

Department of the Interior  
Colorado Bureau of Land Management

Notice to Lessee/Operators  
of Onshore Federal Oil and Gas Leases  
Within the Jurisdiction of the Colorado State Office

**NTL-CO-88-2**

Paying Well Determinations and Venting, and Flaring  
Applications on Jurisdictional Coal Bed Methane Wells

This notice is to inform lessee/operators of the Bureau of Land Management Colorado State Office's policy in regard to the processing of paying well determinations and venting and flaring applications on federal coal bed methane wells within the state of Colorado.

Production characteristics of coal bed methane gas wells are radically different than gas wells completed in conventional reservoirs. The traditional methods and procedures for doing paying well determinations cannot be applied to coal bed methane production. For those leases in or approaching extended terms on which the only production is coal bed methane, a premature nonpaying well determination may lead to loss of resources and royalties and this is clearly not in the best interest of either the lessor or the lessee.

The guidance outlined below is intended to deal with the problems associated with doing paying well determinations on coal bed methane wells.

**Coal Bed Well Classification**

A coal bed methane well is defined as any well predominantly completed in coal seams (usually based on electric logs, drilling time, drill cuttings, mud logs, completion reports) making measurable amounts of methane gas and generally characterized by the following parameters:

1. Reservoir performance data such as inclining gas production over time.
2. Associated high water production generally requiring artificial lift.
3. Water analysis showing relatively high bicarbonate content.
4. Gas analysis showing relative low BTU value with associated carbon dioxide.
5. Potential formation damage as a result of shutting in the well.
6. Possible detrimental effects from water encroachment as a result of shutting in the well.

Some wells may not exhibit all six of the above characteristics, but may still be classified as coal bed methane wells if conclusive evidence is provided by the operator. These classification standards do not apply to a Federal Energy Regulatory Commission category 107 determination.

## **Paying Well Determinations on a Leasehold Basis**

Leasehold paying well determinations for wells classified as coal bed methane wells will be a two-stage process as described below:

### 1. Prepare an initial paying well determination.

Sufficient cost and income data are usually not available at the completion of coal bed methane to perform a typical paying well determination. An initial paying well determination can be granted for classified coal bed methane wells if it appears that a prudent operator would continue to operate the coal bed methane well in expectation of improving the well's performance. If the lease is approaching the end of its primary term and is not otherwise held by production, a positive initial paying well determination will serve to extend the lease as held by production. The operator will then be granted a period of time up to one year from the completion date of the well to continuously test the well. This initial testing period will be used to establish a baseline for monitoring the anticipated gas incline/water decline response.

The accurate measurement of water during this one-year testing period will be as important as the accurate measurement of gas for the purpose of evaluating the well's response. If requested, additional six-month extensions of the one-year testing period may be allowed. The total testing and demonstration period shall not exceed two years unless extensions of the testing periods have been granted due to an unavoidable delay situation deemed to be beyond the control of the operator, which prevents continuous operations. Any extended testing/producing period must be justified by facts that indicate a prudent operator would continue to produce the well in anticipation of improving its performance. Any lease extended by a positive initial paying well determination will be closely monitored to ensure the continuous production of the well.

Any lease that is considered to be held by production due to a positive initial paying well determination on a coal bed methane well will be considered to be on minimum royalty, not advanced rental. A positive Initial paying production determination may result in the issuance of a first production notice.

### 2. Prepare a final paying well determination on a leasehold basis.

A favorable fiscal paying well determination could be made at any time the initial testing period leads the authorized officer to believe that the gas production would increase to some point within the next six months so the well would be capable of producing leasehold substances in paying quantities. A final nonpaying well determination could be made at any time the information warrants such a decision. If a nonpaying well determination is conducted for the last well that was considered to be extending on the lease, then the lessor/operator would have to be given 60 days to restore some type of paying production to prevent lease termination.

A lease considered to be held by production due to a positive initial paying well determination may also be subject to termination prior to a final paying well determination if one of the following two circumstances occur: (1) the approved period of continued production expires or (2) diligent producing operations cease without acceptable justification. Should one of these circumstances occur, such a lease would be terminated effective the date of notification of the circumstance unless the lease has another satisfactory source of paying production or diligent operations to restore paying production are commenced within 60 days after notification.

