

MERIDIAN OIL CO.

IBLA 89-86

Decided September 16, 1991

Appeal from a decision of the Colorado State Office, Bureau of Land Management, affirming a decision by the San Juan Resource Area Manager finding that drainage requiring payment of compensatory royalty had occurred from Indian oil and gas lease 14-20-604-65. SDR-CO-89-1.

Affirmed in part, vacated and remanded in part.

1. Oil and Gas Leases: Compensatory Royalty--Oil and Gas Leases: Drainage

A finding that there was drainage from an Indian oil and gas lease is affirmed on appeal where no error is shown to exist in parameters used by BLM to calculate drainage.

2. Oil and Gas Leases: Compensatory Royalty--Oil and Gas Leases: Drainage

An assessment of compensatory royalty effective 6 months after completion of the offending well must be vacated where the record does not establish whether the lessee of the drained oil and gas lease had learned that drainage was occurring before notice of that fact was given by BLM, an event that did not occur until 9 years after the offending well was completed.

APPEARANCES: David M. Poage, Senior Staff Landman, Farmington, New Mexico, for Meridian Oil, Inc.; Lyle K. Rising, Esq., Office of the Solicitor, U.S. Department of the Interior, Denver, Colorado, for the Bureau of Land Management.

OPINION BY ADMINISTRATIVE JUDGE ARNESS

Meridian Oil Company, Inc. (Meridian), has appealed from an October 5, 1988, decision of the Colorado State Office, Bureau of Land Management (BLM), affirming a decision by the San Juan Resource Area Manager. The Area Manager assessed compensatory royalty against 7.4 percent of production from the American Petroleum Energy Argenta-Ute #6 well (Argenta #6), completed in the NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 31, T. 34 N., R. 10 W., New Mexico Principal Meridian, La Plata County, Colorado, for drainage from Southern Ute Indian lease 14-20-604-65, in the N $\frac{1}{2}$ sec. 31, T. 34 N., R. 10 W., New Mexico Principal Meridian, La Plata County, Colorado.

On May 29, 1987, BLM notified Meridian that it was conducting a review of areas where Indian oil and gas leases might be drained by producing wells. As lessee of Indian oil and gas lease 14-20-604-65, Meridian was given notice that seven wells, including the Argenta #6 well, completed October 9, 1978, in the Pictured Cliffs formation, should be considered to pose "potential drainage" to the Indian lease. ^{1/} The notice stated that, if Meridian believed that drainage was not occurring or that an economic well could not be drilled, geologic and engineering data to support such a position should be submitted to BLM.

By letter dated July 20, 1987, Meridian replied that evaluation of the "potential" warned against by the May 29 notice revealed that "no drainage to properties outside the spacing unit for each well has or will occur." Meridian submitted engineering data to support this conclusion. On February 5, 1988, BLM replied that a review of Meridian's data indicated the Indian lease was subject to possible drainage of natural gas from the Argenta #6 well. The analysis by BLM indicated a significantly higher ultimate recovery from the Argenta #6 well than the estimated ultimate recovery (EUR) assumed by Meridian. Consequently, BLM asked Meridian to confirm the accuracy of the EUR computation it had made. BLM warned that if Meridian could not demonstrate that drainage had not occurred, or that an economic protective well would not have been feasible between the onset of production from the offending well and the date of the February 5, 1988, BLM notice, Meridian would be assessed compensatory royalties "beginning six months from the completion date of the offending well until a protective well commences production or until the offending well ceases production, whichever comes first." Id. at 2.

In a response filed April 11, 1988, Meridian contended that the Argenta #6 well was not then draining the Indian lease and that no compensatory royalty was due. Meridian stated that review of the EUR calculations earlier provided to BLM confirmed that "this well will never drain the alleged offended acreage." Meridian explained that:

Application of the November 1, 1987 cumulative production of 117 MMcf produces a radius of 636' which is much smaller than the radius of 718' originally submitted or the 956' distance to the lease line, therefore 14-20-604-65 acreage is not currently being drained. According to the drainage calculation sheet provided in July, this well would need to produce over 260 MMcf or 2.2 times its current cumulative production before the edge of its drainage pattern comes close to touching the lease lines.

