%	0.260	0.0135	0.0013
5441	5442	17.00%	0.380	0.0257	0.0037
5442	5443	16.70%	0.430	0.0318	0.0051
5443	5444	11.00%	0.330	0.0202	0.0025
5444	5445	14.70%	0.280	0.0153	0.0016
5445	5446	11.00%	0.430	0.0318	0.0051
5446	5447	8.70%	0.290	0.0163	0.0018
5447	5448	12.20%	0.270	0.0144	0.0015
5448	5449	11.40%	0.570	0.0513	0.0110
5449	5450	13.10%	0.520	0.0439	0.0086
5450	5451	13.40%	0.180	0.0072	0.0005
5451	5452	7.10%	0.420	0.0305	0.0048
5452	5453	9.50%	0.170	0.0066	0.0004
5453	5454	10.10%	0.150	0.0053	0.0003
5454	5455	11.40%	0.160	0.0059	0.0004
5455	5456	11.00%	0.160	0.0059	0.0004
5456	5457	11.40%	0.170	0.0066	0.0004
5457	5458	11.00%	0.150	0.0053	0.0003
5458	5459	10.70%	0.220	0.0102	0.0008
5459	5460	7.30%	0.100	0.0027	0.0001
5460	5461	10.20%	0.130	0.0042	0.0002
5461	5462	11.30%	0.130	0.0042	0.0002
5462	5463	9.50%	0.110	0.0031	0.0001
5463	5464	10.30%	0.150	0.0053	0.0003
5464	5465	11.30%	0.170	0.0066	0.0004
5465	5466	8.50%	0.130	0.0042	0.0002
5466	5467	9.00%	0.120	0.0036	0.0002
5467	5468	8.30%	0.110	0.0031	0.0001
5468	5469	10.00%	0.110	0.0031	0.0001
5469	5470	9.50%	0.120	0.0036	0.0002
5470	5471	10.40%	0.190	0.0079	0.0006
5471	5472	9.70%	0.140	0.0047	0.0002
5472	5473	9.20%	0.220	0.0102	0.0008
5473	5474	9.10%	0.110	0.0031	0.0001
5474	5475	8.60%	0.090	0.0022	0.0001
5475	5476	8.30%	0.080	0.0018	0.0001
5476	5477	5.10%	0.030	0.0003	0.0000
5477	5478	3.70%	0.040	0.0006	0.0000
5478	5479	5.90%	0.030	0.0003	0.0000
5479	5480	5.70%	0.100	0.0027	0.0001
5480	5481	5.70%	0.130	0.0042	0.0002
5481	5482	5.90%	0.140	0.0047	0.0002
5482	5483	6.40%	0.020	0.0002	0.0000
5483	5484	7.70%	0.020	0.0002	0.0000
5484	5485	6.50%	0.050	0.0008	0.0000
5485	5486	6.80%	0.040	0.0006	0.0000

EXHIBIT 7j

FED 24 No. 1 SEC 24 T24N R7W

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5487	5488	6.90%	0.050	0.0011	0.0000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5491	5492	6.70%	0.050	0.0008	0.0000
5492	5493	6.50%	0.030	0.0003	0.0000
5493	5494	6.30%	0.040	0.0006	0.0000
5494	5495	6.00%	0.020	0.0002	0.0000
5495	5496	5.90%	0.250	0.0126	0.0012
5496	5497	6.40%	0.010	0.0001	0.0000
5497	5498	5.50%	0.020	0.0002	0.0000
5498	5499	6.20%	0.010	0.0001	0.0000
5499	5500	5.80%	0.040	0.0006	0.0000
5500	5501	6.00%	0.040	0.0006	0.0000
5501	5502	6.20%	0.050	0.0008	0.0000
5502	5503	5.80%	0.020	0.0002	0.0000
5514	5515	11.80%	0.250	0.0126	0.0012
5515	5516	11.20%	0.080	0.0018	0.0001
5516	5517	11.21%	0.060	0.0011	0.0000
5517	5518	11.00%	0.060	0.0011	0.0000
5518	5519	11.00%	0.040	0.0006	0.0000
5519	5520	10.40%	0.040	0.0006	0.0000
5520	5521	9.90%	0.040	0.0006	0.0000
5521	5522	9.90%	0.080	0.0018	0.0001
5522	5523	9.90%	0.050	0.0008	0.0000
CORED INTVL AVG:		9.00%	0.143	0.0072	0.0009
NET PAY AVERAGE:		9.68%	0.157	0.0082	0.0011
GROSS PAY:		73 FEET	NET PAY > 6%:		61 FEET

Ernest No. 1 Sec 27 T24N R7W

INTERVAL TOP	INTERVAL BOTTOM	CORE POROSITY	ROUTINE PERMEABILITY (MILLIDARCYS)	**CORRECTED PERMEABILITY VALUES** *MODERATE EFFECT PERMEABILITY (MILLIDARCYS)	MAXIMUM EFFECT PERMEABILITY (MILLIDARCYS)
5440	5441	7.30%	0.280	0.0153	0.0016
5441	5442	3.30%	0.120	0.0036	0.0002
5442	5443	3.40%	0.120	0.0036	0.0002
5443	5444	5.50%	0.070	0.0015	0.0000
5444	5445	6.40%	0.030	0.0003	0.0000
5445	5446	6.80%	0.360	0.0235	0.0032
5446	5447	7.20%	0.060	0.0011	0.0000
5447	5448	8.00%	0.110	0.0031	0.0001
5448	5449	6.30%	0.090	0.0022	0.0001
5449	5450	9.20%	0.100	0.0027	0.0001
5450	5451	6.30%	0.050	0.0008	0.0000
5451	5452	10.60%	0.220	0.0102	0.0008
5452	5453	9.90%	2.100	0.4707	0.3706
5453	5454	9.20%	0.120	0.0036	0.0002
5454	5455	8.50%	0.120	0.0036	0.0002
5455	5456	8.10%	0.070	0.0015	0.0000
5456	5457	6.70%	0.040	0.0006	0.0000
5457	5458	5.10%	0.010	0.0001	0.0000
5458	5459	7.20%	0.020	0.0002	0.0000
5459	5460	5.40%	0.080	0.0018	0.0001
5460	5461	5.40%	0.020	0.0002	0.0000
5461	5462	5.70%	0.130	0.0042	0.0002
5462	5463	7.30%	0.000	0.0000	0.0000
5463	5464	5.90%	0.380	0.0257	0.0037
5464	5465	5.10%	0.150	0.0053	0.0003
5465	5466	4.70%	0.050	0.0008	0.0000
5466	5467	5.00%	0.020	0.0002	0.0000
5467	5468	6.00%	0.080	0.0018	0.0001
5468	5469	6.20%	0.010	0.0001	0.0000
5469	5470	6.30%	0.050	0.0008	0.0000
5470	5471	5.70%	0.030	0.0003	0.0000
5471	5472	5.70%	0.010	0.0001	0.0000
5472	5473	5.80%	0.790	0.0893	0.0265
5473	5474	5.60%	0.130	0.0042	0.0002
5474	5475	6.20%	0.010	0.0001	0.0000
5475	5476	5.90%	0.020	0.0002	0.0000
5476	5477	7.10%	0.080	0.0018	0.0001
5477	5478	4.40%	0.020	0.0002	0.0000
5478	5479	3.70%	0.020	0.0002	0.0000
5479	5480	4.80%	0.030	0.0003	0.0000
5480	5481	3.70%	0.010	0.0001	0.0000
CORED INTERVAL AVG		6.26%	0.151	0.0167	0.0100
NET PAY AVERAGE:		7.54%	0.196	0.0271	0.0189
TOTAL GROSS PAY:		41 FEET		NET PAY > 6%:	20 FEET

EXHIBIT 7k

BANNON CONNIE 29-3 SEC 29 T24N R7W

INTERVAL TOP	INTERVAL BOTTOM	CORE POROSITY	ROUTINE PERMEABILITY (MILLIDARCYS)	** OVERBURDEN & KLINKENBERG** **CORRECTED PERMEABILITY VALUES** MODERATE EFFECT PERMEABILITY (MILLIDARCYS)	MAXIMUM EFFECT PERMEABILITY (MILLIDARCYS)
6005.0	6005.5	12.40%	0.100	0.0027	0.0001
6005.5	6006.0	10.80%	0.060	0.0011	0.0000
6006.0	6006.5	9.70%	0.160	0.0072	0.0005
6006.5	6007.0	7.90%	0.010	0.0001	0.0000
6007.0	6007.5	11.50%	0.040	0.0006	0.0000
6007.5	6008.0	8.70%	0.030	0.0003	0.0000
6008.0	6008.5	12.60%	0.020	0.0002	0.0000
6008.5	6009.0	12.20%	0.060	0.0011	0.0000
6009.0	6009.5	11.50%	0.050	0.0008	0.0000
6009.5	6010.0	13.20%	0.140	0.0047	0.0002
6010.0	6010.5	11.80%	0.130	0.0042	0.0002
6010.5	6011.0	11.60%	0.190	0.0079	0.0006
6011.0	6011.5	12.70%	0.090	0.0022	0.0001
6011.5	6012.0	7.70%	0.070	0.0015	0.0000
6012.0	6012.5	13.10%	1.100	0.1568	0.0647
6012.5	6013.0	10.80%	0.800	0.0912	0.0274
6013.0	6013.5	3.90%	0.010	0.0001	0.0000
6013.5	6014.0	12.70%	0.030	0.0003	0.0000
6014.0	6014.5	7.50%	0.030	0.0003	0.0000
6014.5	6015.0	12.70%	0.020	0.0002	0.0000
6015.0	6015.5	10.50%	0.020	0.0002	0.0000
6015.5	6016.0	10.10%	0.020	0.0002	0.0000
6016.0	6016.5	6.50%	0.030	0.0003	0.0000
6016.5	6017.0	3.90%	0.030	0.0003	0.0000
6017	6018	5.40%	0.030	0.0003	0.0000
6018	6019	5.90%	0.020	0.0002	0.0000
6019	6020	6.10%	0.030	0.0003	0.0000
6030	6031	4.60%	0.010	0.0001	0.0000
6031	6032	6.00%	0.010	0.0001	0.0000
6032	6033	5.50%	0.010	0.0001	0.0000
6033	6034	6.90%	0.010	0.0001	0.0000
6034	6035	5.10%	0.010	0.0001	0.0000
6035	6036	5.80%	0.010	0.0001	0.0000
6036	6037	5.20%	0.030	0.0003	0.0000
6037	6038	5.20%	0.010	0.0001	0.0000
6038	6039	4.80%	0.030	0.0003	0.0000
6039	6040	3.80%	0.010	0.0001	0.0000
6040	6041	5.70%	0.010	0.0001	0.0000
6041.0	6041.5	9.70%	0.010	0.0001	0.0000
6041.5	6042.0	7.30%	0.010	0.0001	0.0000
6042.0	6042.5	8.90%	0.010	0.0001	0.0000
6042.5	6043.0	8.60%	0.020	0.0002	0.0000
6043.0	6043.5	10.30%	0.010	0.0001	0.0000
6043.5	6044.0	9.10%	0.010	0.0001	0.0000
6044.0	6044.5	11.10%	0.080	0.0018	0.0001
6044.5	6045.0	8.70%	0.060	0.0011	0.0000
6045.0	6045.5	3.30%	0.010	0.0001	0.0000

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6045.5	6046.0	8.70%	0.130	0.0042	0.0002
6046.0	6046.5	13.60%	0.060	0.0011	0.0000
6046.5	6047.0	6.90%	0.030	0.0003	0.0000
6047.0	6047.5	15.30%	0.020	0.0002	0.0000
6047.5	6048.0	10.30%	0.010	0.0001	0.0000
6048.0	6048.5	10.90%	0.010	0.0001	0.0000
6048.5	6049.0	10.20%	0.010	0.0001	0.0000
6049.0	6049.5	8.90%	0.010	0.0001	0.0000
6049.5	6050.0	8.50%	0.010	0.0001	0.0000
6050.0	6050.5	8.40%	0.020	0.0002	0.0000
6050.5	6051.0	6.90%	0.010	0.0001	0.0000
6051.0	6051.5	6.90%	0.020	0.0002	0.0000
6051.5	6052.0	8.30%	0.010	0.0001	0.0000
6052.0	6052.5	7.90%	0.010	0.0001	0.0000
6052.5	6053.0	7.30%	0.040	0.0006	0.0000
6053.0	6053.5	8.80%	0.010	0.0001	0.0000
6053.5	6054.0	6.30%	0.010	0.0001	0.0000
6054.0	6054.5	6.10%	0.010	0.0001	0.0000
6054.5	6055.0	8.40%	0.010	0.0001	0.0000
CORED INTVL AVG:		8.05%	0.055	0.0037	0.0012
NET PAY AVERAGE:		9.56%	0.075	0.0056	0.0018
GROSS PAY:		40.0 FEET		NET PAY > 6%:	26.5 FEET

BETTY "C" No. 31-1 SEC 31 T24N R7W

INTERVAL TOP	INTERVAL BOTTOM	CORE POROSITY	ROUTINE PERMEABILITY (MILLIDARCYS)	** OVERBURDEN & KLINKENBERG** **CORRECTED PERMEABILITY VALUES** MODERATE EFFECT PERMEABILITY (MILLIDARCYS)	MAXIMUM EFFECT PERMEABILITY (MILLIDARCYS)
5390	5391	4.10%	0.080	0.0018	0.0001
5391	5392	3.80%	0.080	0.0018	0.0001
5392	5393	3.40%	0.050	0.0008	0.0000
5393	5394	4.30%	0.020	0.0002	0.0000
5394	5395	5.20%	0.300	0.0172	0.0019
5395	5396	5.20%	0.030	0.0015	0.0015
5396	5397	4.70%	0.210	0.0105	0.0105
5397	5398	4.70%	0.110	0.0031	0.0001
5398	5399	5.70%	0.070	0.0015	0.0000
5399	5400	4.90%	0.034	0.0004	0.0000
5400	5401	5.80%	0.140	0.0047	0.0002
5401	5402	5.30%	0.080	0.0018	0.0001
5402	5403	5.90%	0.100	0.0050	0.0050
5403	5404	3.90%	0.010	0.0001	0.0000
5404	5405	4.70%	0.130	0.0042	0.0002
5413	5414	2.70%	0.160	0.0059	0.0004
5414	5415	2.90%	0.420	0.0305	0.0048
5415	5416	9.70%	0.390	0.0269	0.0039
5416	5417	12.00%	0.190	0.0079	0.0006
5417	5418	12.80%	0.260	0.0135	0.0013
5418	5419	4.40%	0.180	0.0072	0.0005
5419	5420	8.30%	0.710	0.0745	0.0198
5420	5421	7.20%	0.090	0.0022	0.0001
5421	5422	8.80%	0.400	0.0281	0.0042
5422	5423	7.40%	0.090	0.0022	0.0001
5423	5424	8.10%	0.360	0.0235	0.0032
5424	5425	8.30%	0.330	0.0202	0.0025
5425	5426	3.90%	0.310	0.0182	0.0021
5426	5427	4.40%	0.100	0.0027	0.0001
5427	5428	4.70%	0.250	0.0126	0.0012
5428	5429	4.80%	0.080	0.0018	0.0001
5429	5430	3.90%	0.090	0.0022	0.0001
5430	5431	5.60%	0.080	0.0040	0.0040
5431	5432	5.50%	0.090	0.0022	0.0001
5432	5433	6.00%	0.080	0.0018	0.0001
5433	5434	5.40%	0.060	0.0011	0.0000
5434	5435	6.10%	0.090	0.0022	0.0001
5435	5436	6.00%	0.320	0.0192	0.0023
5436	5437	4.90%	0.010	0.0001	0.0000
5437	5438	4.80%	0.090	0.0022	0.0001
5438	5439	5.70%	0.190	0.0079	0.0006
5439	5440	5.20%	0.010	0.0001	0.0000
5583	5584	6.10%	0.100	0.0027	0.0001
5584	5585	6.20%	0.310	0.0182	0.0021
5585	5586	6.10%	0.020	0.0002	0.0000
5586	5587	3.90%	0.020	0.0002	0.0000
5587	5588	5.90%	0.010	0.0001	0.0000
5588	5589	8.20%	0.400	0.0281	0.0042

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BETTY "C" No. 31-1 SEC 31 T24N R7W

5589	5590	8.60%	0.100	0.0027	0.0001
5590	5591	11.00%	0.020	0.0002	0.0000
5591	5592	14.10%	0.070	0.0015	0.0000
5592	5593	13.50%	0.290	0.0163	0.0018
5593	5594	11.60%	0.060	0.0011	0.0000
5594	5595	10.90%	0.070	0.0015	0.0000
5595	5596	10.90%	0.290	0.0163	0.0018
5596	5597	9.30%	0.010	0.0001	0.0000
5597	5598	9.30%	0.060	0.0011	0.0000
5598	5599	9.60%	0.040	0.0006	0.0000
5599	5600	7.60%	0.020	0.0002	0.0000
5600	5601	6.70%	0.070	0.0015	0.0000
5601	5602	2.90%	0.040	0.0006	0.0000
5602	5603	6.10%	0.010	0.0001	0.0000
5612	5613	13.90%	0.090	0.0022	0.0001
5613	5614	10.40%	0.070	0.0015	0.0000
5614	5615	6.40%	0.020	0.0002	0.0000
5615	5616	4.10%	0.010	0.0001	0.0000
5616	5617	9.00%	0.090	0.0022	0.0001
5617	5618	6.70%	0.110	0.0031	0.0001
5618	5619	8.90%	0.010	0.0001	0.0000
5619	5620	8.90%	0.030	0.0003	0.0000
5620	5621	10.50%	0.010	0.0001	0.0000
5621	5622	7.40%	0.030	0.0003	0.0000
5622	5623	8.50%	0.010	0.0001	0.0000
5623	5624	7.60%	0.010	0.0001	0.0000
5624	5625	9.10%	0.070	0.0015	0.0000
5625	5626	8.80%	0.010	0.0001	0.0000
5626	5627	9.80%	0.140	0.0047	0.0002
5627	5628	9.90%	0.260	0.0135	0.0013
5628	5629	8.50%	0.030	0.0003	0.0000
5629	5630	10.00%	0.010	0.0001	0.0000
5630	5631	8.40%	0.250	0.0126	0.0012
5631	5632	6.30%	0.020	0.0002	0.0000
5632	5633	7.20%	0.010	0.0001	0.0000
5633	5634	8.00%	0.010	0.0001	0.0000
5634	5635	7.30%	0.100	0.0027	0.0001
5635	5636	7.10%	0.010	0.0001	0.0000
5636	5637	3.90%	0.030	0.0003	0.0000
5637	5638	6.90%	0.020	0.0002	0.0000
5638	5639	6.10%	0.010	0.0001	0.0000
5639	5640	7.10%	0.010	0.0001	0.0000
CORED INTVL AVG:		7.07%	0.115	0.0057	0.0009
NET PAY AVERAGE:		8.74%	0.119	0.0064	0.0009

TOTAL GROSS PAY: 90 FEET NET PAY > 6%: 53 FEET

S. Blanco Navajo 25_1 SE SE Sec 25 T24N R8W

INTERVAL TOP	INTERVAL BOTTOM	CORE POROSITY	ROUTINE PERMEABILITY (MILLIDARCYS)	** OVERBURDEN & KLINKENBERG** **CORRECTED PERMEABILITY VALUES** MODERATE EFFECT PERMEABILITY (MILLIDARCYS)	MAXIMUM EFFECT PERMEABILITY (MILLIDARCYS)
5370	5371	2.70%	0.010	0.0001	0.0000
5371	5372	3.20%	0.034	0.0004	0.0000
5372	5373	3.50%	0.059	0.0011	0.0000
5373	5374	3.90%	0.010	0.0001	0.0000
5374	5375	3.90%	0.010	0.0001	0.0000
5375	5376	5.60%	0.010	0.0001	0.0000
5376	5377	6.40%	0.020	0.0002	0.0000
5377	5378	2.60%	0.030	0.0003	0.0000
5378	5379	3.10%	0.010	0.0001	0.0000
5379	5380	3.10%	0.010	0.0001	0.0000
5380	5381	2.80%	0.070	0.0015	0.0000
5381	5382	3.50%	0.020	0.0002	0.0000
5382	5383	3.20%	0.050	0.0008	0.0000
5383	5384	3.00%	0.010	0.0001	0.0000
5384	5385	3.20%	0.030	0.0003	0.0000
5385	5386	3.30%	0.050	0.0008	0.0000
5386	5387	3.50%	0.180	0.0072	0.0005
5387	5388	3.20%	0.010	0.0001	0.0000
5388	5389	2.20%	0.010	0.0001	0.0000
5389	5390	2.20%	0.020	0.0002	0.0000
5390	5391	3.50%	0.010	0.0001	0.0000
5391	5392	2.90%	0.010	0.0001	0.0000
5392	5393	3.10%	0.010	0.0001	0.0000
5393	5394	3.10%	0.070	0.0015	0.0000
5394	5395	2.90%	0.030	0.0003	0.0000
5395	5396	2.40%	0.080	0.0018	0.0001
5396	5397	3.10%	0.010	0.0001	0.0000
5397	5398	3.00%	0.010	0.0001	0.0000
5398	5399	3.80%	0.120	0.0036	0.0002
5399	5400	2.30%	0.010	0.0001	0.0000
5400	5401	3.00%	0.010	0.0001	0.0000
5401	5402	3.10%	0.090	0.0022	0.0001
5402	5403	2.80%	0.040	0.0006	0.0000
5403	5404	2.40%	0.040	0.0006	0.0000
5404	5405	3.00%	0.390	0.0269	0.0039
5405	5406	3.30%	0.010	0.0001	0.0000
5406	5407	3.00%	0.010	0.0001	0.0000
5407	5408	3.70%	0.020	0.0002	0.0000
5408	5409	5.10%	0.020	0.0002	0.0000
5409	5410	1.30%	0.010	0.0001	0.0000
5410	5411	2.10%	0.010	0.0001	0.0000
5411	5412	2.70%	0.850	0.1011	0.0322
5412	5413	2.20%	0.010	0.0001	0.0000
5413	5414	2.10%	0.010	0.0001	0.0000
5414	5415	5.50%	0.010	0.0001	0.0000
5497	5498	3.10%	0.010	0.0001	0.0000
5498	5499	3.10%	0.010	0.0001	0.0000
5499	5500	5.70%	0.100	0.0027	0.0001

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5500	5501	9.20%	0.130	0.0042	0.0002
5501	5502	9.40%	0.110	0.0031	0.0001
5502	5503	9.10%	0.080	0.0018	0.0001
5503	5504	12.00%	0.310	0.0182	0.0021
5504	5505	9.00%	0.110	0.0031	0.0001
5505	5506	8.30%	0.000	0.0003	0.0000
5506	5507	8.10%	0.030	0.0003	0.0000
5507	5508	7.00%	0.120	0.0036	0.0002
5508	5509	9.10%	0.090	0.0022	0.0001
5509	5510	7.40%	0.080	0.0018	0.0001
5510	5511	6.30%	0.120	0.0036	0.0002
5511	5512	2.40%	0.140	0.0047	0.0002
5512	5513	5.80%	0.070	0.0015	0.0000
5513	5514	5.60%	0.040	0.0006	0.0000
5514	5515	3.20%	0.250	0.0126	0.0012
5515	5516	2.30%	0.020	0.0002	0.0000
5516	5517	2.90%	0.030	0.0003	0.0000
5517	5518	4.30%	0.100	0.0027	0.0001
5518	5519	2.70%	0.480	0.0383	0.0069
5519	5520	3.70%	0.980	0.1288	0.0473
5520	5521	2.80%	0.010	0.0001	0.0000
5521	5522	2.90%	0.010	0.0001	0.0000
5522	5523	3.10%	0.010	0.0001	0.0000
5523	5524	2.20%	0.040	0.0006	0.0000
5524	5525	1.80%	0.090	0.0022	0.0001
5525	5526	2.30%	0.590	0.0544	0.0120
5526	5527	3.00%	0.030	0.0003	0.0000
5527	5528	2.80%	0.240	0.0118	0.0011
5528	5529	2.70%	0.060	0.0011	0.0000
5529	5530	2.10%	0.300	0.0172	0.0019
5530	5531	2.20%	0.520	0.0439	0.0086
5531	5532	3.20%	0.010	0.0001	0.0000
5532	5533	3.20%	0.010	0.0001	0.0000
5533	5534	3.80%	0.060	0.0011	0.0000
5534	5535	3.00%	0.010	0.0001	0.0000
5535	5536	3.60%	0.020	0.0002	0.0000
5536	5537	2.50%	0.350	0.0224	0.0029
5537	5538	3.10%	0.110	0.0031	0.0001
5538	5539	2.90%	0.110	0.0031	0.0001
5539	5540	3.20%	0.010	0.0001	0.0000
5540	5541	4.20%	0.020	0.0002	0.0000
5541	5542	4.10%	0.010	0.0001	0.0000
5542	5543	4.10%	0.040	0.0006	0.0000
5543	5544	4.40%	0.340	0.0213	0.0027
5544	5545	3.10%	0.010	0.0001	0.0000
5545	5546	3.40%	0.010	0.0001	0.0000
5546	5547	3.40%	0.010	0.0001	0.0000
5547	5548	5.10%	0.030	0.0003	0.0000
5548	5549	4.60%	0.040	0.0006	0.0000
5549	5550	7.30%	0.040	0.0006	0.0000
5550	5551	6.90%	0.030	0.0003	0.0000
5551	5552	7.60%	0.030	0.0003	0.0000
5552	5553	6.70%	0.030	0.0003	0.0000

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5553	5554	4.00%	0.030	0.0003	0.0000
5554	5555	3.40%	0.020	0.0002	0.0000
5555	5556	4.90%	0.040	0.0006	0.0000
5556	5557	3.80%	0.120	0.0036	0.0002
5557	5558	4.10%	0.010	0.0001	0.0000
5558	5559	3.90%	0.010	0.0001	0.0000
5559	5560	3.20%	0.010	0.0001	0.0000
5560	5561	2.90%	0.010	0.0001	0.0000
5561	5562	5.20%	0.030	0.0003	0.0000
5562	5563	5.20%	0.020	0.0002	0.0000
5563	5564	5.60%	0.020	0.0002	0.0000
5564	5565	5.40%	0.040	0.0006	0.0000
5565	5566	5.80%	0.040	0.0006	0.0000
5566	5567	7.70%	0.040	0.0006	0.0000
5567	5568	6.40%	0.030	0.0003	0.0000
5568	5569	10.60%	0.080	0.0018	0.0001
5569	5570	9.70%	0.130	0.0042	0.0002
5570	5571	10.70%	0.070	0.0015	0.0000
5571	5572	10.30%	0.060	0.0011	0.0000
5572	5573	9.90%	0.210	0.0094	0.0007
5573	5574	9.10%	0.040	0.0006	0.0000
5574	5575	8.50%	0.040	0.0006	0.0000
5575	5576	7.00%	0.030	0.0003	0.0000
5576	5577	7.70%	0.030	0.0003	0.0000
5577	5578	5.80%	0.030	0.0003	0.0000
5578	5579	6.20%	0.020	0.0002	0.0000
5579	5580	6.50%	0.040	0.0006	0.0000
5580	5581	5.20%	0.020	0.0002	0.0000
5581	5582	6.60%	0.020	0.0002	0.0000
5582	5583	7.50%	0.030	0.0003	0.0000
5583	5584	5.20%	0.020	0.0002	0.0000
5584	5585	4.30%	0.030	0.0003	0.0000
5585	5586	4.10%	0.230	0.0110	0.0009
5586	5587	4.40%	0.030	0.0003	0.0000
5587	5588	4.20%	0.220	0.0102	0.0008
5588	5589	3.10%	0.010	0.0001	0.0000
5589	5590	2.90%	0.030	0.0003	0.0000
5590	5591	3.40%	0.030	0.0003	0.0000
5591	5592	10.00%	0.050	0.0008	0.0000
5592	5593	10.00%	0.060	0.0011	0.0000
5593	5594	5.10%	0.030	0.0003	0.0000
5594	5595	8.90%	0.050	0.0008	0.0000
5595	5596	7.80%	0.040	0.0006	0.0000
5596	5597	7.60%	0.040	0.0006	0.0000
5597	5598	6.30%	0.030	0.0003	0.0000
5598	5599	7.10%	0.030	0.0003	0.0000
5599	5600	6.60%	0.030	0.0003	0.0000
5600	5601	4.90%	0.030	0.0003	0.0000
5601	5602	6.30%	0.050	0.0008	0.0000
5602	5603	3.70%	0.030	0.0003	0.0000
5603	5604	3.10%	0.010	0.0001	0.0000
5604	5605	4.80%	0.030	0.0003	0.0000
5605	5606	7.20%	0.030	0.0003	0.0000

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5606	5607	8.20%	0.060	0.0011	0.0000
5607	5608	6.50%	0.030	0.0003	0.0000
5608	5609	6.60%	0.100	0.0027	0.0001
5609	5610	6.20%	0.020	0.0002	0.0000
5610	5611	6.70%	0.030	0.0003	0.0000
5611	5612	6.60%	0.030	0.0003	0.0000
5612	5613	6.00%	0.020	0.0002	0.0000
5613	5614	5.80%	0.020	0.0002	0.0000
5614	5615	6.40%	0.020	0.0002	0.0000
5615	5616	4.60%	0.020	0.0002	0.0000
CORED INTVL AVG:		4.79%	0.073	0.0039	0.0008
NET PAY AVERAGE:		7.89%	0.062	0.0017	0.0001
TOTAL GROSS PAY:		164 FEET	NET PAY > 6%:		46 FEET

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INTERVAL TOP	INTERVAL BOTTOM	CORE POROSITY	ROUTINE PERMEABILITY (MILLIDARCYS)	** OVERBURDEN & KLINKENBERG** **CORRECTED PERMEABILITY VALUES** MODERATE EFFECT PERMEABILITY (MILLIDARCYS)	MAXIMUM EFFECT PERMEABILITY (MILLIDARCYS)
5312	5313	1.10%	0.010	0.0001	0.0000
5313	5314	1.70%	0.010	0.0001	0.0000
5314	5315	5.60%	0.010	0.0001	0.0000
5315	5316	6.00%	0.010	0.0001	0.0000
5316	5317	1.20%	0.010	0.0001	0.0000
5317	5318	1.50%	0.010	0.0001	0.0000
5318	5319	2.60%	0.010	0.0001	0.0000
5319	5320	1.30%	0.010	0.0001	0.0000
5320	5321	6.60%	0.010	0.0001	0.0000
5321	5322	2.80%	0.250	0.0126	0.0012
5322	5323	0.60%	0.010	0.0001	0.0000
5323	5324	1.30%	0.010	0.0001	0.0000
5324	5325	1.90%	0.010	0.0001	0.0000
5325	5326	1.50%	0.790	0.0893	0.0265
5326	5327	1.70%	0.010	0.0001	0.0000
5327	5328	2.30%	0.250	0.0126	0.0012
5328	5329	3.00%	0.010	0.0001	0.0000
5329	5330	3.50%	0.010	0.0001	0.0000
5330	5331	3.40%	0.010	0.0001	0.0000
5331	5332	3.30%	0.010	0.0001	0.0000
5332	5333	3.70%	0.340	0.0213	0.0027
5333	5334	2.80%	0.300	0.0172	0.0019
5334	5335	2.90%	0.060	0.0011	0.0000
5335	5336	2.30%	0.050	0.0008	0.0000
5336	5337	3.40%	0.010	0.0001	0.0000
5337	5338	4.40%	0.100	0.0027	0.0001
5338	5339	4.30%	0.010	0.0001	0.0000
5339	5340	4.50%	0.010	0.0001	0.0000
5340	5341	6.10%	0.050	0.0008	0.0000
5341	5342	6.00%	0.040	0.0006	0.0000
5342	5343	2.50%	0.060	0.0011	0.0000
5343	5344	8.00%	0.150	0.0053	0.0003
5344	5345	6.90%	0.080	0.0018	0.0001
5345	5346	7.20%	0.050	0.0008	0.0000
5346	5347	6.90%	0.060	0.0011	0.0000
5347	5348	6.90%	0.070	0.0015	0.0000
5348	5349	7.20%	0.610	0.0575	0.0132
5349	5350	6.80%	0.010	0.0001	0.0000
5350	5351	5.70%	0.010	0.0001	0.0000
5351	5352	1.20%	0.010	0.0001	0.0000
5352	5353	2.20%	0.010	0.0001	0.0000
5353	5354	3.30%	0.110	0.0031	0.0001
5354	5355	3.00%	0.030	0.0003	0.0000
5355	5356	3.30%	0.090	0.0022	0.0001
5356	5357	3.70%	0.010	0.0001	0.0000
5357	5358	3.50%	0.010	0.0001	0.0000
5358	5359	3.20%	0.010	0.0001	0.0000
5359	5360	3.10%	0.010	0.0001	0.0000

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5360	5361	2.80%	0.250	0.0126	0.0012
5361	5362	1.80%	0.040	0.0006	0.0000
5362	5363	2.90%	0.010	0.0001	0.0000
5363	5364	2.80%	0.010	0.0001	0.0000
5364	5365	2.90%	0.100	0.0027	0.0001
5365	5366	2.70%	0.040	0.0006	0.0000
5366	5367	2.20%	0.020	0.0002	0.0000
5367	5368	2.70%	0.010	0.0001	0.0000
5368	5369	2.70%	0.010	0.0001	0.0000
5369	5370	2.20%	0.010	0.0001	0.0000
5370	5371	3.20%	0.010	0.0001	0.0000
5445	5446	2.10%	0.010	0.0001	0.0000
5446	5447	2.50%	0.010	0.0001	0.0000
5447	5448	2.20%	0.010	0.0001	0.0000
5448	5449	2.60%	0.870	0.1052	0.0343
5449	5450	2.90%	0.010	0.0001	0.0000
5450	5451	2.40%	0.620	0.0592	0.0138
5451	5452	2.80%	0.100	0.0027	0.0001
5452	5453	7.50%	0.010	0.0001	0.0000
5453	5454	2.50%	0.750	0.0818	0.0230
5454	5455	3.60%	0.010	0.0001	0.0000
5455	5456	3.40%	0.010	0.0001	0.0000
5456	5457	4.70%	0.020	0.0002	0.0000
5457	5458	7.70%	0.140	0.0047	0.0002
5458	5459	7.80%	0.080	0.0018	0.0001
5459	5460	10.40%	0.130	0.0042	0.0002
5460	5461	3.20%	0.070	0.0015	0.0000
5461	5462	4.60%	0.360	0.0235	0.0032
5462	5463	3.30%	0.070	0.0015	0.0000
5463	5464	9.80%	0.330	0.0202	0.0025
5464	5465	9.70%	0.190	0.0079	0.0006
5465	5466	2.80%	0.120	0.0036	0.0002
5466	5467	5.80%	0.090	0.0022	0.0001
5505	5506	6.90%	0.030	0.0003	0.0000
5506	5507	6.50%	0.030	0.0003	0.0000
5507	5508	5.80%	0.040	0.0006	0.0000
5508	5509	4.40%	0.120	0.0036	0.0002
5509	5510	4.10%	0.030	0.0003	0.0000
5510	5511	5.50%	0.040	0.0006	0.0000
5511	5512	4.10%	0.010	0.0001	0.0000
5512	5513	3.30%	0.010	0.0001	0.0000
5513	5514	3.00%	0.590	0.0544	0.0120
5514	5515	5.40%	0.130	0.0042	0.0002
5515	5516	5.70%	0.140	0.0047	0.0002
5516	5517	4.80%	0.030	0.0003	0.0000
5517	5518	7.10%	0.030	0.0003	0.0000
5518	5519	5.90%	0.130	0.0042	0.0002
5519	5520	10.80%	0.130	0.0042	0.0002
5520	5521	11.00%	0.080	0.0018	0.0001
5521	5522	10.70%	0.120	0.0036	0.0002
5522	5523	10.40%	0.070	0.0015	0.0000
5523	5524	9.90%	0.120	0.0036	0.0002
5524	5525	8.60%	0.120	0.0036	0.0002

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5525	5526	8.80%	0.040	0.0006	0.0000
5526	5527	7.10%	0.030	0.0003	0.0000
5527	5528	7.80%	0.030	0.0003	0.0000
5528	5529	9.40%	0.010	0.0001	0.0000
5529	5530	8.30%	0.060	0.0011	0.0000
5530	5531	5.40%	0.040	0.0006	0.0000
5531	5532	6.50%	0.030	0.0003	0.0000
5532	5533	3.70%	0.010	0.0001	0.0000
5533	5534	6.20%	0.030	0.0003	0.0000
5534	5535	6.50%	0.190	0.0079	0.0006
5535	5536	6.00%	0.080	0.0018	0.0001
5536	5537	5.00%	0.040	0.0006	0.0000
5537	5538	4.60%	0.050	0.0008	0.0000
5538	5539	5.00%	0.060	0.0011	0.0000
5539	5540	5.40%	0.030	0.0003	0.0000
5540	5541	4.20%	0.010	0.0001	0.0000
5541	5542	3.50%	0.010	0.0001	0.0000
5542	5543	4.40%	0.010	0.0001	0.0000
5543	5544	8.70%	0.040	0.0006	0.0000
5544	5545	8.80%	0.040	0.0006	0.0000
5545	5546	2.90%	0.010	0.0001	0.0000
5546	5547	3.90%	0.010	0.0001	0.0000
5547	5548	10.00%	0.060	0.0011	0.0000
5548	5549	8.20%	0.030	0.0003	0.0000
5549	5550	7.20%	0.030	0.0003	0.0000
5550	5551	8.70%	0.040	0.0006	0.0000
5551	5552	7.80%	0.050	0.0008	0.0000
5552	5553	5.50%	0.010	0.0001	0.0000
5553	5554	8.20%	0.030	0.0003	0.0000
5554	5555	6.90%	0.030	0.0003	0.0000
5555	5556	8.80%	0.030	0.0003	0.0000
5556	5557	9.90%	0.050	0.0008	0.0000
5557	5558	9.40%	0.040	0.0006	0.0000
5558	5559	9.00%	0.110	0.0031	0.0001
5559	5560	7.30%	0.020	0.0002	0.0000
5560	5561	8.30%	0.050	0.0008	0.0000
5561	5562	8.40%	0.040	0.0006	0.0000
5562	5563	7.10%	0.030	0.0003	0.0000
5563	5564	6.70%	0.030	0.0003	0.0000
5564	5565	6.50%	0.020	0.0002	0.0000
5565	5566	6.10%	1.800	0.3622	0.2445
CORED INTVL AVG:		5.07%	0.096	0.0074	0.0027
NET PAY AVERAGE:		8.01%	0.111	0.0101	0.0052
TOTAL GROSS PAY:		142 FEET	NET PAY > 6%:		51 FEET

South Blanco Federal 26-7 SW NE Sec 26 T24N R8W

INTERVAL TOP	INTERVAL BOTTOM	CORE POROSITY	ROUTINE PERMEABILITY (MILLIDARCYS)	**CORRECTED PERMEABILITY VALUES** MODERATE EFFECT PERMEABILITY (MILLIDARCYS)	MAXIMUM EFFECT PERMEABILITY (MILLIDARCYS)
5451	5452	0.80%	0.010	0.0001	0.0000
5452	5453	0.80%	0.010	0.0001	0.0000
5453	5454	1.50%	0.010	0.0001	0.0000
5454	5455	0.90%	0.010	0.0001	0.0000
5455	5456	0.90%	0.010	0.0001	0.0000
5456	5457	1.90%	0.010	0.0001	0.0000
5457	5458	1.30%	0.690	0.0710	0.0184
5458	5459	0.90%	0.080	0.0018	0.0001
5459	5460	1.60%	0.010	0.0001	0.0000
5460	5461	1.00%	0.140	0.0047	0.0002
5461	5462	1.50%	0.020	0.0002	0.0000
5462	5463	1.80%	0.010	0.0001	0.0000
5463	5464	3.20%	0.630	0.0608	0.0144
5464	5465	3.70%	0.140	0.0047	0.0002
5465	5466	8.90%	0.210	0.0094	0.0007
5466	5467	9.90%	0.360	0.0235	0.0032
5467	5468	9.10%	0.170	0.0066	0.0004
5468	5469	2.90%	0.070	0.0015	0.0000
5469	5470	7.30%	0.210	0.0094	0.0007
5470	5471	9.50%	0.340	0.0213	0.0027
5471	5472	9.70%	0.440	0.0330	0.0054
5472	5473	6.20%	0.170	0.0066	0.0004
5473	5474	6.00%	0.110	0.0031	0.0001
5474	5475	2.80%	0.060	0.0011	0.0000
5475	5476	3.70%	0.050	0.0008	0.0000
5476	5477	3.90%	0.390	0.0269	0.0039
5477	5478	3.50%	0.010	0.0001	0.0000
5478	5479	4.20%	0.050	0.0008	0.0000
5479	5480	3.80%	0.010	0.0001	0.0000
5480	5481	4.30%	0.030	0.0003	0.0000
5481	5482	3.90%	0.070	0.0015	0.0000
5482	5483	3.10%	0.010	0.0001	0.0000
5483	5484	2.70%	0.140	0.0047	0.0002
5484	5485	3.60%	0.060	0.0011	0.0000
5485	5486	2.00%	0.010	0.0001	0.0000
CORED INTERVAL AVG		3.79%	0.136	0.0084	0.0015
NET PAY AVERAGE:		8.66%	0.271	0.0157	0.0019

TOTAL GROSS PAY: 35 FEET NET PAY > 6%: 7 FEET

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State 36-21 NW NE Sec 32 T24N R8W

INTERVAL TOP	INTERVAL BOTTOM	CORE POROSITY	ROUTINE PERMEABILITY (MILLIDARCYS)	** OVERBURDEN & KLINKENBERG** **CORRECTED PERMEABILITY VALUES** MODERATE EFFECT PERMEABILITY (MILLIDARCYS)	MAXIMUM EFFECT PERMEABILITY (MILLIDARCYS)
5321	5322	5.40%	0.100	0.0027	0.0001
5322	5323	5.10%	0.030	0.0003	0.0000
5323	5324	4.10%	0.010	0.0001	0.0000
5324	5325	1.90%	0.010	0.0001	0.0000
5325	5326	1.60%	0.010	0.0001	0.0000
5326	5327	2.00%	0.850	0.1011	0.0322
5327	5328	1.50%	0.010	0.0001	0.0000
5328	5329	2.00%	0.010	0.0001	0.0000
5329	5330	1.80%	0.050	0.0008	0.0000
5330	5331	2.20%	0.010	0.0001	0.0000
5331	5332	1.90%	0.040	0.0006	0.0000
5332	5333	2.50%	0.050	0.0008	0.0000
5333	5334	3.10%	0.350	0.0224	0.0029
5334	5335	2.20%	0.010	0.0001	0.0000
5335	5336	2.90%	0.010	0.0001	0.0000
5336	5337	2.80%	0.010	0.0001	0.0000
5337	5338	3.20%	0.110	0.0031	0.0001
5338	5339	2.90%	0.140	0.0047	0.0002
5339	5340	2.50%	0.020	0.0002	0.0000
5340	5341	2.40%	0.010	0.0001	0.0000
5341	5342	2.40%	0.110	0.0031	0.0001
5342	5343	2.80%	0.010	0.0001	0.0000
5343	5344	1.80%	0.230	0.0110	0.0009
5344	5345	2.00%	0.040	0.0006	0.0000
5345	5346	2.00%	0.040	0.0006	0.0000
5346	5347	2.60%	0.990	0.1311	0.0487
5347	5348	2.20%	0.990	0.1311	0.0487
5348	5349	2.40%	0.060	0.0011	0.0000
5349	5350	2.20%	0.010	0.0001	0.0000
5350	5351	2.00%	0.350	0.0224	0.0029
5351	5352	1.80%	0.010	0.0001	0.0000
5352	5353	2.90%	0.010	0.0001	0.0000
5353	5354	1.30%	0.010	0.0001	0.0000
5354	5355	9.00%	0.010	0.0001	0.0000
5355	5356	1.20%	0.040	0.0006	0.0000
5356	5357	0.70%	0.040	0.0006	0.0000
5357	5358	0.80%	0.200	0.0086	0.0006
5358	5359	0.80%	0.020	0.0002	0.0000
5359	5360	0.70%	0.020	0.0002	0.0000
5360	5361	3.90%	0.410	0.0293	0.0045
5361	5362	0.08%	0.100	0.0027	0.0001
5362	5363	0.90%	0.160	0.0059	0.0004
5363	5364	0.80%	0.190	0.0079	0.0006
5364	5365	1.70%	0.010	0.0001	0.0000
5365	5366	0.90%	0.010	0.0001	0.0000
5366	5367	0.60%	0.010	0.0001	0.0000
5367	5368	0.20%	0.010	0.0001	0.0000
5368	5369	0.90%	0.010	0.0001	0.0000

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5369	5370	0.80%	0.010	0.0001	0.0000
5370	5371	2.00%	0.010	0.0001	0.0000
5371	5372	0.80%	0.010	0.0001	0.0000
5372	5373	1.30%	0.050	0.0008	0.0000
5373	5374	0.60%	0.010	0.0001	0.0000
5374	5375	1.80%	0.010	0.0001	0.0000
5375	5376	5.00%	0.010	0.0001	0.0000
5376	5377	0.70%	0.010	0.0001	0.0000
5377	5378	0.80%	0.010	0.0001	0.0000
5378	5379	4.10%	0.010	0.0001	0.0000
5441	5442	8.40%	0.010	0.0001	0.0000
5442	5443	3.20%	0.010	0.0001	0.0000
5443	5444	6.70%	0.280	0.0153	0.0016
5444	5445	7.20%	0.110	0.0031	0.0001
5445	5446	10.50%	1.000	0.1333	0.0500
5446	5447	7.60%	0.190	0.0079	0.0006
5447	5448	11.80%	1.000	0.1333	0.0500
5448	5449	11.60%	1.000	0.1333	0.0500
5449	5450	5.40%	0.190	0.0079	0.0006
5450	5451	5.60%	0.880	0.1073	0.0354
5451	5452	5.70%	0.140	0.0047	0.0002
5452	5453	3.50%	0.040	0.0006	0.0000
5453	5454	8.10%	0.280	0.0153	0.0016
5454	5455	5.20%	0.090	0.0022	0.0001
5455	5456	2.70%	0.040	0.0006	0.0000
5456	5457	2.90%	0.010	0.0001	0.0000
5457	5458	3.20%	0.010	0.0001	0.0000
5458	5459	3.20%	0.110	0.0031	0.0001
5459	5460	5.10%	0.050	0.0008	0.0000
5460	5461	3.40%	0.040	0.0006	0.0000
5461	5462	4.70%	0.080	0.0018	0.0001
5462	5463	3.60%	0.010	0.0001	0.0000
5463	5464	4.70%	0.020	0.0002	0.0000
5464	5465	4.90%	0.010	0.0001	0.0000
5465	5466	3.20%	0.010	0.0001	0.0000
5466	5467	3.60%	0.010	0.0001	0.0000
5467	5468	2.10%	0.010	0.0001	0.0000
5468	5469	2.10%	0.010	0.0001	0.0000
5469	5470	3.10%	0.010	0.0001	0.0000
5470	5471	1.60%	0.020	0.0002	0.0000
5471	5472	1.20%	0.100	0.0027	0.0001
5472	5473	3.00%	0.100	0.0027	0.0001
5473	5474	2.00%	0.030	0.0003	0.0000
5474	5475	1.10%	0.010	0.0001	0.0000
5475	5476	1.40%	0.010	0.0001	0.0000
5476	5477	2.30%	0.010	0.0001	0.0000
5477	5478	1.20%	0.010	0.0001	0.0000
5478	5479	3.30%	0.010	0.0001	0.0000
5479	5480	3.10%	0.010	0.0001	0.0000
5480	5481	2.50%	0.010	0.0001	0.0000
5481	5482	2.90%	0.010	0.0001	0.0000
5482	5483	2.60%	0.010	0.0001	0.0000
5483	5484	2.20%	0.010	0.0001	0.0000

State 36-21 NW NE Sec 32 T24N R8W

5484	5485	1.90%	0.010	0.0001	0.0000
5485	5486	2.40%	0.010	0.0001	0.0000
5486	5487	3.60%	0.010	0.0001	0.0000
5487	5488	4.30%	0.100	0.0027	0.0001
5488	5489	4.60%	0.030	0.0003	0.0000
5489	5490	4.20%	0.010	0.0001	0.0000
5490	5491	3.80%	0.020	0.0002	0.0000
5491	5492	2.70%	0.010	0.0001	0.0000
5492	5493	2.30%	0.010	0.0001	0.0000
5493	5494	3.40%	0.010	0.0001	0.0000
5494	5495	2.50%	0.030	0.0003	0.0000
5495	5496	2.30%	0.010	0.0001	0.0000
5496	5497	3.40%	0.020	0.0002	0.0000
5497	5498	2.40%	0.010	0.0001	0.0000
5498	5499	4.60%	0.060	0.0011	0.0000
5499	5500	5.20%	0.020	0.0002	0.0000
5500	5501	5.30%	0.020	0.0002	0.0000
5501	5502	5.30%	0.020	0.0002	0.0000
CORED INTVL AVG:		3.11%	0.105	0.0091	0.0028
NET PAY AVERAGE:		8.99%	0.431	0.0491	0.0171
TOTAL GROSS PAY:		119 FEET		NET PAY > 6%:	9 FEET

EXHIBIT 8
RAW CORE DATA

CORE LABORATORIES, INC. *Petroleum Reservoir Engineering*

COMPANY CONTINENTAL OIL COMPANY — DATE ON 2/5/57 — FILE NO. RP-3-417-2C

WELL NC FED NO. 1 — DATE OFF 2/12/57 — ENGRS. LH,LD,DA,EB,

FIELD WILDCAT — FORMATION AB NOTED — ELEV. 6977' GL

COUNTY RIO ARRIBA — STATE NEW MEX. — DRLG. FLD. WATER BASE MUD — CORES DIAMOND

LOCATION 1850' FNL, 1050' FWL, SEC. 7-T23N-R6W — REMARKS SAMPLED BY REPRESENTATIVE OF CLIENT.