For coal bed methane wells, a final paying well determination is the same methodology used for conventional oil and gas wells in that we must determine if the well can produce sufficient quantities to overcome operating/overhead expenses which should not include capital well/facility investments. The only variance would be the high cost of disposing of produced wastes, and coal bed methane wells are anticipated to initially produce abnormally high volumes of water. This would be a severely limiting factor in the economics of a determination. To mitigate this effect, the costs of water disposal would be prorated over a period of ten years or the projected life of the well, whichever is less.

The relevant circumstances the authorized officer may use in reaching a paying well determination can include the engineer's best professional judgment as to whether and to what extent the well in question will perform, compared to the prevailing theory for coal bed methane production at the time of the determination.

### **Paying Well Determination on a Unit Basis**

The process discussed for initial paying well determinations on a leasehold basis can be applied to coal bed methane wells drilled under the terms of a unit agreement. If such a determination is made, it would serve to hold any expiring leases in accordance with the 67 IBLA 246 Yates Petroleum Company decision dated September 24, 1982.

A coal bed methane unit well which has had initial paying well determinations will not satisfy the drilling requirements established under section 9 of the model form of the unit agreement. Drilling must continue until a discovery of unitized substances in paying quantities is made. A well which has had an initial paying well determination is not considered to be a well capable of producing unitized substances in paying quantities. To accommodate extended testing/producing requirements for establishing unit paying production, section 9 may be amended to allow for extended drilling, timeframes between the completion of one coal bed methane well and the commencement of another.

Final paying well determinations for coal bed methane unit wells are different than the final determinations as described in item 2 above for leasehold wells. Again, it is the intent of such a final determination to demonstrate that the unit well is capable of producing methane gas, a unitized substance, in paying quantities. To accomplish this, inclined methane and prorated water production rates will be used to determine if a well

has the capability to produce unitized substances in sufficient quantities to repay the cost of drilling, completing, and producing operations with a reasonable profit. As long as the cash flow remains positive, there is no limit to the number of years for payout.

## **Venting and Flaring**

Limited evidence in the field suggests that there may be a significant risk associated with shutting in a coal bed methane well even for a short time (i.e., a few days). At best, the benefits of dewatering the coal seam will be hindered, and at worst, the well could be lost. Consequently, venting and flaring issues will need to be addressed. This is especially true during periods of market curtailment. Venting and flaring approvals will be processed as follows:

### 1. Development wells

A development well is defined as any well within one-quarter of a mile of a feasible pipeline hookup. Venting and flaring will be administratively authorized on development wells until an initial paying well determination is made. In most cases, the initial paying well determination will be made within a 30-day period following completion or recompletion of the well. For the most part, development wells will follow the existing procedures in NTL-4A. That is, after the initial 30-day period following completion or after the initial paying well determination is made, whichever occurs later, gas will be considered avoidably lost and royalty will accrue unless an NTL-4A application is approved to continue venting and flaring as it is uneconomic to capture the gas.

### 2. Step-out/wildcat wells

Step-out/wildcat wells are defined as new wells greater than one-quarter mile from an acceptable pipeline hookup. As with development wells, the venting and flaring will be administratively authorized until the initial paying well determination is made. Any additional venting and flaring after the initial paying well determination is made will require the approval of an NTL-4A application. Generally, the venting and flaring will be authorized as unavoidably lost under the special well test provisions, and royalties would not accrue until a final paying well determination is made.

### 3. Venting and flaring after the final paying well determination

After the final paying well determination is made for step-out/wildcat wells, the gas vented and flared will generally be considered as avoidably lost and royalties will accrue. It should be noted that existing guidance allows for the unavoidable short-term venting or flaring of gas without incurring royalty obligation in certain circumstances. These circumstances include temporary emergency situations (i.e., equipment failures, relief of abnormal pressures, market disruptions), routine purging, or other conditions which result in the unavoidable short-term venting or flaring of gas. This authorization is limited to 24 hours per incident and to 144 hours total for the lease during any calendar month.

If you have any questions concerning this matter, please contact Rick Ryan of this office at (303) 239-3751, or Kent Hoffman or Jim Lovato of the San Juan Resource Area Office at (970) 247-4082.

Date: September 26, 1988

Signature: Tom Walker, Associate State Director

## BRIEFING PAPER

### ISSUE:

Should Colorado Notice to Lessee/Operators (NTL): NTL -CO-88-2, "Paying Well Determinations and Venting and Flaring Application on Jurisdictional Coal Bed Methane Wells" apply to Indian lands as well as federal lands?

### 1. Background

Coal degasification activities on federal and Indian land in the state of Colorado has significantly increased during FY 1988. A large majority of the activity is located on Indian land in the San Juan Resource Area. Typically these coal degasification wells produce significant volumes of water and small amounts of methane gas at completion.