Id. at 1.

After a meeting between BLM and Meridian was held June 30, 1988, to discuss whether there was drainage of the Indian lease, Meridian was

^{1/} The record shows that American Petroleum Energy, Inc., was the operator who drilled to the Pictured Cliffs Formation.

given more time to review the BLM analysis and to provide a final response thereto. On July 29, 1988, Meridian submitted additional drainage data and a revised drainage radius calculation. Therein, Meridian concluded that "the Argenta #6 well has a calculated drainage radius at abandonment of 629 feet. This well is located 956 feet from the involved lease, thus drainage to this lease will never occur."

On September 7, 1988, the San Juan Resource Area Manager determined, after reviewing the Meridian data and computations, that lease 14-20-604-65 was subject to drainage from Argenta #6, and directed Meridian to submit an acceptable drilling plan for a protective well within 30 days. He found that if Meridian agreed to drill the protective well but did not diligently pursue drilling, compensatory royalty would be assessed. Further, he concluded, "If you choose not to drill the protective well, compensatory royalty will be assessed effective six months from the completion date of the offending well and continue until the offending well ceases production or the affected portions of the lease are cancelled or relinquished." That portion of the offending well's production attributed to the lease was determined to be "7.4 percent based on a drainage radius of 1281.92 feet at the economic limit of the Argenta # 6 well." Id. at 1.

On September 22, 1988, Meridian sought State Director review (SDR) of the Area Manager's decision. Meridian repeated the argument that its calculations showed the drainage radius of Argenta #6 to be 629 feet at abandonment with no drainage occurring to the Indian lease and, therefore, that neither a protective well nor compensatory royalty was required. In an October 5, 1988, decision, the State Director affirmed the Area Manager's decision after a review of the entire record. The State Director determined that the assessment of drainage was proper, stating, pertinently:

The data you submitted in support of your request are essentially the same as those used by the SJRA except for the neutron porosity, water saturation, and Estimated Ultimate Recovery (EUR). A 3 percent neutron porosity cannot be substantiated without a neutron log from the draining well or a reasonably similar analogy well. Neutron porosities for the Pictured Cliffs interval in the San Juan Basin are generally in the range of 15 to 21 percent according to the Welex Company.

The water saturations submitted could not be calculated using the standard equations you submitted either by a log analysis computer program or manually. The water saturations calculated by SJRA are repeatable using the equations you cited and are within the normal range for this formation.

The reserves of 188 MMCF calculated by a "best fit" interpolation underestimate the EUR due to downtime and flush production which significantly affect the best fit curve. The curve calculated by SJRA does fit the data more closely, and the EUR of 208 MMCF is a conservative estimate.

Id. at 2.

Meridian's statement of reasons (SOR) repeats arguments that drainage calculations provided by Meridian are correct and that the porosity calculations used by the company are not in error. Meridian disagrees with BLM's conclusion that the Argenta #6 well is 100-percent water saturated over more than 60 percent of its completed interval, and argues that water saturations are considerably lower, and that:

The effect of lower water saturations is to make more pore space available for the storage and transportation of hydrocarbons. A given amount of gas then occupies less reservoir volume and, therefore, a smaller drainage area and radius. The presumption that Meridian has either made an error or has deliberately manipulated the data in order to reduce the drainage radius is made both in Exhibit II(a) and Exhibit II(d) which is a Geologic Review by Marion Malinowski.

Id. at 2.

Finally, Meridian contends that the calculations on which it relied did not underestimate EUR by including "downtime and flush production." Meridian maintains that gas not produced during curtailment is recovered during flush production and any culling of data produces invalid results. Meridian concludes the calculation it has made for EUR is more accurate than that made by BLM because the correlation coefficient is based on all actual data, whereas the BLM correlation coefficient is based on selected data; it is explained that:

The higher the ultimate recovery for any given well, the larger the drainage area and, hence, the longer the drainage radius. Meridian's calculation indicates a smaller EUR and therefore a smaller drainage radius and is based on all actual data over the entire history of the well. The San Juan Resource Area's calculation is based on part of the data with no documentation of which part or why. In addition, examination of the references used in both Engineering Reports reveal that they contain no support for the San Juan Resource Area's position.