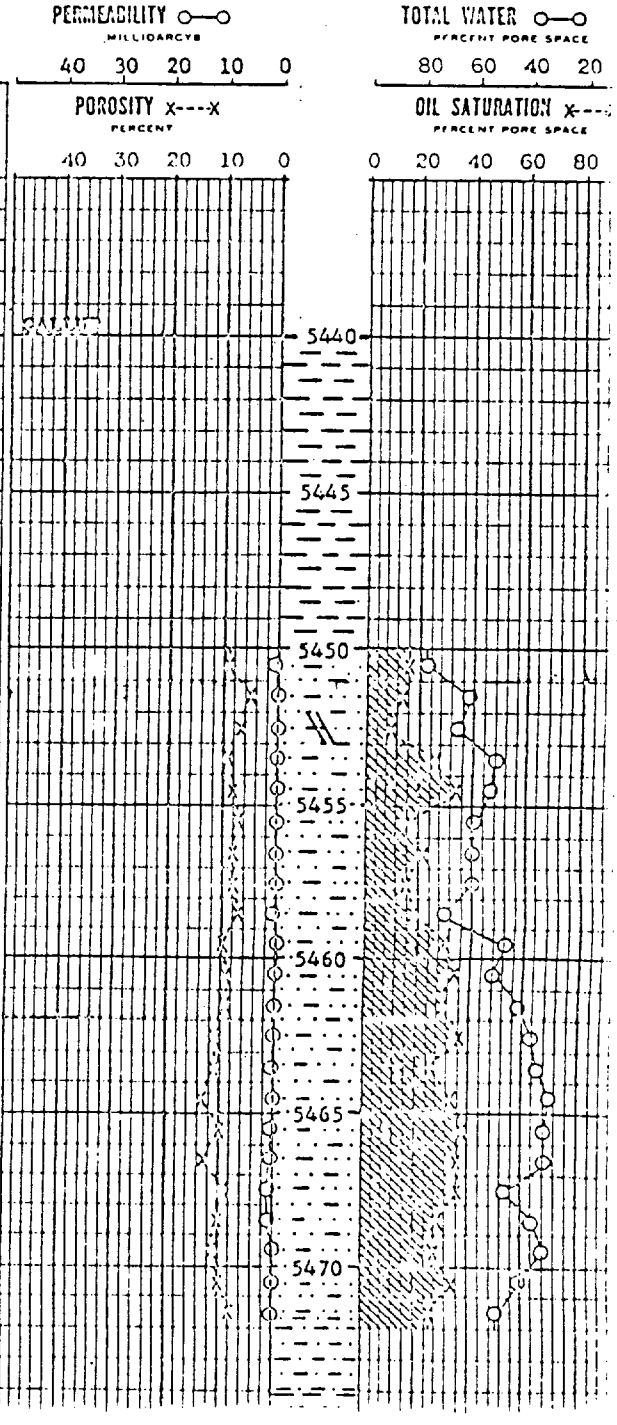
SAND LIMESTONE CONGLOMERATE CHERT

SHALE DOLOMITE SILTSTONE VERTICAL FRACTURES

TABULAR DATA and INTERPRETATION

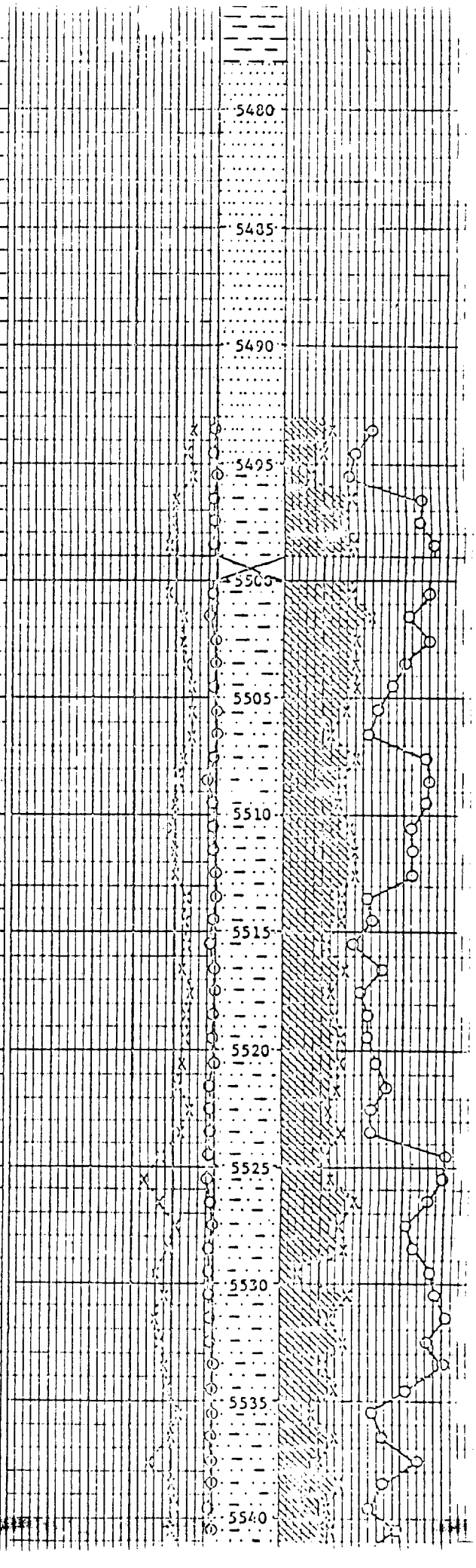
DEPTH FEET	PERM. MD.	POROSITY %	RESIDUAL SATURATION % PORE SPACE OIL	RESIDUAL SATURATION % PORE SPACE TOTAL WATER		PROD
5450.5	0.80	9.6	15.6	78.2		(*)
51.5	0.03	5.4	19.0	81.1		(*)
52.5	0.17	6.9	10.1	66.8		(*)
53.5	0.32	9.3	26.9	51.6		(*)
54.5	0.26	8.7	33.4	54.0		(*)
55.5	0.19	7.0	18.6	60.0		(*)
56.5	0.35	8.3	21.7	59.0		(*)
57.5	0.22	7.8	15.4	60.3		(*)
58.5	0.80	7.2	18.1	69.5		(*)
59.5	0.47	9.9	30.3	48.5		OIL
60.5	0.43	9.0	33.3	51.1		OIL
61.5	0.44	9.5	30.6	41.0		OIL
62.5	0.26	11.0	35.5	35.5		OIL
63.5	0.48	10.9	26.6	34.9		OIL
64.5	0.32	13.2	34.9	29.6		OIL
65.5	1.30	10.0	37.0	31.0		OIL
66.5	0.63	13.1	35.9	32.9		OIL
67.5	0.71	8.8	35.2	46.6		OIL
68.5	0.80	10.2	30.4	36.3		OIL
69.5	0.38	11.5	28.7	32.2		OIL
70.5	0.29	9.9	33.4	39.5		OIL
5471.5	0.24	8.1	25.9	49.5		OIL

COMPLETION CORELYZER

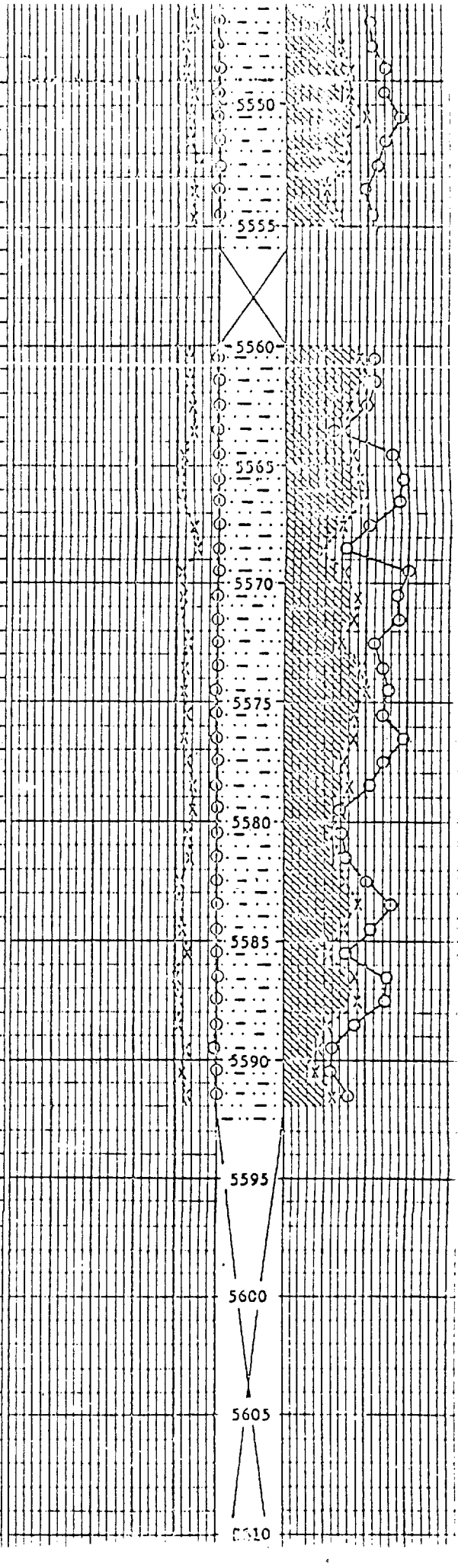


MC BEE #7

5493.5	0.54	6.5	24.6	56.0		(*)
94.5	1.00	7.1	19.8	63.4		(*)
95.5	0.17	6.2	14.5	67.8		(*)
96.5	0.57	10.3	34.0	32.0		OIL
97.5	0.55	11.8	29.7	34.8		OIL
5498.5	0.80	11.9	33.6	26.1		OIL
5500.5	1.00	11.7	33.4	28.2		OIL
01.5	1.90	7.9	43.0	38.0		OIL
02.5	0.38	8.1	35.8	28.2		OIL
03.5	0.29	7.6	36.8	39.5		OIL
04.5	0.45	6.0	35.0	46.7		OIL
05.5	0.25	6.6	31.8	53.0		OIL
06.5	0.32	6.0	23.4	58.4		OIL
07.5	0.80	8.1	35.8	30.8		OIL
08.5	2.00	9.5	30.5	28.4		OIL
09.5	0.67	10.5	27.6	29.6		OIL
10.5	0.65	10.6	33.0	35.0		OIL
11.5	0.69	10.0	35.0	35.0		OIL
12.5	0.34	9.8	35.7	35.7		OIL
13.5	0.48	6.8	30.9	57.4		(*)
14.5	0.55	6.9	30.4	56.5		(*)
15.5	1.50	6.6	21.2	65.1		(*)
16.5	0.43	7.9	31.6	50.6		(*)
17.5	0.23	6.6	24.2	62.1		(*)
18.5	0.45	7.1	25.4	57.8		(*)
19.5	0.43	7.0	30.0	58.5		(*)
20.5	0.36	8.4	29.8	54.8		(*)
21.5	0.69	8.9	28.1	47.2		(*)
22.5	0.59	6.0	23.4	55.0		(*)
23.5	1.20	8.1	30.9	55.6		(*)
24.5	1.60	13.0	22.3	19.2		OIL
25.5	1.70	17.4	24.2	21.8		OIL
26.5	0.55	13.0	36.2	28.5		OIL
27.5	0.48	9.6	29.2	37.6		OIL
28.5	1.00	11.6	31.9	33.6		OIL
29.5	0.80	14.4	10.4	25.7		OIL
30.5	0.20	12.6	34.1	24.6		OIL
31.5	0.68	14.3	23.1	17.5		OIL
32.5	1.00	13.5	31.8	27.4		OIL
33.5	0.32	11.9	22.7	19.3		OIL
34.5	0.50	11.3	28.3	38.9		OIL
35.5	0.36	8.3	16.9	53.0		(*)
36.5	0.50	10.1	28.7	50.5		(*)
37.5	0.32	15.4	19.5	31.2		(*)
38.5	0.41	10.6	30.2	49.0		(*)
39.5	0.65	8.9	23.6	56.2		(*)
40.5	0.36	10.6	26.4	41.5		(*)



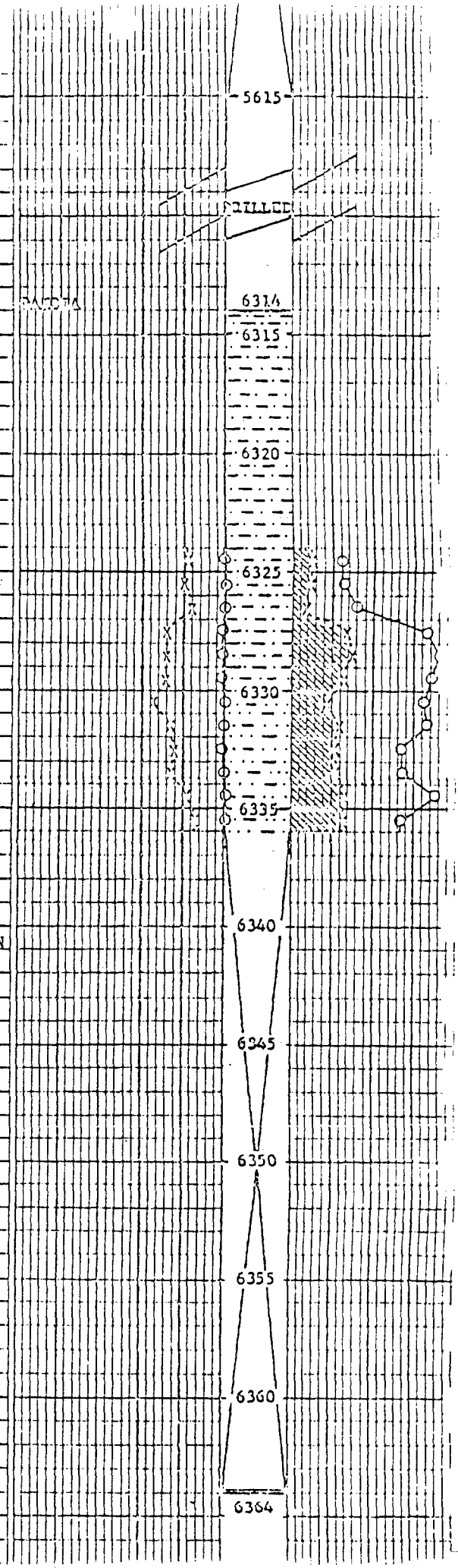
5	46.5	0.34	6.2	19.4	50.0		(*)
6	47.5	0.28	7.0	27.0	57.7		(*)
7	48.5	0.25	7.7	32.0	52.5		(*)
8	49.5	0.23	5.6	32.2	51.8		(*)
9	50.5	0.25	7.4	39.2	44.6		(*)
0	51.5	0.25	7.1	29.6	52.1		(*)
1	52.5	0.25	5.2	30.0	55.0		(*)
2	53.5	0.29	5.9	20.4	62.8		(*)
3	5554.5	0.32	6.4	25.0	57.8		(*)
			McBEE #1				
4	5560.5	0.05	7.1	35.3	55.0		(*)
5	61.5	0.07	7.3	39.8	56.1		(*)
6	62.5	0.12	6.8	31.0	60.4		(*)
7	63.5	0.26	6.0	30.0	75.0		(*)
8	64.5	0.13	8.4	33.4	47.6		(*)
9	65.5	0.16	9.4	35.1	41.5		(*)
0	66.5	0.29	9.0	38.9	43.4		(*)
1	67.5	0.22	6.6	27.3	59.1		(*)
2	68.5	0.29	5.3	17.0	69.9		(*)
3	69.5	1.20	9.1	30.8	39.6		(*)
4	70.5	0.21	8.8	36.4	45.5		(*)
5	71.5	0.34	9.2	34.8	43.5		(*)
6	72.5	0.18	7.4	28.4	55.5		(*)
7	73.5	0.38	8.5	37.7	51.9		(*)
8	74.5	0.10	8.1	40.8	50.6		(*)
9	75.5	0.13	7.6	34.2	51.4		(*)
0	76.5	0.13	8.4	34.5	41.7		(*)
1	77.5	0.14	7.0	30.0	52.9		(*)
2	78.5	0.07	6.5	32.3	57.0		(*)
3	79.5	0.22	6.4	26.6	72.0		(*)
4	80.5	0.05	7.0	24.3	71.5		(*)
5	81.5	0.14	6.8	25.0	70.7		(*)
6	82.5	0.04	9.2	30.5	60.9		(*)
7	83.5	0.34	9.3	36.6	47.3		(*)
8	84.5	0.10	8.6	33.8	58.1		(*)
9	85.5	0.15	7.5	21.3	69.4		(*)
0	86.5	0.09	10.6	34.0	48.1		(*)
1	87.5	0.44	9.1	35.2	50.5		(*)
2	88.5	0.05	9.2	22.9	66.3		(*)
3	89.5	0.64	7.1	18.3	76.0		(*)
4	90.5	0.47	8.5	15.3	78.9		(*)
5	5591.5	0.13	7.7	24.7	67.5		(*)



Mc Bee #1

116	6324.5	0.57	9.0	10.0	75.5		(*)
117	25.5	0.28	10.0	9.0	74.0		(*)
118	26.5	0.23	8.2	8.5	68.3		(*)
119	27.5	0.55	14.2	28.2	34.5		OIL
120	28.5	0.53	14.5	30.3	28.2		OIL
121	29.5	0.57	14.0	26.4	31.4		OIL
122	30.5	0.45	17.7	17.5	35.0		OIL
123	31.5	0.48	13.2	23.5	34.8		OIL
124	32.5	0.55	12.2	21.3	45.1		OIL
125	33.5	0.45	12.0	21.1	46.3		OIL
126	84.5	0.29	9.0	25.5	20.0		OIL
127	6335.5	0.32	7.1	25.4	46.5		(*)

(*) - REFER TO ATTACHED LETTER FOR CLARIFICATION OF INTERPRETATION



CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

Company [illegible]	Formation Gallup	Page 1 of 2
Well [illegible] 1	Cores Dia. Conv.	File [illegible]
Field Wildcat	Drilling Fluid [illegible] Base Mud	Date Report Sept. [illegible] 195[illegible]
County Rio Arriba State New Mexico	Elevation 731[illegible] DF	Analysts [illegible]
Location [illegible]	Remarks [illegible]	

CORE ANALYSIS RESULTS PRELIMINARY REPORT

(Figures in parentheses refer to footnote remarks)

DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PERCENT	RESIDUAL SATURATION OIL % VOLUME	RESIDUAL SATURATION OIL % PORE	RESIDUAL SATURATION TOTAL WATER % PORE	PROBABLE PRODUCTION	REMARKS
through							
from 5709.5 to 5712.5 non productive-high water content							
5713.5	0.42	12.9		28.7	29.5	Oil	
14.5	5.0	15.2		30.3	20.4	Oil	
15.5	0.57	8.9		18.0	13.5	Oil	
16.5	f14.0	14.7		10.2X	12.3X	Oil	
17.5	0.45	15.0		28.0	16.7	Oil	
18.5	0.40	14.1		28.4	27.0	Oil	
19.5	0.42	13.6		25.0	28.0	Oil	
20.5	0.63	15.9		27.7	18.3	Oil	
21.5	0.39	14.6		12.9	25.4	Oil	
22.5	0.46	11.4		34.2	30.7	Oil	
through	22.74						
from 5723.5 to 5752.5 non-productive-high water content							

FORM F-1

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

Company H. Pidd — Formation Gallup — Page 1 of 2

Well Dunn 1 — Cores Dia, Conv. — File RP-3-333

Field Wildcat — Drilling Fluid Water Base Mud — Date Report Sept. 4, 195

County Rio Arriba State New Mexico — Elevation 7310 DF — Analysts CH-HR-GAH

Location [illegible] — Remarks Gervice #1

CORE ANALYSIS RESULTS — PRELIMINARY REPORT

(Figures in parentheses refer to footnote remarks)

1 SAMPLE NUMBER	2 DEPTH FEET	3 PERMEABILITY MILLIDARCYS	4 POROSITY PERCENT	RESIDUAL SATURATION 5 OIL % VOLUME	RESIDUAL SATURATION 5 OIL % PORE	RESIDUAL SATURATION 6 TOTAL WATER % PORE	7 PROBABLE PRODUCTION	8 REMARKS
45	5753.5	0.16	9.0		8.8	81.3	*	Silt stone
46	54.5	0.02	6.8		7.4	88.9	*	"
47	55.5	0.01	5.6		8.9	71.4	*	"
48	56.5	0.03	6.1		8.2	86.9	*	Sl shly ss
49	57.5	0.04	6.7		10.4	83.7	*	"
50	58.5	0.02	7.2		12.5	79.2	*	"
51	59.5	0.04	7.1		9.9	76.1	*	"
52	60.5	0.20	7.3		16.4	66.7	*	"
53	61.5	0.10	1.9		10.5	21.1	*	"
54	62.5	2.9	8.2		14.7	73.2	*	"
55	63.5	0.06	10.0		12.0	74.0	*	"
56	64.5	0.9	8.5		8.2	36.0	*	"
57	65.5	0.03	7.9		6.3	87.3	*	"
58	66.5	0.02	7.2		9.7	84.7	*	Silt stone
59	67.5	0.06	8.9		10.1	87.7	*	"
60	68.5	0.03	8.1		8.6	90.3	*	"
61	69.5	0.55	7.5		12.0	81.4	*	"
62	70.5	0.06	8.1		8.6	87.6	*	"
63	71.5	0.06	6.5		10.7	81.5	*	Sl shly ss
64	72.5	0.20	8.4		36.9	51.3	Oil	"
65	73.5	0.06	9.0		12.2	80.8	Oil	"
66	74.5	0.12	9.2		34.7	52.2	Oil	"
67	75.5	0.21	10.2		32.3	64.1	Oil	"
68	76.5	0.16	9.5		37.9	46.2	Oil	"
69	77.5	0.10	10.1		34.7	42.6	Oil	"
70	78.5	0.06	11.5		40.8	33.9	Oil	"
71	79.5	0.02	5.8		17.2	67.2	Oil	"
72	80.5	0.05	9.8		37.7	53.8	Oil	"
73	81.5	0.05	9.3		36.5	50.5	Oil	"
74	82.5	0.10	9.5		35.3	57.8	Oil	"
75	83.5	0.06	7.9		22.7	65.7	*	"
76	5784.5	0.12	6.6		10.6	80.2	*	"

NOTE: (*) REFER TO ATTACHED LETTER.

(1) INCOMPLETE CORE RECOVERY—INTERPRETATION RESERVED.

(2) OFF LOCATION ANALYSES—NO INTERPRETATION OF RESULT

FORM F-

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

Company E. Budd | Formation Gallup | Page 2 of 2

Well Dunn #1 | Cores Rio. Conv. | File [illegible]

Field Wildcat | Drilling Fluid Water Base Mud | Date Report Sept. 1, 1

County Rio Arriba State New Mexico | Elevation 7330 DF | Analysts [illegible]

Location SE SE T23N R7W | Remarks Surface #1

CORE ANALYSIS RESULTS

(Figures in parentheses refer to footnote remarks)

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PERCENT	RESIDUAL SATURATION		PROBABLE PRODUCTION	REMARKS
				OIL % VOLUME % PORE	TOTAL WATER % PORE		
77	5785.5	1.3	7.7	11.7	76.6	*	Siltstone
78	86.5	0.10	6.2	10.1	66.7	*	"
79	87.5	2.3	7.5	16.0	76.0	*	"
80	88.5	0.19	6.7	7.5	80.6	*	"
81	89.5	0.08	8.7	16.1	60.9	*	Sl shly ss
82	90.5	0.08	10.4	29.8	47.1	*	"
83	91.5	(2)	12.5	25.0	49.5	*	"
84	92.5	0.16	10.4	28.8	57.6	*	"
85	93.5	0.05	9.1	15.4	74.7	*	"
86	94.5	0.05	8.6	14.0	77.8	*	"
87	95.5	0.03	9.6	9.4	77.0	*	Siltstone
88	96.5	0.11	10.4	20.2	69.3	*	"
89	97.5	0.06	11.9	29.4	52.9	*	"
90	98.5	0.06	9.8	7.1	84.7	*	Sl shly ss
91	99.5	0.05	10.0	27.0	47.0	Oil	"
92	5800.5	0.05	12.7	27.5	50.3	Oil	"
93	01.5	0.05	12.0	33.3	54.1	Oil	"
94	5802.5	0.07	12.3	25.2	51.3	Oil	"

Zone 5753 to 5773 * Non-productive due to low perm, but should not be included in a completion attempt due to high water saturations.

Zone 5773 to 5783 - Will produce oil after frac.

Zone 5783 to 5799 * Non-productive due to low perm, but should not be included in a completion attempt due to high water saturations.

Zone 5799 to 5803 - Will produce oil after frac, if core section with like characteristics is recovered in the next. core.

NOTE:

(*) REFER TO ATTACHED LETTER.

(1) INCOMPLETE CORE RECOVERY—INTERPRETATION RESERVED.

(2) OFF LOCATION ANALYSES—NO INTERPRETATION OF

FORM F-9

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

Company [illegible] Field — Formation [illegible] — Page 1 of 2

Well Dunn 1 — Cores Dia. Conv. — File RP-3-333

Field Wildcat — Drilling Fluid Water Base Mud — Date Report Sept. 1,

County Rio Arriba — State New Mexico — Elevation 7311' DF — Analysts CH-HR-GMI

Location S10 T23N R7W — Remarks Morrison Fm

CORE ANALYSIS RESULTS PRELIMINARY REPORT

(Figures in parentheses refer to footnote remarks)

1 SAMPLE NUMBER	2 DEPTH FEET	3 PERMEABILITY MILLIDARCYS	4 POROSITY PERCENT	RESIDUAL SATURATION 5 OIL % VOLUME	RESIDUAL SATURATION 5 OIL % PORE	RESIDUAL SATURATION 6 TOTAL WATER % PORE	7 PROBABLE PRODUCTION	8 REMARKS
95	5805.5	0.07	7.3	16.5	49.4		Oil	
96	06.5	0.03	5.7	15.8	67.4		Oil	
97	07.5	0.03	9.3	33.3	46.3		Oil	
98	08.5	0.11	9.7	38.2	44.4		Oil	
99	09.5	0.41	9.5	32.6	47.3		Oil	
100	10.5	0.17	9.5	32.6	47.3		Oil	
101 through 112, from 5811.5 through 5822.5 non productive-high water content.								
113	5823.5	0.24	13.4	25.4	32.1		Oil	
114	24.5	0.12	16.1	31.1	23.0		Oil	
115	25.5	0.11	15.1	30.4	21.8		Oil	
116	26.5	0.10	13.9	35.2	17.9		Oil	
117	27.5	0.16	11.7	41.8	26.5		Oil	
118	28.5	0.08	15.2	30.9	22.4		Oil	
119	29.5	0.07	10.5	33.3	18.1		Oil	
120	30.5	0.07	10.2	32.3	38.2		Oil	
121	31.5	0.07	9.3	35.5	37.6		Oil	
122	32.5	0.07	8.5	36.5	48.2		Oil	
123	33.5	0.15	9.0	34.5	43.4		Oil	
124	34.5	1.0	9.8	37.8	41.9		Oil	
125	35.5	f.	8.0	15.0	56.2		Oil	
126	36.5	0.27	10.6	33.0	34.9		Oil	
127	37.5	3.2	12.1	38.0	25.6		Oil	
128	38.5	0.10	11.8	35.6	38.0		Oil	
129	5839.5	0.25	11.0	38.2	31.8		Oil	
130 through 136 from 5856.5 through 5862.5 non productive-high water content								

CORE LABORATORIES, INC. CORELAB *Petroleum Reservoir Engineering*

COMPANY VAL R. REESE & ASSOCIATES | DATE ON 12/15/61 | FILE NO. RP-3-1572

WELL NANCI B # 1-14 | DATE OFF 12/19/61 | ENGRS. DEPPE

FIELD ESCRITO GALLUP | FORMATION GALLUP | ELEV. 7075'GR

COUNTY RIO ARRIBA | STATE NEW MEX. | DRLG. FLD. OIL EMULSION | CORES DIAMOND CONV

LOCATION SEC. 14 T23N R7W | REMARKS CLI SAMPLES AT CLIENTS DIRECTION

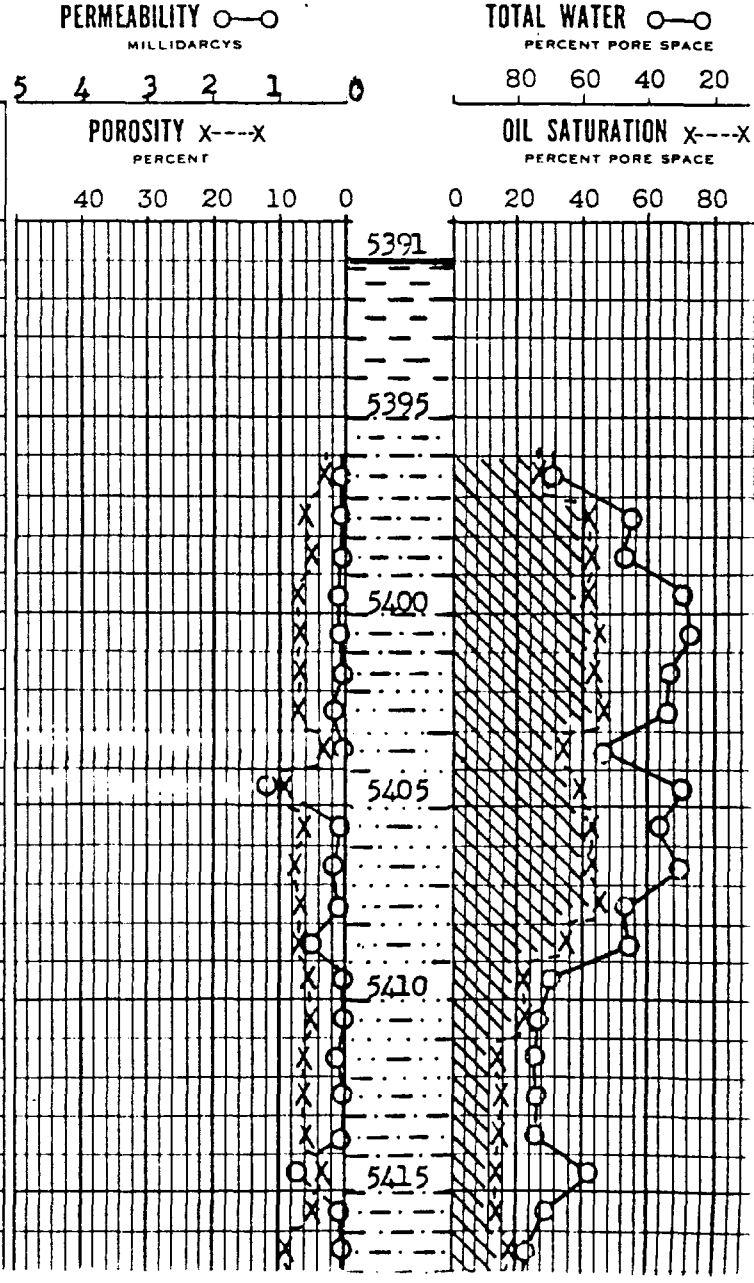
SAND | LIMESTONE | CONGLOMERATE | CHERT

SHALE | DOLOMITE | VERTICAL FRACTURE

TABULAR DATA and INTERPRETATION

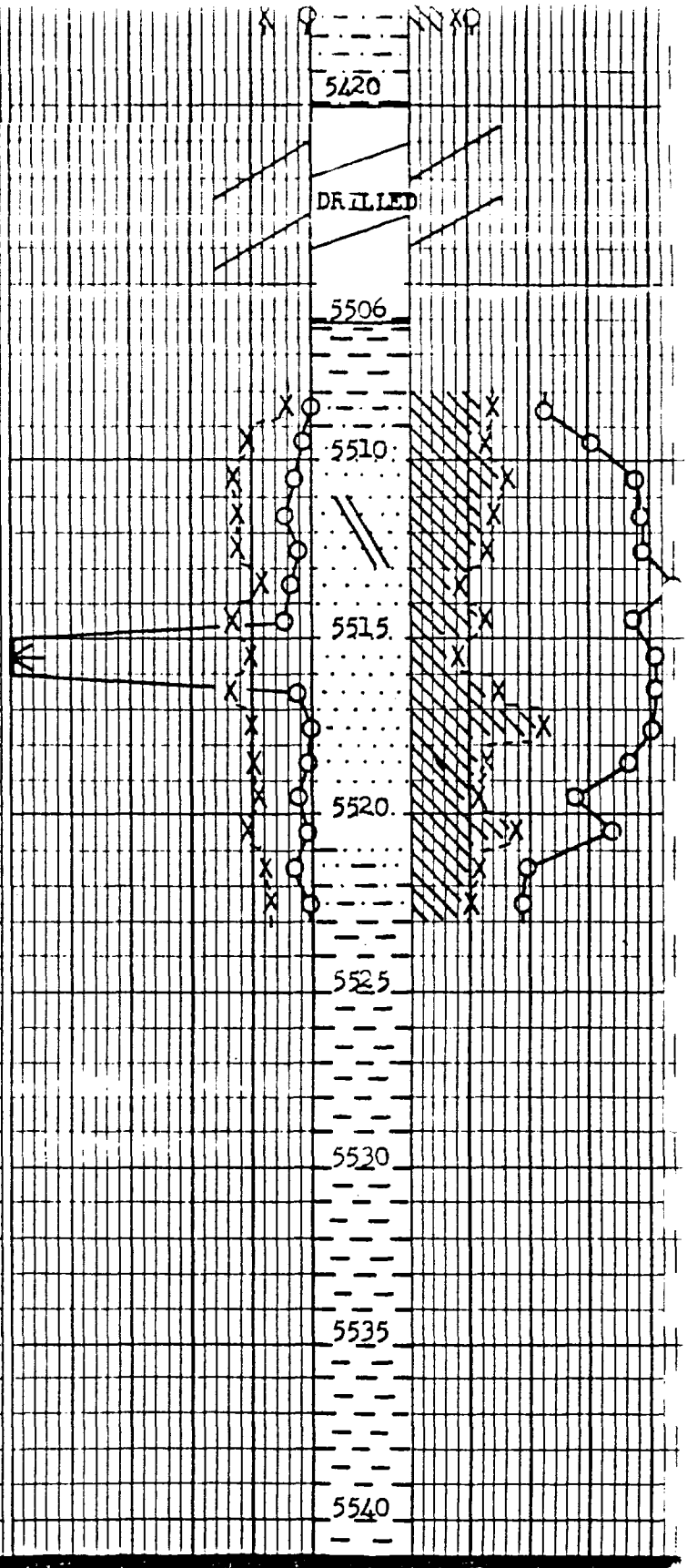
SAMPLE NUMBER	DEPTH FEET	PERM MD.	POROSITY %	RESIDUAL SATURATION % PORE SPACE OIL	RESIDUAL SATURATION % PORE SPACE TOTAL WATER		PROD
1	5396-97	0.05	3.3	27.2	69.6		
2	97-98	0.05	6.2	40.4	45.1		
3	98-99	0.06	5.9	42.3	47.4		
4	99-5400	0.09	7.4	40.6	29.6		
5	5400-01	0.09	7.0	44.3	27.2		
6	01-02	0.06	7.3	43.8	32.8		
7	02-03	0.18	7.3	45.2	34.2		
8	03-04	0.02	3.9	33.2	53.7		
9	04-05	1.2	9.1	38.7	29.7		
10	05-06	0.07	6.1	41.0	36.0		
11	06-07	0.17	7.8	41.0	30.7		
12	07-08	0.09	6.9	44.9	47.9		
13	08-09	0.50	6.0	35.0	46.6		
14	09-10	0.02	5.8	21.4	69.0		
15	10-11	0.02	5.8	21.4	72.4		
16	11-12	0.17	6.2	14.5	74.2		
17	12-13	0.03	6.5	15.4	72.3		
18	13-14	0.05	6.0	15.0	73.4		
19	14-15	0.72	3.6	13.9	58.2		
20	15-16	0.05	4.9	14.3	71.5		
21	16-17	0.02	8.7	18.4	77.0		

COMPLETION COREGRAPH

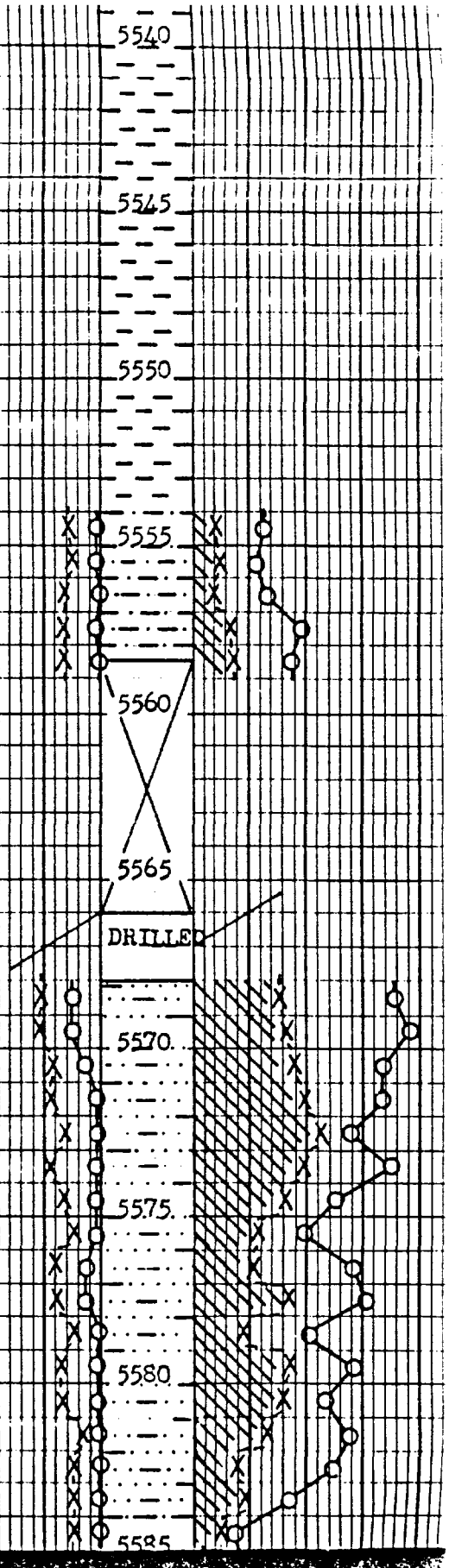


22	17-18	0.01	7.9	16.5	78.5
23	5508-09	0.01	4.6	28.2	56.5
24	09-10	0.14	10.5	25.7	39.0
25	10-11	0.30	13.3	32.3	24.8
26	11-12	0.42	12.7	28.2	23.6
27	12-13	0.23	12.7	26.0	22.1
28	13-14	0.38	8.9	16.9	12.4
29	14-15	0.42	13.6	25.0	25.0
30	15-16	7.4	10.5	16.2	18.2
31	16-17	0.23	13.9	29.6	18.7
32	17-18	0.06	10.0	44.0	20.0
33	18-19	0.08	9.7	24.7	27.9
34	19-20	0.21	8.8	23.9	45.4
35	20-21	0.08	10.9	34.8	32.1
36	21-22	0.29	7.8	23.1	61.5
37	22-23	0.07	7.0	20.0	62.9

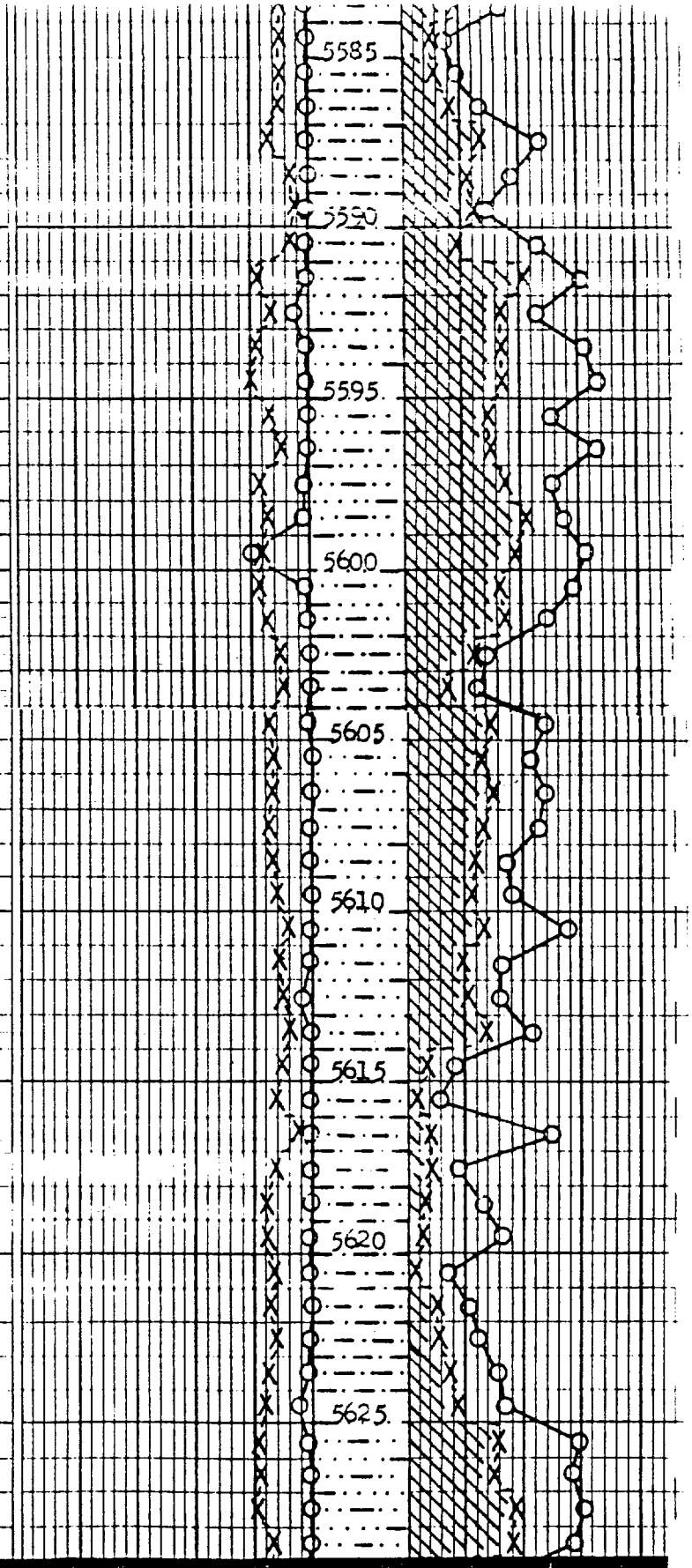
Nancy BE1-14



38	5554-55	0.02	6.0	8.2	75.0	
39	55-56	0.06	5.7	8.8	77.1	
40	56-57	0.01	6.4	7.8	73.4	
41	57-58	0.07	6.5	13.8	61.5	
42	58-58.3	0.01	6.3	14.3	65.0	
43	5568-69	0.47	10.4	30.7	28.8	
44	69-70	0.49	11.0	32.7	23.6	
45	70-71	0.29	8.1	35.8	33.3	
46	71-72	0.09	9.3	39.7	33.3	
47	72-73	0.07	6.1	44.4	44.4	
48	73-74	0.09	9.0	38.9	30.0	
49	74-75	0.09	6.5	32.2	49.2	
50	75-76	0.09	5.6	21.4	60.6	
51	76-77	0.25	8.0	21.2	43.7	
52	77-78	0.26	8.0	33.8	38.8	
53	78-79	0.01	5.0	17.9	58.0	
54	79-80	0.03	7.2	33.4	43.1	
55	80-81	0.02	6.8	31.0	53.0	
56	81-82	0.01	3.6	25.0	44.5	
57	82-83	<0.01	4.6	15.2	51.0	
58	83-84	0.02	4.6	17.4	65.4	Nauci B # 1-14
59	84-85	0.01	5.1	9.8	84.3	

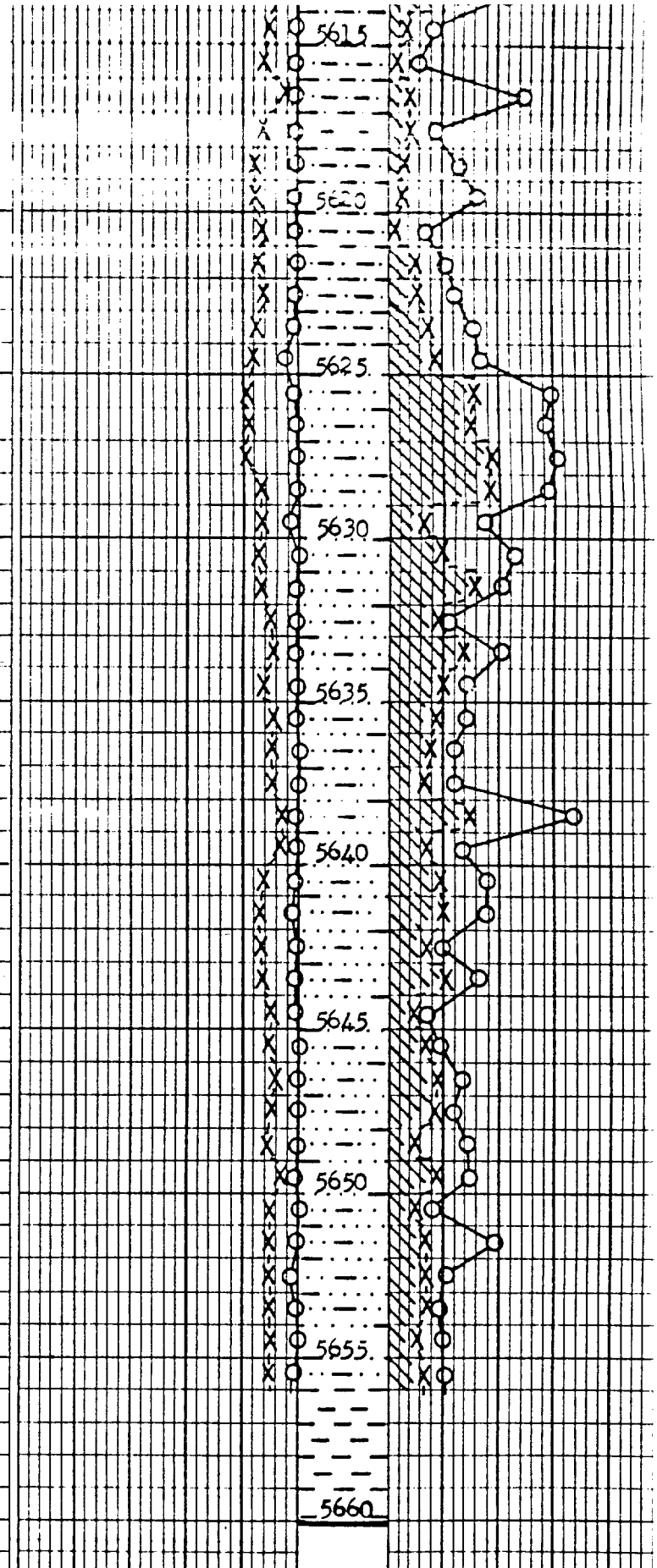


	83–84	0.02	4.6	17.4	69.4	
9	84–85	0.01	5.1	9.8	84.3	
0	85–86	0.02	4.9	10.2	81.6	
1	86–87	<0.01	5.6	16.0	73.1	
2	87–88	0.02	6.9	26.0	52.2	
3	88–89	<0.01	3.2	21.6	62.5	
4	89–90	0.03	2.8	25.0	71.4	
5	90–91	0.04	3.7	18.9	54.0	
6	91–92	0.02	9.1	40.6	38.5	
7	92–93	0.25	6.5	32.3	55.4	
8	93–94	0.05	9.4	32.9	37.2	
9	94–95	0.05	10.0	33.3	33.3	
0	95–96	0.02	7.2	28.2	50.0	
1	96–97	0.03	5.3	30.1	33.9	
2	97–98	0.07	8.3	34.5	48.2	
3	98–99	0.11	7.4	41.9	44.6	
4	99–5600	1.0	8.8	37.5	37.5	
75	5600–01	0.09	8.4	32.1	41.6	
76	01–02	0.01	7.7	35.0	50.6	
77	02–03	<0.01	5.4	25.9	72.0	
78	03–04	<0.01	4.8	14.5	75.0	
79	5604–05	0.02	7.2	29.2	52.7	
80	05–06	<0.01	6.3	25.4	57.2	
81	06–07	0.01	6.9	30.4	52.2	
82	07–08	0.01	7.6	27.6	55.3	
83	08–09	0.01	6.7	23.8	65.6	
84	09–10	<0.01	6.1	23.0	64.0	
85	10–11	0.02	4.4	27.2	45.5	
86	11–12	0.07	6.1	19.6	67.2	
87	12–13	0.14	5.9	20.3	67.8	
88	13–14	0.02	4.4	27.2	56.8	
89	14–15	0.02	5.4	9.2	83.4	
90	15–16	0.03	6.4	3.1	88.9	
91	16–17	0.01	2.4	8.3	50.2	
92	17–18	0.01	6.1	8.2	83.4	
93	18–19	0.01	7.8	6.4	73.2	
94	19–20	0.03	7.8	6.4	68.0	
95	20–21	0.01	6.5	3.1	86.1	
96	21–22	<0.01	6.7	10.4	79.1	
97	22–23	0.03	6.0	11.7	76.6	
98	23–24	0.07	7.6	15.8	69.6	
99	24–25	0.23	8.0	17.5	66.2	
100	25–26	0.10	9.3	31.2	40.7	
101	26–27	0.07	9.0	30.0	43.2	Navel B #1-14
102	27–28	0.02	9.8	37.6	39.7	
103	28–29	0.02	6.8	36.7	42.6	



89	14-15	0.02	5.4	9.2	83.4
90	15-16	0.03	6.4	3.1	88.9
91	16-17	0.01	2.4	8.3	50.2
92	17-18	0.01	6.1	8.2	83.4
93	18-19	0.01	7.8	6.4	73.2
94	19-20	0.03	7.8	6.4	68.0
95	20-21	0.01	6.5	3.1	86.1
96	21-22	<0.01	6.7	10.4	79.1
97	22-23	0.03	6.0	11.7	76.6
98	23-24	0.07	7.6	15.8	69.6
99	24-25	0.23	8.0	17.5	66.2
100	25-26	0.10	9.3	31.2	40.7
101	26-27	0.07	9.0	30.0	43.2
102	27-28	0.02	9.8	37.6	39.7
103	28-29	0.02	6.8	36.7	42.6
104	29-30	0.15	5.2	13.4	65.6
105	30-31	<0.01	7.1	19.7	55.0
106	31-32	0.02	6.7	31.3	59.6
107	32-33	0.02	5.1	17.4	78.5
108	33-34	0.04	4.3	27.9	58.0
109	34-35	<0.01	6.0	20.0	71.6
110	35-36	0.01	5.3	17.0	71.6
111	36-37	<0.01	5.7	15.8	76.0
112	37-38	<0.01	5.8	12.1	76.0
113	38-39	0.04	3.1	29.0	33.2
114	39-40	0.01	3.9	12.8	74.2
115	40-41	0.05	6.2	19.4	64.5
116	41-42	0.07	7.0	20.0	64.2
117	42-43	0.03	6.1	14.7	80.4
118	43-44	0.07	7.0	20.0	67.1
119	44-45	0.04	5.3	9.4	84.9
120	45-46	<0.01	5.4	13.0	81.5
121	46-47	<0.01	4.0	17.5	72.4
122	47-48	<0.01	5.4	16.7	76.0
123	48-49	<0.01	5.6	8.9	71.6
124	49-50	0.07	3.0	16.7	70.0
125	50-51	<0.01	5.0	10.0	84.0
126	51-52	<0.01	5.4	12.9	61.1
127	52-53	0.16	5.3	13.2	79.2
128	53-54	0.01	5.1	13.7	80.3
129	54-55	<0.01	5.0	10.0	80.0
130	5655-56	0.05	5.3	13.2	79.3

Nancy B
1-14



FORM P1—COREGRAPH—TOTAL WATER t-wb

CORE LABORATORIES, INC. *Petroleum Reservoir Engineering*

COMPANY RHODES DRILLING COMPANY DATE ON 11/24/57 FILE NO. RP-3-653 PC

WELL NO. 1 FEDERAL ELKINS DATE OFF 11/25/57 ENGRS. HJC, JE

FIELD WILDCAT FORMATION GALLUP ELEV 6988' GL

COUNTY RIO ARRIBA STATE NEW MEX. DRLG. FLD. OIL EMULSION CORES DIAMOND

LOCATION SEC. 13-T23N-R7W REMARKS SAMPLED BY REPRESENTATIVE OF CLIENT A CLI ENGINEER.

SAND LIMESTONE CONGLOMERATE CHERT

SHALE DOLOMITE

TABULAR DATA and INTERPRETATION

SAMPLE NUMBER	DEPTH FEET	PERM MD	POROSITY %	RESIDUAL SATURATION % PORE SPACE OIL	RESIDUAL SATURATION % PORE SPACE TOTAL WATER		REMARKS

COMPLETION COREGRAPH

PERMEABILITY o—o MILLIDARCYS 40 30 20 10 0

TOTAL WATER o—o PERCENT PORE SPACE 80 60 40 20

POROSITY x---x PERCENT 40 30 20 10 0

OIL SATURATION x--- PERCENT PORE SPACE 0 20 40 60 80

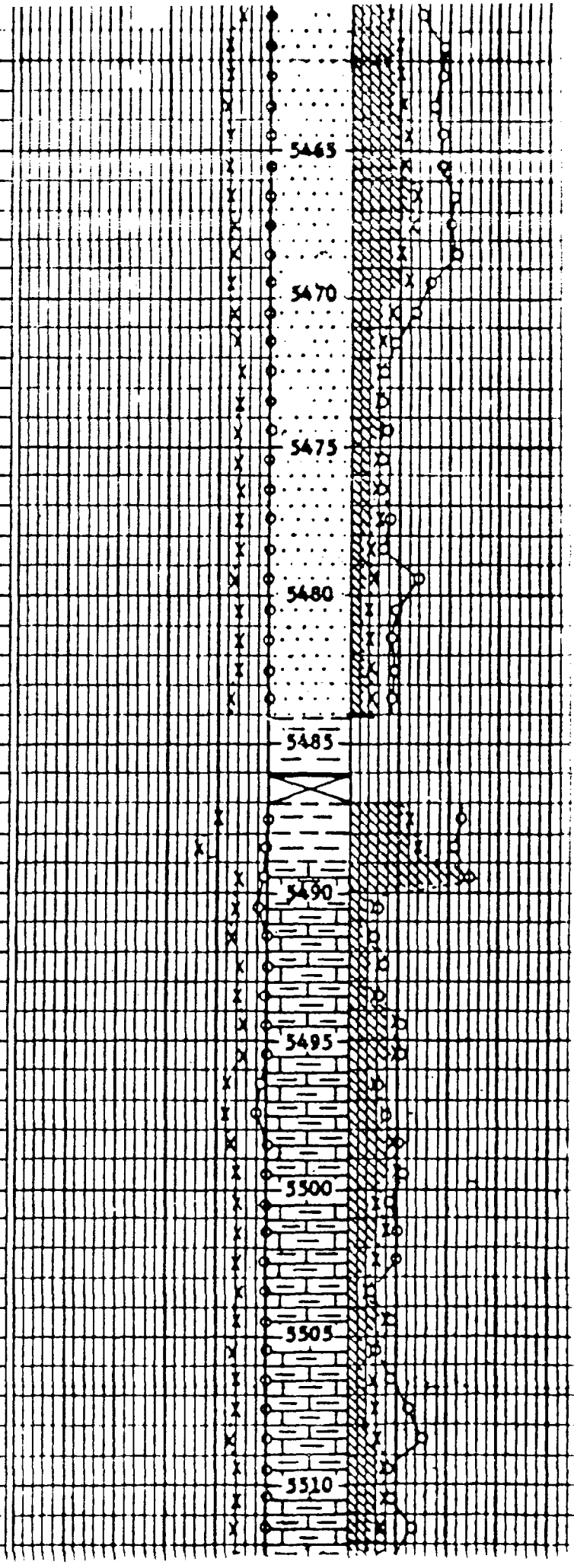
5440

5445

5450

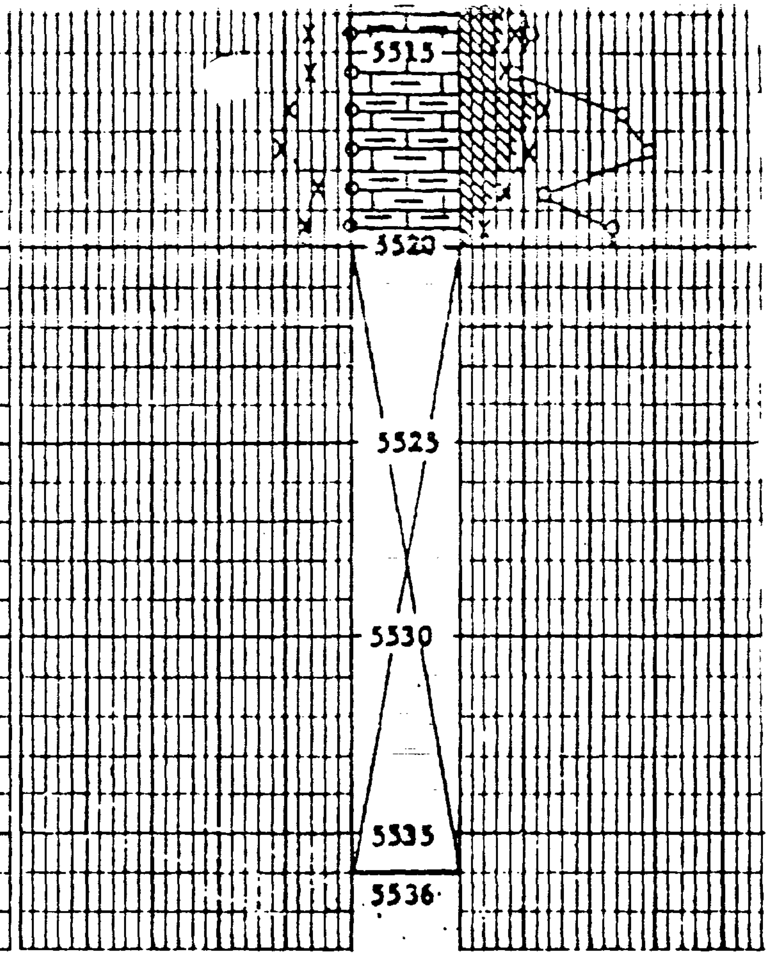
5455

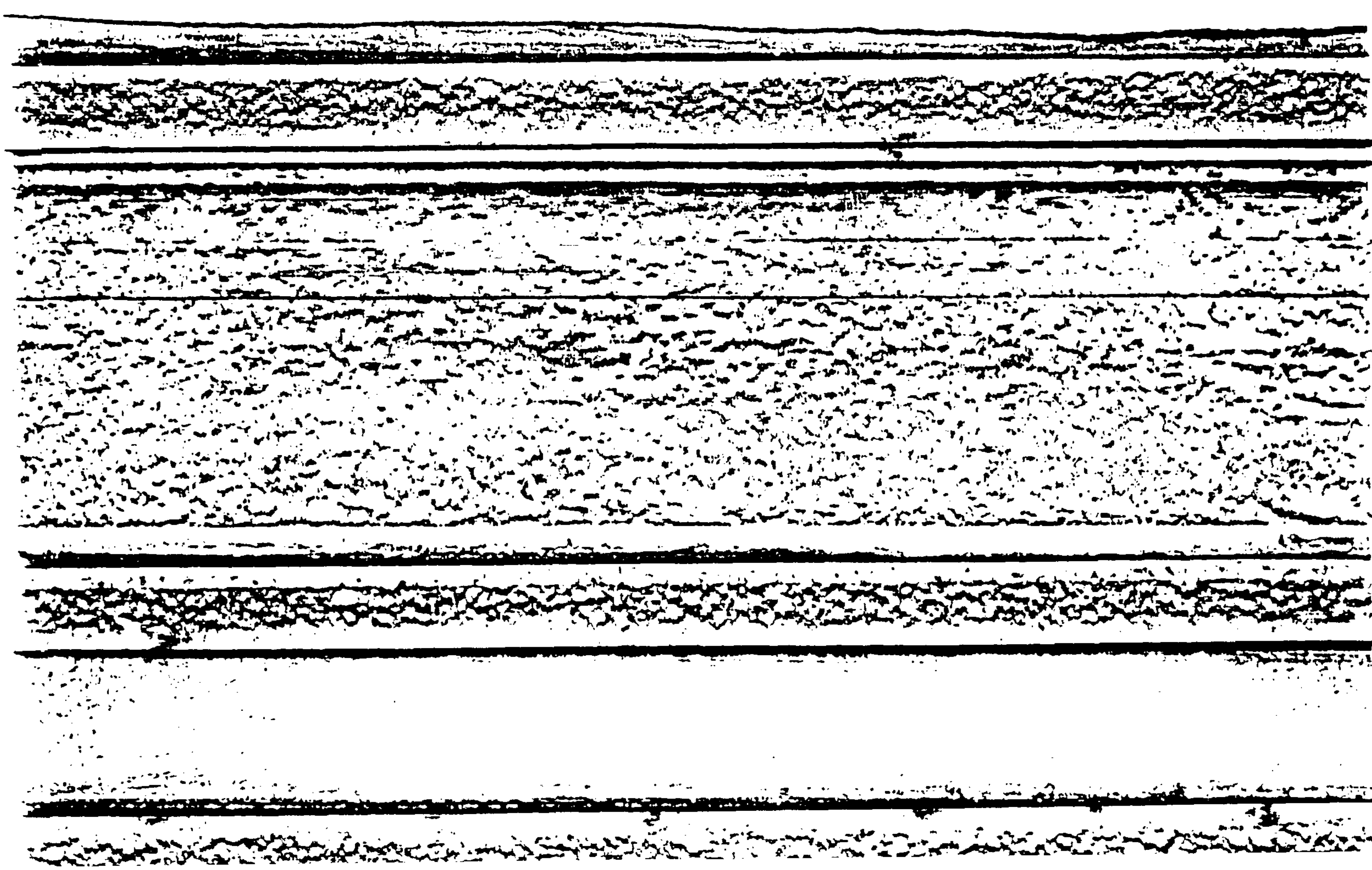
2	60-61	0.10	5.5	1(	71.0
3	61-62	0.13	8.0	20.2	62.5
4	62-63	0.07	8.1	19.9	63.0
5	63-64	0.07	8.7	21.1	65.5
6	64-65	0.05	7.0	23.2	63.0
7	65-66	0.06	8.4	21.5	63.2
8	66-67	0.07	8.2	26.9	58.5
9	67-68	0.05	7.2	25.0	58.9
10	68-69	0.05	7.6	20.2	56.8
11	69-70	0.04	7.9	22.8	68.3
12	70-71	0.04	7.0	17.2	74.3
13	71-72	0.08	6.7	13.4	82.0
14	72-73	0.10	5.7	12.3	86.0
15	73-74	0.13	6.0	11.7	86.7
16	74-75	0.03	6.6	13.6	84.9
17	75-76	0.04	6.2	11.2	86.8
18	76-77	0.03	6.2	11.2	86.8
19	77-78	0.05	6.0	11.6	83.6
20	78-79	0.01	5.8	8.6	86.4
21	79-80	0.02	7.1	9.9	72.0
22	80-81	0.02	5.9	8.5	81.3
23	81-82	0.05	6.0	8.3	83.3
24	82-83	0.02	5.8	8.6	81.0
25	5483-84	0.13	7.6	9.2	82.9
		ELLIS			
26	5487-88	0.11	10.3	25.2	55.4
27	88-89	0.26	13.7	27.8	57.6
28	89-90	0.50	6.3	46.1	52.5
29	90-91	1.9	6.5	10.8	87.8
30	91-92	0.10	7.3	9.6	89.0
31	92-93	0.18	5.4	12.9	85.2
32	93-94	0.02	6.2	11.3	87.1
33	94-95	0.03	4.7	19.2	78.8
34	95-96	0.22	4.7	19.2	78.8
35	96-97	1.3	7.9	11.4	87.5
36	97-98	1.9	7.8	15.4	83.5
37	98-99	0.05	7.2	18.1	80.5
38	99-00	0.03	6.4	20.3	78.1
39	5500-01	0.04	5.9	11.9	83.1
40	01-02	0.07	5.6	16.1	80.5
41	02-03	0.03	6.1	11.5	80.5
42	03-04	0.04	5.6	8.9	89.3
43	04-05	0.04	6.0	15.0	81.7
44	05-06	0.04	6.6	10.6	87.9
45	06-07	0.06	6.3	11.1	82.5
46	07-08	0.10	6.0	11.7	75.0
47	08-09	0.15	7.1	12.7	69.0
48	09-10	0.10	5.9	15.3	83.0
49	10-11	0.15	6.0	15.0	81.8
50	11-12	0.05	6.6	13.6	72.7
51	12-13	0.08	6.1	14.1	69.1



53	14-15	0.16	6.5	18.5	27.0		
54	15-16	0.04	6.0	15.5	1.6		
[illegible]	16-17	0.09	9.4	26.6	50.0		
56	17-18	0.06	11.1	22.5	42.3		
57	18-19	0.04	5.1	13.7	74.5		
[illegible]	5519-20	0.05	7.7	33.8	[illegible]		
	Samples	7					
	Totals	.59	67.3	174.2	380.5		
	Average	.12	9.6	24.9	54.4	(Sat)	

(ELKINS)





CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

[illegible]	Continental Oil Co.	Formation	Gallup	Page 1 of 2	
[illegible]	Rogers-Federal C-1 24-1	Cores	Dia. Conv.	File	RP-3-397 FC
[illegible]	Wildcat	Drilling Fluid	Water Base Mud	Date Report	12/18/56
[County]	Sandoval State N. Mex.	Elevation	7068 DF	Analysts	CM:SR
[Location]	S24-23N-7W	Remarks	Service # 4 (Preliminary Report)		

CORE ANALYSIS RESULTS

(Figures in parentheses refer to footnote remarks)

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PERCENT	RESIDUAL SATURATION OIL % VOLUME	RESIDUAL SATURATION OIL % PORE	RESIDUAL SATURATION TOTAL WATER % PORE	PROBABLE PRODUCTION	REMARKS
1	5310.5	0.18	8.8		34.1	27.3	Oil	Ss, sli shly
2	11.5	0.51	10.5		38.1	38.1	Oil	"
3	12.5	0.17	7.5		37.4	34.7	Oil	"
4	13.5	0.09	8.8		37.5	20.5	Oil	"
5	14.5	0.51	9.9		32.4	30.3	Oil	"
6	15.5	0.16	10.2		33.4	31.4	Oil	"
7	16.5	0.71	7.6		27.7	36.9	Oil	"
8	17.5	0.13	6.4		25.0	40.6	Oil	"
9	18.5	1.0	10.3		37.0	33.0	Oil	"
10	19.5	0.28	7.8		35.9	20.6	Oil	"
11	20.5	0.28	9.3		35.5	33.4	Oil	"
12	21.5	0.21	10.5		32.4	30.5	Oil	"
13	22.5	0.03	10.3		24.3	28.1	Oil	"
14	23.5	1.0	8.1		47.0	44.5	Oil	"
15	24.5	0.23	10.3		20.4	50.5	Oil	"
16	25.5	0.16	8.8		36.4	36.4	Oil	"
17	26.5	0.8	8.9		28.1	36.0	Oil	"
18	27.5	0.12	5.5		9.1	56.4	*	"
19	28.5	0.30	10.8		15.7	76.9	*	Shly ss
20	5332.5	0.17	11.0		10.9	81.9	*	Sdy sh

Interval 5310-27 characterized by lower than normal porosity for oil-productive Gallup ss, but favorable fluid saturations in this zone indicate that some oil may be produced after frac.