As the well is continuously produced, the water production decreases and the methane gas production increases. These inclined gas production rates can take a considerable amount of time to establish. The net effect is that a coal bed methane well's peak gas production is established much later in the life of the well, unlike a conventional gas well.

This office felt that inclined production curves and extended testing requirements to establish this production history would have direct impact on existing operational policies which have been developed for conventional gas wells. In conjunction with the San Juan Resource Area, this office took the initiative to examine the following issue areas that directly impact coal bed methane operations on federal and Indian land: 1) when can a gas well be considered a coal bed methane well, 2) what production rates must be sustained by that well to extend a lease, and, 3) how much gas could be flared or vented royalty free during the extended testing/producing periods.

It was the consensus of this office and the San Juan Resource Area that a lease should not terminate at the end of its primary term if it contains a coal bed methane well that will become more prolific as the well is continually produced. This office took the lead to develop a policy concerning these issue areas and felt that a NTL for both federal and Indian lands should be issued so all coal bed methane operators would be adequately informed of this policy.

Operators soon began to realize that the unique producing aspects of coal bed methane wells would have a direct impact on their lease terms. To deal with the above issue areas, along with spacing requirements and NGPA classifications, they formed a committee entitled the Fruitland Coalbed Methane Committee. Both the Bureau of Land Management and the Southern Ute Indian Tribe were members of this committee. The San Juan Resource Area Office presented our NTL to the committee in draft form for comment. The committee, which included the representative from the Southern Ute Indian Tribe, had no objections to the issuance of the NTL as it applied to both federal and Indian land.

## **II. NTL Policy Issues**

A. Paying well determinations. Present guidelines in the Bureau state that a paying quantities determination is a determination as to whether or not, under all relevant circumstances, a prudent operator would continue to operate a well in the manner in which such well is being operated for the purpose of making a profit and not merely to hold the lease for speculation. It is our contention that if an operator is continually testing/producing a coal bed methane in attempt to incline production rates to the point of economic feasibility, then the operator is diligently attempting to establish a viable gas resource on the lease. An initial paying well determination can be granted as long as testing/producing operations remain continuous and the authorized officer has determined that through these testing operations, the operator can reasonably expect production to incline significantly.

Extraordinary expenses should not be included in a paying well determination. Only those costs incurred on a day-to-day basis and which are expected to occur in the future should be considered. Pursuant to this existing bureau policy the NTL suggests that inclined production rates and prorated water disposal costs should be used in an economic valuation. These factors are typically experienced by a coal bed methane well in the foreseeable future as the well is produced.

2. Venting/Flaring. NTL-4A states that gas vented/flared during a special test period can be considered unavoidably lost. Therefore, until a coal bed methane well is tested significantly to establish economic inclined producing rates (i.e., final paying well determination), the testing period can be considered special and therefore all gas vented/flared can be considered unavoidably lost. However, those wells reasonably close to a pipeline hook-up and not considered to be subject to this special test provision since there is a nearby marketing outlet for the gas during the extended testing period.

3. Limits on the amount of time an operator can spend diligently testing/producing a coal bed methane well prior to a final paying determination being conducted by the authorized officer were established (i.e., not to exceed two years). The rationale for this being that after certain point if the operator has not obtained satisfactory inclined production rates, then the operator is simply operating the well for possible lease speculation and not for the purpose of making a profit.

## **III. Implementation**

After receiving concurrence from the Fruitland Coalbed Methane Committee, this office distributed the NTL to the Rocky Mountain Oil and Gas Association, Independent Petroleum Association of Mountain States, Colorado Oil and Gas Conservation Commission, Southern Ute Indian Tribe, Fruitland Coal Bed Methane Committee, and the district offices. The only objection to the issuance of this NTL was received from the Southern Ute Indian Tribe. It should be noted that as a Fruitland Coal bed Methane Committee member, the Southern Ute Indian did not appear to have any objections to

the NTL at that time.

#### **IV. Conclusion**

This NTL is in conformance with all existing regulations and policies. The NTL establishes a uniform policy to be applied to all coal bed methane operations in the state of Colorado. Through the issuance of this NTL, operators will understand what performance standards have been established for their coal bed methane operations. Each operator should not have to negotiate a separate agreement with the mineral management agency to determine what they must accomplish with their operations to perpetuate a lease. The NTL will be issued for federal lands. The issuance of the NTL for Indian lands will be deferred until a decision is reached by the Washington Office.