(SOR at 3).

The geologic review of Meridian's data and conclusions made by Marion Malinowski, referred to by the SOR at page 2 and quoted above, observed, after a discussion of Meridian's treatment of porosity data, that "after Meridian [employees] met with [BLM employees], they adopted most of BLM's log parameters in their analysis. Even so, using identical parameters and methods, Meridian's water saturations are unreasonably low by nearly 50% in most intervals" (Review dated Sept. 29, 1988). Referring to the selection by BLM of some but not all data used by Meridian ("culled" data), Malinowski observed that:

In checking the data picked from the logs and the method of analysis, I find the well log analysis to be accurate, repeatable,

conservative, and very well documented. The fact that BLM cannot duplicate Meridian's results using the parameters and the standard models and equations specified by Meridian (and also used by BLM) indicates that either Meridian has an algorithm flaw in their computer model or they are being arbitrary somewhere in their analysis in order to reduce the impact of drainage.

Id.

[1] When a BLM drainage determination requiring payment of compensatory royalty is challenged by a lessee, the lessee bears the burden of demonstrating error in BLM's decision by a preponderance of the evidence. Jerome P. McHugh & Associates (On Reconsideration), 117 IBLA 303 (1991). In challenging the validity of BLM's computation of the drainage-radius and consideration of factors used by BLM to assess compensatory royalty, we find that Meridian has not successfully carried this burden. Meridian has failed to substantiate the critical contentions made, that the BLM water saturation and EUR calculations are erroneous.

Both Meridian and BLM now agree that there is no significant difference in the porosity data used by them. However, BLM has pointed out a significant difference in calculation of hydrocarbon pore volume (HPV) ^{2/} resulting from different water saturation values used by Meridian. The geologic review prepared by BLM's fluids geologist and dated February 24, 1988, observes, concerning this discrepancy, that "a reduction of the HPV by nearly 75% will dramatically enlarge the drainage radius of the offending well." Id. at 3. BLM's calculations presume the completed well intervals are 100-percent water saturated, while Meridian puts the water saturation at considerably less, somewhere between 55-69 percent at the lower three completed intervals. To support these calculations, Meridian challenges the effectiveness of BLM's log analysis computer program and contends the Argenta #6 well has produced no water in 5 years. BLM, on the other hand, supports its opinion concerning water saturation with geologic data that is unchallenged by Meridian. Documented geologic factors in the Pictured Cliffs formation account for low reported water production and support BLM's determination concerning water saturation. The answer provided by BLM to Meridian's SOR explains, concerning the geology of this terrain, that it

is a shaley-sandstone; and in addition it is described as being a medium to fine grained sandstone with 30 percent clay included in the cementation components (Fassett & Hinds, 1971). This fine grained texture along with the large amount of clays present causes the Pictured Cliffs Sandstone to have very high irreducible water saturation values (i.e., water adheres to the clay grains and is strongly bound to them, so that the water does not flow upon normal pressure drops due to production). Therefore, the reservoir will not produce water, despite high water saturation

^{2/} HPV is the "volume of oil and gas contained underground in the pores of the rock." Williams and Meyers, 8 Oil & Gas Law Manual of Oil & Gas Terms, 445 (1987).

values (Asquith, 1982). In addition, the damage from the well bore caused while drilling (skin factor) further reduces permeability and further decreases water flow into the well bore.

(Answer at 3). Meridian does not directly dispute this analysis.

