

AMOCO PRODUCTION CO.

IBLA 90-291

Decided April 28, 1994

Appeal from decision of the Montana State Office, Bureau of Land Management, affirming assessment of compensatory royalty. NDM-76202 Acq.; Drainage Case No. 517.

Reversed.

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

It is the responsibility of all Federal oil and gas lessees to drill and produce all wells necessary to offset or protect the lease lands from drainage, or, to compensate the Federal Government for the loss of royalties through drainage. Royalties lost by a lessee's failure to drill an offset well do not commence on completion of the offending well, but upon the lessee's failure to drill a protective offset well within a reasonable time after notice of drainage. BLM may recover compensatory royalties even if it has not notified a lessee of drainage, where it can establish that the lessee knew or should have known that drainage was occurring.

2. Administrative Procedure: Burden of Proof--Oil and Gas Leases: Compensatory Royalty--Oil and Gas Leases: Drainage

The Department is entitled to rely on the reasoned analysis of its experts in matters within the realm of their expertise. Where BLM has extensively researched the question of drainage of oil and gas beneath lands covered by a Federal oil and gas lease and has produced a significant body of evidence showing that a well was

draining a Federal lease and in what amount, its conclusion that drainage is occurring and its establishment of a drainage factor will be affirmed, where appellant fails to demonstrate by a preponderance of the evidence that BLM erred when collecting underlying data or in reaching its conclusions.

3. Administrative Procedure: Burden of Proof--Oil and Gas Leases: Compensatory Royalty--Oil and Gas Leases: Drainage

The duty to drill an offset well to prevent drainage arises when the lessee knew or should have known that drainage was occurring, unless the lessee can show that oil or gas could not be found on the lease at that time under conditions adequate to allow it to be economically developed. The burden of proving that a lessee's predecessor in interest knew or should have known that drainage was occurring rests with BLM. BLM has not met its burden of showing that compensatory royalty was due from 1980, where it did not inform the lessee that there was drainage until 1985, and where it shows on appeal only that lessee's predecessor had access to certain well data in 1979 from the offending well could have been reasonably interpreted to show that no drainage was occurring.

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

BLM's decision requiring payment of compensatory royalty from 1979 is properly reversed where it fails to establish that the lessee knew or should have known that drainage was occurring prior to 1985, and where BLM conceded that a well drilled a reasonable time after receipt of such notice would not be economic.

APPEARANCES: Robert G. Leo, Jr., Esq., Charles L. Kaiser, Esq., and Scott W. Hardt, Esq., Denver, Colorado, for appellant; M. Dennis Daugherty, Esq., Office of the Solicitor, U.S. Department of the Interior, Washington, D.C., for the Bureau of Land Management.

OPINION BY ADMINISTRATIVE JUDGE HUGHES

Amoco Production Company (Amoco) has appealed from the March 6, 1990, decision of the Montana State Office, Bureau of Land Management (BLM), affirming the decision of the Dickinson, North Dakota, District Office (DDO), BLM, to assess compensatory royalty.

Amoco is the lessee of record for Federal oil and gas lease NDM-76202 Acq., covering approximately 80 acres in the E $\frac{1}{2}$ NE $\frac{1}{4}$ sec. 6, T. 142 N., R. 100 W., fifth principal meridian, in Billings County, North Dakota. 1/ The leased lands are in the vicinity of the Four Eyes oil field, which lies north and east of the tract, and the Big Stick field, which is located south and west of the tract.

The offending well, the Kordon #4-5 well, is situated in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 5 of the same township, on privately owned lands adjacent to those covered by the lease in question, approximately 600 feet from the eastern boundary of Amoco's lease. That well, operated by Koch Exploration (Koch) was completed for production in the Fryburg Zone of the Mission Canyon Formation on June 27, 1979. 2/ The

issue presented in Amoco's appeal is _____

1/ As the section is irregular, the exact land description is lot 1, SE $\frac{1}{4}$ NE $\frac{1}{4}$, sec. 6, T. 142 N., R. 100 W., Billings County, North Dakota.

Amoco pointed out in a letter filed with the DDO on Feb. 2, 1989, that the lands in question were segregated out of lease NDM-35712 Acq. into lease NDM-76202 Acq. by BLM decision dated Mar. 17, 1988, presumably by the Montana State Office, BLM. No copy of that decision is in the record. We shall presume that the correct serial number for the lease covering the lands in question is the latter.

2/ The well was perforated at 9,640 - 9,648 feet.

whether Amoco may properly be assessed compensatory royalty on oil from the Federal lease that has been drained by the Kordon #4-5 well.

The record before the Board commences with a letter dated September 13, 1985, from the DDO to Tenneco Oil Company, Amoco's predecessor in interest in lease NDM-76202 Acq. That letter states, in toto:

According to our records you are the lessee of oil and gas lease no. M-35712 (ND) Acq. [3/] All or portions of this lease currently are being reviewed for drainage based on the proximity of the Kordon 4-5 well located at NW¹/₄NW¹/₄ Section 5, T.142N., R.100W., Billings County, North Dakota.