Interval 5327-33, where sampled, has high water saturations and/or low porosity. This interval should be excluded from any completion attempt.

NOTE:
(*) REFER TO ATTACHED LETTER.
(1) INCOMPLETE CORE RECOVERY—INTERPRETATION RESERVED.
(2) OFF LOCATION ANALYSES—NO INTERPRETATION OF RESULTS

FORM F-9

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

Company Continental Oil Co. Formation Gallup Page 2 of 2
Well Rogers-Federal C-1 Core Diamond File RP-3-397 TO
Field Drilling Fluid Date Report
County State Elevation Analysts
Location Remarks

CORE ANALYSIS RESULTS

(Figures in parentheses refer to footnote remarks)

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PERCENT	RESIDUAL SATURATION		PROBABLE PRODUCTION	REMARKS
				OIL % VOLUME	% PORE	TOTAL WATER % PORE	
21	5421.5	0.09	5.9	22.0	64.4	*	Shly ss
22	22.5	0.03	4.5	15.5	73.5	*	"
23	23.5	0.20	17.6	29.3	44.3	Oil	Ss, sli shly
24	24.5	0.17	11.2	29.5	43.8	Oil	"
25	25.5	1.0	12.7	29.9	39.4	Oil	"
26	26.5	0.43	12.5	29.6	35.2	Oil	"
27	27.5	6.1	11.5	36.5	27.0	Oil	"
28	28.5	0.55	10.3	32.1	24.3	Oil	"
29	29.5	0.25	10.2	30.4	38.3	Oil	"
30	30.5	6.0	12.6	34.9	29.4	Oil	"
31	31.5	0.74	11.5	34.8	30.5	Oil	"
32	32.5	0.23	9.1	33.0	48.4	Oil	"
33	33.5	0.24	10.7	29.0	42.0	Oil	"
34	34.5	0.33	10.2	29.4	49.0	Oil	"
35	35.5	0.12	8.6	16.3	65.2	*	"
36	36.5	0.09	6.7	19.4	74.7	*	sdy sh
37	37.5	0.06	6.4	11.0	76.7	*	"
38	38.5	0.07	8.0	16.2	75.0	*	"
39	39.5	0.21	6.7	10.5	80.7	*	"
40	40.5	0.04	6.5	13.9	77.0	*	"
41	41.5	0.07	6.6	10.6	75.9	*	"

* Characterized by low porosity and/or high water saturations. Excluded from any completion attempt.

Interval 5423-35 essentially oil productive after frac.

NOTE:
REFER TO ATTACHED LETTER.
INCOMPLETE CORE RECOVERY—INTERPRETATION RESERVED.
(2) OFF LOCATION ANALYSES—NO INTERPRETATION OF RESULTS.

FORM F-9

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

Company Continental Oil Co. | Formation Dakota | Page 1 of 3

Well Rogers-Federal 1-1 | Cores Diamond | File RP-2-397 FO

Field Wildcat | Drilling Fluid Water Base Mud | Date Report 12/20/56

County Sandoval State N. Mex. | Elevation 7020 DF | Analysts CH:SR

Location S24-T21-R7 | Remarks Service #1 (Preliminary Report)

CORE ANALYSIS RESULTS

(Figures in parentheses refer to footnote remarks)

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PERCENT	RESIDUAL SATURATION		PROBABLE PRODUCTION	REMARKS
				OIL % VOLUME	TOTAL WATER % PORE		
42	5487.5	0.05	10.2	33.4	33.4	Oil	Ss, shly
43	88.5	0.06	10.2	28.2	34.3	Oil	"
44	89.5	0.06	11.6	33.6	37.1	Oil	"
45	90.5	0.04	10.6	32.0	36.3	Oil	"
46	91.5	0.04	11.7	40.2	37.8	Oil	"
47	92.5	0.20	10.2	31.4	47.0	Oil	"
48	93.5	0.08	10.1	35.6	47.5	Oil	"
49	94.5	0.06	9.5	33.7	42.1	Oil	"
50	95.5	0.16	13.2	32.6	38.7	Oil	"
51	96.5	0.13	10.6	36.3	40.6	Oil	"
52	97.5	0.11	12.4	28.2	50.7	Oil	"
53	98.5	0.08	12.7	32.3	46.5	Oil	"
54	99.5	0.03	9.0	15.6	66.6	*	"
55	5500.5	0.04	9.1	20.9	63.3	*	"
56	5505.5	0.05	6.4	I 10.9	78.1	*	"
57	06.5	12	7.9	11.4	67.0	*	"
58	07.5	17	16.2	25.3	26.6	*	"
59	08.5	13	6.6	10.6	51.5	*	"
60	09.5	0.05	6.2	30.6	50.0	*	"
61	10.5	0.12	13.8	33.4	29.0	Oil	"
62	11.5	0.16	15.1	29.8	25.2	Oil	"
63	12.5	0.30	17.0	30.0	27.6	Oil	"
64	13.5	0.14	12.4	25.0	46.7	Oil	"
65	14.5	0.04	6.3	18.2	69.4	*	"
66	15.5	0.20	7.6	15.8	64.5	*	"
67	16.5	0.08	10.2	15.7	69.6	*	"
68	17.5	0.26	12.3	22.4	56.2	*	"
69	18.5	0.16	10.5	20.6	56.2	*	"
70	19.5	0.12	11.7	21.4	53.9	*	"
71	20.5	0.29	9.3	22.6	49.5	*	"
72	21.5	0.05	9.9	21.2	63.7	*	"

NOTE:

(*) REFER TO ATTACHED LETTER.

(1) INCOMPLETE CORE RECOVERY—INTERPRETATION RESERVED.

(2) OFF LOCATION ANALYSES—NO INTERPRETATION OF RESULTS.

FORM F-9

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

Company Continental Oil Co. Formation Gallup Page 2 of 2

Well Rogers-Federal 1-1 Cores Diamond File RP-3-397 FC

Field Drilling Fluid Date Report

County State Elevation Analysts

Location Remarks

CORE ANALYSIS RESULTS

(*Figures in parentheses refer to footnote remarks*)

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PERCENT	RESIDUAL SATURATION OIL % VOLUME	RESIDUAL SATURATION OIL % PORE	RESIDUAL SATURATION TOTAL WATER % PORE	PROBABLE PRODUCTION	REMARKS
73	5522.5	0.21	9.1		17.6	62.3	*	Ss, shly
74	23.5	0.05	7.4		18.0	68.0	*	"
75	24.5	2.4	10.4		20.2	57.7	*	"
76	25.5	0.11	8.5		21.2	51.9	*	"
77	26.5	0.29	11.2		29.5	42.8	*	"
78	27.5	0.06	9.3		26.9	47.4	*	"
79	28.5	0.02	9.4		27.7	59.6	*	"
80	29.5	0.01	4.9		0.0	77.6	*	"
81	30.5	0.29	8.6		24.4	55.9	*	"
82	31.5	0.28	9.1		23.1	61.5	*	"
83	32.5	0.05	7.9		15.2	72.2	*	"
84	33.5	0.09	6.5		18.5	67.3	*	"
85	34.5	0.04	6.6		0.0	86.4	*	"
86	35.5	0.17	6.8		2.9	83.9	*	"
87	36.5	0.03	7.0		10.0	75.8	*	"
88	37.5	0.04	8.0		0.0	79.9	*	"
89	38.5	0.05	8.0		8.7	81.2	*	"
90	39.5	0.04	6.7		0.0	86.5	*	"
91	40.5	0.06	7.2		0.0	84.7	*	"
92	41.5	0.04	7.7		9.0	78.1	*	"
93	42.5	0.06	6.7		10.5	79.1	*	"
94	43.5	0.01	6.6		12.6	75.6	*	"
95	44.5	0.04	7.5		16.0	70.7	*	"
96	45.5	0.06	9.7		33.0	51.6	*	"
97	46.5	0.05	8.9		20.6	59.6	*	"
98	47.5	0.05	6.5		18.3	64.8	*	"
99	48.5	0.05	8.2		14.5	67.3	*	"
100	49.5	0.01	5.5		15.4	69.1	*	"
101	50.5	0.02	4.0		17.5	62.5	*	"
102	51.5	0.01	5.6		8.9	78.6	*	"
103	52.5	0.07	6.8		10.3	78.0	*	"

NOTE:
(*) REFER TO ATTACHED LETTER.
(1) INCOMPLETE CORE RECOVERY—INTERPRETATION RESERVED.
(2) OFF LOCATION ANALYSES—NO INTERPRETATION OF RESULTS.

FORM F-9

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

Company Continental Oil Co. Formation [illegible] Page 3 of 3

Well Rogers-Federal C-1 Cores Diamond File RP-3-207 70

Field _____ Drilling Fluid _____ Date Report _____

County _____ State _____ Elevation _____ Analysts _____

Location _____ Remarks _____

CORE ANALYSIS RESULTS

(Figures in parentheses refer to footnote remarks)

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PERCENT	RESIDUAL SATURATION		PROBABLE PRODUCTION	REMARKS
				OIL % VOLUME % PORE	TOTAL WATER % PORE		
104	[illegible]	0.04	6.1	22.3	65.5	*	Ss, shly
105	5554.5	0.07	8.5	21.4	58.1	*	"
106	55.5	0.09	9.4	19.2	65.0	*	"
107	56.5	2.3	7.9	15.2	61.6	*	"
108	57.5	1.3	6.1	11.5	70.5	*	"
109	58.5	0.01	6.3	17.7	72.5	*	"
110	59.5	0.05	7.4	18.9	56.8	*	"
111	60.5	0.05	5.7	21.0	65.0	*	"

Intervals 5487-99 & 5510-14 interpreted to be oil productive after frac.
Intervals marked (*) characterized by low porosities and/or high water saturations, and should be excluded from completion attempt.

NOTE:

(*) REFER TO ATTACHED LETTER.

(1) INCOMPLETE CORE RECOVERY—INTERPRETATION RESERVED.

(2) OFF LOCATION ANALYSES—NO INTERPRETATION OF RESULTS.

CA-20

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

PETROLEUM CONSULTANTS, INC.

CORE ANALYSIS RESULTS

Company VAL REESE & ASSOCIATES — Formation GALLUP — File RP-3-1108
Well SPERLING # 1-30 — Core Type DIAMOND CONV. — Date Report 11/9/59
Field ESCRITO EXT. - DAKOTA WILDCAT — Drilling Fluid WATER BASE MUD — Analysts ENGLISH
County RIO ARRIBA State N.MEXICO Elev. 6671 DF Location Sec30 24N 6W

Lithological Abbreviations

SAND-SD SHALE-SH LIME-LM | DOLOMITE-DOL CHERT-CH GYPSUM-GYP | ANHYDRITE-ANHY CONGLOMERATE-CONG FOSSILIFEROUS-FOSS | SANDY-SDY SHALY-SHY LIMY-LMY | FINE-FN MEDIUM-MED COARSE-CSE | CRYSTALLINE-XLN GRAIN-GRN GRANULAR-GRNL | BROWN-BRN GRAY-GY VUGGY-VGY | FRACTURED-FRAC LAMINATION-LAM STYLOLITIC-STY | SLIGHTLY-SL/ VERY-V/ WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE: OIL	RESIDUAL SATURATION PER CENT PORE: TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
1	5330-31	0.27	3.3	15.1	69.6	
2	31-32	<0.01 *	6.0	28.3	63.3	
3	32-33	0.10	6.1	31.1	64.0	
4	33-34	0.01 *	6.1	27.8	65.6	
5	34-35	0.27	5.7	26.3	68.5	
6	35-36	0.01 *	5.8	31.0	63.9	
7	36-37	0.36	6.5	26.1	67.7	
8	37-38	0.02	6.6	27.2	71.2	
9	38-39	0.01	4.8	18.6	68.8	
10	39-40	0.02	4.0	22.5	72.6	
11	40-41	0.36	4.0	17.5	80.1	
12	41-42	0.08	3.2	12.5	83.4	
13	42-43	0.02	4.4	20.5	75.1	
14	43-44	0.01	4.4	15.9	79.7	
15	44-45	0.09	4.0	30.0	92.6	
16	45-46	0.08	4.9	26.5	67.4	
17	46-47	0.19	7.2	22.2	73.6	Vertical Fracture
18	47-48	0.01	5.3	32.1	66.1	" "
19	48-49	<0.01	4.3	20.9	76.8	" "
20	49-50	0.06	4.0	30.0	67.6	" "
21	50-51	0.01	3.6	25.0	69.4	" "
22	51-52	0.28	4.9	30.6	67.3	" "
23	52-53	0.01	5.3	28.3	69.9	" "
24	53-54	0.01 *	4.0	30.0	67.6	" "
25	54-55	0.01 *	4.8	27.1	70.8	" "
26	55-56	0.07	3.3	21.2	75.7	" "
27	56-57	0.02 *	6.2	22.6	75.9	" "

5330-5357 Low porosity (4.9% average) , low permeability (0.09 md./ft. average) and high total water saturations (71.6% average) show this interval to be essentially non-productive . The saturations of residual oil are 24.7% average . There is evidence of a good fracture system , which could be the resevoir and the means of passage to the well bore for fluids within the fractures . Further testin should be done to evaluate the amount and type of fluid within the fracture system .

* PERMEABILITY PLUGS WERE MOUNTED IN SEALING WAX .

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company VAL REESE & ASSOCIATES | Formation GALLUP | File RP-3-1108
Well SPERLING # 1 - 30 | Core Type DIAMOND CONV. | Date Report 11/11/59
Field ESCRITO EXT. - DAKOTA WILDCAT | Drilling Fluid WATER BASE MUD | Analysts ENGLISH
County RIO ARRIBA State N.MEXICO Elev. Location SEC 30 24N 6W

Lithological Abbreviations

SAND-SD, SHALE-SH, LIME-LM, DOLOMITE-DOL, CHERT-CH, GYPSUM-GYP, ANHYDRITE-ANHY, CONGLOMERATE-CONG, FOSSILIFEROUS-FOSS, SANDY-SDY, SHALY-SHY, LIMY-LMY, FINE-FN, MEDIUM-MED, COARSE-CSE, CRYSTALLINE-XLN, GRAIN-GRN, GRANULAR-GRNL, BROWN-BRN, GRAY-GY, VUGGY-VGY, FRACTURED-FRAC, LAMINATION-LAM, STYLOLITIC-STY, SLIGHTLY-SL/, VERY-V/, WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
28	5423-24	0.04	8.9	50.5	48.3	
29	24-25	<0.01	9.3	52.7	46.2	
30	25-26	<0.01	10.5	50.4	48.4	
31	26-27	0.02	8.5	45.8	52.9	
32	27-28	<0.01	5.1	56.9	41.2	
33	28-29	0.08	8.3	51.9	45.7	
34	29-30	0.04	6.7	46.2	46.2	
35	30-31	<0.01	3.0	30.0	56.6	
36	31-32	0.05	10.5	47.6	40.9	
37	32-33	0.04	8.9	42.6	49.5	
38	33-34	<0.01	3.8	42.1	47.4	
39	34-35	<0.01	3.4	38.3	55.7	
40	35-36	0.02	9.7	37.1	59.8	
41	36-37	0.09	10.1	39.5	53.4	
42	37-38	0.15	9.5	41.0	51.6	
43	38-39	0.02	6.3	41.2	52.4	
44	39-40	0.02	9.3	45.2	47.3	
45	40-41	<0.01	10.0	41.0	53.0	
46	41-42	0.04	10.1	43.6	46.5	
47	42-43	0.01	6.4	20.3	65.7	
48	43-44	0.04	5.4	12.9	61.0	
49	44-45	0.01	4.0	17.5	62.6	
50	45-46	0.10	4.8	31.3	56.4	
51	46-47	0.10	11.6	28.4	26.7	
52	47-48	0.04	11.7	29.9	26.5	
53	48-49	0.06	12.9	27.9	23.2	
54	49-50	0.04	14.1	26.2	20.6	
55	50-51	0.01	5.0	14.0	16.0	
56	51-52	0.02	12.0	38.3	25.9	
57	52-53	0.04	8.3	36.1	28.9	
58	53-54	0.05	10.0	31.0	35.0	
59	54-55	0.02	10.5	31.4	39.1	
60	55-56	0.02	10.8	32.4	28.7	
61	56-57	0.03	9.9	27.3	35.3	
62	57-58	0.02	7.9	17.7	51.8	
63	58-59	0.05	9.9	33.3	41.4	
64	59-60	0.02	8.6	32.5	41.9	
65	60-61	0.02	9.4	36.2	46.9	
66	61-62	0.04	9.4	33.0	39.4	
67	62-63	0.02	8.6	24.4	55.8	
68	63-64	0.01	6.3	25.4	55.6	

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company VAL REESE & ASSOCIATES | Formation GALLUP | File RP-3-1108
Well SPERLING # 1 - 30 | Core Type DIAMOND CONV. | Date Report 11/21/59
Field ESCRITO EXT.- DAKOTA WILDCAT | Drilling Fluid WATER BASE MUD | Analysts ENGLISH
County RIO ARRIBA State N.MEXICO Elev. 6671 DF Location Sec30 24N 6W

Lithological Abbreviations

SAND-SD, SHALE-SH, LIME-LM | DOLOMITE-DOL, CHERT-CH, GYPSUM-GYP | ANHYDRITE-ANHY, CONGLOMERATE-CONG, FOSSILIFEROUS-FOSS | SANDY-SDY, SHALY-SHY, LIMY-LMY | FINE-FN, MEDIUM-MED, COARSE-CSE | CRYSTALLINE-XLN, GRAIN-GRN, GRANULAR-GRNL | BROWN-BRN, GRAY-GY, VUGGY-VGY | FRACTURED-FRAC, LAMINATION-LAM, STYLOLITIC-STY | SLIGHTLY-SL/, VERY-V/, WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
69	5464-65	0.12	10.6	33.1	32.1	
70	65-66	1.7	9.0	22.2	38.9	
71	66-67	0.10	13.0	37.7	20.0	
72	67-68	0.08	13.1	30.5	24.4	
73	68-69	0.05	10.3	32.0	30.1	
74	69-70	0.08	15.2	34.1	13.2	
75	70-71	0.09	12.0	35.0	22.5	
76	71-72	0.07	6.3	39.7	39.7	
77	72-73	0.01	3.2	15.6	53.1	
78	73-74	0.03	9.7	40.2	16.5	
79	74-75	0.02	7.0	45.6	22.8	

5423-5446 Low porosity (7.5% average) and low permeability (0.04 md./ft. average) associated with high total water saturations (51.7% average) show this interval to be essentially non-productive . The saturation of residual oil is 40.2% average .

5446-5475 This interval has fair porosity (9.9% average) and low permeability (0.10 md./ft. average) . The saturations (residual oil 30.7% average and total water 32.9% average) show this interval to be capable of producing oil . A formation treatment to increase permeability will be required .

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company VAL REESE & ASSOCIATES | Formation DAKOTA | File RP-3-1108
Well SPERLING # 1-30 | Core Type DIAMOND CONV. | Date Report 11/16/59
Field ESCRITO EXT.- DAKOTA WILDCAT | Drilling Fluid WATER BASE MUD | Analysts ENGLISH
County RIO ARRIBA State N.MEXICO Elev. 6671 DF Location Sec30 24N 6W

Lithological Abbreviations

SAND SD, SHALE SH, LIME LM | DOLOMITE DOL, CHERT CH, GYPSUM GYP | ANHYDRITE ANHY, CONGLOMERATE CONG, CALCIFEROUS CALC | SANDY SDY, SHALY SHY, LIMY LMY | FINE FN, MEDIUM MED, COARSE CSE | CRYSTALLINE XLN, GRAIN GRN, GRANULAR GRN | BROWN BRN, GRAY GY, VUGGY VGY | FRACTURED FRAC, LAMINATION LAM, STYLOLITIC STY | SLIGHTLY SL/, VERY V/, WITH W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
80	6853-54	0.02	4.4	11.3	70.4	
81	54-55	0.32	4.8	10.4	73.0	
82	55-56	0.02	5.3	9.4	75.4	
83	56-57	0.03	5.7	8.8	73.6	
84	57-58	0.02	5.5	9.1	71.0	
85	58-59	0.02	4.7	10.6	70.1	
86	59-60	0.02	5.5	9.1	76.3	
87	60-61	<0.01	4.9	4.1	89.7	
88	61-62	0.01	5.2	9.6	78.9	
89	62-63	<0.01	8.0	2.5	86.2	
90	63-64	<0.01	5.2	3.8	88.4	
91	64-65	0.01	7.5	0.0	92.1	
92	65-66	0.01	7.1	2.8	91.5	
93	66-67	0.01	6.1	3.3	90.1	
94	67-68	<0.01	5.2	0.0	92.3	Vertical Fracture
95	68-69	<0.01	5.5	3.6	87.2	Vertical Fracture
96	69-70	<0.01	3.0	0.0	93.3	Vertical Fracture
97	70-71	<0.01	5.8	3.4	89.7	Vertical Fracture
98	71-72	<0.01	6.1	8.2	86.9	Vertical Fracture
99	72-73	0.14	5.4	0.0	96.3	Vertical Fracture
100	73-74	<0.01	3.4	0.0	91.2	Vertical Fracture
101	74-75	<0.01	2.4	20.8	70.9	
102	75-76	0.14	5.9	8.5	84.8	
103	76-77	<0.01	6.5	7.7	84.7	
104	77-78	<0.01	4.8	0.0	91.8	
105	78-79	<0.01	2.8	0.0	89.3	Vertical Fracture
106	79-80	<0.01	6.1	8.2	82.1	
10780	80-81	<0.01	3.8	13.1	81.6	

6853-6881 Low porosity (5.2% average) , low permeability (0.03 md./ft. average) and high ~~max~~ total water saturation (83.9% average) show this interval to be essentially non-productive . The saturation of residual oil is 6.0% average . There is evidence of a vertical fracture system , which could be the reservoir and the means of passage to the well bore for fluids within these fractures . Further testing should be done to evaluate the fracture system .

CORE ANALYSIS RESULTS

Company VAL REESE & ASSOCIATES Formation DAKOTA File RP-3-1108
Well SPERLING # 1 - 30 Core Type DIAMOND CONV. Date Report 11/17/59
Field ESCRITO EXT. - DAKOTA WILDCAT Drilling Fluid WATER BASE MUD Analysts ENGLISH
County RIO ARRIBA State N.MEXICO Elev. 6671 DF Location SEC 30 24N 6W

Lithological Abbreviations

SAND SD, SHALE SH, LIME LM, DOLOMITE DOL, CHERT CH, GYPSUM GYP, ANHYDRITE ANHY, CONGLOMERATE CONG, FOSSIL FEROUS FOSS, SANDY SDY, SHALY SHY, LIMY LMY, FINE FN, MEDIUM MED, COARSE CSE, CRYSTALLINE XLN, GRAIN GRN, GRANULAR GRNL, BROWN BRN, GRAY GY, VUGGY VGY, FRACTURED FRAC, LAMINATION LAM, STYLOLITIC STY, SLIGHTLY S, VERY V, WITH W

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
108	6397-98	0.01	6.9	7.2	87.0	
109	98-99	<0.01	6.7	10.4	65.7	
110	99-6400	0.01	7.0	7.1	80.0	
111	6400-01	0.01	8.1	8.6	65.4	
112	01-02	<0.01	8.4	8.3	59.5	
113	02-03	0.02	9.6	5.2	43.7	
114	03-04	0.01	8.8	8.0	64.7	
115	04-05	<0.01	6.4	7.8	76.5	
116	05-06	<0.01	8.7	8.1	58.6	
117	06-07	0.02	8.0	6.2	61.2	
118	07-08	<0.01	6.3	11.1	74.6	
119	08-09	0.01	5.8	8.6	70.6	
120	09-10	<0.01	6.5	7.7	89.2	
121	10-11	<0.01	7.9	6.3	77.2	
122	11-12	0.01	7.3	6.8	75.3	
123	12-13	<0.01	5.7	8.8	71.8	
124	13-14	0.06	6.7	3.0	83.5	
125	14-15	<0.01	5.7	3.5	82.5	
126	15-16	<0.01	6.5	7.7	81.5	
127	16-17	0.01	5.1	10.8	82.3	
128	17-18	<0.01	5.5	3.6	85.5	
129	6422-23	0.02	12.6	4.0	62.7	
130	23-24	0.02	11.6	1.7	61.3	
131	24-25	0.05	13.5	3.7	60.0	
132	25-26	0.04	12.0	5.8	67.5	
133	26-27	0.02	5.6	25.0	69.8	
134	27-28	0.12	7.7	0.0	45.5	Vertical Fracture
135	28-29	0.15	8.4	0.0	41.7	Vertical Fracture
136	29-30	0.13	9.4	0.0	42,5	Vertical Fracture
137	30-31	0.15	9.1	0.0	42.9	Vertical Fracture
138	31-32	0.22	8.9	0.0	43.8	Vertical Fracture
139	32-33	0.25	9.6	0.0	41.7	Vertical Fracture
140	33-34	0.18	9.3	0.0	45.2	Vertical Fracture
141	34-35	0.15	10.3	0.0	57.2	Vertical Fracture

6397-6401 Low porosity (7.2% average) , low permeability (0.01 md./ft. average) and high total water saturations (74.5% average) show this interval to be essentially non-productive . The saturation of residual oil is 8.3% average .

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering

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CORE ANALYSIS RESULTS

Company	VAL R. REESE & ASSOCIATES	Formation	GALLUP	File	RF-3-156
Well	BOBBY B. # 2-31	Core Type	DIAMOND CONV.	Date Report	12/09/61
Field	ESCRITO GALLUP	Drilling Fluid	OIL EMULSION MUD	Analysts	McCOMAS
County	RIO ARRIBA State NEW MEX.	Elev. 6743 DF	Location SEC 31 T24N R6W		

Lithological Abbreviations

SAND SD, SHALE SH, LIME LM, DOLOMITE DOL, CHERT CH, GYPSUM G, ANHY ANHYDRITE, CONG CONGLOMERATE, SDSTN SANDSTONE, SLTY SILTY, CALC CALCAREOUS, BRN BROWN, GRY GRAY, GRN GREEN, FRAC FRACTURED, LAM LAMINATION, STYLO STYLOLITIC

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PERCENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS	
1	5468-69	0.38	4.2	31.0	54.7		WHOLE CORE
2	69-70	0.25	5.6	21.5	62.5		MAX
3	70-71	0.45	4.1	21.9	61.0		
4	71-72	0.10	7.3	34.3	62.9	VERTICAL FRACTURE	2.5
5	72-73	0.10	7.9	34.6	34.6		
6	73-74	1.7	12.1	36.3	58.3		
7	74-75	2.7	7.0	26.7	30.0		
8	75-76	0.15	8.4	21.4	30.9		
9	76-77	0.58	11.5	33.1	36.4		
10	77-78	0.13	11.1	31.5	37.9		
11	78-79	0.67	9.0	33.4	37.8		
12	79-80	0.8	14.9	32.2	42.7		
13	80-81	1.4	14.0	27.1	38.6		
14	81-82	0.67	9.6	21.8	32.5		
15	82-83	0.62	12.9	27.9	41.6		
16	83-84	0.20	16.3	28.8	45.3		
17	84-85	0.15	13.2	30.3	48.8		
18	85-86	0.07	7.9	15.2	42.0		
19	86-87	0.63	12.8	29.7	50.3		
20	87-88	0.66	13.6	35.8	52.2		
21	88-89	0.8	12.3	35.0	47.9		
22	89-90	0.71	15.0	30.0	48.7		
23	90-91	0.25	16.3	29.4	47.1		
24	91-92	0.30	16.1	32.9	47.4		
25	92-93	0.32	9.4	38.3	58.3		
26	93-94	0.19	12.1	38.1	49.0		
27	94-95	0.74	8.0	26.2	49.0		
28	95-96	0.13	8.0	41.2	41.2		<0.1
29	96-97	0.09	10.0	41.0	25.0		
30	97-98	0.65	9.4	30.9	43.6		
31	98-99	0.41	6.6	19.7	60.7		
32	99-5500	0.38	6.9	16.2	59.2		
33	5500-01	2.5	6.0	9.3	56.4		
34	01-02	0.27	6.3	11.1	65.4		
35	02-03	0.35	6.3	8.0	62.0		
36	03-04	1.0	6.3	11.1	61.4		
37	04-05	0.12	5.7	13.1	73.6		
38	05-06	0.07	4.8	4.2	47.9		
39	5511-12	<0.01	5.6	10.5	60.9		
40	12-13	0.04	6.7	13.4	59.8		

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CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

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CORE ANALYSIS RESULTS

Company	VAL R. REESE & ASSOCIATES	Formation	GALLUP	File	RP-3-156
Well	BOBBY B. # 2-31	Core Type	DIAMOND CONV.	Date Report	12/29/61
Field	ESCRITO GALLUP	Drilling Fluid	OIL EMULSION MUD	Analysis	McCOMAS
County	RIO ARRIBA State NEW MEX.	Elev. 6743 DF	Location SEC 31 T24N R6W		

Lithological Abbreviations

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PERCENT	RESIDUAL SATURATION PORE SPACE OIL	RESIDUAL SATURATION PORE SPACE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
41	5513-14	0.05	5.9	8.5	60.5	
42	14-15	0.06	5.1	8.0	68.6	
43	15-16	0.03	5.9	8.5	68.7	
44	16-17	0.13	6.7	19.4	50.6	
45	17-18	0.10	8.1	27.4	50.6	
46	18-19	1.3	8.2	34.4	44.0	
47	19-20	0.02	7.7	20.7	58.9	

5468-5471 This interval is essentially non-productive.

5471-5498 This interval has good porosity (11.4% average), and Saturations normally associated with oil production: Residual Oil (31.0% average) and Total Water (24.0% average). The Permeability is low, (0.63 md/ft average), showing that successful treatment will be necessary in order to maintain commercial production.

5498-5520 This interval is essentially non-productive.

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CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company VAL REESE & ASSOCIATES, INC. Formation GALLUP File RP-3-1539
Well # 6-23 BLAKELY Core Type DIAMOND CONV. Date Report 10/29/61
Field WILDCAT Drilling Fluid Analysts DEPPE
County RIO ARRIBA State NEW MEX. Elev. 6752 GR Location SEC 23 T24N R7W

Lithological Abbreviations

SAND SD SHALE SH LIME LM
DOLOMITE DOL CHERT CH GYPSUM GYP
ANHYDRITE ANHY CONGLOMERATE CONG FOSSILIFEROUS FOSS
SANDY SDY SHALY SHY TINY TNY
FINE FN MEDIUM MED DARK DSK
CRYSTALLINE XLN GRAIN GRN GRANULAR GRNL
BROWN BRN GRAY GY SUGGY SGY
FRACTURED FRAC LAMINATION LAM STYLOLITIC STY
SLIGHTLY SLY VERY V WITH W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCIES MAX	PERMEABILITY MILLIDARCIES 90°	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
1*	5462-63	16	8.1	4.4	4.3	84.5	VERTICAL FRACTURE
2	63-64	0.10		1.1	54.5	36.4	
3	64-65	0.07		4.0	40.0	50.0	
4	65-66	0.06		6.6	31.8	60.6	VERTICAL FRACTURE
5*	66-67	0.05**		5.8	20.9	56.3	" "
6*	67-68	4.2	1.0	6.0	21.0	42.0	" "
7	68-69	0.10		6.6	37.9	30.3	
8*	69-70	20	10	8.1	24.2	38.4	VERTICAL FRACTURE
9	70-71	0.13		8.0	33.8	26.2	" "
10*	71-72	0.07**		6.8	22.6	41.1	" "
11	72-73	0.05		9.2	23.9	18.5	" "
12	73-74	0.36		8.4	34.5	23.8	" "
13	74-75	0.05		6.8	39.7	25.3	" "
14	75-76	0.09		7.1	38.0	35.2	" "
15*	76-77	0.04**		5.7	22.8	47.7	" "
16	77-78	0.02		4.6	39.1	52.1	" "
17	78-79	0.02		4.3	20.9	76.7	" "
18	79-80	0.01		4.6	15.2	82.7	" "
19	80-81	0.01		5.0	24.0	72.0	" "
20*	81-82	0.03**		4.2	6.0	81.6	" "
21	82-83	0.01		3.0	23.4	73.3	" "
22	83-84	0.07		5.0	32.0	66.0	" "
23	84-85	0.03		5.0	32.0	64.0	" "
24	85-86	0.08		4.8	25.0	60.4	" "
25*	86-87	0.03**		4.2	6.4	80.6	" "
26	87-88	0.02		4.2	38.0	57.1	" "
27*	88-89	258	0.6	4.8	12.4	73.3	" "
28	89-90	0.01		3.7	32.4	64.6	
29	90-91	0.12		4.8	33.1	60.4	
30	91-92	0.02		5.4	29.6	61.2	
31	92-93	0.05		4.5	15.5	82.2	
32	93-94	0.04		6.2	19.3	74.2	
33	94-95	0.01		5.1	13.7	72.9	VERTICAL FRACTURE
34	95-96	0.01		3.7	18.9	78.2	" "
35	96-97	0.01		3.4	20.6	64.6	" "
36*	97-98	0.01**		3.7	0.0	79.6	" "
37	98-99	0.01		3.7	18.9	78.3	" "
38	99-5500	0.01		4.1	17.1	80.4	" "
39	5500-01	0.01		3.5	20.0	77.1	
40	01-02	0.01		3.9	17.9	79.5	

* Denotes samples run by whole core analysis

CORE ANALYSIS RESULTS

Company	VAL REESE & ASSOCIATES, INC.	Formation	GALLUP	File	RP-3-1539
Well	# 8-23 BLANCO	Core Type	DIAMOND CONV.	Date Report	10/29-61
Field	WILDCAT	Drilling Fluid		Analyses	DEPPE
County	RIO ARRIBA State NEW MEX.	Elev.	6752 GR Location	SEC 23 T24N R7W	

Lithological Abbreviations

SAND SD	DOLOMITE DOL	ANHYDRITE ANHY	SHALE SH	SILT SLT	CRYSTALLINE XLN	BROWN BRN	FRACTURE FRAC	SLIGHTLY SL	
SHALE SH	CHERT CH	CONGLOMERATE CONG	SANDY SDY	MED GR MED	OOLITIC OOL	GRAY GY	LAMINATION LAM	VERY V	
LIME LM	GYPSUM GYP	FOSSILIFEROUS FOSS	LIME LMY	COARSE CSE	GRANULAR GRNL	VUGGY VGY	STYLOLITIC STY	WITH W/	

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PERCENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS

** Denotes sampless too badly fractured or shattered to obtain a whole core permeability measurement. A matrix plug was cut, and a conventional horizontal permeability was measured.

5462-5467 This interval is essentially non-productive.

5467-5476 This interval has saturations within the range normally associated with oil productive zones. The low permeability and porosity would limit the recervoirand indicate this zone to be non-commercial. However, there is extensive fracturing through-out the interval, which may enhance the permeability and porosity. Any production would have to come from these fractures. The average characteristics of this zone are; Porosity(7.9% average) , Residual Oil Saturation(29.7% average) , Total Water Saturation (33.7% average) , and Permeability(2.5 md/ft).

5476-5502 This interval is essentially non-productive.

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company VAL REESE & ASSOCIATES, INC. Formation GALLUP File RP-3-1539
Well # 6-23 BLAKELY Core Type DIAMOND CONV. Date Report 10-30-61
Field WILDCAT Drilling Fluid Analysts DEPPE
County RIO ARRIBA State NEW MEX. Elev. 6752 GR Location SEC 23 T24N R7W

Lithological Abbreviations

SAND SD, SHALE SH, LIME LM | DOLOMITE DOL, CHERT CH, GYPSUM GYP | ANHYDRITE ANHY, CONGLOMERATE CONG, FOSSILIFEROUS FOSS | GRAIN, GRY, GRN | LINE IN MEDIUM MED, COARSE CSE | CRYSTALLINE XLN, GRAIN GRN, GRANULAR GRNL | BROWN BRN, GRAY GY, GREY GRY | FRACTURED FRAC, LAMINATION LAM, STYLOLITIC STY | SLIGHTLY SL, VERY V, WITH W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS Max	PERMEABILITY MILLIDARCYS 90°	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
41*	5589-90	<0.1	<0.1	3.8	17.5	78.2	VERTICAL FRACTURE
42	90-91	3.4		8.7	31.0	40.2	
43	91-92	0.11		8.7	40.2	35.6	
44*	92-93	7.4	0.2	7.4	39.6	44.5	VERTICAL FRACTURE
45	93-94	0.38		9.8	31.7	35.7	
46	94-95	0.27		8.4	33.3	42.9	
47	95-96	0.11		8.6	36.1	31.4	
48	96-97	0.16		7.9	26.6	54.5	
49*	97-98	2.1	1.1	8.8	32.3	43.2	
50	98-99	0.63		10.9	28.5	41.2	
51	99-5600	0.64		7.6	38.2	54.0	
52	5600-01	6.2		12.7	29.1	24.6	VERTICAL FRACTURE
53*	01-02	0.3	0.3	9.4	36.1	32.4	" "
54	02-03	0.20		10.3	41.7	26.2	" "
55	03-04	14		12.9	34.9	27.9	" "
56	04-05	0.29		13.1	32.2	32.2	
57	05-06	0.62		12.8	38.2	25.6	
58	06-07	0.54		11.6	32.8	29.2	
59*	07-08	26	6.6	8.0	23.9	57.5	VERTICAL FRACTURE
60	08-09	9.1		7.2	22.2	52.6	" "
61	09-10	0.06		3.8	31.6	65.6	
62	10-11	6.0		10.6	35.8	29.2	
63	11-12	0.22		11.0	34.5	28.2	
64	12-13	0.2	<0.1	9.2	37.6	32.1	VERTICAL FRACTURE
65	13-14	10		13.3	33.8	17.3	
66	14-15	0.17		10.1	30.7	30.7	
67	15-16	0.02		4.0	32.5	62.4	
68	16-17	0.85		9.8	35.7	35.7	VERTICAL FRACTURE
69	17-18	0.27		10.3	34.9	38.8	" "

* Denotes samples run by whole core analysis

5589-5590 This one foot interval is essentially non-productive.

5590-5596 This zone is with-in the limits normally associated with oil productive zones. The low porosity and permeability would limit the production somewhat. The characteristics of this interval are: Porosity(8.6% average), Residual Oil Saturation (35.6% average), Total Water Satubation (38.2% average) and Permeability (2.0md/ft average).

5596-5597 This one foot interval is essentially non-productive.

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company VAL FEESE & ASSOCIATES, INC. Formation GALLUP File RP-3-1539
Well # 6-23 BLAKELY Core Type DIAMOND CONV. Date Report 10-30-61
Field WILDCAT Drilling Fluid Analysts DEPPE
County RIO ARRIBA State NEW MEXICO Elevation 6752 GR Location SEC 23 T24N R7W

Lithological Abbreviations

SAND SD SHALE SH LIME LM	DOLOMITE DOL CHERT CH GYPSUM GYP	ANHYDRITE ANHY CONGLOMERATE CONG FOSSILIFEROUS FOSS	SANDY SDY SHALY SHY LIMY LMY	FINE FN MEDIUM MED COARSE CSE	CRYSTALLINE XLN GRAIN GRN GRANULAR GRNL	BROWN BRN GRAY GY VUGGY VGY	FRACTURED FRAC LAMINATION LAM STYLOLITIC STY	SLIGHTLY SL/ VERY V/ WITH W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS

5597-5599 This two foot interval is capable of producing oil, its characteristics are: Porosity (9.9% average) , Residual Oil Saturation (30.4% average) , Total Water Saturation (42.2% average) and Permeability (1.13 md/ft average).

5599-5600 This one foot interval is essentially non-productive.

5600-5607 This interval is capable of oil production, its characteristics are: Porosity (11.8% average) , Residual Oil Saturation (34.0% average) Total Water Saturation (28.2% average) and Permeability (3.17 md/ft average) .

5607-5610 This interval is essentially non-productive.

5610-5615 This interval is capable of producing oil, its characteristics are: Porosity (10.9% average) , Residual Oil Saturation (34.5% average) , Total Water Saturation (27.0% average) and Permeability (3.2 md/ft average) .

5615-5616 This one foot interval is essentially non-productive.

5616-5618 This interval is capable of producing oil, its characteristics are: Porosity (10.0% average) , Residual Oil Saturation (35.3% average) , Total Water Saturation (37.3% average) and Permeability (0.51 md/ft average.)

All of the above zones mentioned as being capable of oil production will need formation treatment to increase the effective permeability of those zones.

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CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company VAL REESE & ASSOCIATES, INC. Formation GALLUP File RP-3-821
Well FEDERAL #1 - 24 Core Type DIAMOND CONV. Date Report 8/23/58
Field ESCRITO EXTENSION Drilling Fluid OIL EMM. MUD Analysts ENGLISH
County RIO ARRIBA State N. MEX. Elev 6652 GR Location SEC. 24 24N - 7W

Lithological Abbreviations

SAND-SD, SHALE-SH, LIME-LM, DOLOMITE-DOL, CHERT-CH, GYPSUM-GYP, ANHYDRITE-ANHY, CONGLOMERATE-CONG, FOSSILIFEROUS-FOSS, SANDY-SDY, SHALY-SHY, LIMY-LMY, FINE-FN, MEDIUM-MED, COARSE-CSE, CRYSTALLINE-XLN, GRAIN-GRN, GRANULAR-GRNL, BROWN-BRN, GRAY-GY, VUGGY-VGY, FRACTURED-FRAC, LAMINATION-LAM, STYLOLITIC-STY, SLIGHTLY-SL, VERY-V/, WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
1	5439-40	0.55	9.4	17.1	46.8	
2	40-41	0.26	12.5	32.8	26.5	
3	41-42	0.38	17.0	26.5	20.6	
4	42-43	0.43	16.7	25.8	19.8	
5	43-44	0.33	11.0	32.7	27.3	
6	44-45	0.28	14.7	33.3	23.1	
7	45-46	0.43	11.0	33.6	28.2	
8	46-47	0.29	8.7	35.7	47.1	
9	47-48	0.27	12.2	30.3	31.1	
10	48-49	0.57	11.4	41.3	34.3	
11	49-50	0.52	13.1	32.8	29.8	
12	50-51	0.18	13.4	33.6	29.1	
13	51-52	0.42	7.1	16.9	55.0	
14	52-53	0.17	9.5	30.5	47.3	
15	53-54	0.15	10.1	29.7	43.6	
16	54-55	0.16	11.4	33.3	38.7	
17	55-56	0.19	10.4	31.7	39.5	
18	56-57	0.17	11.4	35.9	30.7	
19	57-58	0.15	11.0	28.2	35.5	
20	58-59	0.22	10.7	30.9	42.1	
21	59-60	0.10	7.3	12.4	67.2	
22	60-61	0.13	10.2	37.3	43.2	
23	61-62	0.13	11.3	36.3	31.0	
24	62-63	0.11	9.5	30.6	51.5	
25	63-64	0.15	10.3	32.0	34.0	
26	64-65	0.17	11.3	33.6	39.0	
27	65-66	0.13	8.5	16.5	64.7	
28	66-67	0.12	9.0	28.9	47.8	
29	67-68	0.11	8.3	19.3	54.2	
30	68-69	0.11	10.0	33.0	33.0	
31	69-70	0.12	9.5	38.9	32.6	
32	70-71	0.19	10.4	31.8	35.6	
33	71-72	0.14	9.7	29.9	44.3	
34	72-73	0.22	9.2	32.6	47.8	
35	73-74	0.11	9.1	37.4	39.5	
36	74-75	0.09	8.6	32.6	46.5	
37	75-76	0.08	8.3	25.3	50.6	
38	76-77	0.03	5.1	15.7	68.6	
39	77-78	0.04	3.7	21.6	59.4	
40	78-79	0.03	5.9	15.3	67.8	

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company VAL REESE & ASSOCIATES, INC. Formation GALLUP File RP-3-821
Well FEDERAL #1 - 24 Core Type DIAMOND CONV. Date Report 8/23/58
Field ESCRITO EXTENSION Drilling Fluid OIL EMM. MUD Analysts ENGLISH
County RIO ARRIBA State N.MEXICO Elev. 6652 GR Location SEC. 24 24N - 7W

Lithological Abbreviations

SAND-SD, SHALE-SH, LIME-LM; DOLOMITE-DOL, CHERT-CH, GYPSUM-GYP; ANHYDRITE-ANHY, CONGLOMERATE-CONG, FOSSILIFEROUS-FOSS; SANDY-SDY, SHALY-SHY, LIMY-LMY; FINE-FN, MEDIUM-MED, COARSE-CSE; CRYSTALLINE-XLN, GRAIN-GRN, GRANULAR-GRNL; BROWN-BRN, GRAY-GY, VUGGY-VGY; FRACTURED-FRAC, LAMINATION-LAM, STYLOLITIC-STY; SLIGHTLY-SL, VERY-V/, WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE: OIL	TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
41	5479-80	0.10	5.7	12.3	73.8	
42	80-81	0.13	5.7	12.3	77.3	
43	81-82	0.14	5.9	11.9	71.2	
44	82-83	0.02	6.4	14.1	71.9	
45	83-84	0.02	7.7	22.1	62.3	
46	84-85	0.05	6.5	10.8	69.3	
47	85-86	0.04	6.8	7.4	72.1	
48	86-87	0.04	7.3	12.3	70.0	
49	87-88	0.06	6.9	17.4	59.4	
50	88-89	0.04	6.6	10.6	72.8	
51	89-90	0.04	7.0	10.0	71.4	
52	90-91	0.10	6.7	10.5	67.2	
53	91-92	0.05	6.7	10.5	73.2	
54	92-93	0.03	6.5	10.8	72.3	

5435-5439 Shale, Not analyzed.

5439-5471 The porosity of this interval (10.9% average) is fair and the saturations (residual oil 30.1% average and total water 37.4% average) show the interval to be capable of producing oil. The productive capacity (7.7 md.ft.) is very low and a formation treatment will be necessary to establish commercial rates of production. The average permeability is 0.24 md./ft. and a rapid decline can be expected after treatment.

5471-5493 Very low porosity (6.9% average) and high total water saturations (63.7% average) show this interval to be essentially non-productive. The permeability (0.07 md./ft. average) is very low and the average saturation of residual oil is 17.4%.

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

Upper Gallup Cored

Company	SOUTHERN UNION GAS COMPANY	Formation	GALLUP	Page	1 of [illegible]
Well	ERNEST #1	Core	DIAMOND CORE	File	RP-3-705
Field	WILDCAT	Drilling Fluid	WATER BASE MUD	Date Report	2-3-5[illegible]
County	RIO ARRIBA State N. MEX.	Elevation	6016 GR	Analysts	ENGLISH
Location	SEC. 27 24N - 7W	Remarks	SAMPLED BY CLIENT (SERVICE [illegible])		

CORE ANALYSIS RESULTS

(Figures in parentheses refer to footnote remarks)

Sample Number	Depth Feet	Permeability Millidarcys	Porosity Percent	Residual Saturation: Oil % Pore	Residual Saturation: Total Water % Pore	Probable Production	Remarks
1	5440-41	0.28	7.3	30.2	68.5		
2	41-42	0.17	3.3	21.2	75.6		
3	42-43	0.12	3.4	20.6	73.5		Vertical Fracture
4	43-44	0.07	5.5	29.1	60.0		Vertical Fracture
5	44-45	0.03	6.4	29.6	62.4	↑	Vertical Fracture
6	45-46	3.6	6.8	42.6	48.5		Vertical Fracture
7	46-47	0.06	7.2	40.2	52.8		Vertical Fracture — perf'd
8	47-48	0.11	8.0	40.8	43.3		Vertical Fracture
9	48-49	0.09	6.3	33.3	44.5		Vertical Fracture
10	49-50	0.10	9.2	27.2	35.8		Vertical Fracture
11	50-51	0.05	6.3	44.5	30.8		Vertical Fracture
12	51-52	0.22	10.6	34.0	26.4		Vertical Fracture
13	52-53	2.10	9.9	40.3	24.2		Vertical Fracture
14	53-54	0.12	9.2	37.0	23.9		
15	54-55	0.12	8.5	40.0	28.2		
16	55-56	0.07	8.1	39.6	34.6		
17	56-57	0.04	6.7	45.3	40.3		
18	57-58	0.01	5.1	33.3	51.0		
19	58-59	0.02	7.2	23.6	58.5		
20	59-60	0.08	5.4	16.7	77.6	↓	
21	5460-61	0.02	5.4	15.0	74.0		
22	61-62	0.13	5.7	15.8	73.5		
23	62-63	0.0	7.3	12.3	79.4		
24	63-64	0.38	5.9	15.3	74.5		
25	64-65	0.15	5.1	27.4	56.7		
26	65-66	0.05	4.7	19.3	70.3		
27	66-67	0.02	5.0	32.0	58.0		
28	67-68	0.06	6.0	35.0	55.0		
29	68-69	0.01	6.2	33.9	53.2		
30	69-70	0.05	6.3	28.5	58.6		
31	70-71	0.03	5.7	24.5	54.4		
[illegible]	72-73	0.01	5.7	[illegible]	[illegible]		

96 Holes 5577-5601

Upper Gallup Averages Only

Samples 19	Por	Oil	Water
Totals	109.1	[illegible]	[illegible]
Average	[illegible]	[illegible]	[illegible] (33.1)

Perm .47

CORE LABORATORIES INC
Petroleum Reservoir Engineering
DALLAS TEXAS

Company [illegible] Formation [illegible] Page 2 of 2
Well [illegible] #1 Core [illegible] File [illegible]-708
Field WILDCAT Drilling Fluid WATER BASE MUD Date Report [illegible]
County [illegible] State [illegible] Elevation 6016 GR Analysts [illegible]
Location SEC. 27 - 24N - 7W Remarks SAMPLED BY CLIENT (SERVICE [illegible])

CORE ANALYSIS RESULTS

(Figures in parentheses refer to footnote remarks)

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PERCENT	RESIDUAL SATURATION OIL % VOLUME % PORE	RESIDUAL SATURATION TOTAL WATER % PORE	PROBABLE PRODUCTION	REMARKS
33	72-73	0.75	5.8	31.0	55.0		
34	73-74	0.15	5.6	30.4	58.9		
35	74-75	0.01	6.2	24.2	64.5		
36	75-76	0.02	5.9	22.1	71.2		
37	76-77	0.08	7.1	21.1	64.6		
38	77-78	0.02	4.4	20.5	72.6		
39	78-79	0.04	3.7	24.5	59.5		
40	79-80	0.03	4.8	27.1	62.5		
41	5400-01	0.01	3.7	24.3	62.0		

5440-5449 Low porosity (5.6% average) and the sum of the saturation of residual oil (32.6% average) and the saturation of total water (59.3% average) being equal to 91.9% show the interval to be essentially non-productive. The permeability is 0.49 md./ft. average. Further testing should be done to evaluate the vertical fractures.

5449-5456 This interval has fair porosity (8.6% average) and low permeability (0.39 md./ft. average). The saturations (residual oil 37.5% average and total water 49.1% average) are in the range associated with oil productive Gallup. In view of the low permeability and just fair porosity, a rapid decline in the rate of production can be expected even after a formation treatment.

5456-5401 Low porosity (5.6% average) and high saturations of residual oil (25.4% average) and total water (64.2% average) show this interval to have no commercial value. The permeability is 0.32 md./ft. average.

NOTE
(1) REFER TO ATTACHED LETTER
(2) INCOMPLETE CORE RECOVERY - INTERPRETATION RESERVED
(3) OFF LOCATION ANALYSIS - NO INTERPRETATION [illegible]

CA 59

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company	VAL R. REESE & ASSOCIATES	Formation	GALLUP	File	RP-3-1198
Well	# 3 - 29 CONNIE	Core Type	DIAMOND CONV.	Date Report	6/2/60
Field	WILDCAT	Drilling Fluid	OIL BASE MUD	Analysts	ENGLISH
County	RIO ARRIBA State NEW MEXICO	Elev.	Location	SEC29 T24 N R7W	

Lithological Abbreviations

SAND SD — DOLOMITE DOL — ANHYDRITE ANHY — SANDY SDY — FINE FN — CRYSTALLINE XLN — BROWN BRN — FRACTURED FRAC — SLIGHTLY SL
SHALE SH — CHERT CH — CONGLOMERATIC CONG — GRAY GY — MEDIUM MED — GRAIN GRN — GRAY GY — LAMINATION LAM — VERY V
LIME LM — GYPSUM GYP — FOSSILIFEROUS FOSS — MICACEOUS MICA — COARSE CSE — GRANULAR GRNL — SHALY SHY — STYLOLITIC STY — WITH W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
1	6005-05.5	0.10	12.4	29.1	29.1	
2	05.5-06	0.06	10.8	35.1	21.3	
3	06-06.5	0.18	9.7	27.8	40.2	
4	06.5-07	0.01	7.9	30.3	44.4	
5	07-07.5	0.04	11.5	34.8	30.5	
6	07.5-08	0.03	8.7	34.5	37.9	
7	08-08.5	0.20	12.6	31.7	27.0	
8	08.5-09	0.06	12.2	32.8	24.6	
9	09-09.5	0.05	11.5	42.6	28.6	
10	09.5-10	0.14	13.2	30.3	22.7	
11	10-10.5	0.13	11.8	22.0	12.7	
12	10.5-11	0.19	11.6	25.8	16.4	
13	11-11.5	0.09	12.7	34.7	28.3	
14	11.5-12	0.07	7.7	16.9	10.4	
15	12-12.5	1.1	13.1	24.4	17.6	
16	12.5-13	0.8	10.8	15.7	13.9	
17	13-13.5	0.01	3.9	30.8	15.6	
18	13.5-14.	0.03	12.7	33.9	20.5	
19	14-14.5	0.03	7.5	18.6	52.1	
20	14.5-15	0.02	12.7	28.4	23.6	
21	15-15.5	0.02	10.5	38.1	25.7	
22	15.5-16	0.02	10.1	32.7	30.7	
23	16-16.5	0.03	6.5	18.4	55.4	
24	16.5-17	0.03	3.9	17.9	51.2	
25	17-18	0.03	5.4	22.2	53.8	
26	18-19	0.02	5.9	15.2	63.3	
27	19-20	0.03	6.1	11.5	73.9	
28	6030-31	<0.01	4.6	15.2	65.2	
29	31-32	<0.01	6.0	15.0	70.0	
30	32-33	<0.01	5.5	9.1	76.4	
31	33-34	<0.01	5.9	15.2	71.2	
32	34-35	<0.01	5.1	13.7	80.4	
33	35-36	<0.01	5.8	12.1	70.7	
34	36-37	0.03	5.2	13.5	71.1	
35	37-38	<0.01	5.2	13.5	71.1	
36	38-39	0.03	4.8	14.6	77.2	
37	39-40	<0.01	3.8	13.1	55.3	
38	40-41	<0.01	5.7	15.8	71.9	
39	41-41.5	<0.01	9.4	43.7	35.1	
40	41.5-42	0.01	7.3	39.7	37.0	

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company	VAL R. REESE & ASSOCIATES	Formation	GALLUP	File	RP-3-1198
Well	# 3 - 29 CONNIE	Core Type	DIAMOND CONV.	Date Report	6/2/60
Field	WILDCAT	Drilling Fluid	OIL BASE MUD	Analysts	ENGLISH
County	RIO ARRIBA State N.MEXICO Elev.	Location	SEC29 T24N R7W		

Lithological Abbreviations

SAND SD, SHALE SH, LIME LM — DOLOMITE DOL, CHERT CH, GYPSUM GYP — ANHYDRITE ANHY, CONGLOMERATE CONG, FOSSILIFEROUS FOSS — SANDY SDY, SHALY SHY, LIMY LMY — FINE FN, MEDIUM MED, COARSE CSE — CRYSTALLINE XLN, GRAIN GRN, GRANULAR GRNL — BROWN BRN, GRAY GY, VUGGY VGY — FRACTURED FRAC, LAMINATION LAM, STYLOLITIC STY — SLIGHTLY SL, VERY V/, WITH W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE: OIL	RESIDUAL SATURATION PER CENT PORE: TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
41	6042-42.5	0.01	8.9	37.1	39.4	
42	42.5-43	0.02	8.6	43.1	38.4	
43	43-43.5	<0.01	10.3	38.8	34.0	
44	43.5-44	0.01	9.1	40.7	36.3	
45	44-44.5	0.08	11.1	33.4	26.2	
46	44.5-45	0.06	8.7	27.5	13.8	
47	45-45.5	0.01	3.3	15.1	18.2	
48	45.5-46	0.13	8.7	37.9	23.0	
49	46-46.5	0.06	13.6	30.9	14.0	
50	46.5-47	0.03	6.9	26.1	17.4	
51	47-47.5	0.02	15.3	34.6	17.0	
52	47.5-48	0.01	10.3	51.4	24.2	
53	48-48.5	<0.01	10.9	40.4	28.4	
54	48.5-49	0.01	10.2	37.2	30.4	
55	49-49.5	0.01	8.9	43.8	34.9	
56	49.5-50	0.01	8.5	42.3	42.3	
57	50-50.5	0.02	8.4	41.6	36.9	
58	50.5-51	0.01	6.9	26.1	55.1	
59	51-51.5	0.02	6.9	30.5	52.3	
60	51.5-52	0.01	8.3	36.1	41.0	
61	52-52.5	0.01	7.9	35.5	48.1	
62	52.5-53	0.04	7.3	42.6	50.8	
63	53-53.5	<0.01	8.8	58.0	32.9	
64	53.5-54	0.01	6.3	28.6	58.7	
65	54-54.5	<0.01	6.1	11.5	62.3	
66	54.5-55	0.01	8.4	36.9	41.7	

6005-6016 This interval has fair porosity (10.7% average) and low permeability (0.07 md./ft. average) . The saturations (residual oil 29.6% average and total water 26.1% average) show this interval to be capable of producing oil . A formation treatment to increase permeability will be required .