Resolution of the conflict between the calculations of EUR made by Meridian and BLM depends on whether data for shut-in periods and flush production may properly be edited. BLM states that the method of analysis used by Meridian to determine EUR was essentially the same as that used by BLM "since the same decline analysis software was used" (Answer at 3). Meridian maintains that for proper calculation of EUR using a decline analysis, all actual data over the entire history of the well should be included in the calculations. In contrast, BLM maintains that a proper decline analysis must be representative of uncurtailed conditions to accurately establish the reserves attributable to the well. On the record before us, we conclude that BLM's approach to the computation of EUR more closely simulates past production and more likely will accurately predict future production. Although Meridian contends that editing of data will yield invalid results, Meridian has also made certain judgments about the data to be included in the analysis it has provided, and also has "culled" the data for events significant to its experts. On the record before us, we are unable to find that Meridian has shown that BLM's experts erred when they found that the Argenta #6 well was draining Indian lease 14-20-604-65.

[2] Although we conclude that the record adequately supports BLM's finding there was drainage from the Argenta #6 well, the manner in which BLM has assessed compensatory royalty is a separate matter to be considered. Consistent with the finding that there had been drainage from the Argenta #6, and in conformity to provisions of Departmental regulations 43 CFR 3100.2-2 and 3162.2(a), BLM notified Meridian of the legal consequences of drainage. After it was decided that drainage had occurred, BLM notified Meridian on February 5, 1988, that if compensatory royalty were to be paid, it would be assessed for a period "beginning six months from the completion date of the offending well until a protective well commences production or until the offending well ceases production, whichever occurs first." Meridian was neither the owner nor operator of the offending well. While the offending well was completed on October 9, 1978, notice that drainage was suspected was not given by BLM until May 29, 1987. This delay raises a question whether, consistent with the Department's policy that notice will be given to a lessee before compensatory royalty is assessed, BLM may properly require Meridian to pay such royalties before notice of the fact of drainage was given. See Jerome P. McHugh & Associates (On Reconsideration), supra at 305; Chevron U.S.A., Inc., 107 IBLA 126, 131 (1989).

A lessee's duty to protect a leasehold from drainage arises a reasonable time after notification that drainage is occurring. Nola Grace Ptasynski, 63 IBLA 240, 256, 89 I.D. 208, 217 (1982). In CSX Oil & Gas Corp. 104 IBLA 188, 95 I.D. 148 (1988), we refined this rule, explaining:

If BLM has not notified a lessee of drainage, but can prove that such lessee knew or that a reasonably prudent operator would have

known that drainage was occurring, BLM may recover compensatory royalties. In such instance, the compensatory royalties would begin to accrue after the passage of a reasonable time following the date of the lessee's knowledge.

104 IBLA at 198, 95 I.D. at 154.

In the CSX case, notice that drainage was taking place was not given to the Federal lessee until after the Federal lease had expired, and it was not known whether the lessee had knowledge, prior to notice from BLM, that there was drainage from the Federal lease. In the instant case also, the record is silent concerning whether Meridian had knowledge, before notice was received from BLM, that there was drainage. Because the record is inadequate to permit us to determine whether Meridian should have known that drainage was occurring before May 1987, the decision under review must be vacated to permit BLM to consider this issue. If BLM should issue another decision assessing compensatory royalties from a time prior to the date notice of drainage was given by BLM, that decision should be based on a record that establishes when and how Meridian learned there was drainage from the Argenta #6. Id. Also, because there is no evidence concerning profitability of an offset well in the record before us, we cannot now decide whether an offset well would have been commercially practical when Meridian first knew or should have known that drainage was occurring. Any such decision must be based on economic conditions existing after the expiration of a reasonable time from the date of notice. Id. If the notice provided by BLM is found to be the first notice of drainage received by Meridian, it should be determined whether an economic well could then have been drilled, and, assuming that it could, assessment of compensatory royalty should be made from a reasonable time after that date.

Accordingly, pursuant to the authority delegated to the Board of Land Appeals by the Secretary of the Interior, 43 CFR 4.1, the decision appealed from is affirmed in part and vacated in part and remanded to permit a determination to be made whether Meridian had knowledge there was drainage from the Argenta #6 before notice of that fact was given by BLM.

Franklin D. Arness
Administrative Judge

I concur:

Gail M. Frazier
Administrative Judge