This letter is for notification purposes to alert you of this drainage review. If it is determined from data available that drainage may be occurring, you will be notified of your obligation to protect the lease by drilling, paying compensatory royalty, and/or to provide additional information.

The record contains nothing more until BLM's Geologic Study of the Drainage Potential of the Kordon #4-5 well, evidently prepared on March 8, 1988. 4/ That study found (1) that there is little, if any, structural difference between the tract covered by that well and the Federal tract; (2) that there seemed to be no geologic conditions that would preclude drainage; and (3) that the Kordon #4-5 well had obtained "prolific production" from a relatively thin but extensive porosity zone. 5/ The study

3/ At that time, the lands in sec. 6 had not yet been segregated out into lease NDM-76202 Acq. See note 1, supra.

4/ The document was not dated. The date of preparation was subsequently set forth in a document entitled "Introduction for the Geologic Reports on Drainage Case No. 517," dated Dec. 20, 1988.

5/ The zone of production was described generally as "the Fryburg interval of the Mission Canyon Formation," and, more specifically, a 10-foot zone "from the first well-developed porosity zone beneath the anhydrites at the top of the Mission Canyon."

indicated that it seemed highly likely that a large amount of drainage had taken place.

On May 17, 1988, the DDO completed its Preliminary Reservoir Engineering Report (Report), analyzing production from the Kordon #4-5 well. ^{6/} That Report assumed a drive mechanism of solution gas, noting that the reservoir appears to have some natural water drive, and used decline curve volumetrics as its preliminary method of analysis. The maximum potentially drained area was calculated at 391.5 acres, assuming radial drainage. It was noted that "production history seems to show the drainage radius is skewed to the west-southwest," toward the Federal lease. The Report found that the outer configuration boundary crossed the boundary of the lease, thus indicating drainage. Noting that "it is evident that economics would be favorable," the Report concluded that "Tenneco should be notified of drainage and their responsibilities."

On May 20, 1988, the DDO wrote to Tenneco, expressly notifying it that its Federal lease was subject to possible drainage by Koch's Kordon #4-5 well, and that, as a Federal lessee, Tenneco was required to protect the leased lands from drainage by drilling a protective well and/or paying compensatory royalty, unless it could demonstrate that drainage could not occur through geologic, engineering, and economic data. BLM allowed 60 days for Tenneco either to advise of its plans for protecting the lease

^{6/} This report appears in the record as an attachment to BLM's answer on appeal.

from drainage or submit sufficient information demonstrating that a protective well would have little or no chance of encountering oil and gas in paying quantities and/or that no drainage is occurring. Tenneco was advised that it would be assessed compensatory royalty if it failed to do so.

On June 24, 1988, Tenneco filed its response, offering its conclusion that the leased area was "below critical oil saturation" and "outside of the productive limits of both Big Stick and Four Eyes fields." Tenneco stated that it did not feel "that a well drilled [on the lease lands] would ever have encountered sufficient oil reserves to justify a well." Tenneco indicated that the Kordon #4-5 well was inside the "area of closure of Four Eyes field and the lease in question is largely outside." Nor did Tenneco regard the lease as being within the Big Stick field to the South of the Four Eyes field: the "lease sets over a structural low point or saddle separating the Big Stick and Four Eyes fields." In reaching that conclusion, Tenneco relied on the fact that two "Mission Canyon tests [had] been drilled which tested for oil in this saddle, and both were completed as dry holes," ^{7/} as well as its analysis of initial and current reservoir pressure, fluid saturations, gravities, formation volume factors, gas analysis, etc., and an economic valuation of the lease.

On July 13, 1988, BLM completed its Secondary Geological Review of this drainage case, assessing Tenneco's response. The review states that

^{7/} Those two wells were the Amoco #3-5 Kordon (in the SW¹/₄, sec. 5 of the same township as the Kordon #4-5 well), and the Apache #2-31 BN (in the SE¹/₄, sec. 31, T. 143 N., R. 101 W.).

there were two wells clearly located on the "saddle": the BN 2-31B, a dry hole, and the Kordon #4-5 well, which had (as of that time) produced over 400,000 barrels of oil. ^{8/} BLM noted that the high production of the latter strongly suggested that parts of that "saddle" were highly productive. BLM also noted that, in plotting production histories of the Kordon #4-5 well and nearby wells, its petroleum engineer found that production increased in the Kordon #4-5 well when production ceased in the #6-10A and #6-15A wells in the Big Stick field, and that placing the #1-5 well on production in the Four Eyes field did not seem to affect production in the #4-5 well. Those facts, according to BLM, showed that "there seems to be communication between the Big Stick and Four Eyes fields, and, if so, a large amount of drainage has probably occurred."