6016-6041 This interval is essentially non-productive .

6041-6049 This interval has fair porosity (9.5% average) and low permeability (0.03 md./ft. average) . The saturations (residual oil 36.1% average and total water 27.0% average) show the interval to be capable of producing oil . A formation treatment to increase permeability will be required .

6049-6055 This interval is essentially non-productive .

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company	VAL R. REESE & ASSOCIATES	Formation	GALLUP	File	RP-3-1364
Well	BETTY C # 1-31	Core Type	DIAMOND CONV.	Date Report	12/03/61
Field	WILDCAT	Drilling Fluid	OIL EMULSION MUD	Analysts	McCOMAS
County	RIO ARRIBA State NEW MEX.	Elev. 6991 DF	Location	SEC 31 T24N R7W	

Lithological Abbreviations

SAND SD SHALE SH LIME LM	DOLOMITE DOL CHERT CH GYPSUM GYP	ANHYDRITE ANHY CONGLOMERATE CONG FOSSILIFEROUS FOSS	SANDY SDY SHALY SHY CHERTY CHTY	LIME OR MEDIUM MED GRAIN GR	CRYSTALLINE XLN GRAIN GRN GRAIN AR G A	MEDIUM MED GRAY GY LIGHT LT	FRACTURED FRAC LAMINATION LAM SPECK SPK	SLIGHTLY SLI VERY V WITH W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS	MAX	90°
1	5390-91	0.08	4.1	23.0	65.9	VERTICAL FRAC. WHOLE CORE PERM	0.3	0.1
2	91-92	0.08	3.8	18.4	66.9			
3	92-93	0.05	3.4	20.6	79.5			
4	93-94	0.02	4.3	34.9	62.9			
5	94-95	0.30 ←	5.2	26.9	71.2			
6	95-96	0.03	5.2	34.6	63.5			
7	96-97	0.21 ←	4.7	27.6	72.2			
8	97-98	0.11 ←	4.7	27.6	57.5			
9	98-99	0.07	5.7	33.4	65.9			
10	99-5400	0.34 ←	4.9	34.7	61.0			
11	5400-01	0.14 ←	5.8	38.0	50.0			
12	01-02	0.08	5.3	30.2	54.7			
13	02-03	0.10 ←	5.9	35.6	52.5			
14	03-04	0.01	3.9	35.9	46.2			
15	04-05	0.13 ←	4.7	46.8	44.6			
16	5413-14	0.01	6.3	20.6	73.0			
17	14-15	0.12 ←	4.2	16.6	78.6			
18	15-16	0.10	4.7	19.1	74.5			
19	16-17	<0.01	5.0	18.0	76.0			
20	17-18	<0.01	5.4	16.7	81.5			
21	18-19	<0.01	5.7	15.8	77.2			
22	19-20	<0.01	5.0	14.0	70.0			

Sample 5397-5398 was picked for whole core permeability, however; the shale within the rock split, making erroneous readings so they were not recorded.

5390-5420 Low porosity and permeability, with a lack of fractures make this interval essentially non-productive.

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company VAL R. REESE & ASSOCIATES | Formation GALLUP | File RP-3-1564
Well BETTY C # 1-31 | Core Type DIAMOND CONV. | Date Report 12/04/61
Field WILDCAT | Drilling Fluid OIL EMULSION MUD | Analysts McCOMAS
County RIO ARRIBA State NEW MEX. Elev. 6991 DF Location SEC 31 T24N R7W

Lithological Abbreviations

SAND SD — DOLOMITE DOL — ANHYDRITE ANHY — SANDY SD — FINE FN — CRYSTALLINE XLN — BROWN BRN — FRACTURED FRAC — SLIGHTLY SL
SHALE SH — CHERT CH — CONGLOMERATE CONG — SILTY SLT — MEDIUM MED — GRAIN GRN — GRAY GY — LAMINATION LAM — STYLOLITIC STY — VERY V
LIME LM — GYPSUM GYP — FOSSILIFEROUS FOSS — SHALY SHY — COARSE CSE — GRANULAR GRNL — DOLOMITIC DOL — WITH W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION	WHOLE CORE PERMEABILITY
23	5413-14	0.16	2.7	18.5	77.8		<0.1	<0.1
24	14-15	0.42	2.9	17.2	77.5			
25	15-16	0.39	8.7	34.0	36.1			
26	16-17	0.19	11.0	21.6	23.3			
27	17-18	0.26	12.8	30.5	35.8	VERT. FRAC.		
28	18-19	0.18	4.4	20.5	43.2	VERT. FRAC.	<0.1	<0.1
29	19-20	0.71	8.3	25.3	19.3	VERT. FRAC.	<0.1	<0.1
30	20-21	0.09	7.2	16.7	50.0		<0.1	<0.1
31	21-22	0.40	8.8	30.7	30.7			
32	22-23	0.09	7.4	44.4	47.3			
33	23-24	0.36	8.1	19.8	50.5			
34	24-25	0.33	8.3	21.8	53.1			
35	25-26	0.31	5.9	15.2	66.1			
36	26-27	0.10	4.4	0.0	91.0			
37	27-28	0.25	4.7	0.0	87.2			
38	28-29	0.08	4.8	0.0	85.3			
39	29-30	0.09	3.9	0.0	97.5			
40	30-31	0.08	5.6	0.0	7 .5			
41	31-32	0.09	5.5	0.0	85.5			
42	32-33	0.07	6.0	0.0	89.5			
43	33-34	0.06	5.4	9.3	77.7			
44	34-35	0.09	6.1	9.2	73.7			
45	35-36	0.32	6.0	3.3	71.9			
46	36-37	<0.01	4.9	4.1	83.6			
47	37-38	0.09	4.6	4.9	92.6			
48	38-39	0.19	5.7	1.4	77.1			
49	39-40	<0.01	5.2	1.3	84.6			

5413-5415 This interval is essentially non-productive.

5415-5425 This interval has fair porosity (8.7% average), and Saturations within the limits of oil production; Residual Oil (23.4% average) and Total Water (37.5% average). The permeability is low (0.30 md/ft average) showing that while initial production can be made, there will be a rapid decline in the production. The vertical fractures in the zone from 5418 to 5420 may help enhance the permeability.

5425-5440 This interval is essentially non-productive.

CORE ANALYSIS RESULTS

Company	VAL R. REESE & ASSOCIATES	Formation	GALLUP	File	AP-3-1564
Well	BETTY C # 1-31	Core Type	DIAMOND CONV.	Date R.	12/5/61
Field	WILDCAT	Drilling Fluid	OIL EMULSION MUD	Analyses	DEPPE
County	RIO ARRIBA State NEW MEX.	Elev. 6991 DF	Location SEC 31 T24N R7W		

Lithological Abbreviations

SAND SD SHALE SH LIME LM — DOLOMITE DOL CHERT CH GYPSUM GYP — ANHYDRITE ANHY CONGLOMERATE CONG FOSSILIFEROUS FOSS — SANDY SDY SHALY SHY LIMY LMY — FINE FN MEDIUM MED COARSE CSE — MICACEOUS MICA GRAIN GR GRAINED GRN — CALCAREOUS CALC LAMINATION LAM STYLOLITIC STY — SLIGHTLY SLY VERY V WITH W

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
50	5583-84	0.10	6.1	11.5	81.9	
51	84-85	0.31	6.2	8.5	83.9	
52	85-86	0.02	6.1	11.5	78.9	
53	86-87	0.02	3.9	12.8	79.6	
54	87-88	0.01	5.9	11.8	81.2	
55	88-89	0.40	8.2	22.0	53.7	
56	89-90	0.10	8.6	24.4	51.0	
57	90-91	0.02	11.7	22.9	41.6	
58	91-92	0.07	14.1	20.5	26.2	
59	92-93	0.29	13.5	20.7	25.2	
60	93-94	0.06	11.6	23.2	31.0	
61	94-95	0.07	10.9	27.5	37.6	
62	95-96	0.29	10.9	24.7	37.6	
63	96-97	<0.01	9.3	30.1	46.3	
64	97-98	0.06	9.3	25.7	43.4	
65	98-99	0.04	9.6	25.0	49.8	
66	5599-5600	0.02	7.6	18.4	68.5	
67	5600-01	0.07	6.7	17.9	55.2	
68	01-02	0.04	2.9	24.0	43.2	
69	02-03	<0.01	6.1	14.8	73.9	
70	5612-13	0.09	13.9	33.8	20.2	
71	13-14	0.70	10.4	26.0	11.5	
72	14-15	0.02	6.4	43.7	37.6	
73	15-16	<0.01	4.1	17.1	56.0	
74	16-17	0.09	9.0	47.7	32.2	
75	17-18	0.11	6.7	46.2	37.3	
76	18-19	<0.01	8.9	40.5	40.5	
77	19-20	0.03	8.9	40.5	45.0	
78	20-21	<0.01	10.5	36.2	31.4	
79	21-22	0.03	7.4	37.8	48.6	
80	22-23	<0.01	8.5	36.3	42.4	
81	23-24	<0.01	7.6	27.6	55.2	
82	24-25	0.07	9.1	31.8	29.7	
83	25-26	0.01	8.8	34.1	17.1	
84	26-27	0.14	9.8	42.9	25.5	
85	27-28	0.26	9.9	43.4	27.3	
86	28-29	0.03	8.5	36.5	38.8	
87	29-30	<0.01	10.0	38.0	31.0	
88	30-31	0.25	8.4	35.7	38.1	
89	31-32	0.02	6.3	33.4	38.2	

CORE LABORATORIES, INC
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company	VAL R. REESE & ASSOCIATES	Formation	GALLUP	File	RP-3-1564
Well	BETTY C # 1-31	Core Type	DIAMOND CONV.	Date Report	12/5/61
Field	WILDCAT	Drilling Fluid	OIL EMULSION MUD	Analysts	DEPPE
County	RIO ARRIBA State NEW MEX.	Elev. 6991 DF	Location SEC 31 T24N R7W		

Lithological Abbreviations

SAN. SD SHALE SH LIME LM | DOLOMITE DOL CHERT CH GYPSUM GYP | ANHYDRITE ANHY CONGLOMERATE CONG FOSSILIFEROUS FOSS | SANDY SDY SHALY SHY LIMY LMY | FINE FN MEDIUM MED COARSE CSE | CRYSTALLINE XLN GRAIN GRN GRANULAR GRNL | BROWN BRN GRAY GY JUGGLING | FRACTURED FRAC LAMINATION LAM BITUMINOUS BIT | SLIGHTLY SL VERY V WITH W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
90	5632-33	0.01	7.2	38.8	44.4	
91	33-34	0.01	8.0	36.2	43.7	
92	34-35	0.10	7.3	38.4	43.8	
93	35-36	0.01	7.1	38.4	45.3	
94	36-37	0.03	3.9	17.9	64.0	
95	37-38	0.02	6.9	24.7	61.0	
96	38-39	0.01	6.1	29.4	54.4	
97	39-40	<0.01	7.1	31.0	53.5	

5583-5590 This interval is essentially non-productive.

5590-5599 This interval is oil productive, however the low permeability indicates a rapid decline after initial production. The characteristics of this interval are: Porosity (11.1% average), Residual Oil Saturation (24.5% average), Total Water Saturation (37.6% average) and Permeability (0.11 md/ft average).

5599-5603 This interval is essentially non-productive.

5612-5614 This two foot interval is capable of oil production. Due to the low permeability there will be a rapid rate of decline in the production after the initial production is made. The characteristics of this zone are: Porosity (12.1% average), Residual Oil Saturation (29.6% average), Total Water Saturation (35.9% average) and Permeability (0.39 md/ft average).

5614-5624 This interval is essentially non-productive.

5624-5631 This interval is within the limits normally associated with oil production, but due to the low permeability there will be a rapid decline in the production after the initial production is made. The characteristics of this zone are: Porosity (9.2% average), Residual Oil Saturation (37.7% average), Total Water Saturation (35.6% average) and Permeability (0.11 md/ft average).

5631-5640 This interval is essentially non-productive.

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

MESA PETROLEUM COMPANY
S. BLANCO NAVAJO 25-1
LYBROOK-GALLUP
SAN JUAN COUNTY, NEW MEXICO

DATE : 7-14-81
FORMATION : GALLUP
DRLG. FLUID: W.B. GEL
LOCATION : SE SE SEC 25-24N-8W

FILE NO : RI-3-310
ANALYSIS : GG; DS
ELEVATION: 6924 KB

CONVENTIONAL CORE ANALYSIS - BOYLE'S LAW POROSITY

SAMPLE NUMBER	DEPTH	PERM Ka MAXIMUM	POR. He	FLUID SATS. OIL	WTR	GRAIN DEN	DESCRIPTION
1	5370.0-71.0	0.01	2.7	24.3	56.8	2.68	SD-GRY,F GRN,SHL LAM
2	5371.0-72.0	0.34	3.2	25.7	65.7	2.67	SD-GRY F GRN,SHL LAM
3	5372.0-73.0	0.59	3.5	21.9	59.4	2.69	SD-GRY,F GRN, SHL LAM
4	5373.0-74.0	0.01	3.9	23.7	65.8	2.68	SD-GRY,F GRN,SHL LAM
5	5374.0-75.0	0.01	3.9	37.8	48.6	2.67	SD-GRY,F GRN,SHL LAM
6	5375.0-76.0	0.01	5.6	39.6	33.3	2.66	SD-GRY,F GRN,SHL LAM
7	5376.0-77.0	0.02	6.4	47.8	47.8	2.67	SD-GRY,F GRN,SHL LAM
8	5377.0-78.0	0.03	2.6	30.0	63.3	2.66	SD-GRY,F GRN,SHL LAM
9	5378.0-79.0	<0.01	3.1	31.6	60.5	2.67	SD-GRY,F GRN,SHL LAM
10	5379.0-80.0	0.01	3.1	25.0	63.9	2.66	SD-GRY,F GRN,SHL LAM
11	5380.0-81.0	0.07	2.8	20.8	62.5	2.68	SD-GRY,F GRN,SHL LAM
12	5381.0-82.0	0.02	3.5	25.7	60.0	2.67	SD-GRY,F GRN,SHL LAM
13	5382.0-83.0	0.05	3.2	25.7	54.3	2.67	SD-GRY,F GRN,SHL LAM
14	5383.0-84.0	0.01	3.0	27.8	44.4	2.68	SD-GRY,F GRN,SHL LAM
15	5384.0-85.0	0.03	3.2	19.2	65.4	2.66	SD-GRY,F GRN,SHL LAM
16	5385.0-86.0	0.05	3.3	16.7	70.0	2.67	SD-GRY,F GRN,SHL LAM
17	5386.0-87.0	0.18	3.5	35.5	41.9	2.66	SD-GRY,F GRN,SHL LAM
18	5387.0-88.0	<0.01	3.2	37.8	43.2	2.68	SD-GRY,F GRN,SHL LAM
19	5388.0-89.0	<0.01	2.2	25.9	55.6	2.66	SD-GRY,F GRN,SHL LAM
20	5389.0-90.0	0.02	2.2	25.0	60.7	2.67	SD-GRY,F GRN,SHL LAM
21	5390.0-91.0	0.01	3.5	31.6	55.3	2.68	SD-GRY,F GRN,SHL LAM
22	5391.0-92.0	0.01	2.9	24.1	58.6	2.66	SD-GRY,F GRN,SHL LAM
23	5392.0-93.0	<0.01	3.1	24.1	58.6	2.67	SD-GRY,F GRN,SHL LAM
24	5393.0-94.0	0.07	3.1	25.7	60.0	2.66	SD-GRY,F GRN,SHL LAM
25	5394.0-95.0	0.03	2.9	23.3	56.7	2.67	SD-GRY,F GRN,SHL LAM
26	5395.0-96.0	0.08	2.4	29.2	51.2	2.68	SD-GRY,F GRN,SHL LAM
27	5396.0-97.0	0.01	3.1	30.4	50.0	2.66	SD-GRY,F GRN,SHL LAM
28	5397.0-98.0	0.01	3.0	28.1	59.4	2.68	SD-GRY,F GRN,SHL LAM

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

MESA PETROLEUM COMPANY
.. BLANCO NAVAJO 25-1

DATE : 7-14-81
FORMATION : GALLUP

FILE NO : RP-5-310
ANALYSTS : GG; DS

CONVENTIONAL CORE ANALYSIS - BOYLE'S LAW POROSITY

SAMPLE NUMBER	DEPTH	PERM Ka MAXIMUM	POR. He	FLUID OIL	SATS. WTR	GRAIN DEN	DESCRIPTION	
29	5398.0-99.0	0.12	3.8	37.8	48.6	2.65	SD-GRY,F GRN,SHL LAM	
30	5399.0-00.0	0.01	2.3	24.1	48.3	2.68	SD-GRY,F GRN,SHL LAM	
31	5400.0-01.0	<0.01	3.0	20.0	60.0	2.68	SD-GRY,F GRN,SHL LAM	
32	5401.0-02.0	0.09	3.1	25.0	42.9	2.67	SD-GRY,F GRN,SHL LAM	
33	5402.0-03.0	0.04	2.8	20.8	58.3	2.65	SD-GRY,F GRN,SHL LAM	
34	5403.0-04.0	0.04	2.4	16.7	63.3	2.65	SD-GRY,F GRN,SHL LAM	
35	5404.0-05.0	0.39	3.0	24.1	51.7	2.64	SD-GRY,F GRN,SHL LAM	
36	5405.0-06.0	0.01	3.3	23.7	55.3	2.66	SD-GRY,F GRN,SHL LAM	
37	5406.0-07.0	<0.01	3.0	43.2	40.9	2.67	SD-GRY,F GRN,SHL LAM	
38	5407.0-08.0	0.02	3.7	43.2	27.0	2.66	SD-GRY,F GRN,SHL LAM	
39	5408.0-09.0	0.02	5.1	46.7	31.1	2.66	SD-GRY,F GRN,SHL LAM	
40	5409.0-10.0	<0.01	1.3	23.8	28.6	2.66	SD-GRY,F GRN,SHL LAM	
41	5410.0-11.0	<0.01	2.1	25.0	53.6	2.62	SD-GRY,F GRN,SHL LAM	
42	5411.0-12.0	0.85*	1.7	30.8	59.6	2.61	SD-GRY,F GRN,SHL LAM	
43	5412.0-13.0	**	2.2	29.2	60.4	2.59	SD-GRY,VF GRN,V/SHL LAM	
44	5413.0-14.0	**	2.1	24.3	45.9	2.64	SD-GRY,VF GRN,V/SHL LAM	
45	5414.0-15.0	**	(5.9)	25.5	63.6	**	SD-GRY,VF GRN,V/SHL LAM	R
	5415.0-97.0						DRILLED	
46	5497.0-98.0	<0.01	3.1	25.0	53.6	2.71	SD-GRY,F GRN,SHLY	
47	5498.0-99.0	0.01	3.1	20.0	60.0	2.71	SD-GRY,F GRN,SHLY	
48	5499.0-00.0	2.80	5.2	27.3	61.4	2.68	SD-GRY,F GRN,SHLY	
49	5500.0-01.0	0.13	9.2	37.5	22.3	2.61	SD-BRN,F GRN,SHLY	
50	5501.0-02.0	0.11	9.4	36.7	20.8	2.61	SD-BRN,F GRN,SHLY	
51	5502.0-03.0	0.08	9.1	36.8	21.9	2.61	SD-BRN,F GRN,SHLY	
52	5503.0-04.0	0.31	12.0	18.6	16.3	2.61	SD-BRN,F GRN,SHLY	
53	5504.0-05.0	0.11	9.0	35.3	21.0	2.60	SD-BRN,F GRN,SHLY	VF
54	5505.0-06.0	0.03	3.3	33.3	12.1	2.63	SD-LT GRY,F GRN,SL/SHL	VF
55	5506.0-07.0	0.03	3.1	29.8	21.3	2.64	SD-LT GRY,F GRN,SL/SHL	
56	5507.0-08.0	0.12	7.0	35.2	35.2	2.64	SD-LT GRY,F GRN,SHLY	
57	5508.0-09.0	0.09	9.1	32.3	19.5	2.60	SD-BRN,F GRN,SHLY	

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

SA PETROLEUM COMPANY
BLANCO NAVAJO 25-1

DATE : 7-14-81
FORMATION : GALLUP

FILE NO : RP-3-3104
ANALYSTS : GG/ DS

CONVENTIONAL CORE ANALYSIS - BOYLE'S LAW POROSITY

SAMPLE NUMBER	DEPTH	PERM Ka MAXIMUM	POR. He	FLUID SATS. OIL	FLUID SATS. WTR	GRAIN DEN	DESCRIPTION
58	5509.0-10.0	0.08	7.4	27.7	27.7	2.62	SD-BRN,F GRN,SHLY
59	5510.0-11.0	0.12	6.3	25.7	45.9	2.64	SD-BRN,F GRN,SHLY
60	5511.0-12.0	0.14	2.4	17.9	59.0	2.67	SD-DK GRY,F GRN,SHLY
61	5512.0-13.0	0.07	5.8	8.9	57.1	2.67	SD-GRY,F GRN,SHLY
62	5513.0-14.0	0.04	5.6	10.0	48.0	2.65	SD-GRY,F GRN,SHLY
63	5514.0-15.0	0.25	3.2	8.1	48.4	2.67	SD-DK GRY,F GRN,SHLY
64	5515.0-16.0	0.02	2.3	8.3	41.7	2.67	SD-LT GRY,F GRN,SL/SHL
65	5516.0-17.0	0.03	2.9	8.0	32.0	2.65	SD-LT GRY,F GRN,SL/SHL
66	5517.0-18.0	1.70	4.3	9.6	57.7	2.67	SD-DK GRY,F GRN,SHLY
67	5518.0-19.0	0.48	2.7	14.7	61.8	2.65	SD-DK GRY,F GRN,SHLY
68	5519.0-20.0	0.98	3.7	13.5	51.4	2.66	SD-DK GRY,F GRN,SHLY
69	5520.0-21.0	0.01	2.8	12.8	69.2	2.66	SD-DK GRY,F GRN,SHLY
70	5521.0-22.0	0.01	2.9	12.2	61.0	2.67	SD-DK GRY,F GRN,SHLY
71	5522.0-23.0	0.01	3.1	11.9	45.2	2.65	SD-DK GRY,F GRN,SHLY
72	5523.0-24.0	0.04	2.2	24.2	58.6	2.66	SD-DK GRY,F GRN,SHLY
73	5524.0-25.0	0.09	1.8	18.5	63.0	2.66	SD-DK GRY,F GRN,SHLY
74	5525.0-26.0	0.59	2.3	14.3	71.4	2.65	SD-DK GRY,F GRN,SHLY
75	5526.0-27.0	0.03	3.0	12.8	64.1	2.66	SD-DK GRY,F GRN,SHLY
76	5527.0-28.0	0.24	2.8	13.9	75.0	2.66	SD-DK GRY,F GRN,SHLY
77	5528.0-29.0	0.06	2.7	16.1	67.7	2.67	SD-DK GRY,F GRN,SHLY
78	5529.0-30.0	0.30	2.1	8.3	54.2	2.67	SD-DK GRY,F GRN,SHLY
79	5530.0-31.0	0.52	2.2	20.0	65.7	2.65	SD-DK GRY,F GRN,SHLY
80	5531.0-32.0	0.01	3.2	14.3	71.4	2.68	SD-DK GRY,F GRN,SHLY
81	5532.0-33.0	<0.01	3.2	14.3	71.4	2.68	SD-DK GRY,F GRN,SHLY
82	5533.0-34.0	0.06	3.8	13.2	71.1	2.68	SD-DK GRY,F GRN,SHLY
83	5534.0-35.0	<0.01	3.0	13.5	67.6	2.68	SD-DK GRY,F GRN,SHLY
84	5535.0-36.0	0.02	3.6	13.2	71.1	2.68	SD-DK GRY,F GRN,SHLY
85	5536.0-37.0	0.35	2.5	15.9	65.9	2.66	SD-DK GRY,F GRN,SHLY
86	5537.0-38.0	0.11	3.1	14.7	67.6	2.69	SD-DK GRY,F GRN,SHLY
87	5538.0-39.0	0.01	2.9	21.9	59.4	2.68	SD-DK GRY,F GRN,SHLY

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

SA PETROLEUM COMPANY
BLANCO NAVAJO 25-1

DATE : 7-14-81
FORMATION : GALLUP

FILE NO : RP-3 3109
ANALYSTS : GG; DS

CONVENTIONAL CORE ANALYSIS - BOYLE'S LAW POROSITY

SAMPLE NUMBER	DEPTH	PERM Ka MAXIMUM	POR. He	FLUID SATS. OIL	FLUID SATS. WTR	GRAIN DEN	DESCRIPTION
88	5539.0-40.0	0.01	3.2	18.4	71.1	2.67	SD-DK GRY,F GRN,SHLY
89	5540.0-41.0	0.02	4.2	15.2	6.1	2.67	SD-GRY,F GRN,SHLY
90	5541.0-42.0	0.01	4.1	11.4	27.3	2.68	SD-GRY,F GRN,SHLY
91	5542.0-43.0	0.04	4.1	8.5	50.8	2.67	SD-GRY,F GRN,SHLY
92	5543.0-44.0	0.34	4.4	10.9	67.4	2.66	SD-GRY,F GRN,SHLY
93	5544.0-45.0	0.01	3.1	13.5	59.5	2.69	SD-DK GRY,F GRN,SHLY
94	5545.0-46.0	<0.01	3.4	12.5	67.5	2.69	SD-DK GRY,F GRN,SHLY
95	5546.0-47.0	<0.01	3.4	17.1	56.1	2.67	SD-DK GRY,F GRN,SHLY
96	5547.0-48.0	0.03	5.1	38.6	50.9	2.65	SD-DK GRY,F GRN,SHLY
97	5548.0-49.0	0.04	4.6	27.4	52.9	2.66	SD-DK GRY,F GRN,SHLY
98	5549.0-50.0	0.04	7.3	54.2	34.7	2.64	SD-BRN,F GRN,SHLY
99	5550.0-51.0	0.03	6.9	63.2	25.0	2.64	SD-BRN,F GRN,SHLY
100	5551.0-52.0	0.03	7.6	59.0	29.5	2.63	SD-BRN,F GRN,SHLY
101	5552.0-53.0	0.03	6.7	46.7	46.7	2.63	SD-BRN,F GRN,SHLY
102	5553.0-54.0	0.03	6.0	40.0	37.1	2.65	SD-BRN,F GRN,SHLY
103	5554.0-55.0	0.02	5.4	22.2	50.8	2.65	SD-BRN,F GRN,SHLY
104	5555.0-56.0	0.04	4.9	25.0	55.4	2.65	SD-BRN,F GRN,SHLY
105	5556.0-57.0	0.12	3.8	13.2	71.1	2.67	SD-GRY,F GRN,SHLY
106	5557.0-58.0	0.01	4.1	11.6	72.1	2.67	SD-GRY,F GRN,SHLY
107	5558.0-59.0	0.01	3.9	11.4	56.8	2.68	SD-GRY,F GRN,SHLY
108	5559.0-60.0	<0.01	3.2	12.5	62.5	2.67	SD-GRY,F GRN,SHLY
109	5560.0-61.0	0.01	2.9	13.9	75.0	2.67	SD-GRY,F GRN,SHLY
110	5561.0-62.0	0.03	5.2	20.6	41.2	2.67	SD-GRY,F GRN,SHLY
111	5562.0-63.0	0.02	5.2	18.4	53.1	2.67	SD-GRY,F GRN,SHLY
112	5563.0-64.0	0.02	5.6	13.2	60.5	2.66	SD-GRY,F GRN,SHLY
113	5564.0-65.0	0.04	5.4	22.6	48.4	2.67	SD-GRY,F GRN,SHLY
114	5565.0-66.0	0.04	5.8	26.7	47.1	2.65	SD-GRY,F GRN,SHLY
115	5566.0-67.0	0.04	7.7	36.5	34.1	2.65	SD-BRN,F GRN,SHLY
116	5567.0-68.0	0.03	6.4	25.9	53.7	2.66	SD-BRN,F GRN,SHLY
117	5568.0-69.0	0.08	10.6	31.1	22.7	2.65	SD-BRN,F GRN,SHLY

ESA PETROLEUM COMPANY
BLANCO NAVAJO 25-1

DATE : 7-14-81
FORMATION : GALLUP

FILE NO : RP-3-310
ANALYSIS : GGJ RS

CONVENTIONAL CORE ANALYSIS - BOYLE'S LAW POROSITY

SAMPLE NUMBER	DEPTH	PERM Ka MAXIMUM	POR. He	FLUID OIL	SATS. WTR	GRAIN DEN	DESCRIPTION
118	5569.0-70.0	0.13	9.7	33.9	19.7	2.65	SD-BRN,F GRN,SHLY
119	5570.0-71.0	0.07	10.7	31.7	19.2	2.64	SD-BRN,F GRN,SHLY
120	5571.0-72.0	0.06	10.3	35.8	21.7	2.64	SD-BRN,F GRN,SHLY
121	5572.0-73.0	0.21	9.9	37.3	20.9	2.64	SD-BRN,F GRN,SHLY
122	5573.0-74.0	0.04	9.1	47.9	25.6	2.64	SD-BRN,F GRN,SHLY
123	5574.0-75.0	0.04	8.5	36.9	32.1	2.65	SD-BRN,F GRN,SHLY
124	5575.0-76.0	0.03	7.0	22.8	40.5	2.66	SD-GRY,F GRN,SHLY
125	5576.0-77.0	0.03	7.7	27.1	40.0	2.66	SD-GRY,F GRN,SHLY
126	5577.0-78.0	0.03	5.8	23.3	53.3	2.67	SD-GRY,F GRN,SHLY
127	5578.0-79.0	0.02	6.2	26.7	50.0	2.67	SD-GRY,F GRN,SHLY
128	5579.0-80.0	0.04	6.5	24.6	49.1	2.67	SD-GRY,F GRN,SHLY
129	5580.0-81.0	0.02	5.2	24.6	52.6	2.69	SD-GRY,F GRN,SHLY
130	5581.0-82.0	0.02	6.6	22.2	57.4	2.67	SD-GRY,F GRN,SHLY
131	5582.0-83.0	0.03	7.5	27.1	47.5	2.67	SD-GRY,F GRN,SHLY
132	5583.0-84.0	0.02	5.2	21.8	52.7	2.66	SD-GRY,F GRN,SHLY
133	5584.0-85.0	0.03	4.3	18.4	57.1	2.67	SD-GRY,F GRN,SHLY
134	5585.0-86.0	0.23	4.1	11.4	61.4	2.67	SD-GRY,F GRN,SHLY
135	5586.0-87.0	0.03	4.4	11.9	64.3	2.67	SD-GRY,F GRN,SHLY
136	5587.0-88.0	0.22	4.2	11.1	68.9	2.68	SD-GRY,F GRN,SHLY
137	5588.0-89.0	0.01	3.1	12.8	64.1	2.66	SD-GRY,F GRN,SHLY
138	5589.0-90.0	0.03	2.9	15.9	65.9	2.67	SD-GRY,F GRN,SHLY
139	5590.0-91.0	0.03	3.4	17.6	54.9	2.68	SD-GRY,F GRN,SHLY
140	5591.0-92.0	0.05	10.0	41.7	16.5	2.71	SD-BRN,F GRN,SHLY
141	5592.0-93.0	0.06	10.0	32.3	16.5	2.64	SD-BRN,F GRN,SHLY
142	5593.0-94.0	0.03	5.1	45.2	25.8	2.66	SD-BRN,F GRN,SHLY
143	5594.0-95.0	0.05	8.9	42.7	20.4	2.64	SD-BRN,F GRN,SHLY
144	5595.0-96.0	0.04	7.8	29.4	38.9	2.64	SD-BRN,F GRN,SHLY
145	5596.0-97.0	0.04	7.6	32.9	31.6	2.71	SD-GRY,F GRN,SHLY
146	5597.0-98.0	0.03	6.3	29.9	41.8	2.62	SD-GRY,F GRN,SHLY
147	5598.0-99.0	0.03	7.1	32.3	35.5	2.64	SD-GRY,F GRN,SHLY

SA PETROLEUM COMPANY
BLANCO NAVAJO 25-1

DATE : 7-14-81
FORMATION : GALLUP

FILE NO : RI-3-3109
ANALYSTS : GG; HS

CONVENTIONAL CORE ANALYSIS - BOYLE'S LAW POROSITY

MPLE MBER	DEPTH	PERM Ka MAXIMUM	POR. He	FLUID SATS. OIL	WTR	GRAIN DEN	DESCRIPTION
148	5599.0-00.0	0.03	6.6	27.3	36.4	2.64	SD-GRY,F GRN,SHLY
149	5600.0-01.0	0.03	4.9	24.2	40.0	2.66	SD-GRY,F GRN,SHLY
150	5601.0-02.0	0.05	6.3	33.3	40.0	2.65	SD-GRY,F GRN,SHLY
151	5602.0-03.0	0.03	3.7	26.1	54.3	2.67	SD-GRY,F GRN,SHLY
152	5603.0-04.0	0.01	3.1	15.8	55.3	2.68	SD-BRN,F GRN,SHLY
153	5604.0-05.0	0.03	4.8	38.2	40.0	2.67	SD-BRN,F GRN,SHLY
154	5605.0-06.0	0.03	7.2	43.6	26.6	2.65	SD-BRN,F GRN,SHLY
155	5606.0-07.0	0.06	8.2	39.8	25.5	2.64	SD-BRN,F GRN,SHLY
156	5607.0-08.0	0.03	6.5	38.4	38.4	2.65	SD-BRN,F GRN,SHLY
157	5608.0-09.0	0.10	6.6	35.0	23.0	2.63	SD-BRN,F GRN,SHLY
158	5609.0-10.0	0.02	6.2	40.0	35.0	2.65	SD-BRN,F GRN,SHLY
159	5610.0-11.0	0.03	6.7	38.0	30.4	2.64	SD-BRN,F GRN,SHLY
160	5611.0-12.0	14.*	6.6	39.0	33.8	2.65	SD-BRN,F GRN,SHLY
161	5612.0-13.0	0.02	6.0	41.8	35.8	2.65	SD-BRN,F GRN,SHLY
162	5613.0-14.0	0.02	5.8	40.0	32.0	2.65	SD-BRN,F GRN,SHLY
163	5614.0-15.0	0.02	6.4	40.0	34.3	2.66	SD-BRN,F GRN,SHLY
164	5615.0-16.0	0.02	4.6	25.0	55.8	2.66	SD-BRN,F GRN,SHLY

R = RUBBLE

VF= VERTICAL FRACTURE

* = FRACTURE PERMEABILITY

** = SAMPLE NOT SUITABLE FOR ANALYSIS

( ) = SUMMATION OF FLUIDS ANALYSIS

GALLUP FORMATION UNSUITABLE FOR WHOLE CORE ANALYSIS, PLUG ANALYSIS USED.

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

MESA PETROLEUM COMPANY
S. BLANCO FEDERAL 25-5
LYBROOK-GALLUP
SAN JUAN COUNTY, NEW MEXICO

DATE : 8-17-81
FORMATION : GALLUP
DRLG. FLUID: WATER BASE MUD
LOCATION : NW SW SEC 25 T24N-R8W

FILE NO : RP-3-3
ANALYSIS : GG-DS
ELEVATION: 6875 K

CONVENTIONAL ANALYSIS WITH BOYLE'S LAW POROSITY

SAMPLE NUMBER	DEPTH	PERM Ka MAXIMUM	POR. He	FLUID SATS. OIL	WTR	GRAIN DEN	DESCRIPTION
1	5312.0-13.0		1.1	35.7	55.7	2.60	SD GRY FGN SH LAM
2	5313.0-14.0	<0.01	1.7	27.1	59.3	2.59	SD GRY FGN SH LAM
3	5314.0-15.0		5.8	24.1	63.8		SD GRY FGN SH LAM
4	5315.0-16.0		6.0	2.2	90.0	2.69	SD GRY FGN SL/SH
5	5316.0-17.0		1.2	46.4	48.2	2.58	SD GRY FGN V/SH LAM
6	5317.0-18.0		1.5	31.7	55.0	2.60	SD GRY FGN V/SH LAM
7	5318.0-19.0		2.6	34.2	58.9	2.60	SD GRY FGN V/SH LAM
8	5319.0-20.0	17.	1.3	49.2	42.6	2.61	SD GRY FGN V/SH LAM
9	5320.0-21.0		6.6	31.8	53.0		SD GRY FGN V/SH LAM
10	5321.0-22.0	0.25	2.8	38.5	47.7	2.60	SD GRY FGN V/SH LAM
11	5322.0-23.0	<0.01	0.6	45.9	48.6	2.61	SD GRY FGN V/SH LAM
12	5323.0-24.0		1.3	41.3	52.4	2.59	SD GRY FGN V/SH LAM
13	5324.0-25.0		1.9	48.1	50.0	2.61	SD GRY FGN V/SH LAM
14	5325.0-26.0	0.79	1.5	19.0	74.6	2.62	SD GRY FGN V/SH LAM
15	5326.0-27.0		1.7	48.5	42.4	2.57	SD GRY FGN V/SH LAM
16	5327.0-28.0	0.25	2.3	47.2	44.4	2.59	SD GRY FGN V/SH LAM
17	5328.0-29.0	<0.01	3.0	25.9	48.1	2.72	SD GRY FGN SH LAM
18	5329.0-30.0		3.5	35.7	28.6	2.67	SD GRY FGN SH LAM
19	5330.0-31.0	0.01	3.4	41.7	33.3	2.67	SD GRY FGN SH LAM
20	5331.0-32.0	0.01	3.3	38.1	38.1	2.67	SD GRY FGN SH LAM
21	5332.0-33.0	0.34	3.7	45.2	33.3	2.66	SD GRY SH LAM
22	5333.0-34.0	0.30	2.8	42.2	35.6	2.65	SD GRY FGN SH LAM
23	5334.0-35.0	0.06	2.9	32.6	32.6	2.66	SD GRY FGN SH LAM
24	5335.0-36.0	0.05	2.3	27.3	45.5	2.67	SD GRY FGN SH LAM
25	5336.0-37.0		3.4	18.4	44.7	2.67	SD GRY FGN SH LAM
26	5337.0-38.0	1.20	4.4	22.0	51.2	2.67	SD GRY FGN SH LAM
27	5338.0-39.0		4.3	28.6	42.9		SD GRY FGN SH LAM
28	5339.0-40.0		4.5	25.9	50.0	2.66	SD GRY FGN SH LAM

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

MESA PETROLEUM COMPANY
S. BLANCO FEDERAL 25-5

DATE : 9-17-81
FORMATION : GALLUP

FILE NO : RP-3-3
ANALYSIS : GG-DS

CONVENTIONAL ANALYSIS WITH BOYLE'S LAW POROSITY

SAMPLE NUMBER	DEPTH	PERM Ka MAXIMUM	POR. He	FLUID SATS. OIL	WTR	GRAIN DEN	DESCRIPTION
29	5340.0-41.0	0.05	6.1	40.3	29.0	2.66	SD GRY FGN SH LAM
30	5341.0-42.0	0.04	6.0	42.4	18.2	2.66	SD GRY FGN SH LAM
31	5342.0-43.0	0.06	2.5	30.6	12.9	2.70	SD GRY FGN SH LAM
32	5343.0-44.0	0.15	8.0	25.0	11.9	2.67	SD GRY FGN SH LAM
33	5344.0-45.0	0.08	6.9	26.0	16.4	2.67	SD GRY FGN SH LAM
34	5345.0-46.0	0.05	7.2	37.6	21.2	2.66	SD GRY FGN SH LAM
35	5346.0-47.0	0.06	6.9	20.7	6.9	2.66	SD GRY FGN SH LAM
36	5347.0-48.0	0.07	6.9	25.4	31.7	2.66	SD GRY FGN SH LAM
37	5348.0-49.0	0.61	7.2	43.9	17.1	2.67	SD GRY FGN SH LAM
38	5349.0-50.0	0.01	6.8	45.5	39.4	2.67	SD GRY FGN SH LAM
39	5350.0-51.0	<0.01	5.7	59.0	26.2	2.66	SD GRY FGN SH LAM
40	5351.0-52.0	<0.01	1.2	31.0	34.5	2.67	SD GRY FGN SH LAM
41	5352.0-53.0	<0.01	2.2	33.3	26.7	2.67	SD GRY FGN SH LAM
42	5353.0-54.0	0.11	3.3	26.5	55.9	2.68	SD GRY FGN SH LAM
43	5354.0-55.0	0.03	3.0	27.9	58.1	2.67	SD GRY FGN SH LAM
44	5355.0-56.0	0.09	3.3	23.7	50.0	2.68	SD GRY FGN SH LAM
45	5356.0-57.0	<0.01	3.7	30.0	57.5	2.67	SD GRY FGN SH LAM
46	5357.0-58.0	0.01	3.5	25.0	50.0	2.67	SD GRY FGN SH LAM
47	5358.0-59.0	0.01	3.2	23.1	53.8	2.68	SD GRY FGN SH LAM
48	5359.0-60.0	0.01	3.1	33.3	19.0	2.66	SD GRY FGN SH LAM
49	5360.0-61.0	0.25	2.8	25.0	52.8	2.65	SD GRY FGN SH LAM
50	5361.0-62.0	0.04	1.8	25.0	53.6	2.65	SD GRY FGN SH LAM
51	5362.0-63.0	0.01	2.9	30.0	47.5	2.65	SD GRY FGN SH LAM
52	5363.0-64.0	0.01	2.8	22.5	52.5	2.68	SD GRY FGN SH LAM
53	5364.0-65.0	2.80	2.9	29.0	48.4	2.66	SD GRY FGN SH LAM\
54	5365.0-66.0	0.04	2.7	23.1	59.0	2.65	SD GRY FGN SH LAM
55	5366.0-67.0	0.02	2.2	27.3	51.5	2.65	SD GRY FGN SH LAM
56	5367.0-68.0	<0.01	2.7	24.3	62.2	2.65	SD GRY FGN SH LAM
57	5368.0-69.0	0.01	2.7	30.4	54.3	2.65	SD GRY FGN SH LAM
58	5369.0-70.0	0.01	2.2	32.6	53.5	2.65	SD GRY FGN SH LAM

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

MESA PETROLEUM COMPANY
S. BLANCO FEDERAL 25-5

DATE : 8-17-81
FORMATION : GALLUP

FILE NO : RP-3-1
ANALYSIS : GG-DS

CONVENTIONAL ANALYSIS WITH BOYLE'S LAW POROSITY

SAMPLE NUMBER	DEPTH	PERM Ka MAXIMUM	POR. He	FLUID OIL	SATS. WTR	GRAIN DEN	DESCRIPTION
59	5370.0-71.0	0.01	3.2	31.4	56.9	2.69	SD GRY FGN SH LAM
	5371.0-45.0						DRILLED
60	5445.0-46.0	0.01	2.1	76.7	18.6	2.65	SD GRY FGN SH LAM
61	5446.0-47.0		2.5	61.1	35.2	2.66	SD GRY FGN SH LAM
62	5447.0-48.0	<0.01	2.2	70.3	21.6	2.67	SD GRY FGN SH LAM
63	5448.0-49.0	0.87	2.6	60.5	30.2	2.63	SD GRY FGN SH LAM
64	5449.0-50.0		2.9	60.4	31.3	2.62	SD GRY FGN V/SH LAM
65	5450.0-51.0	0.62	2.4	63.5	29.4	2.57	SD GRY FGN V/SH LAM
66	5451.0-52.0	4.00	2.8	35.7	14.3	2.72	SD GRY FGN SH LAM
67	5452.0-53.0		7.5	60.6	30.7		SD GRY FGN V/SH LAM
68	5453.0-54.0	0.75	2.5	61.4	30.0	2.64	SD GRY FGN SH
69	5454.0-55.0	<0.01	3.6	62.5	18.8	2.75	SD GRY FGN SH
70	5455.0-56.0	0.01	3.4	30.8	43.6	2.67	SD GRY FGN SH
71	5456.0-57.0	0.02	4.7	34.5	32.7	2.67	SD GRY FGN SH
72	5457.0-58.0	0.14	7.7	38.1	24.7	2.62	SD GRY FGN SH
73	5458.0-59.0	0.08	7.8	36.2	18.1	2.61	SD GRY FGN SH
74	5459.0-60.0	0.13	10.4	37.1	16.9	2.62	SD GRY FGN SH
75	5460.0-61.0	0.07	3.2	39.5	16.3	2.66	SD WHT SALT & PEPPER FGN
76	5461.0-62.0	0.36	4.6	25.9	7.4	2.66	SD WHT SALT & PEPPER FGN
77	5462.0-63.0	0.07	3.3	25.0	14.0	2.60	SD WHT SALT & PEPPER FGN
78	5463.0-64.0	0.33	9.8	37.2	16.8	2.61	SD BRN FGN SH
79	5464.0-65.0	0.19	9.7	44.4	20.3	2.66	SD GRY FGN SH
80	5465.0-66.0	0.12	2.8	19.4	16.7	2.63	SD WHT SALT & PEPPER FGN
81	5466.0-67.0	0.09	5.8	32.9	28.6	2.63	SD GRY FGN SH
	5467.0-05.0						DRILLED
82	5505.0-06.0	0.03	6.9	51.6	21.1	2.63	SD BRN FGN SH
83	5506.0-07.0	0.03	6.5	45.3	29.3	2.63	SD BRN FGN SH
84	5507.0-08.0	0.04	5.8	28.1	35.1	2.65	SD BRN FGN SH
85	5508.0-09.0	0.12	4.4	19.4	29.0	2.67	SD GRY FGN SH
86	5509.0-10.0	0.03	4.1	11.7	16.7	2.68	SD GRY FGN SH

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

MESA PETROLEUM COMPANY
S. BLANCO FEDERAL 25-5

DATE : 8-17-81
FORMATION : GALLUP

FILE NO : RP-3-3
ANALYSTS : GG-DS

CONVENTIONAL ANALYSIS WITH BOYLE'S LAW POROSITY

SAMPLE NUMBER	DEPTH	PERM Ka MAXIMUM	POR. He	FLUID SATS. OIL	FLUID SATS. WTR	GRAIN DEN	DESCRIPTION
87	5510.0-11.0	0.04	5.5	30.4	50.0	2.68	SD GRY FGN SH
88	5511.0-12.0	0.01	4.1	18.6	34.9	2.67	SD GRY FGN SH
89	5512.0-13.0	0.01	3.3	27.6	51.7	2.68	SD GRY FGN SH
90	5513.0-14.0	0.59	3.0	21.2	39.4	2.60	SD GRY FGN SH
91	5514.0-15.0	0.13	5.4	38.6	43.9	2.66	SD GRY FGN SH
92	5515.0-16.0	0.14	5.7	31.7	36.7	2.66	SD GRY FGN SH
93	5516.0-17.0	0.03	4.8	45.2	26.7	2.66	SD GRY FGN SH
94	5517.0-18.0	0.03	7.1	37.5	35.7	2.66	SD GRY FGN SH
95	5518.0-19.0	0.13	5.9	33.3	29.3	2.65	SD BRN FGN SH
96	5519.0-20.0	0.13	10.8	41.7	11.8	2.62	SD BRN FGN SH
97	5520.0-21.0	0.08	11.0	38.8	14.0	2.63	SD BRN FGN SH
98	5521.0-22.0	0.12	10.7	42.3	11.3	2.63	SD BRN FGN SH
99	5522.0-23.0	0.07	10.4	42.0	16.0	2.63	SD BRN FGN SH
100	5523.0-24.0	0.12	9.9	43.1	14.7	2.63	SD GRY FGN SH
101	5524.0-25.0	0.12	8.6	48.0	19.0	2.63	SD BRN FGN SH
102	5525.0-26.0	0.04	8.8	31.0	40.4	2.67	SD BRN FGN SH
103	5526.0-27.0	0.03	7.1	41.0	30.8	2.65	SD BRN FGN SH
104	5527.0-28.0	0.03	7.6	43.6	12.8	2.65	SD BRN FGN SH
105	5528.0-29.0	0.01	4.4	42.0	28.0	2.68	SD BRN FGN SH
106	5529.0-30.0	0.06	6.3	49.2	29.6	2.67	SD GRY FGN SH
107	5530.0-31.0	0.04	5.4	38.8	32.7	2.67	SD GRY FGN SH
108	5531.0-32.0	0.03	6.8	44.4	27.8	2.66	SD GRY FGN SH
109	5532.0-33.0	<0.01	3.7	45.0	31.4	2.69	SD GRY FGN SH
110	5533.0-34.0	0.03	6.2	16.7	47.6	2.66	SD GRY FGN SH
111	5534.0-35.0	0.19	6.5	41.2	35.3	2.66	SD GRY FGN SH
112	5535.0-36.0	0.08	6.0	40.4	42.1	2.66	SD GRY FGN SH
113	5536.0-37.0	0.04	5.0	36.4	45.5	2.66	SD GRY FGN SH
114	5537.0-38.0	0.05	4.6	32.6	48.8	2.68	SD GRY FGN SH
115	5538.0-39.0	0.06	5.0	29.8	42.6	2.67	SD GRY FGN SH
116	5539.0-40.0	0.03	5.4	27.9	46.5	2.68	SD GRY FGN SH

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

MESA PETROLEUM COMPANY
S. BLANCO FEDERAL 25-5

DATE : 6-17-81
FORMATION : GALLUP

FILE NO : RP-3-
ANALYSIS : GG-DS

CONVENTIONAL ANALYSIS WITH BOYLE'S LAW POROSITY

SAMPLE NUMBER	DEPTH	PERM Ka MAXIMUM	POR. He	FLUID SATS. OIL	WTR	GRAIN DEN	DESCRIPTION
117	5540.0-41.0	<0.01	4.2	32.4	43.2	2.69	SD GRY FGN SH
118	5541.0-42.0	<0.01	3.5	17.9	59.0	2.69	SD GRY FGN SH
119	5542.0-43.0	0.01	4.4	31.1	51.1	2.67	SD GRY FGN SH
120	5543.0-44.0	0.04	8.7	39.8	22.6	2.66	SD BRN FGN SH
121	5544.0-45.0	0.04	8.8	44.8	23.9	2.65	SD BRN FGN SH
122	5545.0-46.0	0.01	2.9	24.1	44.8	2.69	SD GRY FGN SH
123	5546.0-47.0	0.01	3.9	38.9	27.8	2.67	SD GRY FGN SH
124	5547.0-48.0	0.06	10.0	37.4	18.3	2.64	SD GRY FGN SH
125	5548.0-49.0	0.03	8.2	39.0	29.3	2.66	SD GRY FGN SH
126	5549.0-50.0	0.03	7.2	46.5	30.2	2.63	SD GRY FGN SH
127	5550.0-51.0	0.04	8.7	43.2	18.9	2.64	SD GRY FGN SH
128	5551.0-52.0	0.05	7.8	43.8	23.8	2.65	SD GRY FGN SH
129	5552.0-53.0	0.01	5.5	51.8	42.9	2.67	SD GRY FGN SH
130	5553.0-54.0	0.03	8.2	42.0	24.1	2.65	SD GRY FGN SH
131	5554.0-55.0	0.03	6.9	36.8	35.1	2.65	SD GRY FGN SH
132	5555.0-56.0	0.04	8.8	40.0	19.2	2.64	SD GRY FGN SH
133	5556.0-57.0	0.05	9.9	36.1	13.9	2.63	SD GRY FGN SH
134	5557.0-58.0	0.04	9.4	47.8	20.0	2.64	SD GRY FGN SH
135	5558.0-59.0	0.11	9.0	47.9	20.2	2.63	SD GRY FGN SH
136	5559.0-60.0	0.02	7.3	43.8	30.1	2.65	SD GRY FGN SH
137	5560.0-61.0	0.05	8.3	49.3	10.7	2.64	SD GRY FGN SH
138	5561.0-62.0	0.04	8.4	42.3	18.6	2.64	SD GRY FGN SH
139	5562.0-63.0	0.03	7.1	46.6	24.7	2.64	SD GRY FGN SH
140	5563.0-64.0	0.03	6.7	43.8	18.0	2.64	SD GRY FGN SH
141	5564.0-65.0	0.02	6.5	52.8	25.0	2.64	SD GRY FGN SH
142	5565.0-66.0	1.80	6.1	32.1	14.3	2.64	SD GRY FGN SH

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

PRELIMINARY REPORT

MESA PETROLEUM COMPANY	FORMATION : MAYRE SAND	DATE : 12-28-81
SOUTH BLANCO FED. 26-7	DRLG. FLUID: W.B.M. (KCL POLYMER)	FILE NO. : 33-5-3179
LYBROOK-GALLUP	LOCATION : SW,NE SEC.26-24N-8W	ANALYSTS : GOJD
SAN JUAN COUNTY	STATE : NEW MEXICO	ELEVATION: 6873 KB

CONVENTIONAL CORE ANALYSIS--BOYLES LAW HELIUM POROSITY

SAMP. NO.	DEPTH	PERM. TO AIR (MD) HORZ.	PERM. TO AIR (MD) VERTICAL	POR. B.L.	FLUID SATS. OIL	FLUID SATS. WATER	GR. DNS.	DESCRIPTION
	5445-5451							SHALE - NO ANALYSIS
1	5451-52	<0.01		0.8	65.6	28.7	2.55	SHL-BLK,VF GRN SL/SD LAM
2	5452-53	<0.01		0.6	69.6	19.9	2.63	SHL-BLK,VF GRN SL/SD LAM
3	5453-54	<0.01		1.5	63.9	22.8	2.60	SHL-BLK,VF GRN SL/SD LAM
4	5454-55	<0.01		0.9	55.0	23.1	2.59	SHL-BLK,VF GRN SL/SD LAM
5	5455-56	<0.01		0.9	55.9	21.0	2.61	SHL-BLK,VF GRN SL/SD LAM
6	5456-57	<0.01		1.9	55.9	31.9	2.59	SHL-BLK,VF GRN SL/SD LAM
7	5457-58	0.69**		1.3	66.1	23.1	2.56	SHL-BLK,VF GRN SL/SD LAM
8	5458-59	0.08		0.9	31.1	24.9	2.78	SD-GRY,VF GRN,SHL
9	5459-60	<0.01		1.6	71.8	8.5	2.56	SHL-BLK,VF GRN SL/SD LAM
10	5460-61	1.0 **		1.0	64.5	20.4	2.54	SHL-BLK,VF GRN SL/SD LAM
11	5461-62	0.02		1.5	48.5	15.3	2.70	SD-GRY,VF GRN,SHL LAM
12	5462-63	<0.01		1.8	13.2	13.2	2.70	SD-GRY,F GRN,SHL,CARB
13	5463-64	0.63		3.2	31.5	36.4	2.69	SD-GRY,F GRN,SHL,CARB
14	5464-65	2.0 **		3.7	35.9	28.2	2.69	SD-GRY,F GRN,SHL,CARB
15	5465-66	0.21		8.9	38.1	19.1	2.61	SD-BRN,F GRN,SHL,CARB
16	5466-67	0.36		9.9	39.8	22.1	2.60	SD-BRN,F GRN,SHL,CARB
17	5467-68	0.17		9.1	34.9	18.3	2.61	SD-BRN,F GRN,SHL,CARB
18	5468-69	0.07		2.9	27.9	18.6	2.6[illegible]	SD-WHT,F GRN,SHL,CARB
19	5469-70	0.21		7.3	34.1	23.9	2.63	SD-BRN,F GRN,SHL,CARB
20	5470-71	0.34		9.5	39.3	18.8	2.60	SD-BRN,F GRN,SHL,CARB
21	5471-72	0.44		9.7	34.5	22.5	2.60	SD-BRN/WHT,F GRN,SHL,CARB
22	5472-73	0.17		6.2	40.4	17.3	2.64	SD-BRN,F GRN,SHL,CARB
23	5473-74	0.11		6.0	35.2	27.6	2.65	SD-BRN,F GRN,SHL,CARB
24	5474-75	0.06		2.8	28.1	32.1	2.68	SD-DK GRY,VF GRN,SHL

** Fracture permeability.

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

MESA PETROLEUM COMPANY
SOUTH BLANCO FED. 26-7
LYBROOK-GALLUP
SAN JUAN COUNTY

FORMATION : MAYRE SAND
DRLG. FLUID: N.B.M. (KCL POLYMER)
LOCATION : SW,NE SEC.26-24N-8W
STATE : NEW MEXICO

DATE : 12-[illegible]-81
FILE NO. : RP-3-[illegible]179
ANALYSTS : BBID
ELEVATION: 6873 KB