On November 1, 1988, BLM completed its Final Geologic Analysis, summarizing its past analysis of the geological aspects of the drainage case. That document alluded to a presentation made by Tenneco in August 1988 to the American Association of Petroleum Geologists noting that "the Big Stick and Four Eyes fields are part of one large reservoir" and referring to the "Big Stick/Four Eyes" field. BLM's analysis concluded that "there is enough evidence to show beyond a reasonable doubt that a large amount of drainage has taken place." BLM recommended that the drainage factor be determined by its engineers, and that the lessee take steps to protect the Federal Government from such drainage.

^{8/} BLM noted that the Amoco #3-5 Kordon well was not located on the saddle, as Amoco stated, but "on the structural high located to the south of this saddle (i.e., on the Big Stick structure)."

On December 12, 1988, BLM's petroleum engineers placed their Secondary (Final) Engineering Review in the drainage casefile. ^{9/} That review noted that the lease "is located in a narrow strip of reservoir which connects the Four Eyes and Big Stick fields." It also considered Tenneco's June 24, 1988, response, including the reservoir data it provided. BLM concluded that one of the wells relied on by Tenneco to show lack of producibility in the lease area was a bypassed location that actually had favorable hydrocarbon pore volume in the pay zone, but which was improperly perforated. BLM also concluded that well interference made it impossible for the Kordon #4-5 well to drain its hydrocarbons from the north and east, leaving only the "saddle," including Tenneco's leased lands, as the source for a large part of its production.

BLM noted that some of the values used by Tenneco appeared to be "field averages" instead of values based on "log interpretations for the #4-5 well." BLM also questioned the accuracy of other values, noting that they varied from "actual pressure data," "State reports," and "actual production" data. Accepting some changes, BLM recalculated the area of drainage at 229.3 acres. It then completed a log analysis for each well in the Four Eyes field and for the well in the Big Stick field in sec. 6, in order to determine what effect other wells might have on the Kordon #4-5 well.

Using the log analysis, BLM constructed a hydrocarbon pore volume map and drew a reservoir limit to the inside of wells that tested wet in the

^{9/} The casefile also contains a typewritten copy of the Final Review signed on Jan. 10, 1989.

main pay zone in the Four Eyes field. Drainage areas were calculated for nearby wells, zones of interference were identified, and areas of drainage were adjusted, using a trial and error method. When the drainage areas were determined, it became "obvious * * * that wells to the north and east of the Kordon #4-5 well will act as a boundary, and that fluids are being drained from" lease NDM-76202 Acq. The drainage area and the lease were planimetered to determine the percentage of hydrocarbons being drained from the lease and the original oil in place under the lease; the calculated drainage factor was 25.006 percent, later rounded to 25 percent.

BLM's Secondary (Final) Engineering Review also rejected Tenneco's use of economic data as of 1988 to determine whether a protective well could have been economically drilled: "The Kordon #4-5 well was completed for production on June 27, 1979. On August 17, 1979, the United States Geological Survey prepared an Individual Well Record from published reports * * *. It is therefore evident that the well became available for public knowledge in August 1979." The review allowed 6 months from the date of public knowledge to completion of a protective well, thus concluding that Tenneco should have been able to protect the Federal lease by drilling a protective well by February 29, 1980. BLM concluded that it would have been economic to drill such well, calculating a discounted net/investment ratio of 4.29. BLM accordingly concluded that Tenneco should be assessed compensatory royalty as of March 1, 1980.

On December 22, 1988, the DDO issued its first decision, addressed both to Tenneco and Amoco, summarizing its geologic and engineering findings and notifying the parties that compensatory royalty would be assessed

against 25.006 percent of the production from the Kordon #4-5 well, effective March 1, 1980, and would continue until the date of last production from that well. Tenneco sought review of the DDO's decision by the Montana State Director, BLM. 10/

On March 3, 1989, Amoco, through counsel, presented additional technical arguments and documentation. Amoco argued that BLM's conclusions regarding drainage could not be substantiated by supporting technical data, and that its decision was contrary to case law, in that BLM had not proven both that (1) substantial drainage is occurring from the land, and (2) that a prudent operator would drill a protective well on the facts of this case, as required by Nola Grace Ptasynski, 63 IBLA 240, 89 I.D. 208 (1982).

On March 30, 1989, the State Office vacated the DDO's decision and remanded the matter for further consideration of whether an offset well should have been drilled in light of this Board's decisions in Chevron U.S.A., Inc., 107 IBLA 126 (1989), and CSX Oil & Gas Corp., 104 IBLA 188, 95 I.D. 148 (1988). The State Office noted that the DDO had not met the burden of proving that Tenneco, or a reasonably prudent operator, should have known that drainage from its lease was occurring in August 1979 (approximately 2 months after the completion of the Kordon #4-5 well), and that the record indicates that the notification date was not until September 13, 1985. The State Office did not rule on whether drainage was occurring or whether a paying well could have been drilled, but directed the

10/ Serial Number SDR 922-98-01 was assigned to the matter.