CONVENTIONAL CORE ANALYSIS--BOYLES LAW HELIUM POROSITY

SAMP. NO.	DEPTH	PERM. TO AIR (MD) HORZ.	PERM. TO AIR (MD) VERTICAL	POR. B.L.	FLUID SATS. OIL	FLUID SATS. WATER	GR. DNS.	DESCRIPTION
25	5475-76	0.05		3.7	21.8	43.6	2.69	SD-DK GRY,VF GRN,SHL
26	5476-77	0.39		3.9	24.5	49.1	2.69	SD-DK GRY,VF GRN,SHL
27	5477-78	0.01		3.5	13.8	51.2	2.69	SD-DK GRY,VF GRN,SHL
28	5478-79	0.05		4.2	23.[illegible]	41.3	2.67	SD-DK GRY,VF GRN,SHL
29	5479-80	0.01		3.8	13.3	53.4	2.68	SD-DK GRY,VF GRN,SHL
30	5480-81	0.03		4.3	15.4	43.1	2.67	SD-DK GRY,VF GRN,SHL
31	5481-82	0.07		3.9	13.[illegible]	5[illegible],2	2.67	SD-DK GRY,VF GRN,SHL
32	5482-83	<0.01		3.1	4.5	39.8	2.67	SD-DK GRY,VF GRN,SHL
33	5483-84	1.1 **		2.7	21.7	37.1	2.66	SD-DK GRY,VF GRN,SHL
34	5484-85	0.06		3.6	38.9	11.[illegible]	2.68	SHL-BLK,VF GRN SL/SD
35	5485-86	<0.01		2.0	29.6	33.8	2.6[illegible]	SHL-BLK,VF GRN SL/SD
	5486-5490							SHALE - NO ANALYSIS

** Fracture permeability.

CL-511-1

PRELIMINARY REPORT

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

RECEIVED JUN 0 1 1981

CORE ANALYSIS RESULTS

GRACE PETROLEUM CORP.
ROCKY MOUNTAIN
ENGINEERING DEPT.
MAR 18 1981

Company HENLY OIL AND GAS INC. Formation Gallup
Well N.M. State 36-21 Core Type Dia. Conv. 4" Date Report 6-27-81
Field Lybrook-Gallup Ext. Drilling Fluid W.B. Mud Analysts Getz
County San Juan State N.M. Elev. 6890 GL Location NW,NE Sec. 32-24N-8W

Lithological Abbreviations

SAND-SD SHALE-SH LIME-LM	DOLOMITE-DOL CHERT-CH GYPSUM-GYP	ANHYDRITE-ANHY CONGLOMERATE-CONG FOSSILIFEROUS-FOSS	SANDY-SDY SHALY-SHY LIMY-LMY	FINE-FN MEDIUM-MED COARSE-CSE	CRYSTALLINE-XLN GRAIN-GRN GRANULAR-GRNL	BROWN-BRN GRAY-GY VUGGY-VGY	FRACTURED-FRAC LAMINATION-LAM STYLOLITIC-STY	SLIGHTLY-SL VERY-V/ WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	GRAIN DENSITY	SAMPLE DESCRIPTION AND REMARKS

CONVENTIONAL ANALYSIS WITH BOYLE'S LAW
HELIUM POROSITY AND GRAIN DENSITY

1	5321-22	57 (CRACK)	5.4	40.5	27.0	2.65	SD-BRN,vf grn,shl lam
2	5322-23	0.03	5.1	27.2	18.2	2.65	SD-BRN,vf grn,shl lam
3	5323-24	0.01	4.1	38.0	32.0	2.67	SD-BRN,vf grn,shl lam
4	5324-25	0.01	1.9	23.1	53.8	2.66	SD-GRY,vf grn,shl lam
5	5325-26	*	1.6	20.8	50.0	2.65	SD-GRY,vf grn,shl lam
6	5326-27	0.85	2.0	21.7	26.1	2.67	SD-GRY,vf grn,shl lam
7	5327-28	<0.01	1.5	20.8	58.3	2.68	SD-GRY,vf grn,shl lam
8	5328-29	<0.01	2.0	21.2	63.6	2.66	SD-GRY,vf grn,shl lam
9	5329-30	0.05	1.8	19.2	53.8	2.66	SD-GRY,vf grn,shl lam
10	5330-31	<0.01	2.2	19.4	58.3	2.66	SD-GRY,vf grn,shl lam
11	5331-32	0.04	1.9	23.3	63.3	2.66	SD-GRY,vf grn,shl lam
12	5332-33	0.05	2.5	21.2	63.6	2.66	SD-GRY,vf grn,shl lam
13	5333-34	0.35	3.1	24.3	51.4	2.66	SD-GRY,vf grn,shl lam
14	5334-35	<0.01	2.2	22.7	45.5	2.65	SD-GRY,vf grn,shl lam
15	5335-36	*	2.9	19.4	50.0	2.65	SD-GRY,vf grn,shl lam
16	5336-37	0.01	2.8	32.1	50.0	2.65	SD-GRY,vf grn,shl lam
17	5337-38	0.11	3.2	39.0	48.8	2.66	SD-GRY,vf grn,shl lam
18	5338-39	0.14	2.9	40.0	46.7	2.66	SD-GRY,vf grn,shl lam
19	5339-40	0.02	2.5	39.0	39.0	2.65	SD-GRY,vf grn,shl lam
20	5340-41	0.01	2.4	21.7	65.2	2.67	SD-GRY,vf grn,shl lam
21	5341-42	0.11	2.4	50.0	40.0	2.66	SD-GRY,vf grn,shl lam
22	5342-43	0.01	2.8	17.2	72.4	2.66	SD-GRY,vf grn,shl lam
23	5343-44	0.23	1.8	32.1	60.7	2.67	SD-GRY,vf grn,shl lam
24	5344-45	0.04	2.0	23.3	63.3	2.66	SD-GRY,vf grn,shl lam
25	5345-46	*	2.0	26.4	61.8	2.65	SD-GRY,vf grn,shl lam
26	5346-47	0.99	2.6	22.6	67.7	2.65	SD-GRY,vf grn,shl lam
27	5347-48	*	2.2	21.2	69.7	2.66	SD-GRY,vf grn,shl lam
28	5348-49	0.06	2.4	23.3	56.7	2.66	SD-GRY,vf grn,shl lam
29	5349-50	0.01	2.2	22.6	54.8	2.67	SD-GRY,vf grn,shl lam
30	5350-51	0.35	2.0	24.3	51.4	2.61	SD-GRY,vf grn,shl lam
31	5351-52	0.01	1.8	30.4	43.5	2.69	SD-GRY,vf grn,shl lam
32	5352-53	*	2.9	37.0	53.7	2.58	SD-GRY,vf grn,v/shl lam
33	5353-54	*	1.3	42.6	48.9	2.61	SD-GRY,vf grn,v/shl lam
34	5354-55	0.01	0.9	34.6	46.2	2.64	SD-GRY,vf grn,W/shl lam
35	5355-56	0.04	1.2	42.1	47.4	2.63	SD-GRY,vf grn,W/shl lam
36	5356-57	*	0.7	35.9	59.0	2.60	SD-GRY,vf grn,W/shl lam

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company KENAI OIL AND GAS INC. Formation Gallup File RP-3-3078
Well N.M. State 36-21 Core Type Dia. Conv. Lt Date Report 5-27-81
Field Lybrook-Gallup Ext. Drilling Fluid W.B. Mud Analysts Getz
County San Juan State N.M. Elev. 6690 GL Location NW,NE Sec. 32-24N-8W

Lithological Abbreviations

SAND-SD SHALE-SH LIME-LM | DOLOMITE-DOL CHERT-CH GYPSUM-GYP | ANHYDRITE-ANHY CONGLOMERATE-CONG FOSSILIFEROUS-FOSS | SANDY-SDY SHALY-SHY LIMY-LMY | FINE-FN MEDIUM-MED COARSE-CSE | CRYSTALLINE-XLN GRAIN-GRN GRANULAR-GRNL | BROWN-BRN GRAY-GY VUGGY-VGY | FRACTURED-FRAC LAMINATION-LAM STYLOLITIC-STY | SLIGHTLY-SL/ VERY-V/ WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	GRN. DEN.	SAMPLE DESCRIPTION AND REMARKS
37	5357-58	0.20	0.8	42.9	47.6	2.65	SD-GRY,vf grn,shl lam
38	5358-59	0.02	0.9	39.1	43.5	2.65	SD-GRY,vf grn,shl lam
39	5359-60	*	0.7	44.4	14.8	2.62	SD-GRY,vf grn,shl lam
40	5360-61	0.41	3.9	41.0	41.0	2.61	SD-GRY,vf grn,v/shl lam
41	5361-62	1.3	0.8	48.3	48.3	2.62	SD-GRY,vf grn,v/shl lam
42	5362-63	0.16	0.9	43.5	45.7	2.65	SD-GRY,vf grn,v/shl lam
43	5363-64	0.19	0.8	41.2	55.9	2.62	SD-GRY,vf grn,v/shl lam
44	5364-65	*	1.7	32.4	56.8	2.61	SD-GRY,vf grn,v/shl lam
45	5365-66	*	0.9	38.9	52.8	2.61	SD-GRY,vf grn,v/shl lam
46	5366-67	*	0.6	35.3	58.8	2.60	SD-GRY,vf grn,v/shl lam
47	5367-68	<0.01	0.2	54.5	18.2	2.60	SD-GRY,vf grn,v/shl lam
48	5368-69	*	0.9	38.9	44.4	2.60	SD-GRY,vf grn,v/shl lam
49	5369-70	*	0.8	53.7	37.0	2.60	SD-GRY,vf grn,v/shl lam
50	5370-71	*	2.0	76.9	7.7	2.57	SD-GRY,vf grn,v/shl lam
51	5371-72	<0.01	0.9	36.8	21.1	2.66	SD-GRY,vf grn,shl lam
52	5372-73	0.05	1.3	44.8	27.6	2.63	SD-GRY,vf grn,shl lam
53	5373-74	<0.01	0.6	39.1	47.8	2.64	SD-GRY,vf grn,shl lam
54	5374-75	*	(1.8)	11.1	11.1	*	SD-GRY,vf grn,v/shl lam
55	5375-76	*	(5.0)	44.0	44.0	*	SD-GRY,vf grn,v/shl lam
56	5376-77	*	0.7	52.5	35.0	2.57	SD-GRY,vf grn,v/shl lam
57	5377-78	*	0.8	53.8	35.9	2.59	SD-GRY,vf grn,v/shl lam
58	5378-79	*	(4.1)	17.1	46.3	*	SD-GRY,vf grn,v/shl lam
	5379-5441	-	-	-	-	-	DRILLED
59	5441-42	*	(8.4)	50.0	38.1	*	SD-GRY,vf grn,v/shl
60	5442-43	0.01	3.2	33.3	33.3	2.72	SD-GRY,vf grn,w/shl
61	5443-44	0.28	6.7	31.7	26.0	2.60	SD-GRY,vf grn,w/shl
62	5444-45	0.11	7.2	35.5	24.7	2.61	SD-GRY,vf grn,w/shl
63	5445-46	51	10.5	16.9	12.7	2.63	SD-LT GRY,f grn,sl/shl
64	5446-47	0.19	7.6	32.6	30.3	2.60	SD-LT GRY,f grn,sl/shl
65	5447-48	5.5	11.8	27.5	15.5	2.62	SD-LT GRY,f grn,sl/shl
66	5448-49	4.3	11.6	22.9	13.1	2.62	SD-LT GRY,f grn,sl/shl,
67	5449-50	0.19	5.4	21.8	18.2	2.65	SD-LT GRY,f grn,sl/shl
68	5450-51	0.88	5.6	20.2	8.1	2.64	SD-LT GRY,f grn,sl/shl
69	5451-52	0.14	5.7	32.7	28.7	2.62	SD-GRY,f grn,w/shl,VF
70	5452-53	0.04	3.5	27.3	15.6	2.64	SD-GRY,f grn,sl/shl,VF
71	5453-54	0.28	8.1	31.7	27.9	2.64	SD-GRY,vf grn,w/shl
72	5454-55	0.09	5.2	25.0	40.6	2.65	SD-GRY,vf grn,w/shl
73	5455-56	0.04	2.7	16.7	64.3	2.67	SD-GRY,vf grn,w/shl
74	5456-57	0.01	2.9	13.2	55.3	2.67	SD-GRY,vf grn,w/shl

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company KENAI OIL AND GAS INC. Formation Gallup File RP-3-3078
Well N.M. State 36-21 Core Type Dia. Conv. 4" Date Report 5-27-8?
Field Lybrook-Gallup Ext. Drilling Fluid W.B. Mud Analysts Getz
County San Juan State N.M. Elev. 6890 GL Location NW,NE Sec. 32-24N-8W

Lithological Abbreviations

SAND-SD, SHALE-SH, LIME-LM, DOLOMITE-DOL, CHERT-CH, GYPSUM-GYP, ANHYDRITE-ANHY, CONGLOMERATE-CONG, FOSSILIFEROUS-FOSS, SANDY-SDY, SHALY-SHY, LIMY-LMY, FINE-FN, MEDIUM-MED, COARSE-CSE, CRYSTALLINE-XLN, GRAIN-GRN, GRANULAR-GRNL, BROWN-BRN, GRAY-GY, VUGGY-VGY, FRACTURED-FRAC, LAMINATION-LAM, STYLOLITIC-STY, SLIGHTLY-SL/, VERY-V/, WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	GRN. DEN.	SAMPLE DESCRIPTION AND REMARKS
75	5457-58	<0.01	3.2	11.6	62.8	2.67	SD-GRY,vf grn,w/shl
76	5458-59	0.11	3.2	10.9	58.7	2.66	SD-GRY,vf grn,w/shl
77	5459-60	0.05	5.1	3.8	56.6	2.66	SD-GRY,vf grn,w/shl
78	5460-61	0.04	3.4	11.9	69.0	2.67	SD-GRY,vf grn,w/shl
79	5461-62	0.08	4.7	11.4	65.9	2.65	SD-GRY,vf grn,w/shl
80	5462-63	0.18	3.6	11.4	65.9	2.66	SD-GRY,vf grn,w/shl
81	5463-64	0.01	4.7	3.5	52.6	2.66	SD-GRY,vf grn,w/shl
82	5464-65	0.02	4.9	4.3	65.3	2.66	SD-GRY,vf grn,w/shl
83	5465-66	<0.01	3.2	11.9	61.9	2.67	SD-GRY,vf grn,w/shl
84	5466-67	0.01	3.6	11.9	64.3	2.67	SD-GRY,vf grn,w/shl
85	5467-68	<0.01	2.1	15.2	63.6	2.66	SD-GRY,vf grn,w/shl
86	5468-69	<0.01	2.1	17.1	56.1	2.66	SD-GRY,vf grn,w/shl
87	5469-70	<0.01	3.1	6.5	67.7	2.66	SD-GRY,vf grn,w/shl
88	5470-71	0.02	1.6	14.7	67.6	2.65	SD-GRY,vf grn,v/shl,VF
89	5471-72	1.8	1.2	21.9	65.6	2.64	SD-DK GRY,vf grn,w/shl
90	5472-73	*	3.0	9.6	42.3	2.63	SD-DK GRY,vf grn,w/shl
91	5473-74	0.03	2.0	16.3	46.5	2.64	SD-DK GRY,vf grn,w/shl
92	5474-75	<0.01	1.1	17.5	52.5	2.66	SD-DK GRY,vf grn,w/shl
93	5475-76	<0.01	1.4	20.8	62.5	2.66	SD-DK GRY,vf grn,w/shl
94	5476-77	0.01	2.3	23.3	56.7	2.67	SD-DK GRY,vf grn,w/shl
95	5477-78	*	1.2	31.0	48.3	2.64	SD-DK GRY,vf grn,w/shl
96	5478-79	*	3.3	21.9	65.6	2.67	SD-DK GRY,vf grn,w/shl
97	5479-80	<0.01	3.1	13.9	69.4	2.67	SD-DK GRY,vf grn,w/shl
98	5480-81	<0.01	2.5	20.6	55.9	2.67	SD-DK GRY,vf grn,w/shl
99	5481-82	<0.01	2.9	16.7	50.0	2.66	SD-DK GRY,vf grn,w/shl
100	5482-83	<0.01	2.6	17.5	57.5	2.66	SD-DK GRY,vf grn,w/shl
101	5483-84	<0.01	2.2	18.4	60.5	2.66	SD-DK GRY,vf grn,w/shl
102	5484-85	<0.01	1.9	18.4	60.5	2.65	SD-DK GRY,vf grn,w/shl
103	5485-86	<0.01	2.4	20.0	54.3	2.66	SD-DK GRY,vf grn,w/shl
104	5486-87	<0.01	2.6	19.4	58.3	2.66	SD-DK GRY,vf grn,w/shl
105	5487-88	0.10	4.3	5.5	44.4	2.65	SD-GRY,vf grn,w/shl
106	5488-89	0.03	4.0	10.9	56.5	2.65	SD-GRY,vf grn,w/shl
107	5489-90	0.01	4.2	11.4	54.5	2.65	SD-GRY,vf grn,w/shl
108	5490-91	0.02	3.8	5.6	61.1	2.65	SD-GRY,vf grn,w/shl
109	5491-92	0.01	2.7	11.6	51.2	2.65	SD-GRY,vf grn,w/shl
110	5492-93	<0.01	2.3	20.0	54.3	2.67	SD-DK GRY,vf grn,w/shl

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company KENAI OIL AND GAS INC. Formation Gallup File RP-3-3078
Well N.M. State 36-21 Core Type Dia. Conv. 4" Date Report 5-27-81
Field Lybrook-Gallup Ext. Drilling Fluid W.B. Mud Analysts Getz
County San Juan State N.M. Elev. 6890 GL Location NW,NE Sec.32-24N-8W

Lithological Abbreviations

SAND-SD, SHALE-SH, LIME-LM
DOLOMITE-DOL, CHERT-CH, GYPSUM-GYP
ANHYDRITE-ANHY, CONGLOMERATE-CONG, FOSSILIFEROUS-FOSS
SANDY-SDY, SHALY-SHY, LIMY-LMY
FINE-FN, MEDIUM-MED, COARSE-CSE
CRYSTALLINE-XLN, GRAIN-GRN, GRANULAR-GRNL
BROWN-BRN, GRAY-GY, VUGGY-VGY
FRACTURED-FRAC, LAMINATION-LAM, STYLOLITIC-STY
SLIGHTLY-SL/, VERY-V/, WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	GRN. DEN.	SAMPLE DESCRIPTION AND REMARKS
11	5493-94	0.01	3.4	17.9	48.7	2.67	SD-DK GRY,vf grn,w/shl
12	5494-95	0.03	2.5	13.5	56.8	2.67	SD-DK GRY,vf grn,w/shl
13	5495-96	<0.01	2.3	12.5	52.5	2.65	SD-DK GRY,vf grn,w/shl
14	5496-97	0.02	3.4	10.9	56.6	2.65	SD-DK GRY,vf grn,w/shl
15	5497-98	<0.01	2.4	13.2	57.9	2.66	SD-DK GRY,vf grn,w/shl
16	5498-99	0.06	4.6	36.4	25.0	2.65	SD-BRN,f grn,sl/shl
17	5499-5500	0.02	5.2	47.1	26.5	2.63	SD-BRN,f grn,sl/shl
18	5500-01	0.02	5.3	45.7	28.6	2.63	SD-BRN,f grn,sl/shl
19	5501-01.5	0.02	5.3	57.4	29.4	2.63	SD-BRN,f grn,sl/shl,VF

* SAMPLE NOT SUITABLE FOR ANALYSIS
VF VERTICAL FRACTURE
() B.L. POROSITY NOT SUITABLE, SUMMATION OF FLUIDS POROSITY USED
PIPE DOPE ON CORE #1 (5321-5379)

EXHIBIT 9
HOLDITCH MODEL

PROMAT : Production Data Analysis and History Matching Program

Operator : BCO, INCORPORATED

Well Name: DUNN #10

Location: RIO ARRIBA, NEW MEXICO

Formation: LYBROOK GALLUP/GRANEROS

Reservoir model: SINGLE POROSITY, FINITE AREA
****** Permeability is estimated ******
****** Skin is estimated ******
****** Area is estimated ******

Initial Parameter Estimates

Permeability (md)	.0500
Total porosity (fraction)	.0990
Skin	-5.00
Drainage area (acre)	30.00

Well Data and Reservoir Properties

Net pay (ft)	85.0
Wellbore radius (ft)	.5200
Initial pressure (psia)	1625.0
Flowing BHP (psia)	730.0
Reservoir temperature (deg F)	158.0
Wet gas gravity (Air=1)	.7400
Water saturation (fraction)	.3700
Water compressibility (1/psi)	.3600E-05
Formation compressibility (1/psi)	.4000E-05

Final Estimates used in Match

Permeability (md)	.0181
Total porosity (fraction)	.0990
Skin	-3.61
Drainage area (acre)	22.89

Number of iterations	7
Sum of squared residuals	.33987E+06
Correlation coefficient	.8198
Termination tolerance factor	1.000
Original gas in place (Mscf)	.5982E+06
Fraction original gas produced (%)	29.71

EXHIBIT 9a

INPUT PRODUCTION DATA

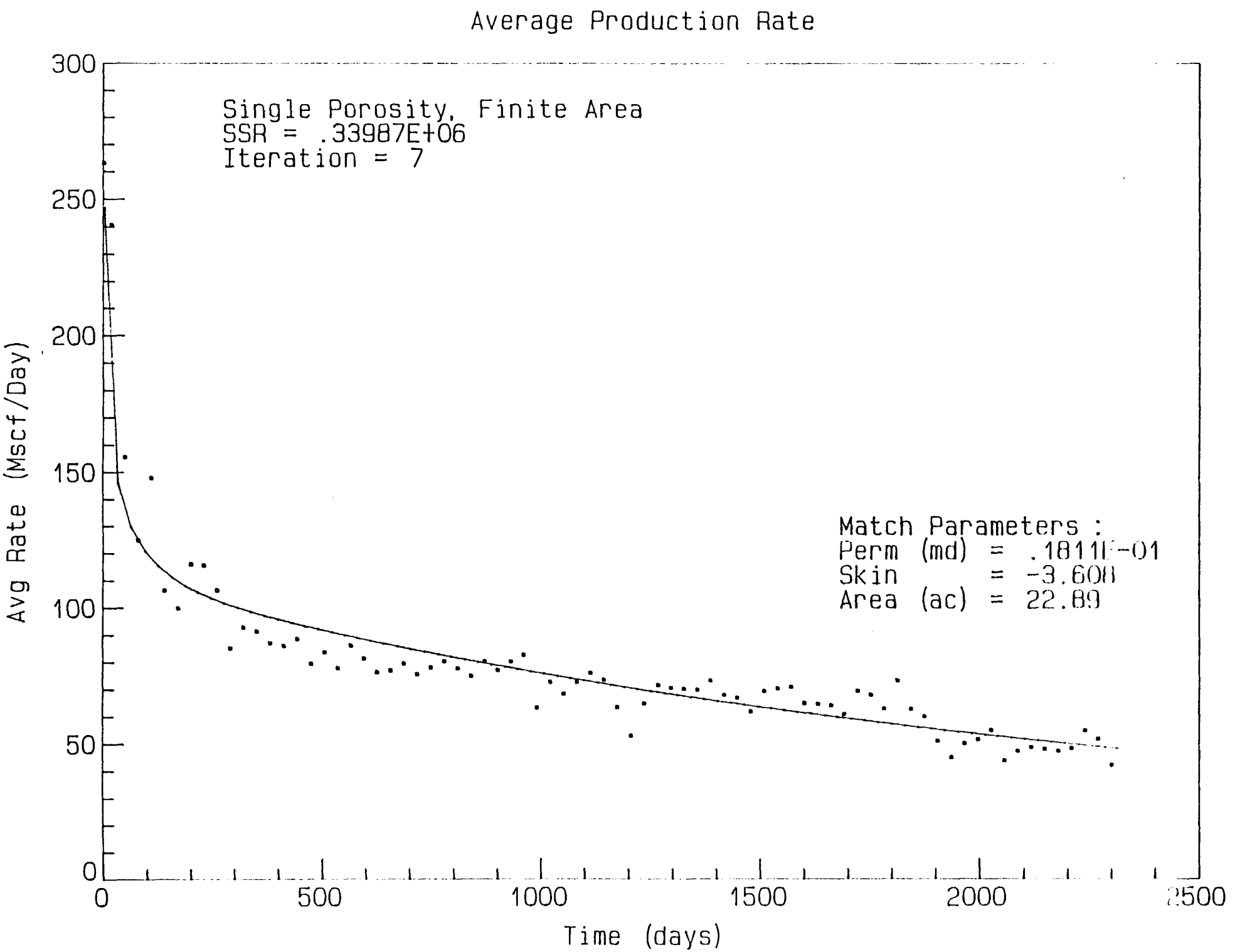
Cumulative Time (Day)	Cumulative Production (Mscf)
4.0000	1053.0
35.000	6314.0
65.000	13185.
96.000	17059.
126.00	21498.
157.00	24800.
188.00	27899.
216.00	31149.
247.00	34731.
277.00	37928.
308.00	40571.
338.00	43356.
369.00	46189.
400.00	48889.
430.00	51470.
461.00	54217.
491.00	56602.
522.00	59199.
553.00	61616.
581.00	64023.
612.00	66552.
642.00	68847.
673.00	71238.
703.00	73627.
734.00	75977.
765.00	78401.
795.00	80814.
826.00	83228.
856.00	85483.
887.00	87978.
918.00	90372.
946.00	92621.
977.00	95186.
1007.0	97090.
1038.0	99347.
1068.0	.10140E+06
1099.0	.10366E+06
1130.0	.10602E+06
1160.0	.10823E+06
1191.0	.11020E+06
1221.0	.11180E+06
1252.0	.11381E+06
1283.0	.11604E+06
1311.0	.11801E+06
1342.0	.12019E+06
1372.0	.12229E+06
1403.0	.12457E+06
1433.0	.12661E+06
1464.0	.12869E+06
1495.0	.13061E+06
1525.0	.13270E+06
1556.0	.13488E+06

1617.0	.13903E+06
1648.0	.14104E+06
1678.0	.14283E+06
1707.0	.14472E+06
1737.0	.14681E+06
1768.0	.14892E+06
1798.0	.15081E+06
1829.0	.15308E+06
1860.0	.15503E+06
1890.0	.15684E+06
1921.0	.15842E+06
1951.0	.15977E+06
1982.0	.16133E+06
2013.0	.16294E+06
2041.0	.16448E+06
2072.0	.16584E+06
2102.0	.16726E+06
2133.0	.16878E+06
2163.0	.17022E+06
2194.0	.17169E+06
2225.0	.17319E+06
2255.0	.17484E+06
2286.0	.17645E+06
2316.0	.17772E+06

ANALYSIS RESULTS

Time (Day)	Calculated Cumulative Production (Mscf)	Observed Cumulative Production (Mscf)	Percent Error (%)	Calculated Average Rate (Mscf/D)
4.0	1529.5	1053.0	45.25	247.10
35.0	6916.8	8514.0	-18.76	146.56
65.0	11074.	13185.	-16.01	129.94
96.0	14970.	17059.	-12.24	121.10
126.0	18523.	21498.	-13.84	115.56
157.0	22041.	24800.	-11.12	111.42
188.0	25445.	27899.	-8.80	108.22
216.0	28441.	31149.	-8.69	105.87
247.0	31687.	34731.	-8.77	103.67
277.0	34767.	37928.	-8.34	101.82
308.0	37894.	40571.	-6.60	100.13
338.0	40872.	43356.	-5.73	98.637
369.0	43904.	46189.	-4.95	97.212
400.0	46894.	48889.	-4.08	95.876
430.0	49748.	51470.	-3.35	94.648
461.0	52659.	54217.	-2.87	93.433
491.0	55442.	56602.	-2.05	92.298
523.0	58282.	59199.	-1.55	91.161
553.0	61087.	61616.	-.86	90.055
581.0	63592.	64028.	-.68	89.079
612.0	66333.	66552.	-.33	88.020
642.0	68956.	68847.	.16	87.015
673.0	71634.	71238.	.56	85.996
703.0	74196.	73627.	.77	85.026
734.0	76814.	75977.	1.10	84.041
765.0	79401.	78401.	1.28	83.071
795.0	81876.	80814.	1.31	82.148
826.0	84405.	83228.	1.41	81.207
856.0	86826.	85483.	1.57	80.310
887.0	89298.	87978.	1.50	79.397
918.0	91743.	90372.	1.52	78.497
946.0	93928.	92621.	1.41	77.695
977.0	96320.	95186.	1.19	76.819
1007.0	98610.	97090.	1.57	75.983
1038.0	.10095E+06	99347.	1.61	75.131
1068.0	.10319E+06	.10140E+06	1.76	74.318
1099.0	.10548E+06	.10366E+06	1.75	73.489
1130.0	.10774E+06	.10602E+06	1.62	72.672
1160.0	.10991E+06	.10823E+06	1.55	71.891
1191.0	.11212E+06	.11020E+06	1.74	71.095
1221.0	.11424E+06	.11180E+06	2.19	70.335
1252.0	.11641E+06	.11381E+06	2.28	69.560
1283.0	.11855E+06	.11604E+06	2.17	68.796
1311.0	.12047E+06	.11801E+06	2.08	68.114
1342.0	.12257E+06	.12019E+06	1.97	67.369
1372.0	.12458E+06	.12229E+06	1.87	66.656
1403.0	.12663E+06	.12457E+06	1.65	65.931
1433.0	.12860E+06	.12661E+06	1.57	65.238
1464.0	.13061E+06	.12869E+06	1.49	64.532
1495.0	.13259E+06	.13061E+06	1.52	63.835
1523.0	.13450E+06	.13270E+06	1.36	63.169

1586.0	.13831E+06	.13701E+06	.95	61.843
1617.0	.14022E+06	.13903E+06	.85	61.182
1648.0	.14210E+06	.14104E+06	.76	60.530
1676.0	.14379E+06	.14293E+06	.67	59.949
1707.0	.14564E+06	.14472E+06	.63	59.313
1737.0	.14740E+06	.14681E+06	.41	58.709
1768.0	.14921E+06	.14892E+06	.20	58.089
1798.0	.15093E+06	.15081E+06	.09	57.496
1829.0	.15272E+06	.15308E+06	-.24	56.891
1860.0	.15447E+06	.15503E+06	-.36	56.293
1890.0	.15615E+06	.15684E+06	-.44	55.722
1921.0	.15787E+06	.15842E+06	-.35	55.138
1951.0	.15952E+06	.15977E+06	-.16	54.581
1982.0	.16120E+06	.16133E+06	-.08	54.011
2013.0	.16287E+06	.16294E+06	-.04	53.448
2041.0	.16435E+06	.16448E+06	-.07	52.946
2072.0	.16599E+06	.16584E+06	.09	52.395
2102.0	.16755E+06	.16726E+06	.17	51.861
2133.0	.16915E+06	.16878E+06	.22	51.326
2163.0	.17068E+06	.17022E+06	.27	50.815
2194.0	.17225E+06	.17169E+06	.33	50.293
2225.0	.17380E+06	.17319E+06	.35	49.778
2255.0	.17529E+06	.17484E+06	.26	49.287
2286.0	.17681E+06	.17645E+06	.21	48.785
2316.0	.17826E+06	.17772E+06	.31	48.306


Average Production Rate
Single Porosity, Finite Area
SSR = .33987E+06
Iteration = 7
Match Parameters :
Perm (md) = .1811E-01
Skin = -3.608
Area (ac) = 22.89
Avg Rate (Mscf/Day)
Time (days)
300
250
200
150
100
50
0
0
500
1000
1500
2000
2500

PROMAT : Production Data Analysis and History Matching Program

Operator : BCO, INCORPORATED

Well Name: DUNN #11

Location: RIO ARRIBA, NEW MEXICO

Formation: LYBROOK GALLUP/GRANEROS

Reservoir model: SINGLE POROSITY, FINITE AREA
****** Permeability is estimated ******
****** Skin is estimated ******
****** Area is estimated ******

Initial Parameter Estimates

Permeability (md)	.0500
Total porosity (fraction)	.0990
Skin	-5.00
Drainage area (acre)	80.00

Well Data and Reservoir Properties

Net pay (ft)	85.0
Wellbore radius (ft)	.5200
Initial pressure (psia)	1625.0
Flowing BHP (psia)	750.0
Reservoir temperature (deg F)	158.0
Wet gas gravity (Air=1)	.7400
Water saturation (fraction)	.3700
Water compressibility (1/psi)	.3600E-05
Formation compressibility (1/psi)	.4000E-05

Final Estimates used in Match

Permeability (md)	.0256
Total porosity (fraction)	.0990
Skin	-4.20
Drainage area (acre)	40.06

Number of iterations	5
Sum of squared residuals	.1115SE+07
Correlation coefficient	.7698
Termination tolerance factor	1.000
Original gas in place (Mscf)	.1047E+07
Fraction original gas produced (%)	27.88

EXHIBIT 9b

INPUT PRODUCTION DATA

Cumulative Time (Day)	Cumulative Production (Mscf)
16.000	6072.0
46.000	17282.
77.000	26577.
107.00	32864.
138.00	37543.
169.00	41936.
197.00	46538.
228.00	51606.
258.00	56131.
289.00	60652.
319.00	65400.
350.00	70236.
381.00	74855.
411.00	79257.
442.00	83953.
472.00	88016.
503.00	92444.
534.00	96664.
562.00	.10079E+06
593.00	.10511E+06
623.00	.10903E+06
654.00	.11312E+06
684.00	.11721E+06
715.00	.12123E+06
746.00	.12537E+06
776.00	.12950E+06
807.00	.13362E+06
837.00	.13746E+06
868.00	.14173E+06
899.00	.14581E+06
927.00	.14964E+06
958.00	.15401E+06
988.00	.15726E+06
1019.0	.16112E+06
1049.0	.16465E+06
1080.0	.16851E+06
1111.0	.17254E+06
1141.0	.17631E+06
1172.0	.17969E+06
1202.0	.18242E+06
1233.0	.18604E+06
1264.0	.18983E+06
1292.0	.19322E+06
1323.0	.19694E+06
1353.0	.20054E+06
1384.0	.20443E+06
1414.0	.20794E+06
1445.0	.21148E+06
1476.0	.21477E+06
1506.0	.21832E+06
1537.0	.22206E+06

1657.0	.23562E+06
1688.0	.23887E+06
1718.0	.24242E+06
1749.0	.24601E+06
1779.0	.24924E+06
1810.0	.25314E+06
1841.0	.25647E+06
1871.0	.25958E+06
1902.0	.26229E+06
1932.0	.26459E+06
1963.0	.26724E+06
1994.0	.26998E+06
2022.0	.27261E+06
2053.0	.27493E+06
2083.0	.27737E+06
2114.0	.27997E+06
2144.0	.28243E+06
2175.0	.28494E+06
2206.0	.28752E+06
2236.0	.28880E+06
2267.0	.29023E+06
2297.0	.29187E+06

ANALYSIS RESULTS

Time (Day)	Calculated Cumulative Production (Mscf)	Observed Cumulative Production (Mscf)	Percent Error (%)	Calculated Average Rate (Mscf/D)
16.0	7172.9	6072.0	18.13	302.65
46.0	14930.	17282.	-13.61	234.29
77.0	21812.	26577.	-17.93	209.72
107.0	27901.	32864.	-15.10	196.25
138.0	33839.	37543.	-9.87	186.84
169.0	39523.	41936.	-5.75	179.90
197.0	44491.	46538.	-4.40	174.96
228.0	49845.	51606.	-3.41	170.48
258.0	54905.	56131.	-2.18	166.84
289.0	60027.	60652.	-1.03	163.60
319.0	64894.	65400.	-.77	160.85
350.0	69840.	70236.	-.56	158.29
381.0	74711.	74855.	-.19	155.96
411.0	79358.	79257.	.13	153.88
442.0	84097.	83953.	.17	151.86
472.0	88625.	88016.	.69	150.01
503.0	93247.	92444.	.87	148.19
534.0	97814.	96664.	1.19	146.44
562.0	.10189E+06	.10079E+06	1.10	144.92
593.0	.10686E+06	.10511E+06	1.19	143.28
623.0	.11063E+06	.10903E+06	1.47	141.73
654.0	.11500E+06	.11312E+06	1.67	140.17
684.0	.11919E+06	.11721E+06	1.69	138.69
715.0	.12346E+06	.12123E+06	1.84	137.20
746.0	.12769E+06	.12537E+06	1.86	135.73
776.0	.13174E+06	.12950E+06	1.73	134.33
807.0	.13589E+06	.13362E+06	1.70	132.92
837.0	.13985E+06	.13746E+06	1.74	131.56
868.0	.14391E+06	.14173E+06	1.54	130.19
899.0	.14793E+06	.14581E+06	1.45	128.83
927.0	.15152E+06	.14964E+06	1.26	127.62
958.0	.15545E+06	.15401E+06	.93	126.30
988.0	.15922E+06	.15726E+06	1.25	125.04
1019.0	.16308E+06	.16112E+06	1.21	123.75
1049.0	.16677E+06	.16465E+06	1.29	122.52
1080.0	.17055E+06	.16851E+06	1.21	121.27
1111.0	.17429E+06	.17254E+06	1.02	120.03
1141.0	.17787E+06	.17631E+06	.89	118.85
1172.0	.18154E+06	.17969E+06	1.03	117.65
1202.0	.18505E+06	.18242E+06	1.45	116.49
1233.0	.18865E+06	.18604E+06	1.40	115.32
1264.0	.19220E+06	.18983E+06	1.25	114.16
1292.0	.19538E+06	.19322E+06	1.12	113.12
1323.0	.19887E+06	.19694E+06	.98	111.99
1353.0	.20222E+06	.20054E+06	.84	110.90
1384.0	.20564E+06	.20443E+06	.59	109.79
1414.0	.20892E+06	.20794E+06	.47	108.74
1445.0	.21227E+06	.21148E+06	.37	107.65
1476.0	.21559E+06	.21477E+06	.38	106.59
1506.0	.21877E+06	.21832E+06	.21	105.57

1629.0	.23151E+06	.23255E+06	-.45	101.50
1657.0	.23434E+06	.23562E+06	-.54	100.61
1688.0	.23744E+06	.23887E+06	-.60	99.622
1718.0	.24041E+06	.24242E+06	-.83	98.680
1749.0	.24346E+06	.24601E+06	-1.04	97.720
1779.0	.24638E+06	.24924E+06	-1.15	96.802
1810.0	.24936E+06	.25314E+06	-1.49	95.863
1841.0	.25233E+06	.25647E+06	-1.62	94.939
1871.0	.25516E+06	.25956E+06	-1.70	94.053
1902.0	.25806E+06	.26229E+06	-1.61	93.148
1932.0	.26064E+06	.26459E+06	-1.42	92.283
1963.0	.26369E+06	.26724E+06	-1.33	91.399
1994.0	.26651E+06	.26998E+06	-1.29	90.526
2022.0	.26903E+06	.27261E+06	-1.31	89.746
2053.0	.27180E+06	.27493E+06	-1.14	88.892
2083.0	.27445E+06	.27737E+06	-1.05	88.076
2114.0	.27717E+06	.27997E+06	-1.00	87.242
2144.0	.27978E+06	.28243E+06	-.94	86.444
2175.0	.28244E+06	.28494E+06	-.88	85.630
2206.0	.28509E+06	.28752E+06	-.85	84.830
2236.0	.28762E+06	.28880E+06	-.41	84.058
2267.0	.29021E+06	.29023E+06	-.01	83.269
2297.0	.29270E+06	.29187E+06	.29	82.514

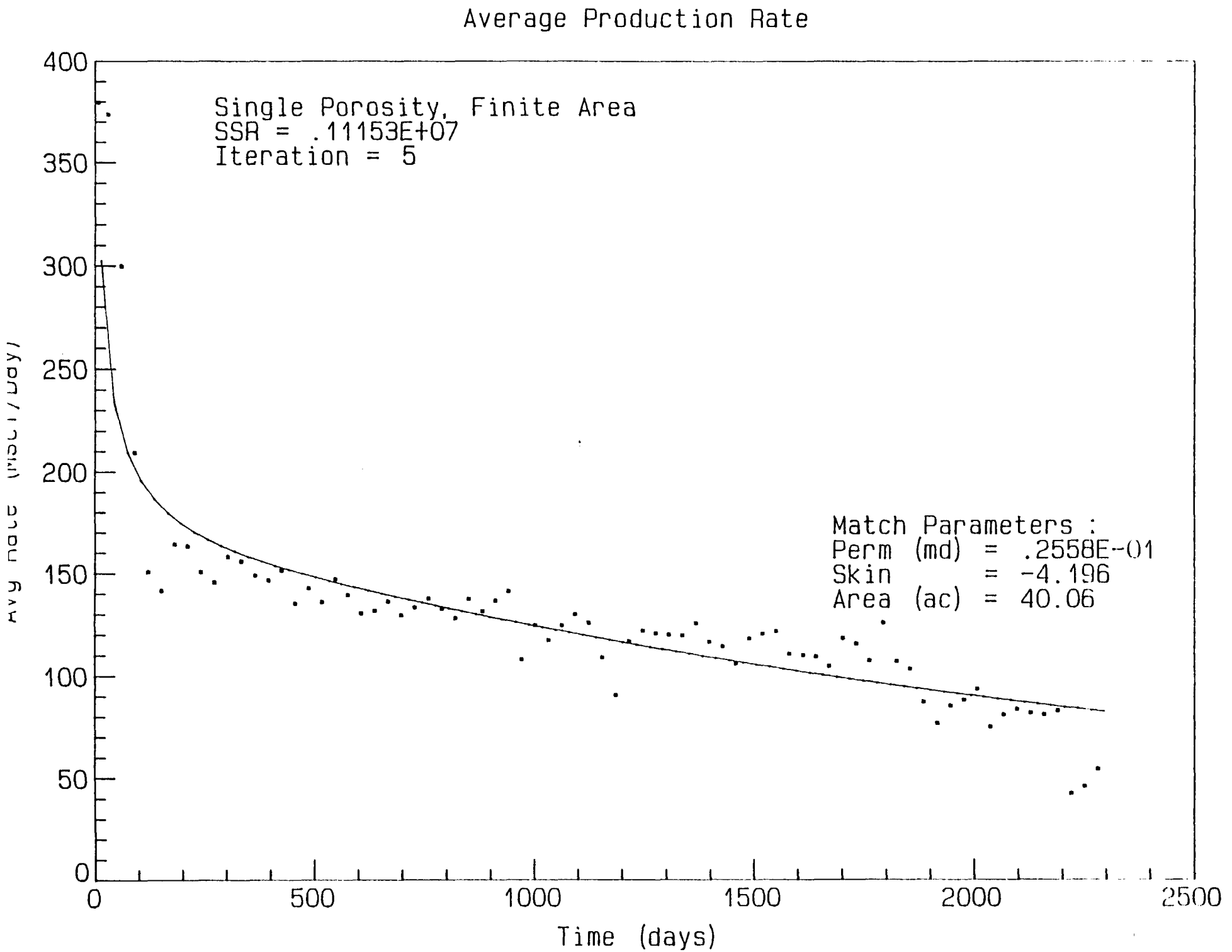

Average Production Rate
Single Porosity, Finite Area
SSR = .11153E+07
Iteration = 5
Match Parameters :
Perm (md) = .2558E-01
Skin = -4.196
Area (ac) = 40.06
Avg Rate (Mscf/day)
Time (days)
0
50
100
150
200
250
300
350
400
0
500
1000
1500
2000
2500

EXHIBIT 10
DARCY PERMEABILITY

PERMEABILITY ESTIMATION FROM CURRENT PRODUCTION DATA
LYBROOK TIGHT FORMATION AREA
Darcy's Law Estimates

LEASE	WELL	SECTION	TOWNSHIP	RANGE	RES PRES PSIA	NET PAY (feet)	FRAC LENGTH (feet)	FRAC SKIN	q gas (MCFD)	PERMEABILITY (millidarcys)
RINCON	5Y	5	23	6	1400	42	800	-7.71	60	0.00233
CELCIUS	1	14	23	6	1400	40	350	-6.88	15	0.00234
STATE 16	2	16	23	6	1400	46	510	-7.26	27	0.00243
QUINELLA	1	31	23	6	1300	30	190	-6.27	59	0.02201
RINCON	13	1	23	7	1400	42	480	-7.20	85	0.00906
BETTY B	2	15	23	7	1400	50	440	-7.11	84	0.00833
FED B	22	22	23	7	1400	32	588	-7.40	9	0.00094
FED B	6	27	23	7	1400	48	225	-6.44	20	0.00362
FED C	2	31	23	7	1400	46	400	-7.01	7	0.00084
RINCON	1	30	24	6	1300	50	440	-7.11	79	0.00910
RINCON	9	31	24	6	1400	30	750	-7.64	200	0.01329
S GULTCH	2	8	24	7	1400	54	190	-6.27	10	0.00178
EGU	23	17	24	7	1300	58	380	-6.96	46	0.00532
EGU	20	18	24	7	1300	46	225	-6.44	42	0.00922
EGU	22	18	24	7	1300	34	560	-7.35	29	0.00359
BETTY C	31-2	31	24	7	1300	15	475	-7.18	44	0.01545
RINCON	15	35	24	7	1400	28	400	-7.01	96	0.01882
STRAWBERR	1	3	24	8	1400	22	550	-7.33	20	0.00338
EGU	21	13	24	8	1300	46	275	-6.64	84	0.01607
SMITH	5	13	24	8	1300	62	525	-7.29	78	0.00581
P. RANCH	1	21	24	8	1400	44	190	-6.27	10	0.00219

AVERAGE DARCY METHOD PERMEABILITY:										0.00743

EXHIBIT 10

EXHIBIT 11

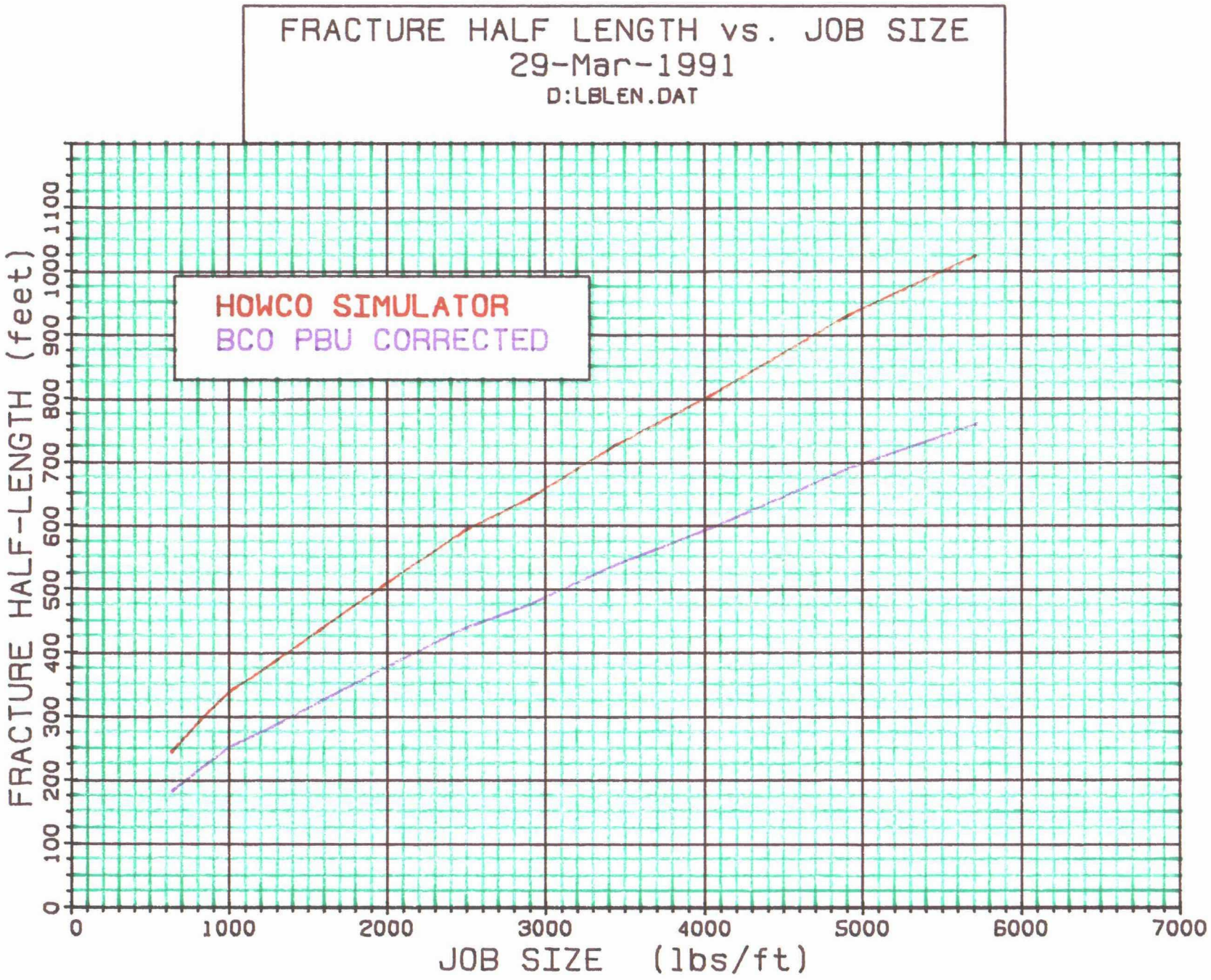
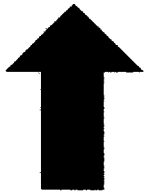

FRACTURE HALF LENGTH vs. JOB SIZE
29-Mar-1991
D:LBLEN.DAT
HOWCO SIMULATOR
BCO PBU CORRECTED
FRACTURE HALF-LENGTH (feet)
0
100
200
300
400
500
600
700
800
900
1000
1100
0
1000
2000
3000
4000
5000
6000
7000
JOB SIZE (lbs/ft)

EXHIBIT 11



LTR

Simplex mode

EXHIBIT 12
PRESSURE BUILD-UP TEST

BUILD-UP ANALYSIS

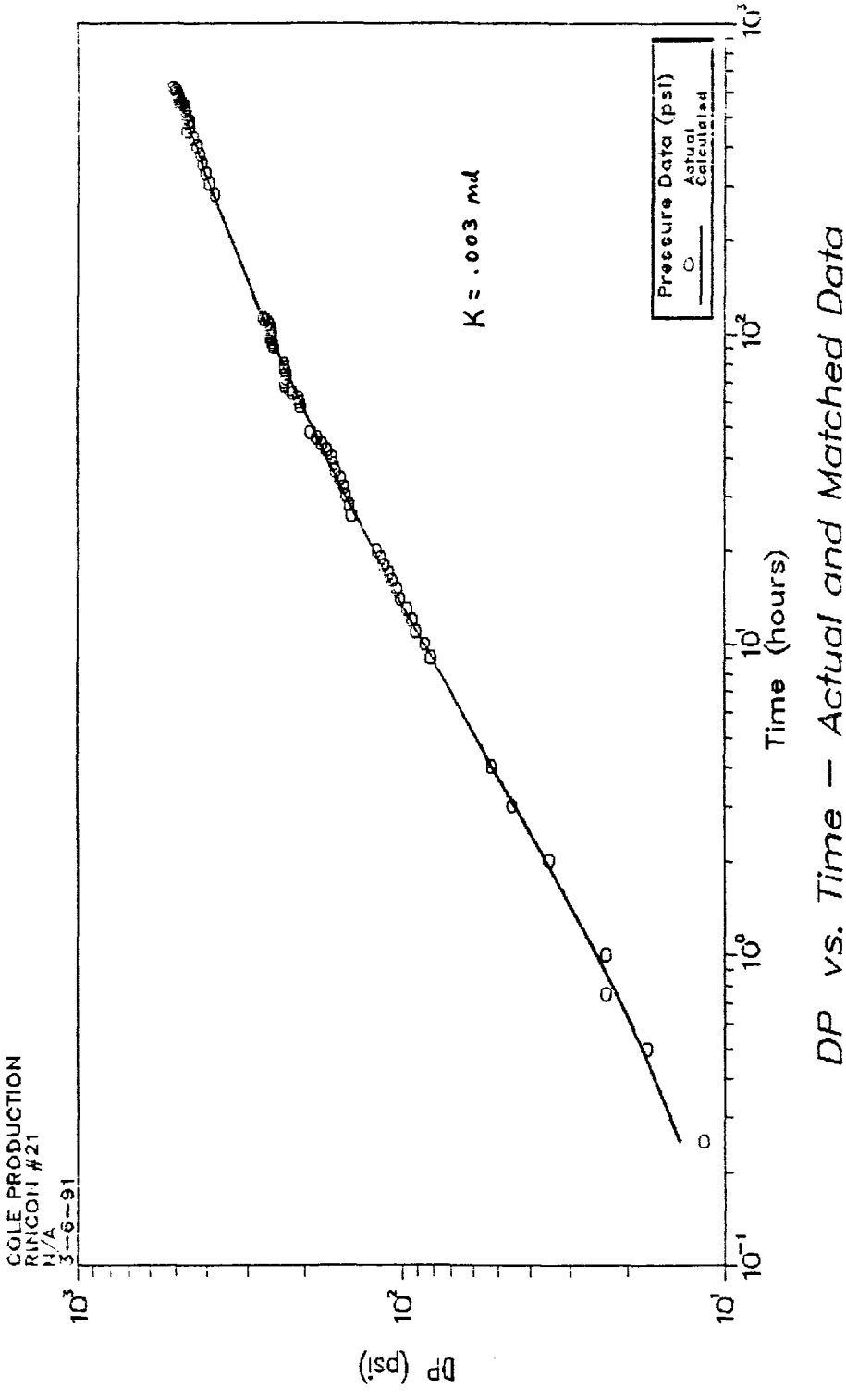
HALLIBURTON SERVICES

FARMINGTON, NEW MEXICO

A Halliburton Company

Customer: COLE PRODUCTION
Well Description: RINCON 21

PRESSURE BUILD-UP
GALLUP PERFS: 5430'-5448'
MARCH 27, 1991



***** INFINITE CONDUCTIVITY FRACTURE TYPE CURVE IS USED *****

CALCULATED VALUES

ESTIMATED PERMEABILITY	3.005	MD

TIME HOURS	ACTUAL DATA PSIA	CALC. DATA PSIA	ERROR %
0.250	129.10	131.28	1.69
0.500	134.90	135.48	0.43
0.750	140.70	139.12	-1.12
1.000	140.70	142.39	1.20
2.000	152.30	153.18	0.58
3.000	162.80	161.92	-0.54
4.000	169.70	169.46	-0.14
9.000	198.70	198.09	-0.31
10.000	202.20	202.74	0.27
11.000	208.00	207.14	-0.41
12.000	210.30	211.33	0.49
13.000	213.90	215.34	0.72
14.000	218.50	219.18	0.31
15.000	220.80	222.88	0.94
16.000	224.30	226.43	0.95
17.000	226.60	229.86	1.44
18.000	231.20	233.18	0.86
19.000	233.60	236.39	1.20
20.000	237.00	239.51	1.06
26.000	260.20	256.50	-1.42
28.000	262.60	261.62	-0.37
30.000	266.10	266.53	0.16
32.000	268.40	271.23	1.06
34.000	271.90	275.76	1.42
36.000	277.70	280.11	0.87
38.000	280.00	284.32	1.54
40.000	282.30	288.39	2.16
42.000	288.10	292.33	1.47
44.000	293.90	296.14	0.76
46.000	300.90	299.85	-0.35
48.000	309.00	303.45	-1.80
58.000	322.90	320.09	-0.87
60.000	324.10	323.18	-0.28
62.000	326.40	326.20	-0.06
64.000	334.50	329.15	-1.60

TIME HOURS	ACTUAL DATA PSIA	CALC. DATA PSIA	ERROR %
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	348.30	[illegible]	-5.91
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	346.10	[illegible]	[illegible]
[illegible]	346.10	[illegible]	[illegible]
76.000	347.30	345.67	-0.47
78.000	348.50	348.24	-0.07
80.000	349.00	350.77	0.51
90.000	365.90	362.77	-0.86
92.000	369.40	365.06	-1.18
94.000	370.50	367.31	-0.86
96.000	371.70	369.52	-0.59
98.000	371.70	371.71	0.00
100.000	371.70	373.86	0.58
102.000	371.70	375.98	1.15
104.000	372.80	378.07	1.41
106.000	374.00	380.13	1.64
108.000	376.30	382.17	1.56
110.000	381.00	384.17	0.83
112.000	384.40	386.16	0.46
282.000	497.00	500.65	0.73
306.000	512.10	511.99	-0.02
330.000	521.40	522.65	0.24
354.000	531.80	532.70	0.17
378.000	538.80	542.22	0.63
402.000	548.10	551.27	0.58
426.000	558.50	559.89	0.25
450.000	581.90	568.12	-2.35
462.000	570.20	572.10	0.33
474.000	576.00	576.00	0.00
486.000	570.20	579.82	1.69
498.000	581.80	583.56	0.30
510.000	581.80	587.23	0.93
522.000	587.60	590.83	0.55
534.000	585.20	594.36	1.56
546.000	605.00	597.82	-1.19
558.000	599.20	601.22	0.34
570.000	610.80	604.57	-1.02
582.000	608.50	607.85	-0.11
594.000	613.10	611.08	-0.33
606.000	616.60	614.25	-0.38
618.000	625.70	617.37	-1.34

4YH

EXHIBIT 13
NATURAL PRODUCTION TESTS

NATURAL PRODUCTION TESTS
BANNON ENERGY INCORPORATED
1990 DRILLING

		BREAKDOWN PROCEDURE				
WELL NAME	PERFORATIONS	15% HCL GALLONS	2%KCL BARRELS	BALLED OFF?	MAX SWAB DEPTH	RESULTS
LYBROOK SOUTH #3	5455'- 5462'	500	85	NO	5400	NO FLOW
LYBROOK SOUTH #4	5502'- 5514'	500	50	YES	5500	NO FLOW
LYBROOK SOUTH #5	5327'- 5538'	1000	95	YES	5300	NO FLOW
LYBROOK SOUTH #6	5312'- 5504'	1000	80	YES	5300	NO FLOW
LYBROOK SOUTH #7	5436'- 5462'	1000	75	YES	5300	NO FLOW
LYBROOK SOUTH #8	5385'- 5464'	0	119	YES	5300	NO FLOW
LYBROOK SOUTH #9	5291'- 5540'	1200	50	YES	5200	NO FLOW
LYBROOK SOUTH #10	5245'- 5501'	500	85	YES	5250	NO FLOW
LYBROOK SOUTH #11	5366'- 5565'	1000	82	YES	5300	NO FLOW
LYBROOK SOUTH #13	5273'- 5481'	1000	125	YES	5200	NO FLOW
LYBROOK SOUTH #14	5315'- 5521'	1000	80	YES	5275	NO FLOW

EXHIBIT 13

EXHIBIT 14

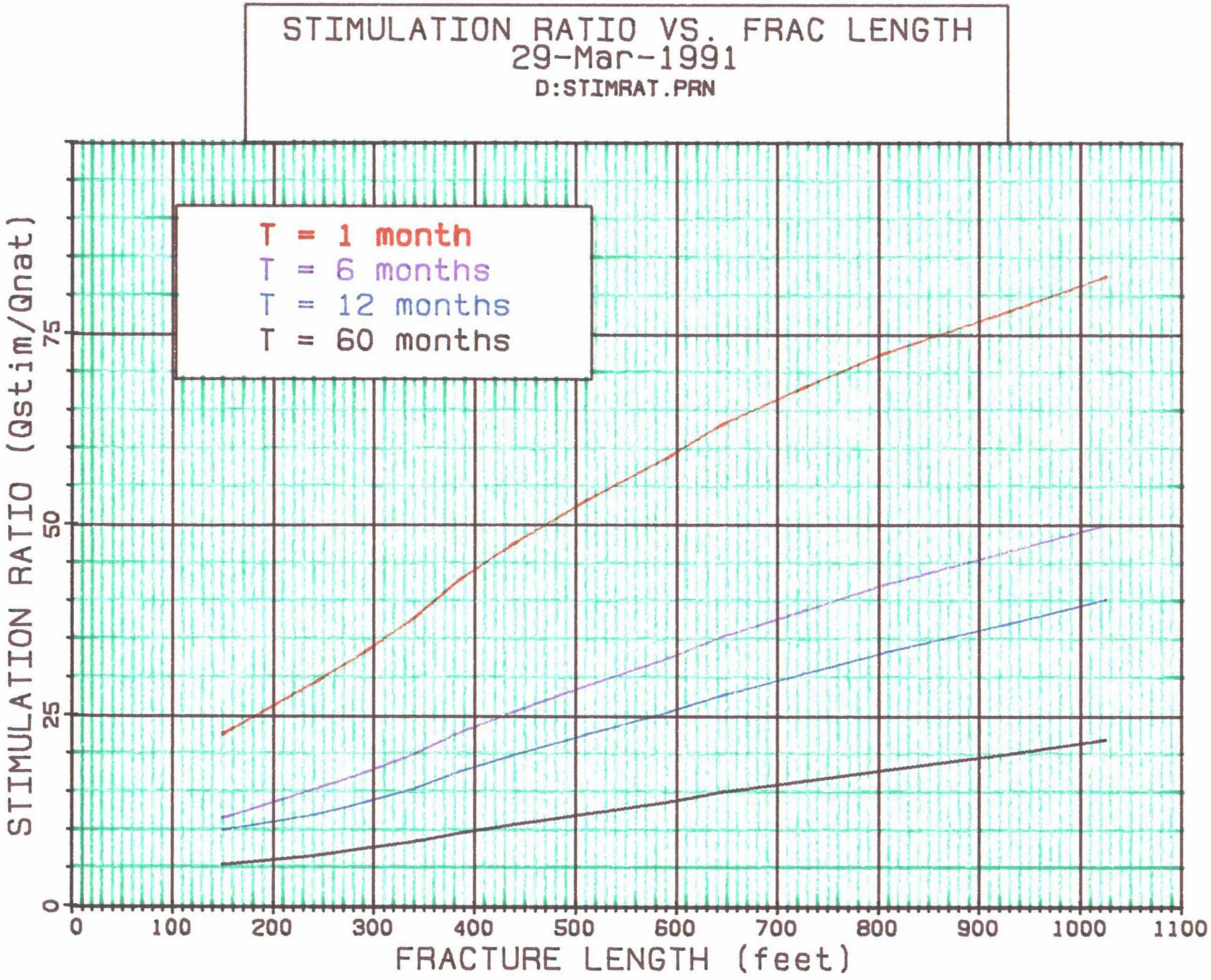
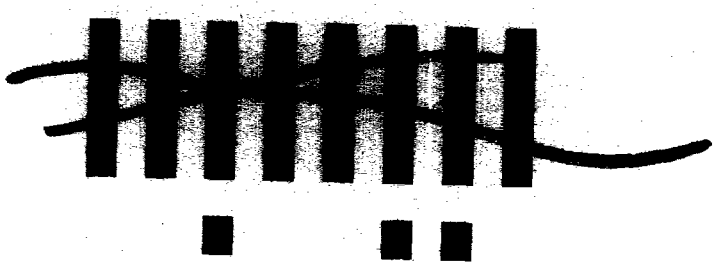
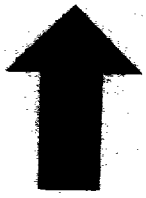

STIMULATION RATIO VS. FRAC LENGTH
29-Mar-1991
D:STIMRAT.PRN
T = 1 month
T = 6 months
T = 12 months
T = 60 months
STIMULATION RATIO (Qstim/Qnat)
0
25
50
75
0
100
200
300
400
500
600
700
800
900
1000
1100
FRACTURE LENGTH (feet)

EXHIBIT 14





LTR

Simplex mode

EXHIBIT 15
CALCULATED RADIAL FLOW

PRE-STIMULATION PRODUCTION ESTIMATES
FROM POST-STIMULATION PRODUCTION DATA
Lybrook Tight Formation Area

WELL	LOCATION	OPERATOR	COMP DATE	FIRST MONTH POST-STIM PRODUCTION OIL (bbls)	FIRST MONTH POST-STIM PRODUCTION GAS (mcf)	FIRST MONTH POST-STIM PRODUCTION OIL (bopd)	FIRST MONTH POST-STIM PRODUCTION GAS (mcfd)	CALCULATED PRE-STIMULATION RATE OIL (bopd)	CALCULATED PRE-STIMULATION RATE GAS (mcfd)
*** BEST WELLS 1990 ***									
State J #4	K-16-23-7	BCO	06/90	243	5073	8.0	166.9	0.4	7.4
Bobby B #4	E-31-24-6	BCO	05/90	199	10710	6.5	352.3	0.3	15.7
Federal B #8	C-22-23-7	BCO	05/90	831	5315	27.3	174.8	1.2	7.8
*** BEST WELLS 1989 ***									
State 16-1	D-16-23-6	Bannon	11/89	1031	1383	33.9	45.5	1.5	2.0
Rincon 9	M-31-24-7	Cole	11/89	486	12802	16.0	421.1	0.7	18.7
Mesa 25-3R	M-25-24-7	Bannon	05/89	280	13044	9.2	429.1	0.4	19.1
Federal B #7	A-21-23-7	BCO	07/89	1163	12612	38.3	414.9	1.7	18.4
*** BEST WELLS 1988 ***									
Marcus A-12	B-5-23-6	Bannon	01/88	827	11135	27.2	366.3	1.2	16.3
Marcus A-14	K-31-24-6	Bannon	01/88	510	6973	16.8	229.4	0.7	10.2
Marcus A-23	F-35-24-7	Bannon	09/88	1608	2526	52.9	83.1	2.4	3.7
*** BEST WELLS 1987 ***									
MARCUS 11	N-35-24-7	Bannon	11/87	1557	74	51.2	2.4	2.3	0.1
Marcus A-22	O-31-24-6	Bannon	11/87	1739	10333	57.2	339.9	2.5	15.1

EXHIBIT 15

EXHIBIT 16
PRODUCTION DATA

FM120
STARTUP PRODUCTIVITY REPORT
BANNON DEVILS FORK GALLUP
2-Mar-91

YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION	1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
90	LYBROOK FED.	BANNON ENERGY INC	DEVILS FORK GALLUP (ASSOCIATED	24H 24N 7W	9009	9011	ACT	FP DATE	FP DATE	78	1231	78	1231	3	80	10	268
	GRACE FEDERAL 24	BANNON ENERGY INC	DEVILS FORK GALLUP (ASSOCIATED	24D 24N 7W	9001	9011	ACT	FP DATE	FP DATE	330	25374	330	25374	28	3335	7	1879
	FEDERAL 29	BANNON ENERGY INC	DEVILS FORK GALLUP (ASSOCIATED	29P 24N 6W	9005	9010	ACT	FP DATE	FP DATE	961	2203	961	2203	469	325	0	0
90										1369	28808	1369	28808	500	3740	17	2147
89	LYBROOK 19	BANNON ENERGY INC	DEVILS FORK GALLUP (ASSOCIATED	19K 24N 6W	8911	9011	ACT	FP DATE	FP DATE	413	90146	375	82891	9	431	38	7255
	GRACE FEDERAL 24	BANNON ENERGY INC	DEVILS FORK GALLUP (ASSOCIATED	24F 24N 7W	8901	9011	ACT	FP DATE	FP DATE	1610	104547	1610	104547	374	525	35	4767
89										2023	194693	1985	187438	383	956	73	12022
88	LYBROOK 19	BANNON ENERGY INC	DEVILS FORK GALLUP (ASSOCIATED	19K 24N 6W	8806	8908	P&A	FP DATE	FP DATE	3025	962960	310	68007	70	752	0	0
	GRACE FEDERAL 24	BANNON ENERGY INC	DEVILS FORK GALLUP (ASSOCIATED	24C 24N 7W	8810	8904	INA	FP DATE	FP DATE	3866	55406	383	0	79	0	0	0
88										6891	1018366	693	68007	149	752	0	0
TOTAL										10283	1241867	4047	284253	1032	5448	90	14169

FM120
STARTUP PRODUCTIVITY REPORT
BCO DEVILS FORK GALLUP
2-Mar-91

YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION	1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
0	ZAMORA	B C O INC	DEVILS FORK GALLUP (ASSOCIATED	29C 24N 6W	N/A	8905	P&A	FP DATE	5901	8276	2797277	0	0	0	0	0	0
	BYRD	B C O INC	DEVILS FORK GALLUP (ASSOCIATED	23A 24N 7W	N/A	9011	ACT	FP DATE	5901	93635	670637	0	0	0	0	158	1008
	BYRD	B C O INC	DEVILS FORK GALLUP (ASSOCIATED	23D 24N 7W	N/A	9011	ACT	FP DATE	5901	44237	508815	0	0	0	0	90	1073
0										146148	3976729	0	0	0	0	248	2081
TOTAL										146148	3976729	0	0	0	0	248	2081

FR120
STARTUP PRODUCTIVITY REPORT
DEVILS FORK GALLUP
2-Mar-91

YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION	1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
90	LYBROOK FED.	BANNON ENERGY INC	DEVILS FORK GALLUP (ASSOCIATED	24H 24N 7W	9009	9011	ACT	FP DATE	FP DATE	78	1231	78	1231	3	80	10	268
	GRACE FEDERAL 24	BANNON ENERGY INC	DEVILS FORK GALLUP (ASSOCIATED	24D 24N 7W	9001	9011	ACT	FP DATE	FP DATE	330	25374	330	25374	28	3335	7	1879
	FEDERAL 29	BANNON ENERGY INC	DEVILS FORK GALLUP (ASSOCIATED	29P 24N 6W	9005	9010	ACT	FP DATE	FP DATE	961	2203	961	2203	469	325	0	0
90										1369	28808	1369	28808	500	3740	17	2147
89	LYBROOK 19	BANNON ENERGY INC	DEVILS FORK GALLUP (ASSOCIATED	19K 24N 6W	8911	9011	ACT	FP DATE	FP DATE	413	90146	375	82891	9	431	38	7255
	GRACE FEDERAL 24	BANNON ENERGY INC	DEVILS FORK GALLUP (ASSOCIATED	24F 24N 7W	8901	9011	ACT	FP DATE	FP DATE	1610	104547	1610	104547	374	525	35	4767
89										2023	194693	1985	187438	383	956	73	12022
86	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	20P 25N 6W	8603	9007	ACT	FP DATE	FP DATE	1128	20155	681	9226	3	64	0	0
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	29P 25N 6W	8603	9011	ACT	FP DATE	FP DATE	9014	111897	2401	19247	2	254	149	2055
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	30I 25N 6W	8603	9011	ACT	FP DATE	FP DATE	22605	186335	5344	28331	452	1923	293	2326
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	31K 25N 6W	8603	9011	ACT	FP DATE	FP DATE	16748	151038	3468	24324	110	340	218	1875
86										49495	469425	11894	81128	567	2581	660	6256
85	WARREN FEDERAL	LITTLE CURTIS J	DEVILS FORK GALLUP (ASSOCIATED	26H 25N 6W	8501	9011	ACT	FP DATE	FP DATE	1267	23500	587	15155	83	0	16	133
	HARVEY STATE	MERIDIAN OIL INC	DEVILS FORK GALLUP (ASSOCIATED	32L 25N 6W	8505	9011	ACT	FP DATE	FP DATE	38100	284819	20893	103129	3710	7258	167	1305
	CANADA MESA	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	14D 24N 6W	8508	9011	ACT	FP DATE	FP DATE	13818	105071	1918	5242	662	1893	190	1008
	CANYON LARGO UNIT	MERIDIAN OIL INC	DEVILS FORK GALLUP (ASSOCIATED	17D 25N 6W	8501	8804	INA	FP DATE	FP DATE	1412	48767	1404	46180	0	1510	0	0
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	5G 24N 6W	8509	9011	ACT	FP DATE	FP DATE	3127	57349	1097	17504	99	1830	47	757
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	11I 24N 6W	8506	9011	ACT	FP DATE	FP DATE	8194	81364	2269	22164	99	1936	73	984
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	36P 25N 7W	8505	9011	ACT	FP DATE	FP DATE	22443	161829	8053	41709	885	3563	120	2082
85										88361	762699	36221	251083	5538	17990	613	6269
84	SALAZAR G 27	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	22I 25N 6W	8406	9011	ACT	FP DATE	FP DATE	4987	56421	1351	11034	0	397	43	720
	SALAZAR G 27	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	27A 25N 6W	8404	9011	ACT	FP DATE	FP DATE	2183	18252	750	5600	117	270	25	346
	SALAZAR G COM 23	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	23M 25N 6W	8401	9011	ACT	FP DATE	FP DATE	10889	127790	5471	50969	859	1770	51	991
	JOHN S. GASHKO	BAYLESS ROBERT L	DEVILS FORK GALLUP (ASSOCIATED	12E 24N 7W	8411	9011	ACT	FP DATE	FP DATE	13637	56339	4263	13888	187	0	95	514
	EDNA	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	7D 24N 6W	8407	8911	INA	FP DATE	FP DATE	3736	18455	1459	1985	100	0	0	0
	CANYON LARGO UNIT	MERIDIAN OIL INC	DEVILS FORK GALLUP (ASSOCIATED	20K 24N 6W	8404	9011	ACT	FP DATE	FP DATE	3681	486738	230	21519	0	32	57	8114
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	5L 24N 6W	8411	9011	ACT	FP DATE	FP DATE	6946	141515	2785	22922	456	0	80	2541
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	6A 24N 6W	8405	9011	ACT	FP DATE	FP DATE	46904	216216	28137	63768	4057	4662	79	1800
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	6C 24N 6W	8406	9011	ACT	FP DATE	FP DATE	46970	235906	26628	70449	4281	1974	70	1518
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	6I 24N 6W	8410	9011	ACT	FP DATE	FP DATE	10674	182991	3681	29359	533	2447	87	2633
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	9C 24N 6W	8406	9011	ACT	FP DATE	FP DATE	7923	62145	3936	20131	771	2450	52	599
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	9H 24N 6W	8410	9011	ACT	FP DATE	FP DATE	11889	50167	3818	18479	220	1359	104	599
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	1A 24N 7W	8401	9011	ACT	FP DATE	FP DATE	60583	186229	37582	87749	1375	360	313	1663
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	1E 24N 7W	8405	9011	ACT	FP DATE	FP DATE	33419	73095	8758	13173	1382	1916	280	920
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	1I 24N 7W	8406	9011	ACT	FP DATE	FP DATE	38285	189477	13049	40276	720	210	235	2191
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	1M 24N 7W	8410	9011	ACT	FP DATE	FP DATE	26074	85766	7381	14714	1045	0	224	1066
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	2P 24N 7W	8410	9011	ACT	FP DATE	FP DATE	14149	34920	3720	6667	0	9	167	441
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	20K 25N 6W	8408	9011	ACT	FP DATE	FP DATE	18773	125319	8698	34476	1858	68	107	827

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YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION		1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	29K 25N	6W	8407	9011	ACT	FP DATE	FP DATE	28928	135366	16173	42018	1724	2425	103	1026
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	30K 25N	6W	8407	9011	ACT	FP DATE	FP DATE	52281	201547	22642	40708	2419	1435	175	1070
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	32F 25N	6W	8404	9011	ACT	FP DATE	FP DATE	60371	251217	43745	68304	5953	3146	104	1975
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	32O 25N	6W	8401	9011	ACT	FP DATE	FP DATE	18660	98476	13658	49954	751	225	32	792
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	33C 25N	6W	8403	9011	ACT	FP DATE	FP DATE	18977	216348	5963	46189	516	1007	46	1732
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	33G 25N	6W	8403	9011	ACT	FP DATE	FP DATE	6896	52110	2721	14775	115	1270	57	540
	BOX CANYON COM	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	15N 25W	6W	8403	9011	ACT	FP DATE	FP DATE	2903	89275	1019	9874	100	450	15	822
84											550718	3392080	267598	798980	29541	27875	2601	35440
83	WARREN G COM 26	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	26F 25N	6W	8309	9011	ACT	FP DATE	FP DATE	8403	73490	3519	19908	621	780	45	467
	SALAZAR G 27	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	27J 25N	6W	8311	9011	ACT	FP DATE	FP DATE	9716	62704	3711	12436	654	648	3	652
	SALAZAR G 34	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	34H 25N	6W	8306	9011	ACT	FP DATE	FP DATE	4476	44364	1918	15054	201	780	23	851
	SALAZAR G COM 22	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	22E 25N	6W	8305	9011	ACT	FP DATE	FP DATE	15672	170623	6303	33726	708	630	80	1584
	OLD ROCK COM	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	28J 25N	6W	8303	9011	ACT	FP DATE	FP DATE	17503	130714	5202	2907	1589	720	99	1273
	JOHN S. WASHKO	BAYLESS ROBERT L	DEVILS FORK GALLUP (ASSOCIATED	11I 24N	7W	8311	9011	ACT	FP DATE	FP DATE	11856	29116	3029	6349	260	888	77	242
	FARMING F	TEXACO INC	DEVILS FORK GALLUP (ASSOCIATED	2D 24N	6W	8304	9011	ACT	FP DATE	FP DATE	13741	139329	4050	21625	289	144	56	1253
	CANADA MESA COM	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	10A 24N	6W	8310	9011	ACT	FP DATE	FP DATE	16979	158101	3524	27481	363	630	150	2553
	CANADA MESA COM	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	10F 24N	6W	8309	9011	ACT	FP DATE	FP DATE	24133	169938	5185	24060	261	120	262	3072
	CANYON LARGO UNIT	BOLACK MINERALS CO	DEVILS FORK GALLUP (ASSOCIATED	1D 24N	6W	8303	9010	ACT	FP DATE	FP DATE	3019	40579	423	3203	40	125	0	0
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	4G 24N	6W	8309	9011	ACT	FP DATE	FP DATE	4954	61743	2065	18660	79	900	20	283
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	5E 24N	6W	8312	9011	ACT	FP DATE	FP DATE	14405	129908	7672	27059	1184	780	42	1026
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	11K 24N	6W	8312	9011	ACT	FP DATE	FP DATE	20283	126741	6468	31423	37	0	152	1066
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	21E 25N	6W	8306	9011	ACT	FP DATE	FP DATE	40875	309215	17618	62595	777	300	168	2303
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	32A 25N	6W	8305	9011	ACT	FP DATE	FP DATE	89167	357271	49111	91681	698	120	0	792
83											295182	2003836	119798	398167	7761	7565	1177	17417
82	WARREN G 35	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	35C 25N	6W	8201	9011	ACT	FP DATE	FP DATE	11559	75812	8228	34297	1053	1790	103	515
	WARREN G 35	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	35I 25N	6W	8202	9011	ACT	FP DATE	FP DATE	5668	114913	1744	21843	0	854	43	554
	WARREN G 35	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	35K 25N	6W	8201	9011	ACT	FP DATE	FP DATE	8396	117155	5124	43642	1	2394	62	277
	SALAZAR G 34	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	34E 25N	6W	8207	9011	ACT	FP DATE	FP DATE	14657	139854	6482	25361	65	450	38	554
	SALAZAR G 34	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	34I 25N	6W	8201	9011	ACT	FP DATE	FP DATE	14572	113635	8911	52692	867	2341	32	666
	SALAZAR G 34	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	34K 25N	6W	8202	9011	ACT	FP DATE	FP DATE	21874	129899	11946	34585	1327	1765	45	839
	SALAZAR G COM 21	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	21G 25N	6W	8212	9011	ACT	FP DATE	FP DATE	16823	173880	7271	34490	2271	5594	52	1024
	SALAZAR G COM 26	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	26M 25N	6W	8210	9011	ACT	FP DATE	FP DATE	11819	62849	4601	10713	79	300	0	416
	MILLER B	MCELVAIN T H O&G PROP	DEVILS FORK GALLUP (ASSOCIATED	12G 24N	7W	8207	9011	ACT	FP DATE	FP DATE	25766	55317	6068	0	743	0	73	644
	GONZALES COM	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	22M 25N	6W	8207	9011	ACT	FP DATE	FP DATE	24392	127047	8532	28807	957	164	122	1068
	FIKES COM.	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	27F 25N	6W	8208	9011	ACT	FP DATE	FP DATE	7069	48469	2981	18677	302	450	70	300
	FIKES COM.	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	27M 25N	6W	8204	9011	ACT	FP DATE	FP DATE	15833	109976	10825	35795	223	0	38	553
	FARMING E	TEXACO INC	DEVILS FORK GALLUP (ASSOCIATED	2I 24N	6W	8202	8806	INA	FP DATE	FP DATE	5633	78435	1175	22170	414	5063	0	0
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	3F 24N	6W	8202	9011	ACT	FP DATE	FP DATE	8011	146877	3791	28571	781	1096	20	1288
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	21N 25N	6W	8210	9011	ACT	FP DATE	FP DATE	61167	275629	41068	64441	771	250	84	1021
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	28A 25N	6W	8206	9011	ACT	FP DATE	FP DATE	62076	298199	35046	82062	6354	10232	123	1383
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	28F 25N	6W	8212	9011	ACT	FP DATE	FP DATE	17327	111423	10357	23800	879	1456	0	675
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	28M 25N	6W	8211	9011	ACT	FP DATE	FP DATE	53868	393142	16180	28078	1038	200	114	2281

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YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION			1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
	CANYON LARGO UNIT COM	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	21J	25N	6W	8208	9011	ACT	FP DATE	FP DATE	46247	288807	26424	54268	682	245	57	1481
82												432757	2861318	216754	644292	18807	34644	1076	15539
81	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	3A	24N	6W	8101	9011	ACT	FP DATE	FP DATE	11414	105967	9124	48914	707	0	20	764
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	3J	24N	6W	8106	9011	ACT	FP DATE	FP DATE	42944	259187	13281	40237	2547	0	100	1853
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	4M	24N	6W	8106	9011	ACT	FP DATE	FP DATE	23452	258280	7424	24795	1168	0	3	608
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	4O	24N	6W	8102	9011	ACT	FP DATE	FP DATE	23204	164950	8063	29471	354	0	69	1066
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	5O	24N	6W	8106	9011	ACT	FP DATE	FP DATE	10784	160180	2375	14039	676	0	82	1769
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	8I	24N	6W	8102	9011	ACT	FP DATE	FP DATE	11710	85636	3743	17607	892	0	104	426
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	11A	24N	6W	8106	9011	ACT	FP DATE	FP DATE	22526	157632	10811	21503	2670	0	78	1244
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	11C	24N	6W	8105	9011	ACT	FP DATE	FP DATE	23548	151340	5648	32645	190	0	153	765
81												169582	1343172	59969	229211	9204	0	609	8495
80	LYBROOK 19	BANNON ENERGY INC	DEVILS FORK GALLUP (ASSOCIATED	19K	24N	6W	8006	8908	P&A	FP DATE	FP DATE	3025	962960	310	68007	70	752	0	0
	GRACE FEDERAL 24	CANNON ENERGY INC	DEVILS FORK GALLUP (ASSOCIATED	24C	24N	7W	8010	8904	INA	FP DATE	FP DATE	3866	55406	383	0	79	0	0	0
80												6891	1018366	693	68007	149	752	0	0
75	NCRA STATE	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	16J	24N	6W	7502	9011	ACT	FP DATE	FP DATE	189	179659	0	21912	0	1326	0	484
	CANYON LARGO UNIT NP	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	3K	24N	6W	7509	9009	ACT	FP DATE	FP DATE	36760	8105	5608	0	688	0	0	0
75												36949	187764	5608	21912	688	1326	0	484
74	CANADA MESA	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	14A	24N	6W	7403	8909	INA	FP DATE	FP DATE	20851	36765	5681	0	675	0	0	0
0	ZAMORA	B C O INC	DEVILS FORK GALLUP (ASSOCIATED	29C	24N	6W	N/A	8905	P&A	FP DATE	5901	8276	2797277	0	0	0	0	0	0
	WARREN FEDERAL	KIMBELL OIL CO OF TEXAS	DEVILS FORK GALLUP (ASSOCIATED	35A	25N	6W	N/A	9011	ACT	FP DATE	5901	102035	373501	0	0	0	0	30	422
	REYNOLDS-KILLARNEY 24	GRACE PETROLEUM CORP	DEVILS FORK GALLUP (ASSOCIATED	24J	24N	7W	N/A	8402	P&A	FP DATE	5901	15156	609527	0	0	0	0	0	0
	NCRA STATE	MERRION J GREGORY	DEVILS FORK GALLUP (ASSOCIATED	16B	24N	6W	N/A	7002	P&A	FP DATE	5901	54750	290291	0	0	0	0	0	0
	NCRA STATE	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	16E	24N	6W	N/A	9011	ACT	FP DATE	5901	98855	981749	0	0	0	0	14	513
	NCRA STATE	MERRION J GREGORY	DEVILS FORK GALLUP (ASSOCIATED	16J	24N	6W	N/A	7312	INA	FP DATE	5901	60779	420421	0	0	0	0	0	0
	NCRA STATE	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	16L	24N	6W	N/A	9011	ACT	FP DATE	5901	114851	1309029	0	0	0	0	73	686
	MILLER A	MCELVAIN T H O&G PROP	DEVILS FORK GALLUP (ASSOCIATED	13A	24N	7W	N/A	9011	ACT	FP DATE	5901	20394	1292032	0	0	0	0	73	0
	MILLER B	MCELVAIN T H O&G PROP	DEVILS FORK GALLUP (ASSOCIATED	12N	24N	7W	N/A	8307	INA	FP DATE	5901	13498	243168	0	0	0	0	0	0
	MILLER B	RUTLEDGE PAUL F	DEVILS FORK GALLUP (ASSOCIATED	12L	24N	7W	N/A	7009	P&A	FP DATE	5901	27943	195784	0	0	0	0	0	0
	MILLER B	RUTLEDGE PAUL F	DEVILS FORK GALLUP (ASSOCIATED	12P	24N	7W	N/A	N/A	P&A	FP DATE	FP DATE	14762	137910	0	0	0	0	0	0
	MEXICO FEDERAL A	M & M PRODUCTION CO	DEVILS FORK GALLUP (ASSOCIATED	10I	24N	6W	N/A	9011	ACT	FP DATE	5901	85265	487608	0	0	0	0	82	1491
	MEXICO FEDERAL G	TEXACO INC	DEVILS FORK GALLUP (ASSOCIATED	18F	24N	6W	N/A	9010	ACT	FP DATE	5901	11064	2293385	0	0	0	0	0	0
	MEXICO FEDERAL O	TEXACO INC	DEVILS FORK GALLUP (ASSOCIATED	10H	24N	6W	N/A	9011	ACT	FP DATE	5901	90560	228338	0	0	0	0	164	765
	LYBROOK 19	GRACE PETROLEUM CORP	DEVILS FORK GALLUP (ASSOCIATED	19C	24N	6W	N/A	8411	P&A	FP DATE	5901	21077	2599830	0	0	0	0	0	0
	LARGO SPUR	FLAG REDFERN OIL CO	DEVILS FORK GALLUP (ASSOCIATED	19A	24N	6W	N/A	N/A	P&A	FP DATE	FP DATE	8710	1051908	0	0	0	0	0	0
	LARGO SPUR	FLAG REDFERN OIL CO	DEVILS FORK GALLUP (ASSOCIATED	13I	24N	7W	N/A	7101	P&A	FP DATE	5901	12057	2566050	0	0	0	0	0	0
	LARGO SPUR	KERR MCGEE CORP	DEVILS FORK GALLUP (ASSOCIATED	18J	24N	6W	N/A	7606	INA	FP DATE	5901	18815	2577987	0	0	0	0	0	0
	LARGO SPUR A	FLAG REDFERN OIL CO	DEVILS FORK GALLUP (ASSOCIATED	14I	24N	7W	N/A	7107	P&A	FP DATE	5901	5413	39701	0	0	0	0	0	0
	JOHN S DASHKO B	MERRION & BAYLESS	DEVILS FORK GALLUP (ASSOCIATED	11H	24N	7W	N/A	N/A	P&A	FP DATE	FP DATE	16571	79494	0	0	0	0	0	0

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	JOHN S DASHKO B	MERRION & BAYLESS	DEVILS FORK GALLUP (ASSOCIATED	11P 24N	7W	N/A	N/A	P&A	FP DATE	FP DATE	71126	385765	0	0	0	0	0	0
	FARMING E	TEXACO INC	DEVILS FORK GALLUP (ASSOCIATED	2B 24N	6W	N/A	8804	INA	FP DATE	5901	92093	295543	0	0	0	0	0	0
	FARMING F	TEXACO INC	DEVILS FORK GALLUP (ASSOCIATED	2K 24N	6W	N/A	7810	INA	FP DATE	5901	38439	170794	0	0	0	0	0	0
	EDNA	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	7E 24N	6W	N/A	7905	P&A	FP DATE	5901	43642	314923	0	0	0	0	0	0
	EDNA	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	7H 24N	6W	N/A	8202	INA	FP DATE	5901	31505	223763	0	0	0	0	0	0
	EDNA	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	7M 24N	6W	N/A	8902	INA	FP DATE	5901	100596	782305	0	0	0	0	0	0
	EDNA	MERRION J GREGORY	DEVILS FORK GALLUP (ASSOCIATED	7O 24N	6W	N/A	7905	INA	FP DATE	5901	101801	624099	0	0	0	0	0	0
	CANYON LARGO	MERRION J GREGORY	DEVILS FORK GALLUP (ASSOCIATED	15B 24N	6W	N/A	7502	P&A	FP DATE	5901	15027	96507	0	0	0	0	0	0
	CANYON LARGO UNIT	MERIDIAN OIL INC	DEVILS FORK GALLUP (ASSOCIATED	17M 24N	6W	N/A	9011	ACT	FP DATE	5901	12140	2823236	0	0	0	0	34	7208
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	6M 24N	6W	N/A	9011	ACT	FP DATE	5901	52052	219699	0	0	0	0	52	479
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	8E 24N	6W	N/A	8904	INA	FP DATE	5901	68029	470208	0	0	0	0	0	0
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	8G 24N	6W	N/A	9003	ACT	FP DATE	5901	78706	627141	0	0	0	0	0	0
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	8K 24N	6W	N/A	N/A	INA	FP DATE	FP DATE	0	0	0	0	0	0	0	0
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	8M 24N	6W	N/A	8405	P&A	FP DATE	FP DATE	74766	446301	0	0	0	0	0	0
	CANYON LARGO UNIT	MERRION & BAYLESS	DEVILS FORK GALLUP (ASSOCIATED	8O 24N	6W	N/A	7505	INA	FP DATE	5901	155758	729378	0	0	0	0	0	0
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	9E 24N	6W	N/A	7810	P&A	FP DATE	5901	72218	605291	0	0	0	0	0	0
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	9G 24N	6W	N/A	8205	P&A	FP DATE	5901	89042	331508	0	0	0	0	0	0
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	9M 24N	6W	N/A	7510	INA	FP DATE	5901	37590	315698	0	0	0	0	0	0
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	9O 24N	6W	N/A	9005	ACT	FP DATE	5901	67676	381716	0	0	0	0	0	0
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	15E 24N	6W	N/A	9001	ACT	FP DATE	5901	67953	341469	0	0	0	0	0	0
	CANYON LARGO UNIT	MERRION & BAYLESS	DEVILS FORK GALLUP (ASSOCIATED	17A 24N	6W	N/A	N/A	INA	FP DATE	FP DATE	0	0	0	0	0	0	0	0
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	17I 24N	6W	N/A	7905	P&A	FP DATE	5901	75910	1536590	0	0	0	0	0	0
	CANYON LARGO UNIT	MERRION OIL & GAS CORP	DEVILS FORK GALLUP (ASSOCIATED	17O 24N	6W	N/A	8210	P&A	FP DATE	5901	77873	933329	0	0	0	0	0	0
	CANYON LARGO UNIT NP	EL PASO NATURAL GAS CO	DEVILS FORK GALLUP (ASSOCIATED	20C 24N	6W	N/A	N/A	INA	FP DATE	FP DATE	8408	1367223	0	0	0	0	0	0
	BYRD	B C O INC	DEVILS FORK GALLUP (ASSOCIATED	23A 24N	7W	N/A	9011	ACT	FP DATE	5901	93635	670637	0	0	0	0	158	1008
	BYRD	B C O INC	DEVILS FORK GALLUP (ASSOCIATED	23O 24N	7W	N/A	9011	ACT	FP DATE	5901	44237	508815	0	0	0	0	90	1073
0											2371053	35776928	0	0	0	0	770	13645
TOTAL											4025231	48075854	727570	2709026	73813	97429	7596	117714

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STARTUP PRODUCTIVITY REPORT
BANNON COUNSELORS GALLUP
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YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION		1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
90	MARCUS	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	7I 23N	6W	9009	9011	ACT	FP DATE	FP DATE	485	3745	485	3745	244	1188	101	1369
	MARCUS	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	7O 23N	6W	9004	9011	ACT	FP DATE	FP DATE	855	19265	855	19265	296	2583	50	2637
90											1340	23010	1340	23010	540	3771	151	4006
89	STATE 16	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	16D 23N	6W	8911	9011	ACT	FP DATE	FP DATE	3982	11951	3837	11300	1031	1383	145	651
	STATE 16	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	16F 23N	6W	8911	9011	ACT	FP DATE	FP DATE	2905	14013	2798	13300	222	0	107	713
	STATE 16	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	16L 23N	6W	8912	9011	ACT	FP DATE	FP DATE	2619	17999	2619	17999	551	709	82	1074
	MARCUS A	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	18B 23N	6W	8907	9011	ACT	FP DATE	FP DATE	2249	48381	1868	41711	540	4380	57	1276
	MARCUS A	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	6A 23N	6W	8908	8911	INA	FP DATE	FP DATE	532	24374	532	24374	0	6533	0	0
	MARCUS A	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	5A 23N	6W	8909	8911	INA	FP DATE	FP DATE	2037	5539	2037	5539	579	709	0	0
	FEDERAL B	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	8I 23N	6W	8911	9011	ACT	FP DATE	FP DATE	3692	8480	3607	7970	685	613	85	510
89											18016	130737	17298	122193	3608	14327	476	4224
88	MARCUS A	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	5B 23N	6W	8801	9011	ACT	FP DATE	FP DATE	5244	101835	4333	81198	827	11135	74	1702
85	MARCUS	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	6J 23N	6W	8509	9011	ACT	FP DATE	FP DATE	3780	89207	747	24669	0	2278	26	1445
	MARCUS	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	7A 23N	6W	8505	9011	ACT	FP DATE	FP DATE	7530	83013	2380	19460	440	2325	49	931
	MARCUS	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	5E 23N	6W	8510	9011	ACT	FP DATE	FP DATE	5491	132603	1215	43896	0	497	53	2088
	MARCUS A	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	8L 23N	6W	8510	9011	ACT	FP DATE	FP DATE	5455	73391	978	14921	0	771	34	742
	MARCUS A	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	17D 23N	6W	8510	9011	ACT	FP DATE	FP DATE	3058	113051	935	54201	0	968	24	945
	MARCUS A	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	6G 23N	6W	8510	9011	ACT	FP DATE	FP DATE	4712	143522	531	16367	0	2278	41	2063
85											30026	634787	6786	173514	440	9117	301	9916
0	MARCUS	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	7I 23N	6W	N/A	N/A	P&A	FP DATE	FP DATE	0	0	0	0	0	0		
TOTAL											54626	890369	29757	399915	5415	38350		

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YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION	1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
90	MARCUS	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	7I 23N 6W	9009	9011	ACT	FP DATE	FP DATE	485	3745	485	3745	244	1188	101	1369
	MARCUS	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	7O 23N 6W	9004	9011	ACT	FP DATE	FP DATE	855	19265	855	19265	296	2583	50	2637
90										1340	23010	1340	23010	540	3771	151	4006
89	STATE 16	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	16D 23N 6W	8911	9011	ACT	FP DATE	FP DATE	3982	11951	3837	11300	1031	1383	145	651
	STATE 16	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	16F 23N 6W	8911	9011	ACT	FP DATE	FP DATE	2905	14013	2798	13300	222	0	107	713
	STATE 16	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	16L 23N 6W	8912	9011	ACT	FP DATE	FP DATE	2619	17999	2619	17999	551	709	82	1074
	MARCUS A	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	18B 23N 6W	8907	9011	ACT	FP DATE	FP DATE	2249	48381	1868	41711	540	4380	57	1276
	MARCUS A	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	6A 23N 6W	8908	8911	INA	FP DATE	FP DATE	532	24374	532	24374	0	6533	0	0
	MARCUS A	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	5A 23N 6W	8909	8911	INA	FP DATE	FP DATE	2037	5539	2037	5539	579	709	0	0
	FEDERAL 8	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	8I 23N 6W	8911	9011	ACT	FP DATE	FP DATE	3692	8480	3607	7970	685	613	85	510
89										18016	130737	17298	122193	3608	14327	476	4224
88	MARCUS A	BANNON ENERGY INC	COUNSELORS GALLUP DAKOTA	5B 23N 6W	8801	9011	ACT	FP DATE	FP DATE	5244	101835	4333	81198	827	11135	74	1702
85	MARCUS	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	6J 23N 6W	8509	9011	ACT	FP DATE	FP DATE	3780	89207	747	24669	0	2278	26	1445
	MARCUS	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	7A 23N 6W	8505	9011	ACT	FP DATE	FP DATE	7530	83013	2380	19460	440	2329	49	931
	MARCUS	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	5E 23N 6W	8510	9011	ACT	FP DATE	FP DATE	5491	132603	1215	43896	0	497	53	2088
	MARCUS A	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	8L 23N 6W	8510	9011	ACT	FP DATE	FP DATE	5455	73391	978	14921	0	771	34	742
	MARCUS A	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	17D 23N 6W	8510	9011	ACT	FP DATE	FP DATE	3058	113051	935	54201	0	968	24	945
	MARCUS A	BANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	6G 23N 6W	8510	9011	ACT	FP DATE	FP DATE	4712	143522	531	16367	0	2278	41	2063
85										30026	634787	6786	173514	440	9117	301	9916
84	RITA	MERRION OIL & GAS CORP	COUNSELORS GALLUP-DAKOTA	5H 23N 6W	8403	9011	ACT	FP DATE	FP DATE	2650	40642	230	930	172	720	40	836
	RITA	MERRION OIL & GAS CORP	COUNSELORS GALLUP (MULTI-COUNT	5H 23N 6W	8403	8404	INA	FP DATE	FP DATE	222	810	222	810	172	720	0	0
	RITA COM	MERRION OIL & GAS CORP	COUNSELORS GALLUP-DAKOTA	8F 23N 6W	8403	9011	ACT	FP DATE	FP DATE	6167	36941	811	570	627	450	57	1228
	RITA COM	MERRION OIL & GAS CORP	COUNSELORS GALLUP (MULTI-COUNT	8F 23N 6W	8403	8404	INA	FP DATE	FP DATE	689	480	689	480	627	450	0	0
	GALLO CANYON	BOLACK MINERALS CO	COUNSELORS GALLUP-DAKOTA	13E 23N 6W	8406	9010	ACT	FP DATE	FP DATE	10374	94464	3610	16866	545	0	0	0
	FAHRENHEIT	DUGAN PRODUCTION CORP	COUNSELORS GALLUP-DAKOTA	11D 23N 6W	8407	9011	ACT	FP DATE	FP DATE	11918	56232	4083	11069	71	70	78	667
	FAHRENHEIT	DUGAN PRODUCTION CORP	COUNSELORS GALLUP-DAKOTA	11M 23N 6W	8404	9011	ACT	FP DATE	FP DATE	9584	45490	3350	10053	0	7	60	417
	FAHRENHEIT	DUGAN PRODUCTION CORP	COUNSELORS GALLUP (MULTI-COUNT	11M 23N 6W	8404	8404	INA	FP DATE	FP DATE	0	7	0	7	0	7	0	0
	ENCHILADA	MERRION OIL & GAS CORP	COUNSELORS GALLUP-DAKOTA	16B 23N 6W	8403	9011	ACT	FP DATE	FP DATE	8557	21380	1046	750	530	570	85	154
	ENCHILADA	MERRION OIL & GAS CORP	COUNSELORS GALLUP (MULTI-COUNT	16B 23N 6W	8403	8404	INA	FP DATE	FP DATE	726	660	726	660	530	570	0	0
	ENNISKILLEN	DUGAN PRODUCTION CORP	COUNSELORS GALLUP-DAKOTA	9I 23N 6W	8406	9011	ACT	FP DATE	FP DATE	13534	34214	5236	7128	48	0	90	377
84										64421	331520	20003	49323	3322	3564	410	3679
83	STRAWBERRY	DUGAN PRODUCTION CORP	COUNSELORS GALLUP-DAKOTA	3E 23N 6W	8304	9011	ACT	FP DATE	FP DATE	14355	112000	3531	15776	401	38	84	1019
	RITA COM	MERRION OIL & GAS CORP	COUNSELORS GALLUP-DAKOTA	15K 23N 6W	8307	8808	INA	FP DATE	FP DATE	2960	13384	1992	10080	358	690	0	0
	MARGARITA COM	MERRION OIL & GAS CORP	COUNSELORS GALLUP-DAKOTA	15M 23N 6W	8307	8607	INA	FP DATE	FP DATE	3741	14469	1998	10110	295	750	0	0
	GULF FEDERAL 24	LOBO PRODUCTION INC	COUNSELORS GALLUP-DAKOTA	24D 23N 6W	8304	8510	INA	FP DATE	FP DATE	3644	17190	2014	4560	318	330	0	0
	CELSIUS	DUGAN PRODUCTION CORP	COUNSELORS GALLUP-DAKOTA	14E 23N 6W	8310	9011	ACT	FP DATE	FP DATE	7186	21754	1835	2525	10	0	186	426
	CELSIUS	DUGAN PRODUCTION CORP	COUNSELORS GALLUP-DAKOTA	14H 23N 6W	8305	9011	ACT	FP DATE	FP DATE	9511	42538	2567	3016	114	93	55	325
	BUDDY	DUGAN PRODUCTION CORP	COUNSELORS GALLUP-DAKOTA	15P 23N 6W	8301	9011	ACT	FP DATE	FP DATE	9319	19897	4572	7135	176	95	144	316
	ANNIE	MERRION OIL & GAS CORP	COUNSELORS GALLUP-DAKOTA	10G 23N 6W	8304	9011	ACT	FP DATE	FP DATE	14339	123496	5388	21986	964	0	159	822

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YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION	1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
83										65055	364728	23897	75188	2636	1996	628	2908
82	THEODORE ZINK	HERRION OIL & GAS CORP	COUNSELORS GALLUP-DAKOTA	15D 23N 6W	8206 9011	ACT	FP DATE	FP DATE		11325	124728	4643	24376	244	1174	51	792
	STRAWBERRY	DUGAN PRODUCTION CORP	COUNSELORS GALLUP-DAKOTA	3L 23N 6W	8211 9011	ACT	FP DATE	FP DATE		11271	64264	2484	3041	171	0	52	470
	RITA COM	HERRION OIL & GAS CORP	COUNSELORS GALLUP-DAKOTA	5O 23N 6W	8204 9011	ACT	FP DATE	FP DATE		7538	53119	1019	3908	555	750	41	485
	RITA COM	HERRION OIL & GAS CORP	COUNSELORS GALLUP-DAKOTA	9E 23N 6W	8203 9011	ACT	FP DATE	FP DATE		13614	29631	2568	4239	696	1160	79	321
	GLENMORANGIE	HERRION OIL & GAS CORP	COUNSELORS GALLUP-DAKOTA	9H 23N 6W	8204 9011	ACT	FP DATE	FP DATE		15575	37222	4459	9894	1102	1050	74	397
	GALLO RED	MCHUGH JEROME P & ASSOC	COUNSELORS GALLUP-DAKOTA	14L 23N 6W	8205 9008	ACT	FP DATE	FP DATE		7089	15271	2329	0	275	0	0	0
	GALLO WHITE	MCHUGH JEROME P & ASSOC	COUNSELORS GALLUP-DAKOTA	14J 23N 6W	8205 9011	ACT	FP DATE	FP DATE		6302	22171	2404	0	198	0	80	281
	ANNIE	HERRION OIL & GAS CORP	COUNSELORS GALLUP-DAKOTA	10L 23N 6W	8209 9011	ACT	FP DATE	FP DATE		9923	42222	4342	10227	349	150	0	397
	ANNIE	HERRION OIL & GAS CORP	COUNSELORS GALLUP-DAKOTA	10O 23N 6W	8212 9011	ACT	FP DATE	FP DATE		8551	23198	3388	5878	468	993	0	342
82										91188	411826	27636	61563	4058	5277	377	3485
81	YARBOROUGH FEDERAL	HERRION OIL & GAS CORP	COUNSELORS GALLUP-DAKOTA	3J 23N 6W	8108 9011	ACT	FP DATE	FP DATE		9127	36363	1843	0	96	0	54	316
	YARBOROUGH FEDERAL B	HERRION OIL & GAS CORP	COUNSELORS GALLUP-DAKOTA	10O 23N 6W	8111 9011	ACT	FP DATE	FP DATE		7745	16094	1983	110	65	0	40	238
	LOUGH ERNE	DUGAN PRODUCTION CORP	COUNSELORS GALLUP-DAKOTA	4G 23N 6W	8112 9011	ACT	FP DATE	FP DATE		19085	143640	3120	7415	200	526	119	1049
	ENNISKILLEN	DUGAN PRODUCTION CORP	COUNSELORS GALLUP-DAKOTA	9G 23N 6W	8112 9011	ACT	FP DATE	FP DATE		14487	38847	2884	2581	109	120	89	322
	DEVER	PARKO OIL	COUNSELORS GALLUP-DAKOTA	8A 23N 6W	8112 9011	ACT	FP DATE	FP DATE		14859	12834	3536	6611	717	870	303	375
81										65303	247778	13366	16717	1187	1516	605	2300
9	MARCUS	CANNON ENERGY INC	COUNSELORS GALLUP-DAKOTA	7I 23N 6W	N/A N/A	P&A	FP DATE	FP DATE		0	0	0	0	0	0	0	0
TOTAL										340593	2246221	114659	602706	16618	50703		

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STARTUP PRODUCTIVITY REPORT
BCO ALAMITO GALLUP
2-Mar-91

YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION		1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
68	FEDERAL C	B C O INC	ALAMITO GALLUP	31N 23N	7W	8808	9011	ACT	FP DATE	FP DATE	4194	52446	2548	29689	448	4154	101	1124
	FEDERAL G	B C O INC	ALAMITO GALLUP	2B 22N	8W	8807	9011	ACT	FP DATE	FP DATE	10207	40718	6325	24315	341	1023	202	699
	FEDERAL L	B C O INC	ALAMITO GALLUP	28O 23N	7W	8810	9011	ACT	FP DATE	FP DATE	3774	49152	2579	31471	560	4725	77	1066
86											18175	142316	11452	87475	1349	9902	380	2889
87	ALAMITO UNIT	B C O INC	ALAMITO GALLUP	32E 23N	7W	8709	9011	ACT	FP DATE	FP DATE	9053	29276	4237	12556	322	1932	140	519
	ALAMITO UNIT	B C O INC	ALAMITO GALLUP	32G 23N	7W	8710	9011	ACT	FP DATE	FP DATE	8628	27939	4034	12162	608	3051	144	465
	ALAMITO UNIT	B C O INC	ALAMITO GALLUP	32N 23N	7W	8709	9011	ACT	FP DATE	FP DATE	6576	42540	4177	20025	387	2322	72	677
87											24257	99755	12448	44743	1317	7305	356	1661
79	FEDERAL B	B C O INC	ALAMITO GALLUP	27M 23N	7W	7906	9011	ACT	FP DATE	FP DATE	10851	87096	2981	21178	322	1512	63	514
	FEDERAL B	B C O INC	ALAMITO GALLUP	34D 23N	7W	7906	9011	ACT	FP DATE	FP DATE	14674	118845	2983	21193	322	1512	89	661
	FEDERAL B	B C O INC	ALAMITO GALLUP	34J 23N	7W	7906	9011	ACT	FP DATE	FP DATE	11899	96615	2943	20804	322	1513	38	338
	FEDERAL B	B C O INC	ALAMITO GALLUP	34L 23N	7W	7907	9011	ACT	FP DATE	FP DATE	12218	104926	2843	21692	373	2214	33	653
	FEDERAL I	B C O INC	ALAMITO GALLUP	33E 23N	7W	7907	9011	ACT	FP DATE	FP DATE	12463	109257	3049	23449	185	1096	51	328
	FEDERAL I	B C O INC	ALAMITO GALLUP	33G 23N	7W	7907	9011	ACT	FP DATE	FP DATE	12466	115991	3138	23994	271	1608	71	688
	FEDERAL I	B C O INC	ALAMITO GALLUP	33I 23N	7W	7907	9011	ACT	FP DATE	FP DATE	11967	113080	3224	24505	357	2119	33	522
	FEDERAL I	B C O INC	ALAMITO GALLUP	33M 23N	7W	7907	9011	ACT	FP DATE	FP DATE	14880	127298	2966	22971	100	593	80	514
77											101418	873108	24127	179786	2252	12167	458	4218
78	FEDERAL B	B C O INC	ALAMITO GALLUP	34G 23N	7W	7812	9011	ACT	FP DATE	FP DATE	12898	102007	1753	10959	20	0	82	324
75	FEDERAL G	B C O INC	ALAMITO GALLUP	2A 22N	8W	7505	9011	ACT	FP DATE	FP DATE	13636	30964	3536	9761	847	1694	33	52
72	FEDERAL C	B C O INC	ALAMITO GALLUP	31I 23N	7W	7205	9011	ACT	FP DATE	FP DATE	13542	56691	1360	7220	56	620	85	273
71	FEDERAL C	B C O INC	ALAMITO GALLUP	31P 23N	7W	7105	9011	ACT	FP DATE	FP DATE	12991	61930	2220	2360	383	0	36	445
TOTAL											196917	1366771	56896	342304	6224	31688	236	1094

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STARTUP PRODUCTIVITY REPORT
ALAMITO GALLUP
2-Mar-91

YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION	1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
89	HENRY AGC FEDERAL	YATES PETROLEUM CORP	ALAMITO GALLUP	29D 23N 7W	8909	9011	ACT	FP DATE	FP DATE	4147	358	3679	273	821	0	134	26
88	FEDERAL C	B C O INC	ALAMITO GALLUP	31N 23N 7W	8808	9011	ACT	FP DATE	FP DATE	4194	52446	2548	29689	448	4154	101	1124
	FEDERAL G	B C O INC	ALAMITO GALLUP	2B 22N 8W	8807	9011	ACT	FP DATE	FP DATE	10207	40718	6325	26315	341	1023	202	699
	FEDERAL L	B C O INC	ALAMITO GALLUP	28O 23N 7W	8810	9011	ACT	FP DATE	FP DATE	3774	49152	2579	31471	560	4725	77	1066
88										18175	142316	11452	87475	1349	9902	514	2915
87	SAGE CREEK	MONFELT LUTHER W	ALAMITO GALLUP	31 22N 8W	8701	9006	ACT	FP DATE	FP DATE	4954	0	3401	0	185	0	6	0
	ALAMITO UNIT	B C O INC	ALAMITO GALLUP	32E 23N 7W	8709	9011	ACT	FP DATE	FP DATE	9053	29276	4237	12556	322	1932	140	519
	ALAMITO UNIT	B C O INC	ALAMITO GALLUP	32G 23N 7W	8710	9011	ACT	FP DATE	FP DATE	8628	27939	4034	12162	608	3051	144	465
	ALAMITO UNIT	B C O INC	ALAMITO GALLUP	32N 23N 7W	8709	9011	ACT	FP DATE	FP DATE	6576	42540	4177	20025	387	2322	72	377
87										29211	99755	15849	44743	1502	7305	362	1361
80	DOME NAVAJO	DUGAN PRODUCTION CORP	ALAMITO GALLUP	33 22N 7W	8003	9011	ACT	FP DATE	FP DATE	5561	93705	1564	405	280	405	39	236
79	FEDERAL B	B C O INC	ALAMITO GALLUP	27M 23N 7W	7906	9011	ACT	FP DATE	FP DATE	10851	87096	2981	21178	322	1512	63	514
	FEDERAL B	B C O INC	ALAMITO GALLUP	34O 23N 7W	7906	9011	ACT	FP DATE	FP DATE	14674	118845	2983	21193	322	1512	89	661
	FEDERAL B	B C O INC	ALAMITO GALLUP	34J 23N 7W	7906	9011	ACT	FP DATE	FP DATE	11899	96615	2943	20804	322	1513	38	338
	FEDERAL B	B C O INC	ALAMITO GALLUP	34L 23N 7W	7907	9011	ACT	FP DATE	FP DATE	12218	104926	2843	21692	373	2214	33	653
	FEDERAL I	B C O INC	ALAMITO GALLUP	33E 23N 7W	7907	9011	ACT	FP DATE	FP DATE	12463	109257	3049	23449	185	1096	51	328
	FEDERAL I	B C O INC	ALAMITO GALLUP	33G 23N 7W	7907	9011	ACT	FP DATE	FP DATE	12466	115991	3138	23994	271	1608	71	668
	FEDERAL I	B C O INC	ALAMITO GALLUP	33I 23N 7W	7907	9011	ACT	FP DATE	FP DATE	11967	113080	3224	24505	357	2119	33	522
	FEDERAL I	B C O INC	ALAMITO GALLUP	33M 23N 7W	7907	9011	ACT	FP DATE	FP DATE	14880	127298	2966	22971	100	595	80	514
79										101418	873108	24127	179786	2252	12167	497	4434
78	FEDERAL B	B C O INC	ALAMITO GALLUP	34G 23N 7W	7812	9011	ACT	FP DATE	FP DATE	12898	102007	1753	10959	20	0	82	324
75	FEDERAL G	B C O INC	ALAMITO GALLUP	2A 22N 8W	7505	9011	ACT	FP DATE	FP DATE	13636	30964	3536	9761	847	1694	33	52
72	FEDERAL C	B C O INC	ALAMITO GALLUP	31I 23N 7W	7205	9011	ACT	FP DATE	FP DATE	13542	56691	1360	7220	56	620	85	273
71	FEDERAL C	B C O INC	ALAMITO GALLUP	31P 23N 7W	7105	9011	ACT	FP DATE	FP DATE	12991	61930	2220	2360	383	0	36	445
0	WARNER FEDERAL	WARNER R W	ALAMITO GALLUP	10A 22N 8W	N/A	9011	ACT	FP DATE	5901	8763	752	0	0	0	0	17	0
TOTAL										220342	1461586	65540	342982	7310	32093	253	1094

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STARTUP PRODUCTIVITY REPORT
BCO ESCRITO GALLUP
1-Mar-91

YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION		1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
90	BOBBY B	H C O INC	ESCRITO GALLUP (ASSOCIATED)	31C 24N	6W	9005	9011	ACT	FP DATE	FP DATE	1075	47750	1075	47750	396	6080	67	3961
	BOBBY B	H C O INC	ESCRITO GALLUP (ASSOCIATED)	31E 24N	6W	9005	9011	ACT	FP DATE	FP DATE	867	56013	867	56013	199	10710	101	7962
90											1942	103763	1942	103763	595	16790	168	11923
85	LYBROOK	H C O INC	ESCRITO GALLUP (ASSOCIATED)	27I 24N	7W	8507	9011	ACT	FP DATE	FP DATE	11628	102036	3535	17197	833	1391	233	923
	FEDERAL 3 21	H C O INC	ESCRITO GALLUP (ASSOCIATED)	21L 24N	7W	8506	9011	ACT	FP DATE	FP DATE	8978	59782	3733	17987	266	133	66	616
	FEDERAL 3 21	H C O INC	ESCRITO GALLUP (ASSOCIATED)	21O 24N	7W	8507	9011	ACT	FP DATE	FP DATE	12040	84060	3539	18897	572	955	148	1088
85											32646	245878	10807	54081	1671	2479	447	2627
84	ESCRITO GALLUP UNIT	H C O INC	ESCRITO GALLUP (ASSOCIATED)	18J 24N	7W	8407	9011	ACT	FP DATE	FP DATE	16333	111235	6169	24237	691	757	98	915
	ESCRITO GALLUP UNIT	H C O INC	ESCRITO GALLUP (ASSOCIATED)	18P 24N	7W	8407	9011	ACT	FP DATE	FP DATE	19486	127594	9548	35096	782	391	84	1092
	ESCRITO GALLUP UNIT	H C O INC	ESCRITO GALLUP (ASSOCIATED)	19H 24N	7W	8407	9011	ACT	FP DATE	FP DATE	7588	46876	2911	11210	26	13	49	291
	ESCRITO GALLUP UNIT	H C O INC	ESCRITO GALLUP (ASSOCIATED)	20C 24N	7W	8408	9011	ACT	FP DATE	FP DATE	21656	157910	8896	38125	1449	1187	39	265
	ESCRITO GALLUP UNIT	H C O INC	ESCRITO GALLUP (ASSOCIATED)	20H 24N	7W	8408	9011	ACT	FP DATE	FP DATE	25901	195229	10942	48465	1259	799	137	2258
84											90964	638844	38466	157133	4207	3147	407	4821
83	SMITH	H C O INC	ESCRITO GALLUP (ASSOCIATED)	13C 24N	8W	8307	9011	ACT	FP DATE	FP DATE	26951	162956	8341	26683	219	0	174	2263
	ESCRITO GALLUP UNIT	H C O INC	ESCRITO GALLUP (ASSOCIATED)	17N 24N	7W	8307	9011	ACT	FP DATE	FP DATE	20723	111827	8829	27715	711	906	47	478
	ESCRITO GALLUP UNIT	H C O INC	ESCRITO GALLUP (ASSOCIATED)	18F 24N	7W	8307	9011	ACT	FP DATE	FP DATE	14782	88826	5973	18952	188	0	60	882
	ESCRITO GALLUP UNIT	H C O INC	ESCRITO GALLUP (ASSOCIATED)	21F 24N	7W	8308	9011	ACT	FP DATE	FP DATE	9306	53625	3667	11175	188	564	58	525
83											71762	417234	26810	84525	1306	1470	339	4148
76	FEDERAL 1 22	H C O INC	ESCRITO GALLUP (ASSOCIATED)	22M 24N	7W	7605	9011	ACT	FP DATE	FP DATE	43060	191824	4851	18308	419	1257	130	809
	FEDERAL 1-7	H C O INC	ESCRITO GALLUP (ASSOCIATED)	7P 24N	7W	7601	7807	INA	FP DATE	FP DATE	623	355	572	355	27	0	0	0
76											43683	192179	5423	18663	446	1257	130	809
75	SMITH	H C O INC	ESCRITO GALLUP (ASSOCIATED)	13F 24N	8W	7505	9011	ACT	FP DATE	FP DATE	29927	113102	4972	17417	75	150	93	316
	ESCRITO GALLUP UNIT	H C O INC	ESCRITO GALLUP (ASSOCIATED)	18N 24N	7W	7505	9011	ACT	FP DATE	FP DATE	36995	169382	5742	19624	506	1012	85	673
	ESCRITO GALLUP UNIT	H C O INC	ESCRITO GALLUP (ASSOCIATED)	13H 24N	8W	7505	9011	ACT	FP DATE	FP DATE	57191	267348	8454	29194	240	480	101	1028
75											124113	549832	19168	66235	821	1642	279	2017
70	ESCRITO GALLUP UNIT	H C O INC	ESCRITO GALLUP (ASSOCIATED)	13I 24N	8W	7007	9011	ACT	FP DATE	FP DATE	56420	189895	8783	16342	626	642	72	1018
0	STEPHENSON	H C O INC	ESCRITO GALLUP (ASSOCIATED)	22D 24N	7W	N/A	9011	ACT	FP DATE	5901	93025	601874	0	0	0	0	81	458
	LYBROOK	H C O INC	ESCRITO GALLUP (ASSOCIATED)	22G 24N	7W	N/A	9011	ACT	FP DATE	5901	101467	607123	0	0	0	0	245	1247
	LYBROOK	H C O INC	ESCRITO GALLUP (ASSOCIATED)	22I 24N	7W	N/A	9011	ACT	FP DATE	5901	243126	1067343	0	0	0	0	126	3277
	LYBROOK	H C O INC	ESCRITO GALLUP (ASSOCIATED)	22J 24N	7W	N/A	9011	ACT	FP DATE	5901	101825	575304	0	0	0	0	103	349
	LYBROOK	H C O INC	ESCRITO GALLUP (ASSOCIATED)	27A 24N	7W	N/A	9011	ACT	FP DATE	5901	71110	221711	0	0	0	0	49	361
	JUDY	H C O INC	ESCRITO GALLUP (ASSOCIATED)	17P 24N	7W	N/A	N/A	P&A	FP DATE	FP DATE	55127	90642	0	0	0	0	0	0
	FEDERAL 1 22	H C O INC	ESCRITO GALLUP (ASSOCIATED)	22M 24N	7W	N/A	9011	ACT	FP DATE	FP DATE	107661	301462	0	0	0	0	91	823
	FEDERAL 3 27	H C O INC	ESCRITO GALLUP (ASSOCIATED)	27O 24N	7W	N/A	9011	ACT	FP DATE	5901	86417	181862	0	0	0	0	98	332

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STARTUP PRODUCTIVITY REPORT
BCO ESCRITO GALLUP
1-Mar-91

YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION	1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
	FEDERAL 2 26	B C O INC	ESCRITO GALLUP (ASSOCIATED)	26C 24N 7W	N/A	9011	ACT	FP DATE	5901	15458	620400	0	0	0	0	64	2533
	FEDERAL 3 21	B C O INC	ESCRITO GALLUP (ASSOCIATED)	21H 24N 7W	N/A	9011	ACT	FP DATE	5901	38971	251275	0	0	0	0	130	699
	FEDERAL 4 26	B C O INC	ESCRITO GALLUP (ASSOCIATED)	26G 24N 7W	N/A	9011	ACT	FP DATE	5901	12028	860431	0	0	0	0	15	763
	FEDERAL 6 22	B C O INC	ESCRITO GALLUP (ASSOCIATED)	22K 24N 7W	N/A	9011	ACT	FP DATE	5901	40560	161523	0	0	0	0	42	522
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	7M 24N 7W	N/A	9011	ACT	FP DATE	FP DATE	40929	111550	0	0	0	0	75	339
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	16L 24N 7W	N/A	9011	ACT	FP DATE	FP DATE	12001	49824	0	0	0	0	31	219
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	16M 24N 7W	N/A	9011	ACT	FP DATE	5901	53378	89509	0	0	0	0	14	63
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	17J 24N 7W	N/A	9011	ACT	FP DATE	FP DATE	70865	204281	0	0	0	0	38	193
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	17K 24N 7W	N/A	9011	ACT	FP DATE	5901	131243	193332	0	0	0	0	0	0
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	18C 24N 7W	N/A	9011	ACT	FP DATE	5901	150525	251907	0	0	0	0	31	105
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	18E 24N 7W	N/A	9009	ACT	FP DATE	5901	83229	237986	0	0	0	0	0	0
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	18H 24N 7W	N/A	7801	INA	FP DATE	FP DATE	58212	149501	0	0	0	0	0	0
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	18I 24N 7W	N/A	9011	ACT	FP DATE	5901	17110	66580	0	0	0	0	18	92
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	19A 24N 7W	N/A	9011	ACT	FP DATE	5901	45210	69904	0	0	0	0	25	241
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	20A 24N 7W	N/A	9011	ACT	FP DATE	5901	50677	80741	0	0	0	0	31	123
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	21C 24N 7W	N/A	9011	ACT	FP DATE	FP DATE	71139	420817	0	0	0	0	39	265
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	12O 24N 8W	N/A	9011	ACT	FP DATE	FP DATE	47533	230855	0	0	0	0	69	275
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	12P 24N 8W	N/A	9011	ACT	FP DATE	FP DATE	79090	227330	0	0	0	0	42	167
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	13A 24N 8W	N/A	9011	ACT	FP DATE	5901	129612	248269	0	0	0	0	255	865
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	17L 24N 7W	N/A	9001	ACT	FP DATE	FP DATE	92178	344315	0	0	0	0	0	0
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	18G 24N 7W	N/A	9009	ACT	FP DATE	FP DATE	31560	123319	0	0	0	0	0	0
	GORBY B	B C O INC	ESCRITO GALLUP (ASSOCIATED)	31B 24N 6W	N/A	9011	ACT	FP DATE	5901	25812	78721	0	0	0	0	22	88
	BIGBEE	B C O INC	ESCRITO GALLUP (ASSOCIATED)	16O 24N 7W	N/A	9011	ACT	FP DATE	5901	15542	46497	0	0	0	0	25	75
0										2172620	8766188	0	0	0	0	1831	15492
TOTAL										2594150	11103813	111399	500742	9672	27427	3601	41837

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STARTUP PRODUCTIVITY REPORT
COLE ESCRITO GALLUP
1-Mar-91

YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION		1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE FP DATE	GAS CUM SINCE FP DATE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
90	RINCON	COLE JACK A	ESCRITO GALLUP (ASSOCIATED)	30A 24N	6W	9005	9011	ACT	FP DATE	FP DATE	368	22288	368	22288	89	769	80	4003
89	RINCON	COLE JACK A	ESCRITO GALLUP (ASSOCIATED)	30C 24N	6W	8906	9011	ACT	FP DATE	FP DATE	5033	58939	4128	42925	423	861	153	2576
	RINCON	COLE JACK A	ESCRITO GALLUP (ASSOCIATED)	31I 24N	6W	8908	9011	ACT	FP DATE	FP DATE	3325	65336	2731	49202	0	7260	139	3971
	RINCON	COLE JACK A	ESCRITO GALLUP (ASSOCIATED)	30G 24N	6W	8911	9011	ACT	FP DATE	FP DATE	2398	20972	2325	19996	563	1110	45	1045
	RINCON	COLE JACK A	ESCRITO GALLUP (ASSOCIATED)	5A 23N	6W	8909	9011	ACT	FP DATE	FP DATE	5426	26726	4873	23458	579	709	204	1106
	RINCON	COLE JACK A	ESCRITO GALLUP (ASSOCIATED)	6A 23N	6W	8908	9011	ACT	FP DATE	FP DATE	1684	64521	1371	51167	0	6533	83	3061
89											17866	236494	15428	186748	1565	16473	704	15762
TOTAL											18234	258782	15796	209036	1654	17242		

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STARTUP PRODUCTIVITY REPORT
BANNON ESCRITO GALLUP
1-Mar-91

YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION	1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
90	MESA 25	BANNON ENERGY INC	ESCRITO GALLUP (ASSOCIATED)	25P 24N 7W	9006	9011	ACT	FP DATE	FP DATE	742	2280	742	2280	167	338	95	502
89	MESA 25	BANNON ENERGY INC	ESCRITO GALLUP (ASSOCIATED)	25M 24N 7W	8905	9011	ACT	FP DATE	FP DATE	1340	196064	1082	125723	280	5482	31	9725
80	MESA 25	BANNON ENERGY INC	ESCRITO GALLUP (ASSOCIATED)	25M 24N 7W	8010	8910	P&A	FP DATE	FP DATE	2927	219836	276	0	97	0	0	0
79	GRACE FEDERAL 21	BANNON ENERGY INC	ESCRITO GALLUP (ASSOCIATED)	21K 24N 7W	7911	8903	INA	FP DATE	FP DATE	43451	153922	4221	747	358	0	0	0
0	MESA 25	BANNON ENERGY INC	ESCRITO GALLUP (ASSOCIATED)	25I 24N 7W	N/A	9010	ACT	FP DATE	5901	15294	1227973	0	0	0	0	0	23
	GOFF 30	BANNON ENERGY INC	ESCRITO GALLUP (ASSOCIATED)	30E 24N 6W	N/A	9006	ACT	FP DATE	5901	40395	261942	0	0	0	0	0	0
	CONNIE 21	BANNON ENERGY INC	ESCRITO GALLUP (ASSOCIATED)	21I 24N 7W	N/A	9011	ACT	FP DATE	5901	181105	604692	0	0	0	0	126	3277
0										236794	2094607	0	0	0	0	252	13527
TOTAL										285254	2666709	6321	128750	902	5820		

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STARTUP PRODUCTIVITY REPORT
12-Feb-91

YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION		1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
90	RINCON	COLE JACK A	ESCRITO GALLUP (ASSOCIATED)	35A 24N	6W	9005	9010	ACT	FP DATE	FP DATE	342	18571	342	18571	89	759	80	4003
	MESA 25	BANNON ENERGY INC	ESCRITO GALLUP (ASSOCIATED)	25P 24N	7W	9006	9010	ACT	FP DATE	FP DATE	700	2114	700	2114	157	338	95	502
	BOBBY B	B C O INC	ESCRITO GALLUP (ASSOCIATED)	31C 24N	6W	9005	9010	ACT	FP DATE	FP DATE	1013	44015	1013	44015	336	6090	67	3961
	BOBBY B	B C O INC	ESCRITO GALLUP (ASSOCIATED)	31E 24N	6W	9005	9010	ACT	FP DATE	FP DATE	774	49543	774	49543	199	10710	101	7962
90											2829	113243	2829	113243	851	17897	343	16428
89	RINCON	COLE JACK A	ESCRITO GALLUP (ASSOCIATED)	30C 24N	6W	8906	9010	ACT	FP DATE	FP DATE	4901	56452	4123	42925	423	251	153	2576
	RINCON	COLE JACK A	ESCRITO GALLUP (ASSOCIATED)	31I 24N	6W	8908	9010	ACT	FP DATE	FP DATE	3192	61222	2731	49202	0	1250	139	3971
	RINCON	COLE JACK A	ESCRITO GALLUP (ASSOCIATED)	30G 24N	5W	8911	9010	ACT	FP DATE	FP DATE	2325	19995	2325	19995	563	1110	45	1045
	RINCON	COLE JACK A	ESCRITO GALLUP (ASSOCIATED)	5A 23N	6W	8909	9010	ACT	FP DATE	FP DATE	5320	25512	4273	23458	579	709	204	1106
	RINCON	COLE JACK A	ESCRITO GALLUP (ASSOCIATED)	5A 23N	6W	8903	9010	ACT	FP DATE	FP DATE	1515	61479	1371	51157	0	6533	83	3061
	MESA 25	BANNON ENERGY INC	ESCRITO GALLUP (ASSOCIATED)	25M 24N	7W	8905	9010	ACT	FP DATE	FP DATE	1312	186573	1082	125723	280	5492	31	9725
89											18666	411034	15510	312471	1845	21955	655	21484
88	THIRLAWAY	MCELVAIN T H O&G PROP	ESCRITO GALLUP (ASSOCIATED)	36G 24N	7W	8801	9010	ACT	FP DATE	FP DATE	4453	58267	3734	50404	510	750	42	1475
87	ERNEST	MERIDIAN OIL INC	ESCRITO GALLUP (ASSOCIATED)	27C 24N	7W	8708	9008	ACT	FP DATE	FP DATE	7694	65755	105	570	106	570	0	0
86	FEDERAL A	MERRION OIL & GAS CORP	ESCRITO GALLUP (ASSOCIATED)	11P 24N	8W	8601	9010	ACT	FP DATE	FP DATE	9432	24870	1317	4112	442	1332	202	838
85	SHOOFLY	MERRION OIL & GAS CORP	ESCRITO GALLUP (ASSOCIATED)	14C 24N	8W	8502	8509	INA	FP DATE	FP DATE	3237	5837	3237	5837	596	1057	0	0
	LYBROOK	B C O INC	ESCRITO GALLUP (ASSOCIATED)	27I 24N	7W	8507	9010	ACT	FP DATE	FP DATE	11506	28790	3535	17107	833	1391	233	923
	FEDERAL 3 21	B C O INC	ESCRITO GALLUP (ASSOCIATED)	21L 24N	7W	8505	9010	ACT	FP DATE	FP DATE	8919	59259	3733	17987	256	133	66	616
	FEDERAL 3 21	B C O INC	ESCRITO GALLUP (ASSOCIATED)	21O 24N	7W	8507	9010	ACT	FP DATE	FP DATE	11892	82933	3539	12297	572	955	148	1088
85											35554	246879	14044	59918	2267	3536	691	4940
84	MAGNUM	LOBO PRODUCTION INC	ESCRITO GALLUP (ASSOCIATED)	23I 24N	7W	8406	9010	ACT	FP DATE	FP DATE	14429	55011	4863	10140	799	450	117	702
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	18J 24N	7W	8407	9010	ACT	FP DATE	FP DATE	16260	110507	6169	24237	691	757	98	915
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	19P 24N	7W	8407	9010	ACT	FP DATE	FP DATE	19403	126466	9548	35036	792	391	84	1092
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	19H 24N	7W	8407	9010	ACT	FP DATE	FP DATE	7536	46588	2911	11210	26	13	49	291
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	20C 24N	7W	8409	9010	ACT	FP DATE	FP DATE	21559	156512	8306	38125	1443	1127	39	265
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	20H 24N	7W	8408	9010	ACT	FP DATE	FP DATE	25793	193252	10940	48465	1259	799	137	2558
84											104980	688336	43335	167273	5006	3597	524	5823
83	SMITH	B C O INC	ESCRITO GALLUP (ASSOCIATED)	13C 24N	8W	8307	9010	ACT	FP DATE	FP DATE	25775	160712	8341	25683	213	0	174	2263
	F-27 24 7	MERIDIAN OIL INC	ESCRITO GALLUP (ASSOCIATED)	27L 24N	7W	8306	9009	ACT	FP DATE	FP DATE	8943	29170	240	0	340	0	0	0
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	17N 24N	7W	8307	9010	ACT	FP DATE	FP DATE	20656	111033	8329	27716	711	336	47	478
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	19F 24N	7W	8307	9010	ACT	FP DATE	FP DATE	14717	87889	5973	12950	192	0	60	882
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	21F 24N	7W	8308	9010	ACT	FP DATE	FP DATE	9258	53146	3657	11175	189	554	58	525
83											80049	442150	27150	84525	1545	1470	339	4148
82	SLICKHORN SPLCA	DUGAN PRODUCTION CORP	ESCRITO GALLUP (ASSOCIATED)	3M 24N	7W	8207	9010	ACT	FP DATE	FP DATE	6972	22079	1514	7115	79	0	79	215
	DOME FEDERAL 34-24-7	TEXACO INC	ESCRITO GALLUP (ASSOCIATED)	34N 24N	7W	8205	9003	ACT	FP DATE	FP DATE	5132	17593	1677	0	24	0	0	0
82											12104	39672	3191	7115	103	0	79	215

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YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION	1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
80	MESA 25	BANNON ENERGY INC	ESCRITO GALLUP (ASSOCIATED)	25M 24N 7W	8010	8910	P&A	FP DATE	FP DATE	2927	219836	276	0	97	0	0	0
	GRACE FEDERAL 35	GRACE PETROLEUM CORP	ESCRITO GALLUP (ASSOCIATED)	35D 24N 7W	8010	8508	P&A	FP DATE	FP DATE	880	0	362	0	45	0	0	0
	CONNIE 28	GRACE PETROLEUM CORP	ESCRITO GALLUP (ASSOCIATED)	28M 24N 7W	8010	8206	P&A	FP DATE	FP DATE	763	938	620	0	153	0	0	0
80										4570	220774	1158	0	295	0	0	0
79	GRACE FEDERAL 21	BANNON ENERGY INC	ESCRITO GALLUP (ASSOCIATED)	21K 24N 7W	7911	8903	INA	FP DATE	FP DATE	43451	153902	4221	747	369	0	0	0
78	RASPBERRY	DUGAN PRODUCTION CORP	ESCRITO GALLUP (ASSOCIATED)	26M 24N 7W	7811	8711	INA	FP DATE	FP DATE	3645	29274	695	2938	152	893	0	0
76	FEDERAL 1 22	B C O INC	ESCRITO GALLUP (ASSOCIATED)	22M 24N 7W	7605	9010	ACT	FP DATE	FP DATE	42932	191043	4951	18302	443	1257	130	809
	FEDERAL 1 7	B C O INC	ESCRITO GALLUP (ASSOCIATED)	7P 24N 7W	7601	7807	INA	FP DATE	FP DATE	623	355	572	355	27	0	0	0
76										43555	191398	5423	18657	445	1257	130	809
75	SMITH	B C O INC	ESCRITO GALLUP (ASSOCIATED)	18F 24N 8W	7505	9010	ACT	FP DATE	FP DATE	29837	112903	4972	17457	75	150	93	316
	SHAWNEE 33	GRACE PETROLEUM CORP	ESCRITO GALLUP (ASSOCIATED)	33D 24N 7W	7504	8408	P&A	FP DATE	FP DATE	5056	0	1769	0	271	0	0	0
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	12N 24N 7W	7505	9010	ACT	FP DATE	FP DATE	36912	168738	5742	19524	525	1010	85	673
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	13M 24N 8W	7505	9010	ACT	FP DATE	FP DATE	57093	266370	8454	29194	240	499	101	1028
75										128898	547911	20936	66835	1032	1842	279	2017
70	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	10I 24N 8W	7007	9010	ACT	FP DATE	FP DATE	56351	188958	8783	16342	535	840	72	1018
0	STATE	WARNER R W	ESCRITO GALLUP (ASSOCIATED)	35B 24N 7W	N/A	9009	ACT	FP DATE	5901	20049	985816	0	0	0	0	0	0
	STEPHENSON	B C O INC	ESCRITO GALLUP (ASSOCIATED)	22D 24N 7W	N/A	9010	ACT	FP DATE	5901	92951	601454	0	0	0	0	81	458
	SPERLING 30	GRACE PETROLEUM CORP	ESCRITO GALLUP (ASSOCIATED)	30I 24N 6W	N/A	8105	P&A	FP DATE	5901	21394	150904	0	0	0	0	0	0
	R R ZANOTTI	MCELVAIN E + GAS PROP	ESCRITO GALLUP (ASSOCIATED)	34C 24N 7W	N/A	9010	ACT	FP DATE	5901	53235	47190	0	0	0	0	98	0
	MESA 26	BANNON ENERGY INC	ESCRITO GALLUP (ASSOCIATED)	26I 24N 7W	N/A	9010	ACT	FP DATE	5901	16294	1227973	0	0	0	0	0	23
	MESA 25	GRACE PETROLEUM CORP	ESCRITO GALLUP (ASSOCIATED)	25D 24N 7W	N/A	8105	P&A	FP DATE	5901	23426	1417765	0	0	0	0	0	0
	LYBROOK	B C O INC	ESCRITO GALLUP (ASSOCIATED)	22B 24N 7W	N/A	9010	ACT	FP DATE	5901	101226	605630	0	0	0	0	245	1247
	LYBROOK	B C O INC	ESCRITO GALLUP (ASSOCIATED)	22I 24N 7W	N/A	9010	ACT	FP DATE	5901	242910	1066505	0	0	0	0	126	3277
	LYBROOK	B C O INC	ESCRITO GALLUP (ASSOCIATED)	22G 24N 7W	N/A	9010	ACT	FP DATE	5901	101725	574971	0	0	0	0	103	349
	LYBROOK	B C O INC	ESCRITO GALLUP (ASSOCIATED)	27A 24N 7W	N/A	9010	ACT	FP DATE	5901	71051	221357	0	0	0	0	49	361
	LOVE 23	GRACE PETROLEUM CORP	ESCRITO GALLUP (ASSOCIATED)	23L 24N 7W	N/A	8005	P&A	FP DATE	5901	121201	418315	0	0	0	0	0	0
	KENNEY 13	GRACE PETROLEUM CORP	ESCRITO GALLUP (ASSOCIATED)	13K 24N 7W	N/A	8005	P&A	FP DATE	5901	73240	573652	0	0	0	0	0	0
	JUDD	B C O INC	ESCRITO GALLUP (ASSOCIATED)	17P 24N 7W	N/A	N/A	P&A	FP DATE	FP DATE	55127	90642	0	0	0	0	0	0
	GOFF 3P	BANNON ENERGY INC	ESCRITO GALLUP (ASSOCIATED)	3OE 24N 6W	N/A	9005	ACT	FP DATE	5901	40295	261942	0	0	0	0	0	0
	FEDERAL 1 20	B C O INC	ESCRITO GALLUP (ASSOCIATED)	20N 24N 7W	N/A	9010	ACT	FP DATE	FP DATE	107571	380684	0	0	0	0	91	823
	FEDERAL 1 27	B C O INC	ESCRITO GALLUP (ASSOCIATED)	27O 24N 7W	N/A	9010	ACT	FP DATE	5901	85327	181562	0	0	0	0	98	332
	FEDERAL C 2	B C O INC	ESCRITO GALLUP (ASSOCIATED)	2EO 24N 7W	N/A	9010	ACT	FP DATE	5901	15393	618094	0	0	0	0	64	2533
	FEDERAL 3 21	B C O INC	ESCRITO GALLUP (ASSOCIATED)	21M 24N 7W	N/A	9010	ACT	FP DATE	5901	38867	250698	0	0	0	0	130	699
	FEDERAL 1 2	B C O INC	ESCRITO GALLUP (ASSOCIATED)	2EO 24N 7W	N/A	9010	ACT	FP DATE	5901	12005	859177	0	0	0	0	15	763
	FEDERAL 5 23	B C O INC	ESCRITO GALLUP (ASSOCIATED)	23P 24N 7W	N/A	9010	ACT	FP DATE	5901	40517	161045	0	0	0	0	42	522
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	7M 24N 7W	N/A	9010	ACT	FP DATE	FP DATE	40873	111300	0	0	0	0	75	339
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	18L 24N 7W	N/A	9010	ACT	FP DATE	FP DATE	11371	49615	0	0	0	0	31	219
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	18M 24N 7W	N/A	9010	ACT	FP DATE	5901	53362	89438	0	0	0	0	14	63
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	17O 24N 7W	N/A	9010	ACT	FP DATE	FP DATE	70927	204231	0	0	0	0	38	193
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	17A 24N 7W	N/A	9009	ACT	FP DATE	5901	131222	183283	0	0	0	0	0	0

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STARTUP PRODUCTIVITY REPORT
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YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION		1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	17I 24N	7W	N/A	9001	ACT	FP DATE	FP DATE	92178	344315	0	0	0	0	0	0
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	19C 24N	7W	N/A	9010	ACT	FP DATE	5901	159504	251837	0	0	0	0	31	105
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	19E 24N	7W	N/A	9009	ACT	FP DATE	5901	83229	237995	0	0	0	0	0	0
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	19G 24N	7W	N/A	9009	ACT	FP DATE	FP DATE	31550	123319	0	0	0	0	0	0
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	19H 24N	7W	N/A	7801	INA	FP DATE	FP DATE	58212	149501	0	0	0	0	0	0
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	19I 24N	7W	N/A	9010	ACT	FP DATE	5901	17089	55470	0	0	0	0	18	92
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	19A 24N	7W	N/A	9010	ACT	FP DATE	5901	45186	69678	0	0	0	0	25	241
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	20A 24N	7W	N/A	9010	ACT	FP DATE	5901	50547	80035	0	0	0	0	31	123
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	21C 24N	7W	N/A	9010	ACT	FP DATE	FP DATE	71101	420564	0	0	0	0	39	265
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	12C 24N	8W	N/A	9010	ACT	FP DATE	FP DATE	47478	230533	0	0	0	0	69	275
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	12D 24N	8W	N/A	9010	ACT	FP DATE	FP DATE	79046	227152	0	0	0	0	42	167
	ESCRITO GALLUP UNIT	B C O INC	ESCRITO GALLUP (ASSOCIATED)	13A 24N	8W	N/A	9010	ACT	FP DATE	5901	129347	247388	0	0	0	0	255	865
	EMMLS1	MERIDIAN OIL INC	ESCRITO GALLUP (ASSOCIATED)	23D 24N	7W	N/A	9010	ACT	FP DATE	5901	81179	324179	0	0	0	0	102	0
	CONNIE	PETROLEUM CONSULTANTS	ESCRITO GALLUP (ASSOCIATED)	24G 24N	7W	N/A	7511	P&A	FP DATE	5901	54133	205267	0	0	0	0	0	0
	CONNIE 24	CANNON ENERGY INC	ESCRITO GALLUP (ASSOCIATED)	24I 24N	7W	N/A	9010	ACT	FP DATE	5901	139932	604692	0	0	0	0	158	316
	CONNIE 24	GRACE PETROLEUM CORP	ESCRITO GALLUP (ASSOCIATED)	24O 24N	7W	N/A	7409	P&A	FP DATE	5901	64963	132349	0	0	0	0	0	0
	CONNIE 30	GRACE PETROLEUM CORP	ESCRITO GALLUP (ASSOCIATED)	29B 24N	7W	N/A	8408	P&A	FP DATE	5901	47144	200693	0	0	0	0	0	0
	BRIAN MIELSEN	GIANT EXPL & PROD CO	ESCRITO GALLUP (ASSOCIATED)	19M 24N	7W	N/A	9010	ACT	FP DATE	FP DATE	11543	8331	0	0	0	0	65	616
	BOOBY P	B C O INC	ESCRITO GALLUP (ASSOCIATED)	31B 24N	6W	N/A	9010	ACT	FP DATE	5901	25790	78633	0	0	0	0	22	88
	BLANCO 30	GRACE PETROLEUM CORP	ESCRITO GALLUP (ASSOCIATED)	23E 24N	7W	N/A	8206	P&A	FP DATE	5901	81642	475220	0	0	0	0	0	0
	BIGBIE	B C O INC	ESCRITO GALLUP (ASSOCIATED)	16G 24N	7W	N/A	9010	ACT	FP DATE	5901	15529	46458	0	0	0	0	25	75
	AXE	PENNZOIL MOEL CONSTRUCTN	ESCRITO GALLUP (ASSOCIATED)	11I 24N	8W	N/A	9010	ACT	FP DATE	5901	30230	97240	0	0	0	0	65	0
0											3030933	15893076	0	0	0	0	2319	16447
TOTAL											3646464	19326720	153422	904550	16685	55501	5359	72311

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STARTUP PRODUCTIVITY REPORT
BANNON LYBROOK GALLUP
1-Mar-91

YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION		1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
90	STATE 32	BANNON ENERGY INC	LYBROOK GALLUP	32P 24N	7W	9008	9011	ACT	FP DATE	FP DATE	1276	3181	1276	3181	591	1018	318	613
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25G 24N	8W	9010	9011	ACT	FP DATE	FP DATE	949	2989	949	2989	501	815	501	815
	SOUTH BLANCO FEDERAL 2'	BANNON ENERGY INC	LYBROOK GALLUP	25H 24N	8W	9010	9011	ACT	FP DATE	FP DATE	769	3664	769	3664	167	403	167	403
	SOUTH BLANCO FEDERAL 31	BANNON ENERGY INC	LYBROOK GALLUP	31B 24N	7W	9008	9011	ACT	FP DATE	FP DATE	1105	7980	1105	7980	342	2164	275	2066
	SOUTH BLANCO FEDERAL 6	BANNON ENERGY INC	LYBROOK GALLUP	6G 23N	7W	9010	9011	ACT	FP DATE	FP DATE	594	2076	594	2076	356	1451	356	1451
	LYBROOK SOUTH WELL	BANNON ENERGY INC	LYBROOK GALLUP	18M 23N	6W	9005	9011	ACT	FP DATE	FP DATE	1843	8492	1843	8492	768	0	0	0
	LYBROOK SOUTH WELL	BANNON ENERGY INC	LYBROOK GALLUP	19C 23N	6W	9005	9011	ACT	FP DATE	FP DATE	1467	8078	1467	8078	316	0	0	0
	LYBROOK SOUTH WELL	BANNON ENERGY INC	LYBROOK GALLUP	14O 23N	7W	9006	9011	ACT	FP DATE	FP DATE	2928	3709	2928	3709	587	300	388	526
	LYBROOK SOUTH WELL	BANNON ENERGY INC	LYBROOK GALLUP	19G 23N	6W	9007	9011	ACT	FP DATE	FP DATE	2102	10715	2102	10715	744	3406	0	1027
	LYBROOK SOUTH WELL	BANNON ENERGY INC	LYBROOK GALLUP	13I 23N	7W	9008	9011	ACT	FP DATE	FP DATE	1005	2347	1005	2347	247	306	188	753
	LYBROOK SOUTH WELL	BANNON ENERGY INC	LYBROOK GALLUP	14I 23N	7W	9008	9011	ACT	FP DATE	FP DATE	1344	2056	1344	2056	307	233	388	753
	LYBROOK SOUTH WELL	BANNON ENERGY INC	LYBROOK GALLUP	13O 23N	7W	9009	9011	ACT	FP DATE	FP DATE	899	2612	899	2612	287	657	283	
	LYBROOK SOUTH WELL	BANNON ENERGY INC	LYBROOK GALLUP	13K 23N	7W	9010	9011	ACT	FP DATE	FP DATE	505	2343	505	2343	174	753	174	
	LYBROOK SOUTH WELL	BANNON ENERGY INC	LYBROOK GALLUP	18I 23N	6W	9011	9011	ACT	FP DATE	FP DATE	227	2652	227	2652	227	2652		
	LYBROOK SOUTH WELL	BANNON ENERGY INC	LYBROOK GALLUP	18K 23N	6W	9011	9011	ACT	FP DATE	FP DATE	177	2904	177	2904	177	2904		
	LYBROOK SOUTH WELL	BANNON ENERGY INC	LYBROOK GALLUP	13M 23N	7W	9011	9011	ACT	FP DATE	FP DATE	148	1438	148	1438	148	1438		
	LYBROOK SOUTH WELL	BANNON ENERGY INC	LYBROOK GALLUP	19A 23N	6W	9011	9011	ACT	FP DATE	FP DATE	331	3221	331	3221	331	3221		
	LYBROOK SOUTH WELL	BANNON ENERGY INC	LYBROOK GALLUP	19J 23N	6W	9011	9011	ACT	FP DATE	FP DATE	423	1477	423	1477	423	1477		
	LYBROOK SOUTH WELL	BANNON ENERGY INC	LYBROOK GALLUP	19E 34N	6W	9011	9011	ACT	FP DATE	FP DATE	50	60	50	60	50	60		
90											18142	71994	18142	71994	6743	23258	3038	8407
89	MCBEE 7	BANNON ENERGY INC	LYBROOK GALLUP	7C 23N	6W	8910	9011	ACT	FP DATE	FP DATE	1764	29208	1630	26682	305	2807	76	1262
	MCBEE 7	BANNON ENERGY INC	LYBROOK GALLUP	7E 23N	6W	8910	9011	ACT	FP DATE	FP DATE	2549	18104	2402	16904	581	1426	92	675
	MCBEE 7	BANNON ENERGY INC	LYBROOK GALLUP	7K 23N	6W	8910	9011	ACT	FP DATE	FP DATE	3111	19118	2895	17353	617	778	106	741
	MCBEE 7	BANNON ENERGY INC	LYBROOK GALLUP	7M 23N	6W	8911	9011	ACT	FP DATE	FP DATE	4767	13883	4674	13080	750	417	308	663
	LYBROOK SOUTH WELL	BANNON ENERGY INC	LYBROOK GALLUP	14B 23N	7W	8911	9011	ACT	FP DATE	FP DATE	4068	11887	3864	10973	559	1383	210	855
	GRACE FEDERAL 1	BANNON ENERGY INC	LYBROOK GALLUP	1E 23N	7W	8910	9011	ACT	FP DATE	FP DATE	3843	31837	3544	26950	754	842	152	2521
	GRACE FEDERAL 6	BANNON ENERGY INC	LYBROOK GALLUP	6K 23N	6W	8909	9011	ACT	FP DATE	FP DATE	1150	30945	1065	27797	96	0	30	1000
	GRACE FEDERAL 6	BANNON ENERGY INC	LYBROOK GALLUP	6M 23N	6W	8910	9011	ACT	FP DATE	FP DATE	3267	36908	2999	33511	436	2788	124	337
89											24519	191890	23073	173250	4098	10441	1098	8054
88	MARCUS A	BANNON ENERGY INC	LYBROOK GALLUP	31K 24N	6W	8801	9011	ACT	FP DATE	FP DATE	4812	183689	3929	139308	510	6913	60	6359
	MARCUS A	BANNON ENERGY INC	LYBROOK GALLUP	35F 24N	7W	8809	9011	ACT	FP DATE	FP DATE	7069	53506	4909	28626	1608	2526	130	1021
88											11881	237195	8838	167934	2118	9499	190	7380
87	MARCUS	BANNON ENERGY INC	LYBROOK GALLUP	35N 24N	7W	8707	9011	ACT	FP DATE	FP DATE	3026	64849	1672	26584	426	1331	39	1180
	MARCUS	BANNON ENERGY INC	LYBROOK GALLUP	35N 24N	7W	8711	9011	ACT	FP DATE	FP DATE	7521	68721	4681	29636	1557	74	97	2537
	MARCUS A	BANNON ENERGY INC	LYBROOK GALLUP	31O 24N	6W	8710	9011	ACT	FP DATE	FP DATE	7333	271716	4558	133994	1739	10333	47	4059
	MARCUS A	BANNON ENERGY INC	LYBROOK GALLUP	35I 24N	7W	8706	9011	ACT	FP DATE	FP DATE	7165	160362	3944	66309	1045	0	90	2924
87											25045	565648	14855	256923	4767	11738	273	10700
86	MARCUS	BANNON ENERGY INC	LYBROOK GALLUP	1N 23N	7W	8610	9011	ACT	FP DATE	FP DATE	3025	54376	1286	24286	0	2213	4	402

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YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION	1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
	MARCUS	BANNON ENERGY INC	LYBROOK GALLUP	12B 23N 7W	8611	9011	ACT	FP DATE	FP DATE	5816	79056	903	21986	32	2172	82	1391
	MARCUS A	BANNON ENERGY INC	LYBROOK GALLUP	1D 23N 7W	8611	9011	ACT	FP DATE	FP DATE	2228	116251	670	37688	0	230	38	1559
	MARCUS A	BANNON ENERGY INC	LYBROOK GALLUP	1I 23N 7W	8607	9011	ACT	FP DATE	FP DATE	4061	137973	1294	55100	0	8173	45	1107
	MARCUS A	BANNON ENERGY INC	LYBROOK GALLUP	12C 23N 7W	8611	9011	ACT	FP DATE	FP DATE	3899	79776	1064	26433	0	2089	69	1230
86										19029	467432	5217	165493	32	14877	234	5287
85	MARCUS	BANNON ENERGY INC	LYBROOK GALLUP	6E 23N 6W	8509	9011	ACT	FP DATE	FP DATE	7910	214158	2122	60416	0	3429	61	2128
	MARCUS	BANNON ENERGY INC	LYBROOK GALLUP	1A 23N 7W	8510	9011	ACT	FP DATE	FP DATE	4904	214851	1593	80760	0	9247	50	2452
	MARCUS	BANNON ENERGY INC	LYBROOK GALLUP	7J 23N 6W	8509	8909	P&A	FP DATE	FP DATE	5381	37883	1237	13890	0	3227	0	0
85										18195	466892	4952	155066	0	15903	111	4580
87	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25F 24N 8W	8203	9011	ACT	FP DATE	FP DATE	22005	117570	7686	23244	904	1749	95	484
	SOUTH BLANCO FEDERAL 26	BANNON ENERGY INC	LYBROOK GALLUP	26A 24N 8W	8208	9011	ACT	FP DATE	FP DATE	20989	91890	7116	18593	918	236	102	428
	SOUTH BLANCO FEDERAL 26	BANNON ENERGY INC	LYBROOK GALLUP	26B 24N 8W	8210	9011	ACT	FP DATE	FP DATE	18880	86393	6724	13230	822	318	102	428
	SOUTH BLANCO FEDERAL 26	BANNON ENERGY INC	LYBROOK GALLUP	26C 24N 8W	8210	9011	ACT	FP DATE	FP DATE	21752	47762	8241	8675	1716	457	71	296
	SOUTH BLANCO FEDERAL 26	BANNON ENERGY INC	LYBROOK GALLUP	26D 24N 8W	8205	9011	ACT	FP DATE	FP DATE	21259	53158	5385	11439	254	291	71	296
	SOUTH BLANCO FEDERAL 26	BANNON ENERGY INC	LYBROOK GALLUP	26G 24N 8W	8201	9011	ACT	FP DATE	FP DATE	19541	103913	7091	32870	199	163	132	555
	SOUTH BLANCO NAVAJO 26A	BANNON ENERGY INC	LYBROOK GALLUP	26I 24N 8W	8201	9011	ACT	FP DATE	FP DATE	12532	89460	4755	28195	465	1752	176	345
	SOUTH BLANCO NAVAJO 8	BANNON ENERGY INC	LYBROOK GALLUP	8B 23N 7W	8204	9011	ACT	FP DATE	FP DATE	7897	291650	2999	79704	119	775	52	837
	SOUTH BLANCO NAVAJO 8	BANNON ENERGY INC	LYBROOK GALLUP	8H 23N 7W	8204	9011	ACT	FP DATE	FP DATE	8484	143229	3486	32731	806	1709	45	728
82										153339	1025025	53483	248681	6203	7450	846	4397
81	SOUTH BLANCO FEDERAL 27	BANNON ENERGY INC	LYBROOK GALLUP	22P 24N 8W	8111	9011	ACT	FP DATE	FP DATE	33193	76054	6264	12590	333	0	202	174
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	23M 24N 8W	8107	9011	ACT	FP DATE	FP DATE	36856	67116	6313	8775	590	0	218	466
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25D 24N 8W	8104	9011	ACT	FP DATE	FP DATE	34159	117690	7175	14448	27	0	242	816
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25E 24N 8W	8112	8808	INA	FP DATE	FP DATE	20571	85409	7247	16569	273	556	0	0
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25K 24N 8W	8102	9011	ACT	FP DATE	FP DATE	36289	190290	10220	21678	717	782	249	838
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25L 24N 8W	8111	8806	INA	FP DATE	FP DATE	18977	75352	5939	14634	817	1685	0	0
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25M 24N 8W	8104	9011	ACT	FP DATE	FP DATE	28623	100826	7482	14323	276	928	58	195
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25N 24N 8W	8104	9011	ACT	FP DATE	FP DATE	35821	122194	8540	17461	536	1608	179	605
	SOUTH BLANCO FEDERAL 26	BANNON ENERGY INC	LYBROOK GALLUP	26F 24N 8W	8110	9011	ACT	FP DATE	FP DATE	23358	64327	4856	11254	392	846	24	311
	SOUTH BLANCO FEDERAL 26	BANNON ENERGY INC	LYBROOK GALLUP	26H 24N 8W	8109	9011	ACT	FP DATE	FP DATE	29021	140823	7863	19705	249	0	167	403
	SOUTH BLANCO FEDERAL 30	BANNON ENERGY INC	LYBROOK GALLUP	30M 24N 7W	8108	9011	ACT	FP DATE	FP DATE	30115	207955	8184	23263	479	1274	95	947
	SOUTH BLANCO FEDERAL 31	BANNON ENERGY INC	LYBROOK GALLUP	31G 24N 7W	8102	8710	INA	FP DATE	FP DATE	10579	86204	3032	15948	370	374	0	0
	SOUTH BLANCO FEDERAL 31	BANNON ENERGY INC	LYBROOK GALLUP	31H 24N 7W	8110	9011	ACT	FP DATE	FP DATE	11844	129621	2262	27294	172	0	42	280
	SOUTH BLANCO FEDERAL 6	BANNON ENERGY INC	LYBROOK GALLUP	6B 23N 7W	8101	9010	ACT	FP DATE	FP DATE	44182	232256	31348	81162	110	110	15	373
	SOUTH BLANCO FEDERAL 6	BANNON ENERGY INC	LYBROOK GALLUP	6C 23N 7W	8104	9010	ACT	FP DATE	FP DATE	22558	123599	8545	17626	697	1728	17	490
	SOUTH BLANCO FEDERAL 6	BANNON ENERGY INC	LYBROOK GALLUP	6H 23N 7W	8103	9010	ACT	FP DATE	FP DATE	28889	162260	11291	24841	436	1100	20	608
	SOUTH BLANCO NAVAJO 25	BANNON ENERGY INC	LYBROOK GALLUP	25J 24N 8W	8110	9011	ACT	FP DATE	FP DATE	24237	174660	10845	30135	656	1076	38	918
	SOUTH BLANCO NAVAJO 25	BANNON ENERGY INC	LYBROOK GALLUP	25O 24N 8W	8109	9011	ACT	FP DATE	FP DATE	13090	107272	3493	14914	74	0	37	897
	SOUTH BLANCO NAVAJO 25	BANNON ENERGY INC	LYBROOK GALLUP	25P 24N 8W	8110	9001	ACT	FP DATE	FP DATE	14517	117326	4518	16596	758	1028	0	0
	SOUTH BLANCO NAVAJO 31	BANNON ENERGY INC	LYBROOK GALLUP	31B 24N 7W	8108	9011	ACT	FP DATE	FP DATE	14132	112250	5336	21613	202	622	0	588
	SOUTH BLANCO NAVAJO 31	BANNON ENERGY INC	LYBROOK GALLUP	31E 24N 7W	8108	9007	ACT	FP DATE	FP DATE	12018	116397	4541	18005	180	565	0	0

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	SOUTH BLANCO NAVAJO B	BANNON ENERGY INC	LYBROOK GALLUP	8A 23N 7W	8103	9011	ACT	FP DATE	FP DATE	20045	425821	7181	82816	208	1700	114	1828
	SOUTH BLANCO STATE 32A	BANNON ENERGY INC	LYBROOK GALLUP	32O 24N 7W	8111	9010	ACT	FP DATE	FP DATE	10372	113506	2633	17741	382	0	0	101
	SOUTH BLANCO STATE 36	BANNON ENERGY INC	LYBROOK GALLUP	36A 24N 8W	8102	8903	INA	FP DATE	FP DATE	35074	177061	15297	24615	1695	1631	0	0
	SOUTH BLANCO STATE 36	BANNON ENERGY INC	LYBROOK GALLUP	36D 24N 8W	8105	8607	INA	FP DATE	FP DATE	18322	65699	10230	16222	1448	682	0	0
	SOUTH BLANCO STATE 36	BANNON ENERGY INC	LYBROOK GALLUP	36G 24N 8W	8103	9011	ACT	FP DATE	FP DATE	18536	112772	7275	13612	557	835	77	590
	SOUTH BLANCO STATE 36	BANNON ENERGY INC	LYBROOK GALLUP	36M 24N 8W	8103	9011	ACT	FP DATE	FP DATE	25780	158078	9731	18653	557	805	98	880
81										651158	3662818	217641	616493	13191	19833	1892	12308
80	SOUTH BLANCO FEDERAL 6	BANNON ENERGY INC	LYBROOK GALLUP	6A 23N 7W	8002	9001	ACT	FP DATE	FP DATE	111408	408867	16184	5752	242	192	0	0
	MCBEE 7	BANNON ENERGY INC	LYBROOK GALLUP	7L 23N 6W	8012	8908	INA	FP DATE	FP DATE	7828	30952	1497	138	297	0	0	0
	LYBROOK SOUTH WELL	BANNON ENERGY INC	LYBROOK GALLUP	14E 23N 7W	8011	8910	INA	FP DATE	FP DATE	21051	331	3591	0	666	0	0	0
	GRACE FEDERAL 1	BANNON ENERGY INC	LYBROOK GALLUP	1E 23N 7W	8009	8910	P&A	FP DATE	FP DATE	8265	221513	1302	1145	339	0	153	2521
	GRACE FEDERAL 6	BANNON ENERGY INC	LYBROOK GALLUP	6K 23N 6W	8009	8908	P&A	FP DATE	FP DATE	5216	46478	893	277	167	0	30	1000
	FEDERAL 12	BANNON ENERGY INC	LYBROOK GALLUP	12O 23N 7W	8009	9011	ACT	FP DATE	FP DATE	6258	83781	1156	234	70	0	35	122
	CONNIE 29	BANNON ENERGY INC	LYBROOK GALLUP	29O 24N 7W	8011	8607	P&A	FP DATE	FP DATE	3519	28639	766	3	383	0	0	0
80										163545	820561	25389	7549	2164	192	218	3643
0	VANDENBURGH 11	BANNON ENERGY INC	LYBROOK GALLUP	11M 23N 7W	N/A	9006	ACT	FP DATE	5901	130113	608998	0	0	0	0	0	0
	ROGERS 24	BANNON ENERGY INC	LYBROOK GALLUP	24L 23N 7W	N/A	9010	ACT	FP DATE	5901	23496	6635	0	0	0	0	0	317
	NANCY 14	BANNON ENERGY INC	LYBROOK GALLUP	14B 23N 7W	N/A	8710	INA	FP DATE	5901	18267	12258	0	0	0	0	210	855
	MCBEE 8	BANNON ENERGY INC	LYBROOK GALLUP	7F 23N 6W	N/A	8906	INA	FP DATE	5901	38172	300267	0	0	0	0	0	0
	CONNIE 27	BANNON ENERGY INC	LYBROOK GALLUP	29K 24N 7W	N/A	8909	INA	FP DATE	5901	14189	90670	0	0	0	0	0	0
	BENN 9	BANNON ENERGY INC	LYBROOK GALLUP	9H 23N 7W	N/A	8906	INA	FP DATE	5901	12135	1526711	0	0	0	0	0	0
0										236372	2545539	0	0	0	0	210	1172
TOTAL										1321225	10054994	371590	1863383	39316	113191	7920	58548

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90	STATE J	B C O INC	LYBROOK GALLUP	16K 23N 7W	9006	9011	ACT	FP DATE	FP DATE	1199	33950	1199	33950	243	5073	168	5905
	FEDERAL B	B C O INC	LYBROOK GALLUP	22C 23N 7W	9005	9011	ACT	FP DATE	FP DATE	4057	47187	4057	47187	831	5315	359	6310
	FEDERAL B	B C O INC	LYBROOK GALLUP	22E 23N 7W	9006	9011	ACT	FP DATE	FP DATE	1637	24700	1637	24700	451	6566	190	3053
90										6893	105837	6893	105837	1525	16954	717	15268
89	STATE J	B C O INC	LYBROOK GALLUP	16E 23N 7W	8906	9011	ACT	FP DATE	FP DATE	1766	43186	1374	33770	228	0	67	1682
	STATE J	B C O INC	LYBROOK GALLUP	16J 23N 7W	8906	9011	ACT	FP DATE	FP DATE	2835	92177	2428	69492	166	0	45	3706
	FEDERAL B	B C O INC	LYBROOK GALLUP	21A 23N 7W	8907	9011	ACT	FP DATE	FP DATE	5879	92793	4950	77565	1163	12616	217	3160
	BETTY B	B C O INC	LYBROOK GALLUP	15E 23N 7W	8907	9011	ACT	FP DATE	FP DATE	7293	58563	5480	43140	567	2305	375	2918
89										17773	286719	14232	223967	2124	14921	704	11466
88	DUNN	B C O INC	LYBROOK GALLUP	4A 23N 7W	8807	9011	ACT	FP DATE	FP DATE	8204	63606	4859	30312	213	2130	151	1369
	DUNN	B C O INC	LYBROOK GALLUP	9M 23N 7W	8806	9011	ACT	FP DATE	FP DATE	3113	98586	2186	39928	105	630	45	4213
	DUNN	B C O INC	LYBROOK GALLUP	10L 23N 7W	8807	9011	ACT	FP DATE	FP DATE	1885	95641	1040	28519	129	645	51	6282
88										13202	257833	8085	98759	447	3405	247	11864
87	STATE H	B C O INC	LYBROOK GALLUP	2B 23N 7W	8709	9011	ACT	FP DATE	FP DATE	11764	111582	5712	50872	277	632	203	2513
	STATE H	B C O INC	LYBROOK GALLUP	2I 23N 7W	8709	9011	ACT	FP DATE	FP DATE	12433	102887	6345	51589	940	6846	172	1662
	STATE J	B C O INC	LYBROOK GALLUP	16A 23N 7W	8710	9011	ACT	FP DATE	FP DATE	5897	389914	1956	120324	191	4700	147	7670
87										30094	604383	14013	222785	1408	12178	522	11845
85	DUNN	B C O INC	LYBROOK GALLUP	3O 23N 7W	8511	9011	ACT	FP DATE	FP DATE	9006	142221	3084	38882	527	4912	106	2466
82	DUNN	B C O INC	LYBROOK GALLUP	3A 23N 7W	8207	9011	ACT	FP DATE	FP DATE	20005	205997	5851	43356	250	1053	107	1035
	DUNN	B C O INC	LYBROOK GALLUP	3B 23N 7W	8206	9011	ACT	FP DATE	FP DATE	26030	398314	4948	34470	63	0	156	2710
	DUNN	B C O INC	LYBROOK GALLUP	3H 23N 7W	8208	9011	ACT	FP DATE	FP DATE	32588	347727	8918	70236	883	6072	183	2265
82										78623	862038	19717	148062	1196	7125	552	8476
81	STATE H	B C O INC	LYBROOK GALLUP	2O 23N 7W	8108	9011	ACT	FP DATE	FP DATE	37940	397273	6622	43217	391	0	212	1628
	STATE H	B C O INC	LYBROOK GALLUP	2M 23N 7W	8107	9011	ACT	FP DATE	FP DATE	20741	213414	3911	25467	257	585	119	1473
	DUNN	B C O INC	LYBROOK GALLUP	9C 23N 7W	8107	9011	ACT	FP DATE	FP DATE	15412	160468	5242	32691	171	342	48	1135
	DUNN	B C O INC	LYBROOK GALLUP	9D 23N 7W	8107	9011	ACT	FP DATE	FP DATE	26287	291018	7000	45604	111	410	64	1892
	DUNN	B C O INC	LYBROOK GALLUP	9E 23N 7W	8108	9011	ACT	FP DATE	FP DATE	17929	183890	6321	41916	756	3133	53	1123
	DUNN	B C O INC	LYBROOK GALLUP	9F 23N 7W	8107	9011	ACT	FP DATE	FP DATE	13790	143054	4701	28979	130	260	48	899
	DUNN	B C O INC	LYBROOK GALLUP	9K 23N 7W	8108	9011	ACT	FP DATE	FP DATE	28924	315014	6831	46255	550	2089	74	1258
81										161023	1704131	40628	264129	2366	6823	618	9408
76	DUNN	B C O INC	LYBROOK GALLUP	10F 23N 7W	7609	9011	ACT	FP DATE	FP DATE	12765	73840	1636	14596	28	0	68	224
70	FEDERAL B	B C O INC	LYBROOK GALLUP	22I 23N 7W	7012	9011	ACT	FP DATE	FP DATE	11459	106178	1991	6420	377	2400	47	507
0	STATE H	B C O INC	LYBROOK GALLUP	2K 23N 7W	N/A	9011	ACT	FP DATE	5901	27469	252239	0	0	0	0	114	506
	STATE H	B C O INC	LYBROOK GALLUP	2O 23N 7W	N/A	9011	ACT	FP DATE	5901	30350	168359	0	0	0	0	114	449

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	FEDERAL A	B C O INC	LYBROOK GALLUP	23E 23N	7W	N/A	9011	ACT	FP DATE	5901	18658	76092	0	0	0	0	70	475
	DUNN	B C O INC	LYBROOK GALLUP	10M 23N	7W	N/A	N/A	INA	FP DATE	FP DATE	0	0	0	0	0	0	0	0
	DUNN	B C O INC	LYBROOK GALLUP (MULTI-COUNTY)	10M 23N	7W	N/A	7610	INA	FP DATE	5901	4979	61353	0	0	0	0	0	0
	CAMPOS	B C O INC	LYBROOK GALLUP	4K 23N	7W	N/A	9011	ACT	FP DATE	5901	153811	665838	0	0	0	0	82	2048
	CAMPOS	B C O INC	LYBROOK GALLUP	10J 23N	7W	N/A	9011	ACT	FP DATE	5901	79247	510115	0	0	0	0	49	635
	BETTY B	B C O INC	LYBROOK GALLUP	15C 23N	7W	N/A	9011	ACT	FP DATE	5901	23379	57133	0	0	0	0	44	132
0											337893	1791129	0	0	0	0	588	4976
TOTAL											678731	5934309	110339	1123437	9998	68720	3948	73303

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YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION		1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
90	RINCON	COLE JACK A	LYBROOK GALLUP	35B 24N	7W	9004	9011	ACT	FP DATE	FP DATE	945	31965	945	31965	177	534	81	3126
	RINCON	COLE JACK A	LYBROOK GALLUP	11C 23N	7W	9005	9011	ACT	FP DATE	FP DATE	2159	6951	2159	6951	436	1040	229	1006
	RINCON	COLE JACK A	LYBROOK GALLUP	35J 24N	7W	9006	9011	ACT	FP DATE	FP DATE	908	9570	908	9570	226	1445	107	1397
90											4012	48486	4012	48486	839	3019	417	5529
89	RINCON	COLE JACK A	LYBROOK GALLUP	6C 23N	6W	8907	9011	ACT	FP DATE	FP DATE	945	32305	819	27298	257	2377	52	939
	RINCON	COLE JACK A	LYBROOK GALLUP	13G 23N	7W	8908	9011	ACT	FP DATE	FP DATE	8663	33367	7083	27317	0	3049	375	1465
	RINCON	COLE JACK A	LYBROOK GALLUP	1G 23N	7W	8910	9011	ACT	FP DATE	FP DATE	4770	46400	4323	42041	883	837	233	2573
	RINCON	COLE JACK A	LYBROOK GALLUP	31M 24N	6W	8911	9011	ACT	FP DATE	FP DATE	2221	120452	2133	113634	486	12802	105	6866
89											16599	232524	14358	210290	1626	19065	765	11843
TOTAL											20611	281010	18370	258776	2465	22084	1182	17372