DDO to review its decision on those questions in light of the data provided by Amoco on appeal.

On June 12, 1989, the DDO petroleum engineer prepared an additional drainage review report, finding as follows:

1. The Kordon #4-5 well was completed for production in the Fryburg formation on June 27, 1979. The IWR reflects this date, and P.I.'s well card also shows this date. However, the exact date of publication of the P.I. card or P.I.'s weekly well edition is not known.

2. On July 24, 1979, a motion for proper spacing of the Four Eyes-Madison, Duperow, and Red River pools came before the North Dakota Industrial Commission. The Commission found that the case should be continued [to] allow evaluation of new field data, and the case was scheduled for the 23rd day of October, 1979. * * *

3. Pursuant to legal notice the matter of proper spacing (Four Eyes-Madison, Duperow, and Red River) was brought before the Commission on October 25, 1979. During this hearing geologic and engineering evidence was presented indicating the Four Eyes Madison should be spaced at 160 acres. All of sections 5 and 6 * * * were included in the field.

4. Tenneco Oil Co. presented geological, engineering, and economic evidence at this hearing[, covering] 25 wells, including the Kordon #4-5 well. Tenneco specifically noted the date the 4-5 well was logged, the well's I.P., the well's producing status and formation, and they included the well in their Fryburg structure map.

The DDO engineer went on to note that Tenneco had presented specific reservoir parameters. Assuming radial drainage and employing BLM's methodology, he used Tenneco's parameters in calculations showing that drainage was occurring.

The DDO engineer noted that his review showed that Tenneco knew about the Kordon #4-5 well before October 23, 1979, as shown by its including the

well in its evidence to the State Commission. He considered whether Tenneco knew or a reasonably prudent operator would have known that drainage was occurring:

1. Tenneco has built an ownership and [boundary] map for the Four Eyes field. This map showed Tenneco's partial interest in section 6, and it also showed the Kordon #4-5 well (along with producing horizon).

2. Tenneco's structure map (included in the evidence submitted before the [State Commission]) included the Kordon #4-5 well. The map showed the NE¼ of sec. 6 * * * was/is similar structurally to the Kordon #4-5 well.

3. Tenneco apparently evaluated the production potential for the Kordon #4-5 well. Their [evidence before the State Commission] shows an IP-STBOPD of 722 and a decline rate of 70% per year (based on initial performance). Tenneco also expected the decline to drop off to 20% after two years of production * * *. If these numbers are used to estimate an ultimate recovery we find the well would have produced at least 368,650 STBO (based on 70% decline). * * * It should be noted that this recovery would increase if the hyperbolic decline was used.

4. Tenneco provided typical and actual reservoir parameters. They made calculations which showed production of 226,000 B.O. would drain 160 acres and 113,000 B.O. would drain 80 acres. [Calculations omitted.]

The DDO engineer then used Tenneco's numbers in a volumetrics calculation, concluding that "44,433 B.O. would reach the lease line," and that "368,650 B.O. would drain 260 acres," which, he stated, "would include part of section 6."

The DDO petroleum engineer concluded:

It is evident from the evidence submitted by Tenneco at the October 1979 Hearings that they had evaluated the Kordon #4-

5 well. They listed the well's initial potential, the well's decline rate, showed the well's location structurally (with reference to the Fryburg formation), and listed a set of typical or actual reservoir parameters for the Four Eyes field.

It is my estimation that given the above any reasonably prudent operator would have known the well would drain the identified lease. It is evident that Tenneco * * * knew about this potential by October 23, 1979. [Emphasis in original.]

The engineer concluded that Tenneco could have drilled and completed a protective well by April 30, 1980.

In response to Amoco's new information, the DDO petroleum engineer stated:

Amoco doesn't seem to want to recognize the fact that if you plot each Fryburg well's drainage area on a map you will see definite interference to the North and East. Since two wells can not drain the same area (same zone) at the same time it is clear the Kordon 4-5 must be draining hydrocarbons from the South and West. We do not argue that substantial drainage came from south of the 4-5 well in sec. 5. However, even with this drainage a substantial amount of oil has been drained from somewhere -- and that somewhere was not the north.

The BLM's recovery factor was a calculated average for the field, and it seems reasonable based on the fact that this is a solution gas drive reservoir with an active water drive. [Emphasis in original.]

The petroleum engineer set the drainage factor at 25 percent.

On June 30, 1989, the DDO issued its second decision setting out much of the discussion in the petroleum engineer's memorandum, quoted above. The DDO also indicated that a new economic analysis, using actual oil prices, an

original investment of \$1 million, operating costs of \$10,000 per month, and a discount factor of 12 percent, showed that a well drilled in 1980 would have "paid out is less than one year." The DDO applied the 25 percent drainage factor and notified Amoco that compensatory royalty would be assessed effective May 1, 1980. Amoco appealed again to the Montana State Director.

Amoco argued before the State Director that Tenneco was not notified that the lease was being drained by the Kordon #4-5 well until September 1985, and was therefore not required to consider drilling a protective well until that time. Amoco argued accordingly that the DDO's economic analysis was improperly predicated upon data, reserves, and values for 1980 instead of 1986. Amoco also attacked the validity of the DDO's conclusions concerning lease drainage, asserting (1) that actual production data and pressures for wells in the field are inconsistent with results predicted by BLM's radial flow model, thus invalidating the radial flow model; and (2) that the oil recovery factor for the Kordon #4-5 well used in the DDO's drainage analysis is substantially too low. Use of the correct factor (44.7 percent), it submitted, would prove that the Kordon #4-5 well is not draining the lease.

Amoco disputed the DDO's conclusion that Amoco knew lease drainage was occurring in October 1979 for four reasons:

[F]irst, Amoco's [11/] testimony in 1979 before the [State Commission] regarding spacing requirements for the Four Eyes Field, including the Kordon 4-5 Well, shows only that Amoco

11/ Although Amoco refers throughout to "Amoco's testimony," it appears that the testimony was actually presented by Tenneco, Amoco's predecessor in interest.

was aware of the well and the 24 others reported on and made assumptions labeled "average" and "typical" for production across the field with the purpose of defining appropriate spacing blocks on a field-wide basis. * * * Contrary to showing Amoco's knowledge of drainage, however, Amoco's testimony in support of 160-acre spacing evidences its belief that drainage was not occurring because 160 acres was sufficient to protect correlative rights of all mineral owners in the field including those under [lease NDM-76202 Acq.]. Second, the [State Commission] approved 160 acre spacing for the field by Order dated November 27, 1979, thereby concurring with Amoco's conclusion that 160-acre spacing was sufficient to prevent drainage of surrounding lands including those within the Lease. Because of this approval, a reasonably prudent operator would also believe no drainage was occurring. Third, this belief was corroborated at similar hearings for the Big Stick Unit in 1986 where Amoco and others once again testified, based upon intervening knowledge gained of the field, that the Lease was outside the productive boundaries of the field and the proposed Big Stick Unit. Both the BLM and the [State Commission] agreed with this technical analysis and approved unit boundaries which excluded the Lease. Fourth, in 1989 Amoco performed sophisticated modeling tests which once again demonstrate that drainage is not occurring from the lease. [Emphasis in original.]

(Amoco Request for State Director Review, Sept. 14, 1989, at 3-4). Finally, Amoco refuted the DDO's use of data proffered to the State Commission in 1979 as supporting an economic well:

Amoco showed average well economics and used typical data values for the field for the purpose of a field-wide spacing analysis. Such data is insufficient to support a site-specific economic analysis, particularly on the Lease, which is located at the extreme southern edge of the field and would perform far below average.

Id. at 4 n.3). Amoco argued that the economic analysis of whether to drill a protective well should be based upon the anticipated recoverable reserves, costs, and prices applicable "a reasonable time after notice in September 1985" (Amoco Submission to State Director at 4).

On March 6, 1990, the State Office issued the decision under appeal here, affirming in full the DDO's assessment of compensatory royalty effective May 1, 1980.

[1] It is the responsibility of all Federal oil and gas lessees to drill and produce all wells necessary to offset or protect the leased lands from drainage, or to compensate the Federal Government for the loss of royalties through drainage. 43 CFR 3100.2-2 and 3162.2(a). ^{12/} Although the authority of the United States to assess compensatory royalty is clear, there are significant limits on that authority. The right to compensation for royalties lost by a lessee's failure to drill an offset well ("compensatory royalties") does not arise on completion of the offending well, but upon the lessee's failure to drill a protective offset well within a reasonable time after notice of drainage. Nola Grace Ptasynski, 63 IBLA at 253, 89 I.D. at 216, reaffirmed in Chevron U.S.A. Inc., 107 IBLA at 130, and CSX Oil & Gas Corp., 104 IBLA at 195-97, 95 I.D. at 152-53. BLM may recover compensatory royalties even if it has not notified a lessee of drainage, where it can prove that the lessee knew or should have known that drainage was occurring. CSX Oil & Gas Corp., 104 IBLA at 198, 95 I.D. at 154. ^{13/}

^{12/} The history of the drainage regulation is set out in CSX Oil & Gas Corp., 104 IBLA at 194-95, 95 I.D. at 151-52.