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90	STATE 32	BANNON ENERGY INC	LYBROOK GALLUP	32P 24N 7W	9008	9010	ACT	FP DATE	FP DATE	1176	2598	1176	2598	591	1019	318	613
	STATE J	B C O INC	LYBROOK GALLUP	16J 23N 7W	9006	9010	ACT	FP DATE	FP DATE	1029	28905	1029	28905	243	5073	168	5905
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25G 24N 8W	9010	9010	ACT	FP DATE	FP DATE	501	815	501	815	501	815	501	815
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25H 24N 8W	9010	9010	ACT	FP DATE	FP DATE	157	403	157	403	157	403	167	403
	SOUTH BLANCO FEDERAL 31	BANNON ENERGY INC	LYBROOK GALLUP	31B 24N 7W	9008	9010	ACT	FP DATE	FP DATE	892	6165	892	6165	342	2164	275	2066
	SOUTH BLANCO FEDERAL 6	BANNON ENERGY INC	LYBROOK GALLUP	6G 23N 7W	9010	9010	ACT	FP DATE	FP DATE	356	1451	355	1451	356	1451	356	1451
	SAPP C	DUGAN PRODUCTION CORP	LYBROOK GALLUP	5C 23N 7W	9004	9010	ACT	FP DATE	FP DATE	1190	14324	1190	14324	70	377	280	3733
	RINCON	COLE JACK A	LYBROOK GALLUP	35B 24N 7W	9004	9010	ACT	FP DATE	FP DATE	388	28717	388	28717	177	534	81	3126
	RINCON	COLE JACK A	LYBROOK GALLUP	11C 23N 7W	9005	9010	ACT	FP DATE	FP DATE	1966	6827	1966	6827	436	1040	229	1006
	RINCON	COLE JACK A	LYBROOK GALLUP	35J 24N 7W	9005	9010	ACT	FP DATE	FP DATE	830	8187	830	8187	225	1445	107	1397
	FEDERAL 13	BANNON ENERGY INC	LYBROOK GALLUP	13I 23N 7W	9008	9010	ACT	FP DATE	FP DATE	723	1547	723	1547	247	306	188	685
	FEDERAL 13	BANNON ENERGY INC	LYBROOK GALLUP	13O 23N 7W	9009	9010	ACT	FP DATE	FP DATE	570	1634	570	1634	287	657	283	1027
	FEDERAL 14	BANNON ENERGY INC	LYBROOK GALLUP	14C 23N 7W	9005	9010	ACT	FP DATE	FP DATE	2597	2833	2597	2833	587	330	388	526
	FEDERAL 14	BANNON ENERGY INC	LYBROOK GALLUP	14I 23N 7W	9009	9010	ACT	FP DATE	FP DATE	1084	1472	1084	1472	307	333	388	526
	FEDERAL 14	BANNON ENERGY INC	LYBROOK GALLUP	13J 23N 7W	9010	9010	ACT	FP DATE	FP DATE	174	753	174	753	174	753	174	753
	FEDERAL 18	BANNON ENERGY INC	LYBROOK GALLUP	18M 23N 6W	9005	9009	ACT	FP DATE	FP DATE	1521	7573	1521	7573	753	0	0	0
	FEDERAL 18	BANNON ENERGY INC	LYBROOK GALLUP	18C 23N 6W	9005	9009	ACT	FP DATE	FP DATE	1119	5722	1119	5722	318	0	0	0
	FEDERAL 19	BANNON ENERGY INC	LYBROOK GALLUP	19G 23N 6W	9007	9009	ACT	FP DATE	FP DATE	1623	8936	1623	8936	744	3405	0	0
	FEDERAL B	B C O INC	LYBROOK GALLUP	22C 23N 7W	9005	9010	ACT	FP DATE	FP DATE	3754	41192	3754	41192	831	5315	359	6310
	FEDERAL B	B C O INC	LYBROOK GALLUP	22E 23N 7W	9005	9010	ACT	FP DATE	FP DATE	1477	22163	1477	22163	451	5555	190	3053
	ANDERSON	COLEMAN OIL & GAS INC	LYBROOK GALLUP	22N 24N 8W	9001	9010	ACT	FP DATE	FP DATE	3627	0	3627	0	477	0	325	0
90										27264	193422	27264	193422	8300	31855	4777	33395
89	STATE J	B C O INC	LYBROOK GALLUP	16E 23N 7W	8906	9010	ACT	FP DATE	FP DATE	1738	42217	1374	33770	338	0	67	1682
	STATE J	B C O INC	LYBROOK GALLUP	16J 23N 7W	8906	9010	ACT	FP DATE	FP DATE	2779	88299	2428	63432	165	0	45	3706
	RINCON	COLE JACK A	LYBROOK GALLUP	6C 23N 6W	8907	9010	ACT	FP DATE	FP DATE	932	31144	919	27233	357	1077	52	939
	RINCON	COLE JACK A	LYBROOK GALLUP	13G 23N 7W	8902	9010	ACT	FP DATE	FP DATE	8346	32076	7093	27317	0	3049	375	1465
	RINCON	COLE JACK A	LYBROOK GALLUP	1G 23N 7W	8910	9010	ACT	FP DATE	FP DATE	4556	44614	4323	42041	333	837	233	2513
	RINCON	COLE JACK A	LYBROOK GALLUP	31M 24N 6W	8911	9010	ACT	FP DATE	FP DATE	2133	113634	2133	112534	456	12332	105	6866
	NANCY 14	BANNON ENERGY INC	LYBROOK GALLUP	14B 23N 7W	8911	9010	ACT	FP DATE	FP DATE	3954	10973	3854	10973	550	1020	210	855
	MOBEE 7	BANNON ENERGY INC	LYBROOK GALLUP	7C 23N 6W	8910	9010	ACT	FP DATE	FP DATE	1706	27944	1630	26680	305	2307	76	1262
	MOBEE 7	BANNON ENERGY INC	LYBROOK GALLUP	7E 23N 6W	8910	9010	ACT	FP DATE	FP DATE	2494	17579	2402	16304	591	1415	92	675
	MOBEE 7	BANNON ENERGY INC	LYBROOK GALLUP	7K 23N 6W	8910	9010	ACT	FP DATE	FP DATE	3001	18094	2895	17253	617	772	106	741
	MOBEE 7	BANNON ENERGY INC	LYBROOK GALLUP	7M 23N 6W	8911	9010	ACT	FP DATE	FP DATE	4674	13080	4674	13080	750	417	308	663
	GUS YJ STATE	YATES PETROLEUM CORP	LYBROOK GALLUP	32B 23N 6W	8910	9010	ACT	FP DATE	FP DATE	4528	1239	4157	1139	811	100	371	100
	GRACE FEDERAL 1	BANNON ENERGY INC	LYBROOK GALLUP	1E 23N 7W	8912	9010	ACT	FP DATE	FP DATE	3597	29471	3544	26950	754	842	153	2521
	GRACE FEDERAL 6	BANNON ENERGY INC	LYBROOK GALLUP	6I 23N 6W	8909	9010	ACT	FP DATE	FP DATE	1109	29628	1055	27737	95	0	30	1000
	GRACE FEDERAL 6	BANNON ENERGY INC	LYBROOK GALLUP	6M 23N 6W	8910	9010	ACT	FP DATE	FP DATE	3123	33848	2999	33511	436	2738	124	337
	FEDERAL B	B C O INC	LYBROOK GALLUP	21A 23N 7W	8907	9010	ACT	FP DATE	FP DATE	5691	90093	4350	77565	1163	12615	217	3160
	ERIC HIXON	GIANT EXPL & PROD CO	LYBROOK GALLUP	15H 23N 7W	8910	9010	ACT	FP DATE	FP DATE	7072	11097	6603	10074	723	403	463	1023
	BETH GLIDEN	GIANT EXPL & PROD CO	LYBROOK GALLUP	17A 23N 7W	8911	9010	ACT	FP DATE	FP DATE	1558	13614	1558	13614	338	315	52	31
	BETTY B	B C O INC	LYBROOK GALLUP	15E 23N 7W	8907	9010	ACT	FP DATE	FP DATE	6951	55772	5480	43140	567	2305	375	2918
89										69952	704326	63387	602334	3575	45155	3454	32517
88	PARKS	MCELVAIN T H OIL & GAS PROP	LYBROOK GALLUP	35[illegible] 24N 7W	8809	9010	ACT	FP DATE	FP DATE	5707	28955	3549	11155	442	0	0	105

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	MARCUS F	BANNON ENERGY INC	LYBROOK GALLUP	31K 24N	6W	8801	9010	ACT	FP DATE	FP DATE	4763	120236	3939	139308	510	6973	60	3659
	MARCUS A	BANNON ENERGY INC	LYBROOK GALLUP	35F 24N	7W	8809	9010	ACT	FP DATE	FP DATE	6793	52453	4500	23626	1608	2526	130	1021
	KIM	MCELVAIN T H OIL PROP	LYBROOK GALLUP	32M 24N	7W	8809	9010	ACT	FP DATE	FP DATE	3833	9654	2544	4849	190	0	0	65
	DUNN	B C O INC	LYBROOK GALLUP	4A 23N	7W	8807	9010	ACT	FP DATE	FP DATE	8045	62129	4859	30312	213	2130	151	1339
	DUNN	B C O INC	LYBROOK GALLUP	9M 23N	7W	8806	9010	ACT	FP DATE	FP DATE	3071	94791	2186	39928	105	630	45	4213
	DUNN	B C O INC	LYBROOK GALLUP	10L 23N	7W	8807	9010	ACT	FP DATE	FP DATE	1333	39114	1040	28519	129	645	51	6282
88											34035	517352	23016	282638	3203	12904	437	16684
87	STATE H	B C O INC	LYBROOK GALLUP	2B 23N	7W	8709	9010	ACT	FP DATE	FP DATE	11571	108957	5712	50872	277	632	203	2513
	STATE H	B C O INC	LYBROOK GALLUP	2I 23N	7W	8709	9010	ACT	FP DATE	FP DATE	12254	101125	6345	51583	340	6846	172	1662
	STATE J	B C O INC	LYBROOK GALLUP	16A 23N	7W	8710	9010	ACT	FP DATE	FP DATE	5748	382417	1050	120324	191	4700	117	7670
	MARCUS	BANNON ENERGY INC	LYBROOK GALLUP	35H 24N	7W	8707	9010	ACT	FP DATE	FP DATE	3001	63976	1370	26984	426	1331	39	1180
	MARCUS	BANNON ENERGY INC	LYBROOK GALLUP	35N 24N	7W	8711	9010	ACT	FP DATE	FP DATE	7434	66404	4631	25636	1557	74	97	2537
	MARCUS A	BANNON ENERGY INC	LYBROOK GALLUP	31O 24N	6W	8710	9010	ACT	FP DATE	FP DATE	7301	267233	4552	150994	1739	10033	47	4059
	MARCUS A	BANNON ENERGY INC	LYBROOK GALLUP	35I 24N	7W	8706	9010	ACT	FP DATE	FP DATE	7095	157216	3044	56003	1045	0	90	2924
	ANDERSON	COLEMAN OIL & GAS INC	LYBROOK GALLUP	33K 24N	8W	8710	9010	ACT	FP DATE	FP DATE	11430	26631	5030	9820	300	612	221	878
87											65834	1174133	34192	489528	6475	24528	1016	23373
86	MARCUS	BANNON ENERGY INC	LYBROOK GALLUP	1N 23N	7W	8610	9010	ACT	FP DATE	FP DATE	3001	50943	1296	24286	0	2213	4	402
	MARCUS	BANNON ENERGY INC	LYBROOK GALLUP	12B 23N	7W	8611	9010	ACT	FP DATE	FP DATE	5752	77550	903	21936	32	2172	82	1391
	MARCUS B	BANNON ENERGY INC	LYBROOK GALLUP	1O 23N	7W	8611	9010	ACT	FP DATE	FP DATE	2192	114651	670	37583	0	230	38	1559
	MARCUS A	BANNON ENERGY INC	LYBROOK GALLUP	1I 23N	7W	8607	9010	ACT	FP DATE	FP DATE	4020	136184	1294	55100	0	8175	45	1107
	MARCUS A	BANNON ENERGY INC	LYBROOK GALLUP	12C 23N	7W	8611	9010	ACT	FP DATE	FP DATE	3841	78294	1054	26433	0	2089	69	1230
	LYBROOK	BYRON OIL INDUSTRIES INC	LYBROOK GALLUP	4I 23N	7W	8604	9010	ACT	FP DATE	FP DATE	15224	72230	5456	22760	100	0	101	870
	LYBROOK	BYRON OIL INDUSTRIES INC	LYBROOK GALLUP	4O 23N	7W	8605	9010	ACT	FP DATE	FP DATE	6249	112491	2431	29672	414	3307	49	1014
	LYBROOK	FOUR CORNERS EXPL CO	LYBROOK GALLUP	3K 23N	7W	8605	9010	ACT	FP DATE	FP DATE	11120	116933	4076	32431	224	0	132	595
	LYBROOK	FOUR CORNERS EXPL CO	LYBROOK GALLUP	3M 23N	7W	8604	9010	ACT	FP DATE	FP DATE	5639	90107	1606	12209	90	0	85	1924
	KENNY	DUGAN PRODUCTION CORP	LYBROOK GALLUP	36B 23N	7W	8610	9008	ACT	FP DATE	FP DATE	4943	83632	2275	30776	140	60	0	0
86											61981	936110	21061	299341	1000	18354	605	10092
85	PHANTOM RANCH	DUGAN PRODUCTION CORP	LYBROOK GALLUP	21F 24N	8W	8507	9010	ACT	FP DATE	FP DATE	9751	23742	3907	6021	238	45	116	302
	MARCUS	BANNON ENERGY INC	LYBROOK GALLUP	6E 23N	6W	8509	9010	ACT	FP DATE	FP DATE	7863	211745	2122	60416	0	3429	61	2128
	MARCUS	BANNON ENERGY INC	LYBROOK GALLUP	1A 23N	7W	8510	9010	ACT	FP DATE	FP DATE	4870	212752	1593	80760	0	9247	50	2452
	MARCUS	BANNON ENERGY INC	LYBROOK GALLUP	7I 23N	6W	8509	8909	P&A	FP DATE	FP DATE	6381	37883	1237	13830	0	3227	0	0
	DUNN	B C O INC	LYBROOK GALLUP	30 23N	7W	8511	9010	ACT	FP DATE	FP DATE	8900	139708	3034	38882	527	4912	106	2466
85											36765	625840	10943	199969	765	20861	333	7348
84	LYBROOK B	UNION TEXAS PETR INC	LYBROOK GALLUP	30I 23N	6W	8403	8605	P&A	FP DATE	FP DATE	4523	6665	2438	3456	354	0	0	0
	LU-LU	PARKO OIL	LYBROOK GALLUP	29P 23N	6W	8402	9010	ACT	FP DATE	FP DATE	15760	19429	5654	6384	842	1050	71	206
	LULU	PARKO OIL	LYBROOK GALLUP	29J 23N	6W	8402	9010	ACT	FP DATE	FP DATE	9287	11805	3092	3800	464	569	53	104
	BALLYMALOE	DUGAN PRODUCTION CORP	LYBROOK GALLUP	25K 23N	7W	8403	9008	ACT	FP DATE	FP DATE	9219	88556	40	20	40	20	0	0
84											38789	126447	11274	14260	1700	1639	124	310

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83	JACEEZI FEDERAL 3	MERIDIAN OIL INC	LYBROOK GALLUP	3C	23N	7W	8308	9009	ACT	FP DATE	FP DATE	23298	125806	534	0	534	0	0	0
	LU LU	PARKO OIL	LYBROOK GALLUP	29N	23N	6W	8306	9010	ACT	FP DATE	FP DATE	20447	17279	6532	5600	276	376	88	206
	VINSALE	DUGAN PRODUCTION CORP	LYBROOK GALLUP	26I	23N	7W	8307	9010	ACT	FP DATE	FP DATE	11554	49625	2582	7294	325	285	92	372
83												55299	192710	9708	13894	1136	1261	180	578
82	STATE OF NEW MEXCIO 36	GRAHAM ROYALTY LTD	LYBROOK GALLUP	36E	24N	8W	8205	9010	ACT	FP DATE	FP DATE	12737	77573	3237	17583	586	2279	0	28
	STATE OF NEW MEXCIO 36	GRAHAM ROYALTY LTD	LYBROOK GALLUP	36L	24N	8W	8205	9010	ACT	FP DATE	FP DATE	7987	28969	1239	3580	330	419	38	240
	STATE OF NEW MEXCIO 36	GRAHAM ROYALTY LTD	LYBROOK GALLUP	36M	24N	8W	8205	9010	ACT	FP DATE	FP DATE	7008	34755	1909	5450	229	444	38	236
	STATE OF NEW MEXCIO 36	GRAHAM ROYALTY LTD	LYBROOK GALLUP	36N	24N	8W	8205	9010	ACT	FP DATE	FP DATE	10419	37586	3954	5443	385	830	9	19
	STATE OF NEW MEXCIO 36	GRAHAM ROYALTY LTD	LYBROOK GALLUP	36P	24N	8W	8205	8905	INA	FP DATE	FP DATE	9256	56071	3935	11720	1239	230	0	0
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25F	24N	8W	8203	9010	ACT	FP DATE	FP DATE	21937	116927	7626	23244	304	1742	95	484
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25A	24N	8W	8208	9010	ACT	FP DATE	FP DATE	20993	91890	7115	18533	312	235	102	428
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25B	24N	8W	8210	9010	ACT	FP DATE	FP DATE	18842	85271	5724	13230	822	312	102	428
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25C	24N	8W	8210	9010	ACT	FP DATE	FP DATE	21695	47562	8241	2575	1715	457	71	296
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25D	24N	8W	8205	9010	ACT	FP DATE	FP DATE	21203	52988	5285	11433	254	291	71	296
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25G	24N	8W	8201	9010	ACT	FP DATE	FP DATE	19484	103313	7091	30270	139	153	132	555
	SOUTH BLANCO NAVAJO 25A	BANNON ENERGY INC	LYBROOK GALLUP	25I	24N	8W	8201	9010	ACT	FP DATE	FP DATE	12469	89209	4755	28135	455	1752	176	345
	SOUTH BLANCO NAVAJO 3	BANNON ENERGY INC	LYBROOK GALLUP	8B	23N	7W	8204	9010	ACT	FP DATE	FP DATE	7883	291303	2999	73704	112	775	52	837
	SOUTH BLANCO NAVAJO 8	BANNON ENERGY INC	LYBROOK GALLUP	8H	23N	7W	8204	9010	ACT	FP DATE	FP DATE	8459	142606	3485	32731	205	1703	45	728
	SAPP C	DUGAN PRODUCTION CORP	LYBROOK GALLUP	5D	23N	7W	8210	9010	ACT	FP DATE	FP DATE	11151	112456	4030	17522	163	370	75	1193
	LU-LU	PARKO OIL	LYBROOK GALLUP	29D	23N	6W	8202	9010	ACT	FP DATE	FP DATE	30570	60946	6632	9114	329	510	201	903
	LU-LU	PARKO OIL	LYBROOK GALLUP	29L	23N	6W	8211	9010	ACT	FP DATE	FP DATE	21725	23801	6757	7033	990	1201	0	258
	HANSON FEDERAL	BYRON OIL INDUSTRIES INC	LYBROOK GALLUP	3N	23N	7W	8204	9010	ACT	FP DATE	FP DATE	14904	138814	2279	29183	207	0	173	2439
	FEDERAL 3	GRAHAM ROYALTY LTD	LYBROOK GALLUP	3I	23N	8W	8206	9010	ACT	FP DATE	FP DATE	12185	65456	2557	9221	382	421	52	300
	FEDERAL 35	GRAHAM ROYALTY LTD	LYBROOK GALLUP	35I	24N	8W	8207	8805	INA	FP DATE	FP DATE	3065	19245	902	2299	353	357	0	0
	FEDERAL 5	GRAHAM ROYALTY LTD	LYBROOK GALLUP	5I	23N	7W	8205	9010	ACT	FP DATE	FP DATE	5994	40715	1312	5667	251	404	44	330
	EMILY	PARKO OIL	LYBROOK GALLUP	20L	23N	6W	8201	9010	ACT	FP DATE	FP DATE	20494	46391	9029	17965	216	400	143	903
	DUNN	B C O INC	LYBROOK GALLUP	3A	23N	7W	8207	9010	ACT	FP DATE	FP DATE	19899	204954	5251	40355	250	1053	107	1035
	DUNN	B C O INC	LYBROOK GALLUP	3B	23N	7W	8206	9010	ACT	FP DATE	FP DATE	25875	305643	4048	34470	63	0	156	2710
	DUNN	B C O INC	LYBROOK GALLUP	3H	23N	7W	8208	9010	ACT	FP DATE	FP DATE	32406	345429	8913	70235	833	5070	183	2265
	DUNN FEDERAL	BYRON OIL INDUSTRIES INC	LYBROOK GALLUP	4P	23N	7W	8206	9010	ACT	FP DATE	FP DATE	29974	454171	4078	59202	350	573	169	3469
	CHAPMAN A	MERRION OIL & GAS CORP	LYBROOK GALLUP	29F	23N	5W	8205	9008	ACT	FP DATE	FP DATE	10617	57193	3743	7391	331	1250	0	0
	BETTY C 31	KERR MCGEE CORP	LYBROOK GALLUP	31I	24N	7W	8201	9010	ACT	FP DATE	FP DATE	8915	80227	4961	26959	304	230	51	335
	BETTY C 31	KERR MCGEE CORP	LYBROOK GALLUP	31K	24N	7W	8202	9010	ACT	FP DATE	FP DATE	7315	71355	2370	10329	305	1097	51	475
	BETTY C 31	KERR MCGEE CORP	LYBROOK GALLUP	31L	24N	7W	8211	8907	INA	FP DATE	FP DATE	8602	51057	2745	11323	304	1050	0	0
	BETTY C 31	KERR MCGEE CORP	LYBROOK GALLUP	31N	24N	7W	8201	9010	ACT	FP DATE	FP DATE	18533	149225	10245	63001	213	550	44	839
82												482414	3552753	151146	719414	15401	28501	2380	22374
81	STATE H	B C O INC	LYBROOK GALLUP	1D	23N	7W	8109	9010	ACT	FP DATE	FP DATE	37737	304711	5522	42017	391	0	212	1628
	STATE H	B C O INC	LYBROOK GALLUP	2M	23N	7W	8107	9010	ACT	FP DATE	FP DATE	20525	211251	3511	25457	257	533	119	1473
	STATE OF NEW MEXCIO 36	GRAHAM ROYALTY LTD	LYBROOK GALLUP	36B	24N	8W	8109	9010	ACT	FP DATE	FP DATE	15246	113264	2021	6032	519	115	49	592
	STATE OF NEW MEXCIO 36	GRAHAM ROYALTY LTD	LYBROOK GALLUP	36C	24N	8W	8109	9010	ACT	FP DATE	FP DATE	11667	103661	1915	6682	602	1425	48	593
	STATE OF NEW MEXCIO 36	GRAHAM ROYALTY LTD	LYBROOK GALLUP	36I	24N	8W	8103	9010	ACT	FP DATE	FP DATE	38003	237455	3059	9349	213	180	316	1781
	SOUTH BLANCO FEDERAL 24	BANNON ENERGY INC	LYBROOK GALLUP	24M	24N	8W	8107	9010	ACT	FP DATE	FP DATE	35855	66641	6313	2775	520	0	218	466

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YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION		1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
	SOUTH BLANCO FEDERAL 24	BANNON ENERGY INC	LYBROOK GALLUP	24O 24N	8W	8104	9010	ACT	FP DATE	FP DATE	34072	117009	7175	14448	27	0	242	816
	SOUTH BLANCO FEDERAL 2	BANNON ENERGY INC	LYBROOK GALLUP	25E 24N	8W	8112	8908	INA	FP DATE	FP DATE	20571	85409	7247	16569	273	535	0	0
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25K 24N	8W	8102	9010	ACT	FP DATE	FP DATE	36197	189286	10220	21678	717	782	249	838
	SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	LYBROOK GALLUP	25L 24N	8W	8111	8805	INA	FP DATE	FP DATE	18977	75352	5939	14634	817	1585	0	0
	SOUTH BLANCO FEDERAL 2	BANNON ENERGY INC	LYBROOK GALLUP	26M 24N	8W	8104	9010	ACT	FP DATE	FP DATE	28492	100511	7482	14323	276	838	58	195
	SOUTH BLANCO FEDERAL 2	BANNON ENERGY INC	LYBROOK GALLUP	25N 24N	8W	8104	9010	ACT	FP DATE	FP DATE	35676	121693	8540	17461	536	1602	179	602
	SOUTH BLANCO FEDERAL 2	BANNON ENERGY INC	LYBROOK GALLUP	26F 24N	8W	8110	9010	ACT	FP DATE	FP DATE	23358	64159	4856	11254	392	846	24	311
	SOUTH BLANCO FEDERAL 2	BANNON ENERGY INC	LYBROOK GALLUP	26H 24N	8W	8109	9010	ACT	FP DATE	FP DATE	29021	139307	7863	19705	249	0	167	403
	SOUTH BLANCO FEDERAL 3	BANNON ENERGY INC	LYBROOK GALLUP	30M 24N	7W	8108	9010	ACT	FP DATE	FP DATE	30048	206834	8184	23263	479	1274	95	947
	SOUTH BLANCO FEDERAL 31	BANNON ENERGY INC	LYBROOK GALLUP	31G 24N	7W	8102	8710	INA	FP DATE	FP DATE	10579	86204	3032	15948	370	374	0	0
	SOUTH BLANCO FEDERAL 3	BANNON ENERGY INC	LYBROOK GALLUP	31N 24N	7W	8110	9010	ACT	FP DATE	FP DATE	11795	129173	2262	27294	172	0	42	280
	SOUTH BLANCO FEDERAL 6	BANNON ENERGY INC	LYBROOK GALLUP	6B 23N	7W	8101	9010	ACT	FP DATE	FP DATE	44182	232255	3*349	81162	110	110	15	373
	SOUTH BLANCO FEDERAL 6	BANNON ENERGY INC	LYBROOK GALLUP	6G 23N	7W	8104	9010	ACT	FP DATE	FP DATE	22659	123599	8545	17626	697	1722	17	490
	SOUTH BLANCO FEDERAL 6	BANNON ENERGY INC	LYBROOK GALLUP	6M 23N	7W	8103	9010	ACT	FP DATE	FP DATE	30889	162250	11291	24241	435	1190	20	608
	SOUTH BLANCO NAVAJO	BANNON ENERGY INC	LYBROOK GALLUP	22P 24N	8W	8111	9010	ACT	FP DATE	FP DATE	33010	75938	6264	12550	333	0	202	174
	SOUTH BLANCO NAVAJO 25	BANNON ENERGY INC	LYBROOK GALLUP	25J 24N	8W	8110	9010	ACT	FP DATE	FP DATE	24147	173901	10845	30135	655	1075	38	918
	SOUTH BLANCO NAVAJO 25	BANNON ENERGY INC	LYBROOK GALLUP	25O 24N	8W	8109	9010	ACT	FP DATE	FP DATE	12970	106397	3493	14914	74	0	37	897
	SOUTH BLANCO NAVAJO 25	BANNON ENERGY INC	LYBROOK GALLUP	25P 24N	8W	8110	9001	ACT	FP DATE	FP DATE	14517	117325	4518	15535	758	1058	0	0
	SOUTH BLANCO NAVAJO 31	BANNON ENERGY INC	LYBROOK GALLUP	31D 24N	7W	8102	9010	ACT	FP DATE	FP DATE	14076	111605	5336	21613	202	822	0	588
	SOUTH BLANCO NAVAJO 31	BANNON ENERGY INC	LYBROOK GALLUP	31E 24N	7W	8108	9007	ACT	FP DATE	FP DATE	12018	116397	4541	19005	180	353	0	0
	SOUTH BLANCO NAVAJO 8	BANNON ENERGY INC	LYBROOK GALLUP	8A 23N	7W	8103	9010	ACT	FP DATE	FP DATE	19988	424149	7181	92816	302	1700	114	1828
	SOUTH BLANCO STATE 32	MESA OPERATING LTD PRTS	LYBROOK GALLUP	32F 24N	7W	8103	8403	INA	FP DATE	FP DATE	2142	20239	1279	9756	250	1065	0	0
	SOUTH BLANCO STATE 32	BANNON ENERGY INC	LYBROOK GALLUP	32O 24N	7W	8111	9010	ACT	FP DATE	FP DATE	10372	113505	2633	17741	382	0	0	101
	SOUTH BLANCO STATE 36	BANNON ENERGY INC	LYBROOK GALLUP	36A 24N	8W	8102	8903	INA	FP DATE	FP DATE	35074	177061	15297	24515	1635	1631	0	0
	SOUTH BLANCO STATE 36	BANNON ENERGY INC	LYBROOK GALLUP	36D 24N	8W	8105	8507	INA	FP DATE	FP DATE	18322	65699	10230	16202	1443	682	0	0
	SOUTH BLANCO STATE 36	BANNON ENERGY INC	LYBROOK GALLUP	36G 24N	8W	8103	9010	ACT	FP DATE	FP DATE	18497	112209	7275	13512	557	835	77	590
	SOUTH BLANCO STATE 36	BANNON ENERGY INC	LYBROOK GALLUP	36N 24N	8W	8103	9010	ACT	FP DATE	FP DATE	25705	157402	9731	19583	557	805	98	880
	SOUTH BLANCO STATE 36 I	MESA OPERATING LTD PRTS	LYBROOK GALLUP	36I 24N	8W	8108	8508	P&A	FP DATE	FP DATE	17925	65139	5431	19127	852	2500	0	0
	SAPP C	BRIAN PRODUCTION CORP	LYBROOK GALLUP	5B 23N	7W	8102	9010	ACT	FP DATE	FP DATE	22030	224049	914	829	21	0	211	1525
	LAVA FALLS	BRIAN PRODUCTION CORP	LYBROOK GALLUP	27J 24N	8W	8111	9010	ACT	FP DATE	FP DATE	23821	77541	3888	3932	203	0	142	580
	FEDERAL 34	GRAHAM ROYALTY LTD	LYBROOK GALLUP	34I 24N	8W	8109	9010	ACT	FP DATE	FP DATE	8115	105162	1202	13567	0	1051	53	550
	FEDERAL 5	ALEXANDER ENERGY CORP	LYBROOK GALLUP	6F 23N	7W	8101	9010	ACT	FP DATE	FP DATE	4442	21725	2127	8062	78	252	0	46
	EATON WAH-GAH	ALEXANDER ENERGY CORP	LYBROOK GALLUP	8E 23N	7W	8101	9010	ACT	FP DATE	FP DATE	16348	121152	4157	14899	350	1015	73	606
	DUNN	B O O INC	LYBROOK GALLUP	9C 23N	7W	8107	9010	ACT	FP DATE	FP DATE	15365	159335	5240	32591	171	842	48	1135
	DUNN	B O O INC	LYBROOK GALLUP	9D 23N	7W	8107	9010	ACT	FP DATE	FP DATE	26221	289030	7000	48504	111	410	64	1892
	DUNN	B O O INC	LYBROOK GALLUP	9E 23N	7W	8109	9010	ACT	FP DATE	FP DATE	17879	182811	5221	41915	756	2122	53	1123
	DUNN	B O O INC	LYBROOK GALLUP	9F 23N	7W	8107	9010	ACT	FP DATE	FP DATE	13736	142024	4701	28973	130	252	48	899
	DUNN	B O O INC	LYBROOK GALLUP	9K 23N	7W	8108	9010	ACT	FP DATE	FP DATE	28855	312819	5831	46255	550	2099	74	1258
	DUNDEE	BRIAN PRODUCTION CORP	LYBROOK GALLUP	27D 24N	8W	8111	8905	INA	FP DATE	FP DATE	15303	30016	2120	4789	100	476	0	0
	BERTA C 34	MERR MCGEE CORP	LYBROOK GALLUP	34C 24N	8W	8105	9010	ACT	FP DATE	FP DATE	25703	149716	8217	22328	541	700	35	586
31											1011520	6614904	296159	999100	19448	34779	3437	28572
20	VANDENBURGH 11	STATE PETROLEUM CORP	LYBROOK GALLUP	11C 23N	7W	8010	8412	P&A	FP DATE	FP DATE	5712	20259	2429	95	240	0	0	0
	SOUTH BLANCO FEDERAL 5	BANNON ENERGY INC	LYBROOK GALLUP	5A 23N	7W	8002	9001	ACT	FP DATE	FP DATE	111408	408867	16124	5782	242	193	0	0
	MANCI 14	BANNON ENERGY INC	LYBROOK GALLUP	14E 23N	7W	8011	8910	INA	FP DATE	FP DATE	21051	331	3531	0	555	0	0	0
	MCGEE 7	BANNON ENERGY INC	LYBROOK GALLUP	7L 23N	8W	8012	8908	INA	FP DATE	FP DATE	7825	30252	1497	138	297	0	0	0

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YEAR	LEASE NAME	OPERATOR NAME	FIELD (RESERVOIR)	LOCATION	1ST PROD DATE	LAST PROD DATE	STATUS	LIQ CUM SINCE	GAS CUM SINCE	LIQUID CUM	GAS CUM	FIRST 12 MO CUM BBLS	FIRST 12 MO CUM MCF	FIRST MONTH BBLS	FIRST MONTH MCF	LAST MONTH BBLS	LAST MONTH MCF
	GRACE FEDERAL 1	BANNON ENERGY INC	LYBROOK GALLUP	1E 23N 7W	8009	8910	P&A	FP DATE	FP DATE	8265	221513	1392	1145	339	0	153	2521
	GRACE FEDERAL 19	GRACE PETROLEUM CORP	LYBROOK GALLUP	19D 23N 5W	8010	8407	P&A	FP DATE	FP DATE	3699	5660	831	0	301	0	0	0
	GRACE FEDERAL 6	BANNON ENERGY INC	LYBROOK GALLUP	6K 23N 5W	8009	8308	P&A	FP DATE	FP DATE	5216	46478	893	277	157	0	30	1000
	FEDERAL 12	BANNON ENERGY INC	LYBROOK GALLUP	12D 23N 7W	8509	9010	ACT	FP DATE	FP DATE	6257	83620	1155	234	70	0	35	122
	FEDERAL 7	GRAHAM ROYALTY LTD	LYBROOK GALLUP	7L 23N 7W	8005	8101	P&A	FP DATE	FP DATE	915	3513	915	3513	107	0	0	0
	DOME FEDERAL 13	GRAHAM ROYALTY LTD	LYBROOK GALLUP	13A 23N 8W	8007	8507	P&A	FP DATE	FP DATE	3257	20297	1914	14903	259	2443	0	0
	CONNIE 29	BANNON ENERGY INC	LYBROOK GALLUP	29O 24N 7W	8011	8507	INA	FP DATE	FP DATE	3519	28639	766	3	393	0	0	0
80										177127	870929	31478	26160	3041	2535	218	3643
78	YAT TAH E YAZZA	ALEXANDER ENERGY CORP	LYBROOK GALLUP	3C 23N 7W	7804	9010	ACT	FP DATE	FP DATE	9626	190759	2084	23332	312	3150	79	411
76	DUNN	B C O INC	LYBROOK GALLUP	19F 23N 7W	7609	9010	ACT	FP DATE	FP DATE	12724	73702	1596	14596	28	0	68	224
75	ADOBE	DUGAN PRODUCTION CORP	LYBROOK GALLUP	5A 23N 7W	7511	9010	ACT	FP DATE	FP DATE	19510	14087	3358	4939	437	0	125	256
72	QUINELLA	YOUNG MARSHALL R OIL CO	LYBROOK GALLUP	31D 23N 6W	7201	9010	ACT	FP DATE	FP DATE	2715	79424	1059	807	87	135	25	1590
70	FEDERAL B	B C O INC	LYBROOK GALLUP	22I 23N 7W	7012	9010	ACT	FP DATE	FP DATE	11413	105698	1991	5420	377	2400	47	507
0	VANDENBURGH 11	BANNON ENERGY INC	LYBROOK GALLUP	11M 23N 7W	N/A	9006	ACT	FP DATE	5901	130113	609938	0	0	0	0	0	0
	STATE	DUGAN PRODUCTION CORP	LYBROOK GALLUP	32E 24N 7W	N/A	9010	ACT	FP DATE	5901	58947	215384	0	0	0	0	86	986
	STATE H	B C O INC	LYBROOK GALLUP	2K 23N 7W	N/A	9010	ACT	FP DATE	5901	27349	251727	0	0	0	0	114	506
	STATE H	B C O INC	LYBROOK GALLUP	2C 23N 7W	N/A	9010	ACT	FP DATE	5901	30230	167877	0	0	0	0	114	449
	SAPP C	DUGAN PRODUCTION CORP	LYBROOK GALLUP	5M 23N 7W	N/A	9010	ACT	FP DATE	5901	20774	69399	0	0	0	0	28	383
	ROGERS 24	BANNON ENERGY INC	LYBROOK GALLUP	24L 23N 7W	N/A	9010	ACT	FP DATE	5901	23496	5635	0	0	0	0	0	617
	NANCY 14	BANNON ENERGY INC	LYBROOK GALLUP	14B 23N 7W	N/A	8710	INA	FP DATE	5901	18267	12258	0	0	0	0	210	855
	MCBEE B	BANNON ENERGY INC	LYBROOK GALLUP	7F 23N 6W	N/A	8906	INA	FP DATE	5901	38172	300267	0	0	0	0	0	0
	HANSON FEDERAL	BYRON OIL INDUSTRIES INC	LYBROOK GALLUP	3L 23N 7W	N/A	9010	ACT	FP DATE	5901	72232	728277	0	0	0	0	95	1507
	FEDERAL A	B C O INC	LYBROOK GALLUP	23E 23N 7W	N/A	9010	ACT	FP DATE	5901	18591	75645	0	0	0	0	70	475
	DUNN	B C O INC	LYBROOK GALLUP	10M 23N 7W	N/A	N/A	INA	FP DATE	FP DATE	0	0	0	0	0	0	0	0
	DUNN	B C O INC	LYBROOK GALLUP (MULTI-COUNTY)	10M 23N 7W	N/A	7610	INA	FP DATE	5901	4979	51353	0	0	0	0	0	0
	DUNN	UNION TEXAS PETR INC	LYBROOK GALLUP	9P 23N 7W	N/A	9711	P&A	FP DATE	5901	34777	258266	0	0	0	0	0	0
	DUNN FEDERAL	BYRON OIL INDUSTRIES INC	LYBROOK GALLUP	4J 23N 7W	N/A	9010	ACT	FP DATE	5901	31203	257099	0	0	0	0	7	0
	CONNIE 29	BANNON ENERGY INC	LYBROOK GALLUP	29K 24N 7W	N/A	8909	INA	FP DATE	5901	14129	90670	0	0	0	0	0	0
	CHAPMAN	STANLEY JESSIE	LYBROOK GALLUP	20H 23N 6W	N/A	9005	ACT	FP DATE	5901	42520	142377	0	0	0	0	0	0
	CAMPOS	B C O INC	LYBROOK GALLUP	4K 23N 7W	N/A	9010	ACT	FP DATE	5901	153743	663859	0	0	0	0	82	2048
	CAMPOS	B C O INC	LYBROOK GALLUP	10J 23N 7W	N/A	9010	ACT	FP DATE	5901	79208	509518	0	0	0	0	49	635
	LENN 9	BANNON ENERGY INC	LYBROOK GALLUP	9H 23N 7W	N/A	8906	INA	FP DATE	5901	12135	1526711	0	0	0	0	0	0
	BETTY B	B C O INC	LYBROOK GALLUP	15C 23N 7W	N/A	9010	ACT	FP DATE	5901	23333	56995	0	0	0	0	44	132
0										844359	6013315	0	0	0	0	1243	11581
AL										2961329	21385676	690822	3920074	[illegible]	[illegible]	18204	190467

EXHIBIT 17
FORMATION TOPS

TOP OF GALLUP
LYBROOK TIGHT FORMATION AREA

LEASE NAME	OPERATOR NAME	LOCATION				TOP OF GALLUP
ADOBE	DUGAN PRODUCTION CORP	A	5	23	7	5826
AKE	REYNOLDS NOEL CONSTRUCTION	I	11	24	8	5839
ANDERSON	COLEMAN OIL & GAS INC	K	22	24	8	5274
BALLYMALOE	DUGAN PRODUCTION CORP	K	25	23	7	5236
BENN 9	BANNON ENERGY INC	H	9	23	7	5512
BETH GEIGER	GIANT EXPL & PROD CO	A	17	23	7	5452
BETTY 8	BCO INC	C	15	23	7	5537
BETTY B	BCO INC	E	15	23	7	5402
BETTY C 31	KERR MCGEE CORP	M	31	24	7	5294
BETTY C 31	KERR MCGEE CORP	I	31	24	7	5430
BETTY C 31	KERR MCGEE CORP	K	31	24	7	5342
BETTY C 31	KERR MCGEE CORP	L	31	24	7	5302
BETTY C 31	KERR MCGEE CORP	O	31	24	7	5368
BLAKELY 23	GRACE PETROLEUM CORP	E	23	24	7	5408
BOBBY 8	BCO INC	E	31	24	6	5198
BUMBLE	DUGAN PRODUCTION CORP	D	27	24	8	4948
CAMPOS	BCO INC	K	4	23	7	5633
CHAPMAN A	MERRION OIL & GAS CORP	F	29	23	6	5131
CONNIE	PETROLEUM CONSULTANTS	G	21	24	7	5715
CONNIE 21	GRACE PETROLEUM CORP	D	21	24	7	5860
CONNIE 21	BANNON ENERGY INC	I	21	24	7	5451
CONNIE 28	GRACE PETROLEUM CORP	B	28	24	7	5437
CONNIE 28	GRACE PETROLEUM CORP	H	28	24	7	5512
CONNIE 29	BANNON ENERGY INC	O	29	24	7	5830
CONNIE 29	BANNON ENERGY INC	K	29	24	7	5830
DOME FEDERAL 13	GRAHAM ROYALTY LTD	A	13	23	8	5212
DOME FEDERAL 34-24-7	TEXACO INC	M	34	24	7	5270
DUNN	BCO INC	M	9	23	7	5500
DUNN	BCO INC	M	10	23	7	6470
DUNN	UNION TEXAS PETR INC	P	9	23	7	5520
DUNN	BCO INC	L	10	23	7	5486
DUNN	BCO INC	F	10	23	7	5514
DUNN	BCO INC	A	4	23	7	5209
DUNN	BCO INC	F	9	23	7	5514
DUNN	BCO INC	D	9	23	7	5512
DUNN	BCO INC	K	9	23	7	5475
DUNN	BCO INC	E	9	23	7	5500
DUNN	BCO INC	B	3	23	7	5308
DUNN	BCO INC	A	3	23	7	5278
DUNN	BCO INC	C	9	23	7	5520
DUNN	BCO INC	H	3	23	7	5344
DUNN FEDERAL	BYRON OIL INDUSTRIES INC	P	4	23	7	5220
DUNN FEDERAL	BYRON OIL INDUSTRIES INC	J	4	23	7	5455
ERIC HIXON	GIANT EXPL & PROD CO	H	15	23	7	5453
ERNEST	MERIDIAN OIL INC	D	27	24	7	5395
ERNST	MERIDIAN OIL INC	C	27	24	7	5012

TOP OF GALLUP
LYBROOK TIGHT FORMATION AREA

LEASE NAME	OPERATOR NAME	LOCATION				TOP OF GALLUP
ESCRITO GALLUP UNIT	BCO INC	H	18	24	7	6073
ESCRITO GALLUP UNIT	BCO INC	N	18	24	7	5650
ESCRITO GALLUP UNIT	BCO INC	E	18	24	7	5721
ESCRITO GALLUP UNIT	BCO INC	P	18	24	7	5830
ESCRITO GALLUP UNIT	BCO INC	O	18	24	8	5805
ESCRITO GALLUP UNIT	BCO INC	F	18	24	7	5866
ESCRITO GALLUP UNIT	BCO INC	N	17	24	7	5890
ESCRITO GALLUP UNIT	BCO INC	A	19	24	7	5920
ESCRITO GALLUP UNIT	BCO INC	P	12	24	8	5905
ESCRITO GALLUP UNIT	BCO INC	C	20	24	7	5880
ESCRITO GALLUP UNIT	BCO INC	G	18	24	7	5928
ESCRITO GALLUP UNIT	BCO INC	H	20	24	7	5152
ESCRITO GALLUP UNIT	BCO INC	I	18	24	7	5790
ESCRITO GALLUP UNIT	BCO INC	F	21	24	7	5702
ESCRITO GALLUP UNIT	BCO INC	C	18	24	7	5755
ESCRITO GALLUP UNIT	BCO INC	C	21	24	7	5942
ESCRITO GALLUP UNIT	BCO INC	A	20	24	7	6112
ESCRITO GALLUP UNIT	BCO INC	J	18	24	7	5806
ESCRITO GALLUP UNIT	BCO INC	L	17	24	7	5780
E-TON-NAH-GAH	ALEXANDER ENERGY CORP	I	8	23	7	5125
FEDERAL 1 22	BCO INC	M	22	24	7	5405
FEDERAL 1 27	BCO INC	D	27	24	7	5580
FEDERAL 14	BANNON ENERGY INC.	D	14	23	7	5380
FEDERAL 18	BANNON ENERGY INC.	M	18	23	6	5295
FEDERAL 19	BANNON ENERGY INC.	G	19	23	6	5315
FEDERAL 19	BANNON ENERGY INC.	C	19	23	6	5286
FEDERAL 1-22	BCO INC	N	22	24	7	5376
FEDERAL 1-7	BCO INC	P	7	24	7	5910
FEDERAL 2 26	BCO INC	C	26	24	7	5343
FEDERAL 3	GRAHAM ROYALTY LTD	I	3	23	8	5142
FEDERAL 3 21	BCO INC	O	21	24	7	5470
FEDERAL 3 21	BCO INC	L	21	24	7	5868
FEDERAL 3 21	BCO INC	H	21	24	7	5790
FEDERAL 35	GRAHAM ROYALTY LTD	I	35	24	8	5223
FEDERAL 36	GRAHAM ROYALTY LTD	I	34	24	8	5162
FEDERAL 4 26	BCO INC	G	26	24	7	5298
FEDERAL 6	ALEXANDER ENERGY CORP	F	6	23	7	5290
FEDERAL 6 22	BCO INC	K	22	24	7	5727
FEDERAL 7	GRAHAM ROYALTY LTD	L	7	23	7	5335
FEDERAL 8	BCO INC.	E	22	23	7	5454
FEDERAL 8	BCO INC	C	22	23	7	5613
FEDERAL 8	BCO INC	A	21	23	7	5436
FEDERAL A	MERRION OIL & GAS CORP	P	11	24	8	5043
FEDERAL A	BCO INC	E	29	23	7	5353
FEDERAL B	BCO INC	I	22	23	7	5375

TOP OF GALLUP
LYBROOK TIGHT FORMATION AREA

LEASE NAME	OPERATOR NAME	LOCATION				TOP OF GALLUP
F-27-24-7	MERIDIAN OIL INC	K	27	24	7	5021
GOFF 30	BANNON ENERGY INC	E	30	24	6	5514
GRACE FEDERAL 1	BANNON ENERGY INC.	E	1	23	7	5190
GRACE FEDERAL 1	BANNON ENERGY INC	E	1	23	7	5230
GRACE FEDERAL 19	GRACE PETROLEUM CORP	D	19	23	6	5110
GRACE FEDERAL 21	BANNON ENERGY	K	21	24	7	5565
GRACE FEDERAL 35	GRACE PETROLEUM CORP	D	7	24	7	5296
GRACE FEDERAL 6	BANNON ENERGY INC.	M	6	23	6	5250
GRACE FEDERAL 6	BANNON ENERGY INC	K	6	23	6	5150
GRACE FEDERAL 6	BANNON ENERGY INC.	K	6	23	6	5150
GUS YJ STATE	YATES PETROLEUM CORP.	B	32	23	6	5424
HANSON FEDERAL	BYRON OIL INDUSTRIES INC	N	3	23	7	5302
HAT TAH E YAZZA	ALEXANDER ENERGY CORP	C	8	24	7	5350
JUDY	BCO INC	P	17	24	7	5900
KENNEY 23	GRACE PETROLEUM CORP	K	23	24	7	2319
KENNY	DUGAN PRODUCTION CORP	B	36	23	7	4830
KINSDALE	DUGAN PRODUCTION CORP	I	26	23	7	5112
LAVA FALLS	DUGAN PRODUCTION CORP	J	27	24	8	4931
LOVE	GRACE PETROLEUM CORP	L	23	24	7	5337
LU-LU	PARKO OIL	D	29	23	6	5339
LU-LU	PARKO OIL	P	29	23	8	5231
LU-LU	PARKO OIL	L	29	23	6	5092
LU-LU	PARKO OIL	N	29	23	6	5165
LU-LU	PARKO OIL	J	29	23	6	5434
LYBROOK	FOUR CORNERS EXPL CO	K	3	23	7	4965
LYBROOK	BCO INC	G	22	24	7	5445
LYBROOK	BCO INC	I	22	24	7	5274
LYBROOK	BCO INC	J	22	24	7	5380
LYBROOK	BCO INC	I	27	24	7	5380
LYBROOK	BYRON OIL INDUSTRIES	D	4	23	7	5029
LYBROOK	UNION TEXAS PETR INC	E	30	23	6	5075
LYBROOK	FOUR CORNERS EXPL CO	M	3	23	7	4937
LYBROOK	BYRON OIL INDUSTRIES	I	4	23	7	5045
MARCUS	BANNON ENERGY INC	E	6	23	6	5595
MARCUS	BANNON ENERGY INC	H	35	24	7	5070
MARCUS	BANNON ENERGY INC	H	35	24	7	4900
MARCUS	BANNON ENERGY INC	A	1	23	7	5305
MARCUS	BANNON ENERGY INC	B	12	23	7	5270
MARCUS	BANNON ENERGY INC	I	7	23	6	5300
MARCUS	BANNON ENERGY INC	N	1	23	7	5425
MARCUS A	BANNON ENERGY INC	D	1	23	7	5225
MARCUS A	BANNON ENERGY INC	C	12	23	7	5175
MARCUS A	BANNON ENERGY INC	I	1	23	7	5443
MARCUS A	BANNON ENERGY INC	F	35	24	7	4870
MARCUS A	BANNON ENERGY INC	K	31	24	6	5325
MARCUS A	BANNON ENERGY INC	I	35	24	7	5045
MCBEE	BANNON ENERGY INC	F	7	23	6	5298

TOP OF GALLUP
LYBROOK TIGHT FORMATION AREA

LEASE NAME	OPERATOR NAME	LOCATION				TOP OF GALLUP
MCBEE 7	BANNON ENERGY INC	L	7	23	6	5100
MCBEE 7	BANNON ENERGY INC.	K	7	23	6	5230
MCBEE 7	BANNON ENERGY INC.	C	7	23	6	5310
MESA 25	BANNON ENERGY INC	M	25	24	7	5360
MESA 25	GRACE PETROLEUM CORP	D	25	24	7	5270
MESA 25	BANNON ENERGY INC	I	25	24	7	5542
MESA 25	BANNON ENERGY INC	M	25	24	7	5358
NANCY 14	BANNON ENERGY INC.	B	14	23	7	5374
NANCY 14	BANNON ENERGY INC	B	14	23	7	5420
NANCY 14	BANNON ENERGY INC	E	14	23	7	5284
PHANTOM RANCH	DUGAN PRODUCTION CORP	F	21	24	8	4780
QUINELLA	YOUNG MARSHALL R OIL CO	D	31	23	6	5395
R R ZANOTTI	MCELVAIN T H O&G PROP	C	34	24	7	5414
RASPBERRY	DUGAN PRODUCTION CORP	M	26	24	7	5476
RINCON	COLE JACK A	C	11	23	7	5332
RINCON	COLE JACK A	I	31	24	6	5500
RINCON	COLE JACK A	G	30	24	6	5323
RINCON	COLE JACK A	J	35	24	7	5170
RINCON	COLE JACK A	M	31	24	6	5355
RINCON	COLE JACK A	C	30	24	6	5020
RINCON	COLE JACK A	G	13	23	7	5200
RINCON	COLE JACK A	B	35	24	7	5470
ROGERS 24	BANNON ENERGY INC	L	24	23	7	5272
SAPP C	DUGAN PRODUCTION CORP	D	5	23	7	5410
SAPP C	DUGAN PRODUCTION	C	5	23	7	5214
SAPP C	DUGAN PRODUCTION CORP	D	5	23	7	5195
SHAWNEE 33	GRACE PETROLEUM CORP	O	33	24	7	5790
SHOOFLY	MERRION OIL & GAS CORP	C	14	24	8	5540
SLICKHORN GULCA	DUGAN PRODUCTION CORP	M	8	24	7	5983
SMITH	BCO INC	C	13	24	8	5796
SMITH	BCO INC	F	13	24	8	5642
SOUTH BLANCO FEDERAL 23	BANNON ENERGY INC	M	23	24	8	5300
SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	D	25	24	8	5354
SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	M	25	24	8	5264
SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	L	25	24	8	5295
SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	F	25	24	8	5341
SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	E	25	24	8	5321
SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	N	25	24	8	5285
SOUTH BLANCO FEDERAL 25	BANNON ENERGY INC	K	25	24	8	5310
SOUTH BLANCO FEDERAL 26	BANNON ENERGY INC	D	26	24	8	5293
SOUTH BLANCO FEDERAL 26	BANNON ENERGY INC	B	26	24	8	5287
SOUTH BLANCO FEDERAL 26	BANNON ENERGY INC	A	26	24	8	5322
SOUTH BLANCO FEDERAL 26	BANNON ENERGY INC	D	26	24	8	5294
SOUTH BLANCO FEDERAL 26	BANNON ENERGY INC	H	26	24	8	5329
SOUTH BLANCO FEDERAL 26	BANNON ENERGY INC	C	26	24	8	5286
SOUTH BLANCO FEDERAL 26	BANNON ENERGY INC	F	26	24	8	5247
SOUTH BLANCO FEDERAL 6	BANNON ENERGY INC	B	6	23	7	5345

TOP OF GALLUP
LYBROOK TIGHT FORMATION AREA

LEASE NAME	OPERATOR NAME	LOCATION				TOP OF GALLUP
SOUTH BLANCO FEDERAL 6	BANNON ENERGY INC	A	5	23	7	5390
SOUTH BLANCO FEDERAL 6	BANNON ENERGY INC	H	2	23	7	4531
SOUTH BLANCO NAVAJO	BANNON ENERGY INC	P	22	24	8	5264
SOUTH BLANCO NAVAJO 25	BANNON ENERGY INC	D	25	24	8	5318
SOUTH BLANCO NAVAJO 25	BANNON ENERGY INC	J	25	24	8	5338
SOUTH BLANCO NAVAJO 25	BANNON ENERGY INC	P	25	24	8	5334
SOUTH BLANCO NAVAJO 26A	BANNON ENERGY INC	I	26	24	8	5281
SOUTH BLANCO NAVAJO 31	BANNON ENERGY INC	E	31	24	7	5354
SOUTH BLANCO NAVAJO 31	BANNON ENERGY INC	D	31	24	7	5366
S. BLANCO FEDERAL 31	BANNON ENERGY INC.	B	31	24	7	5500
SOUTH BLANCO NAVAJO 8	BANNON ENERGY INC	A	8	23	7	5498
SOUTH BLANCO NAVAJO 8	BANNON ENERGY INC	B	8	23	7	5433
SOUTH BLANCO NAVAJO 8	BANNON ENERGY INC	H	8	23	7	5125
SOUTH BLANCO STATE 32	BANNON ENERGY INC	F	32	24	7	5867
SOUTH BLANCO STATE 32A	BANNON ENERGY INC	O	32	24	7	5503
SOUTH BLANCO STATE 36	BANNON ENERGY INC	D	36	24	8	5262
SOUTH BLANCO STATE 36	BANNON ENERGY INC	G	36	24	8	5279
SOUTH BLANCO STATE 36	BANNON ENERGY INC	A	36	24	8	5337
SOUTH BLANCO STATE 36	BANNON ENERGY INC	H	36	24	8	5289
SOUTH BLANCO STATE 36 F	MESA OPERATING LTD PRTS	F	36	24	8	5249
STATE	WARNER R W	D	36	24	7	5238
STATE	DUGAN PRODUCTION CORP	E	32	24	7	5492
STATE 32	BANNON ENERGY INC.	P	32	24	7	5827
STATE H	BCO INC	B	2	23	7	5284
STATE H	BCO INC	I	16	23	7	8236
STATE H	BCO INC	A	35	24	7	5322
STATE H	BCO INC	M	2	23	7	5354
STATE H	BCO INC	D	2	23	7	5308
STATE OF NEW MEXICO 36	GRAHAM ROYALTY LTD	C	36	24	8	2317
STATE OF NEW MEXICO 36	GRAHAM ROYALTY LTD	L	36	24	8	5224
STATE OF NEW MEXICO 36	GRAHAM ROYALTY LTD	B	36	24	8	5279
STATE OF NEW MEXICO 36	GRAHAM ROYALTY LTD	E	35	24	8	5264
STATE OF NEW MEXICO 36	GRAHAM ROYALTY LTD	I	36	24	8	5317
STATE OF NEW MEXICO 36	GRAHAM ROYALTY LTD	N	36	24	8	5222
STATE OF NEW MEXICO 36	GRAHAM ROYALTY LTD	P	36	24	8	5259
STATE OF NEW MEXICO 36	GRAHAM ROYALTY LTD	M	36	24	8	5236
STEPHENSON	BCO INC	D	22	24	7	5780
STERLING 30	GRACE PETROLEUM CORP	I	30	24	6	5340
THIRLAWAY	MCELVAIN T H O&G PROP	G	35	24	7	5062
VANDENBURGH 11	BANNON ENERGY INC	M	11	23	7	5436

AVERAGE TOP OF GALLUP 5377