^{13/} The Board has referred in other opinions to the necessity that BLM establish that there has been "substantial drainage." Chevron, U.S.A., Inc., 107 IBLA at 132-33 n.6; Atlantic Richfield Co., 105 IBLA 218, 224, 95 I.D. 235, 238-39 (1988). Even apart from problems arising from that term's imprecision, we find it irrelevant to the fundamental principles of compensatory royalty. Other factors totally unrelated to the amount of drainage (including the amount of production to be found on the Federal lease in one or more horizons, the value of the production, and the cost of drilling) would control whether it would be economic to drill an offset well. Although there may be practical reasons for BLM not to pursue claims

[2] Appellant challenges BLM's conclusion that drainage occurred here. The Department is entitled to rely on the reasoned analysis of its experts in matters within the realm of their expertise. Animal Protection Institute of America, 118 IBLA 63, 76 (1991). Where BLM has extensively researched the question of drainage of oil and gas beneath lands covered by a Federal oil and gas lease, it is not enough that appellant offers a contrary opinion, but it must demonstrate by a preponderance of the evidence that BLM erred when collecting underlying data or in reaching its conclusion. Jerome P. McHugh, 113 IBLA 341, 347 (1990); see Bender v. Clark, 744 F.2d 1424, 1429 (10th Cir. 1984). BLM's decision is properly affirmed where appellant fails to do so.

BLM's interpretation arises from facts that, on their face, strongly suggest that drainage occurred. The offending well has demonstrated large amounts of production. It is only 600 feet from the leased lands. The data reveal no significant geologic difference between the lands beneath the Federal lease and the lands surrounding the well.

The question of what underlies the surface of lands, being a question of interpreting and extrapolating limited empirical data, is a subject on which parties may develop differing, if equally reasonable, descriptions.

fn. 13 (continued)

of compensatory royalty where the amount of drainage is insubstantial, as a legal matter, compensatory royalty is owned if drainage (even of a comparatively small amount) occurs and royalty is lost because of a Federal lessee's impermissible failure to drill a protective well.

BLM has produced a significant body of evidence showing that the Kordon #4-5 well is capable of draining the Federal lease and in what amount. BLM's interpretation of that data supports its conclusion that drainage is occurring and its establishment of a drainage factor. Appellant's contrary assessment of the data relied on by BLM is not adequate to demonstrate that BLM's conclusions were inaccurate, and, therefore, we must affirm BLM's determination that drainage did occur.

[3] BLM assessed compensatory royalty from 1980, long before it provided appellant's predecessor in interest notice that drainage was occurring. Thus, under Ptasynski and CSX Oil & Gas Corp., we must also consider when it was known, or reasonably could have been known, that drainage was occurring. The burden of proving that a lessee knew or should have known of drainage at a particular time rests with BLM. CSX Oil & Gas Corp., 104 IBLA at 199, 95 I.D. at 154.

BLM takes the position that Tenneco, Amoco's predecessor in interest, should have known that drainage was occurring in 1980 and should have drilled an offset well within a reasonable time thereafter. BLM points to facts known to Tenneco in 1979, as demonstrated by its presentation to the State Commission in a well spacing case. That evidence contains several references to the Kordon #4-5 Well (then called the "Koch #4-5 well"): (1) a brief "well history" of that well, included along with 24 other well histories, 14/ (2) a listing of Fryburg production data for wells in the

14/ The history provides as follows: "Koch 4-5 5-142-100 Logged 6/6/79[:] the 4-5 was a Mmc test drilled to a TD of 9753'[:] The well IP'd pumping from the Mmc Fryburg at 520 BOPD."

Four Eyes field; (3) a portion of the Fryburg structure map, depicting the Kordon #4-5 well situated on the saddle between the Four Eyes and Big Stick Fields; and (4) a portion of a Tenneco "field boundary and ownership" map showing the Kordon #4-5 well adjacent to sec. 6, and noting Tenneco's "part interest" of sec. 6.

BLM found the Fryburg production data the most important, holding that it showed that "Tenneco apparently evaluated the production potential for the Kordon #4-5 well." Also, the ownership map showed that Tenneco was aware of the close proximity of the Kordon #4-5 well, and the structure map showed the absence of any fault or other geologic structure separating the lease property from the offending well.

BLM's conclusion that Tenneco should have known of drainage in 1979 hinges on the fact that the data known at that time, when subjected to BLM's present analysis using radial drainage and BLM's oil recovery factor, showed both that drainage was occurring and that it would be economical to drill an offset well. BLM thus effectively presumes that its analysis was so clear that a reasonable operator would have applied it and concluded that drainage was occurring, even though BLM failed to give notice that it believed drainage was occurring.

We are not willing to rule in this case, in the absence of actual notice from BLM expressly advising that it believed drainage was occurring, that a reasonable operator would have so concluded based on what was known in 1980. While we may presume both that well data were available in 1980 and that BLM's present analysis was based on techniques that were available

then, it does not follow that it would have been unreasonable for an operator to adopt other techniques leading to a different conclusion. Indeed, reasonable persons could have differed as to what the data showed at that time: Amoco has reviewed the same data and arrived at an oil recovery factor that shows that no drainage occurred. Further, it is significant that the eventual "prolific production" of the offending well, 15/ on which BLM's calculations concerning drainage are fundamentally grounded, could not have been anticipated in 1980, only 6 months after it was completed for production. Although we are satisfied that BLM's present analysis does adequately support its conclusion that drainage occurred and in what amount, we cannot conclude that Tenneco should have known that drainage was occurring in 1980.

[4] BLM has declared that it "did not dispute Amoco's economics for a well drilled in 1986, because we did not believe that a well drilled in 1986 would be profitable" (BLM Filing of Dec. 18, 1991). Since Amoco could not have drilled any earlier than 1986, based on BLM's notice dated September 13, 1985, 16/ BLM effectively concedes that a prudent operator would not have drilled a protective well here when it became aware that drainage was occurring. Accordingly, there is no basis for BLM to assess compensatory royalty here.

Appellant's request for hearing is denied. To the extent not expressly addressed herein, the parties' arguments have been considered and rejected.

15/ BLM alluded to the production from the Kordon #4-5 well in this manner in March 1988.

16/ We offer no opinion on whether BLM's Sept. 13, 1985, notice was adequate, in view of the tentative nature of the notice and the lack of supporting technical data. Rather, we shall assume, arguendo, that Tenneco received notice at that time.

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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 reversed.

David L. Hughes
Administrative Judge

129 IBLA 206

ADMINISTRATIVE JUDGE BURSKI CONCURRING:

While in general agreement both with the result and animating rationale of the lead opinion, I wish to briefly address what I perceive to be inconsistencies and misstatements in the Board's past pronouncements relating to the application of the prudent operator rule.

At least since its decision in Nola Grace Ptasynski, 63 IBLA 240, 89 I.D. 208 (1982), this Board has consistently recognized that a lessee's obligation to either drill to protect a Federal lease from drainage or pay compensatory royalty for failing to do so is limited by the extent to which the lessee can show that, based on subsisting economic and geologic factors, a prudent operator would not drill a well in the circumstances. But, while all of the Board's subsequent drainage decisions have faithfully adhered to the applicability of the prudent operator exception to the obligation to protect against drainage, there has been far less consistency in approaching the question of which side has the burden of proof with respect to the exception. In other words, must BLM negate the exception (i.e., establish that a prudent operator would drill) as part of its initial burden of proof or does the lessee have the obligation to establish that the prudent operator exception applies as an affirmative defense to the assessment of compensatory royalties? Recent Board decisions have seemingly embraced both approaches even though they are mutually exclusive. Compare Kerr-McGee Corp., 118 IBLA 119, 126, (1991) (holding that "[i]f there was not enough petroleum resource to support a profitable offset well on the Federal

leases, the operator was obliged to show that was the case") with Benson-Montin-Greer Drilling Corp., 123 IBLA 341, 350, 99 I.D. 115, 120 (1992), (holding that "[i]f BLM concludes that a prudent operator would have drilled a well, it should calculate the amount owed as compensatory royalty"). While a certain amount of this confusion might be ascribed to a simple lack of linguistic precision, I think that the root cause of the decisional inconsistencies resides in the fact that, by and large, the Board's approach to allocation of the burden of proof in drainage determinations was largely formulated in cases arising in a common lessee context which, at least in my view, has served to somewhat distort the basis upon which this determination should be made.

Initially, it should be noted that, in addition to determining that the prudent operator standard applied to Federal leases, the Ptasynski decision also held that the obligation to remit compensatory royalty did not arise upon completion of the offending well but only upon the passage of a reasonable time following notification by the lessor that an adjoining well was draining the leasehold. Nola Grace Ptasynski, supra at 256, 89 I.D. at 217. This latter holding, however, was expressly subject to the caveat that "where the lessee is responsible for the draining well, the requirement of notice may be dispensed with." Id. at 256 n.13, 89 I.D. at 217 n.13. Thus, commencing with the very first decision expressly embracing the applicability of the prudent operator rule to Federal leases, the Board differentiated (at least in the notice requirement) between the treatment of

a common lessee who had completed the draining well and a lessee who had no leasehold interest in the land on which an offending well was located. ^{1/}

In Atlantic Richfield Co., 105 IBLA 218, 95 I.D. 235 (1988), the Board examined the question of allocation of the burden of proof with respect to the prudent operator rule in the common lessee situation. Therein, the Board declared that:

When BLM seeks to recover compensatory royalties from a common lessee, it must establish that a leased Federal tract is being drained by a well operated by the common lessee. However, BLM need not prove as a part of its cause of action that a protective well would be economic, i.e., profitable. Both the burden of going forward and the ultimate burden of persuasion on this issue must rest with the common lessee * * * because of the possibility of unfair dealing and because the common lessee possesses the evidence necessary to prove that an economic well cannot be drilled.

Id. at 225, 95 I.D. at 239. What is important to note is that, while the Board clearly held that the common lessee bore the burden of establishing that a prudent operator would not have drilled a well, the theoretical basis for doing so was not tied into the nature of the prudent operator rule but rather was premised on concerns which would strictly relate to common lessee status, viz., the danger of unfair dealings by a common lessee and the common lessee's access to knowledge of the results of drilling on the adjacent lease. To the extent that allocation of the burden of proof _____

^{1/} Subsequently, in Petroleum, Inc., 115 IBLA 188 (1990), the common lessee standard was held to be applicable to situations in which a common operator was involved.

is grounded in these considerations, the decision necessarily implied that, in the non-common lessee context, the Government bore the burden of negating the prudent operator exception.

While the considerations recounted in Atlantic Richfield provide ample support for differentiating between the common and non-common lessee insofar as the notice requirement is concerned, I fail to see how they have or should have any relevancy to questions relating to allocation of the burden of proof with respect to the prudent operator rule. Thus, the very real danger of unfair dealings which arises when a common lessee has control of both the draining and the drained tracts 2/ does not have any real bearing on whether or not a prudent operator would drill, so long as that determination is being made on an objective basis. And, while common lessee status clearly results in a situation wherein the lessee has sufficient data upon which to premise an argument that a prudent operator would not drill, such would also necessarily be the case in any non-common lessee situation where the Government has established that a non-common lessee has knowledge that

2/ First of all, since well-spacing determinations are based not on the limits of drainage but on considerations of maximum economic recovery of subsurface hydrocarbons, a common lessee might find it in his economic self-interest to avoid the additional expense of drilling a second well if he determined that the offset well would be marginally economic and that it was likely that substantial amounts of oil and gas originally underlying the offset parcel could be ultimately produced from the offending well. Similarly, if the two leases had differing royalty rates or if the lessee had additional non-working interests in one of the leases, the lessee could have economic incentives to produce from one lease to the detriment of another. In these situations, the economic interests of the lessee and those of the lessor of the offset parcel no longer coincide and there exists a very real possibility of unfair dealings on the part of the lessee.

drainage is occurring, ^{3/} be it by notice from the Government, actual knowledge of the drilling of the draining well, or imputed knowledge of that well. Where the Government presents data sufficient to establish that drainage is occurring, any lessee is required to drill an offset well unless a prudent operator would not drill in those circumstances.

The ultimate vice of the Atlantic Richfield decision insofar as this issue is concerned lies not in its conclusion that a common lessee bears the burden of establishing that a prudent man would not drill, but in its assumption that a differing approach is or should be applicable in the non-common lessee situation. Both a common lessee and a non-common lessee have an affirmative obligation to protect Federally-leased premises from drainage. Assuming that drainage can be shown to exist, either may discharge their obligations by drilling the protective well, tendering compensatory royalty for failing to do so, or establishing that a prudent operator would not drill a protective well. The prudent operator rule is, thus, an affirmative defense to a generally applicable requirement. As such, any party who wishes to avail itself of the rule's protection is properly required both to plead and prove the applicability of the rule. See, e.g., Harry Smith Construction Co. v. OSM, 78 IBLA 27 (1983). This should be the case, regardless of whether or not a common lessee situation is involved. ^{4/} The language in decisions such as Atlantic Richfield and

^{3/} Of course, any lessee may, as in the instant case, challenge the fact of drainage.

^{4/} I am not unaware that the general rule in state proceedings is that the lessor must establish that a protective well would produce in paying quantities as an element of its cause of action. See generally 5 Williams

Benson-Montin-Greer Drilling Corp., which either impliedly or expressly hold to the contrary, do not, in my view, correctly reflect the requirements of the law.

Since it is my view that the lead opinion herein correctly allocates this burden and also because I concur in its analysis of what BLM is required to establish where it seeks to retroactively show that a lessee "knew or should have known" that drainage was occurring, I concur in the disposition of the instant appeal.

James L. Burski
Administrative Judge

fn. 4 (continued)

and Meyers, Oil and Gas Law § 822.2 (1981). To the extent that lease cancellation is sought, allocation of the burden of proof to the lessor may be seen as a logical outgrowth of the reluctance of courts to order the drastic remedy of cancellation for violation of the implied covenant to protect against drainage. Where, however, the lessor merely seeks compensations for royalties allegedly lost by the failure of the lessee to drill a protective well, it seems to me that, to the extent that a lessee has has premised his refusal to drill an outset well on an assertion that a prudent operator would not drill a well in the circumstances, the lessee should be required to both plead the prudent operator rule and establish facts sufficient to justify his failure to drill a well. This should not be a particularly onerous task since, after all, this is the same analysis which the lessee presumably undertook in originally deciding not to drill in the first instance.