

CASE NO.

7029

APPLICATION,
TRANSCRIPTS,
SMALL EXHIBITS,
ETC.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

CASE NO. 6852
Order No. R-6388

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION ON ITS OWN MOTION TO
CONSIDER SPECIAL RULES AND
PROCEDURES FOR THE DESIGNATION
OF "TIGHT FORMATIONS" UNDER THE
NATURAL GAS POLICY ACT OF 1978.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on April 9, 1980,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 30th day of June, 1980, the Division
Director, having considered the testimony, the record, and the
recommendations of the Examiner, and being fully advised in the
premises,

FINDS:

- (1) That due public notice having been given as required
by law, the Division has jurisdiction of this cause and the
subject matter thereof.
- (2) That the 95th Congress of the United States passed
the Natural Gas Policy Act of 1978 (NGPA), P.L. 95-621, 92
Stat. L. 3350.
- (3) That said Act was enacted on November 9, 1978, and
went into effect on December 1, 1978.
- (4) That pursuant to said Act, the Federal Energy Regu-
latory Commission (FERC), on February 20, 1980, issued interim
regulations under Section 107 of the NGPA providing that the
appropriate agency in each state may recommend formations within
that state which meet FERC specifications and which may be eli-
gible for designation by the FERC as "tight formation."
- (5) That natural gas produced from said "tight formations"
should receive a reasonable incentive price.

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(6) That the Oil Conservation Division and the Office of the United States Geological Survey in Albuquerque, New Mexico, are the agencies in the State of New Mexico which may recommend formations within the State of New Mexico for tight formation designations.

(7) That the Oil Conservation Division and the Office of the United States Geological Survey in Albuquerque, New Mexico, have agreed that the Oil Conservation Division shall receive and rule on all applications for tight formation designations in the State of New Mexico irrespective of the nature of land ownership.

(8) That the Oil Conservation Division should adopt special rules of procedure for accepting applications for the tight formation designations.

(9) That said special rules should require the filing of geographical, geological, and engineering information sufficient to support findings for an order recommending a tight formation designation.

(10) That said special rules should be in the form and content prescribed in Exhibit A, attached hereto and made a part hereof.

IT IS THEREFORE ORDERED:

(1) That the "Special Rules and Procedures for Tight Formation Designations Under Section 107 of the Natural Gas Policy Act of 1978," attached hereto as Exhibit A, are hereby adopted effective immediately.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

Joe D. Ramey
JOE D. RAMEY
Director

S E A L
fd/

SPECIAL RULES AND PROCEDURES FOR
TIGHT FORMATION DESIGNATIONS UNDER SECTION
107 OF THE NATURAL GAS POLICY ACT OF 1978

A. General

Applications for tight formation designations under Section 107 of the NGPA and applicable FERC rules and regulations shall be accepted by the Division at its Santa Fe, New Mexico office after June 30, 1980. These special rules apply only to tight formation designations and do not apply to individual well filing requirements for price category determination.

B. Definitions

1. "Crude Oil" means a mixture of hydrocarbons that exists in the liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separation facilities.
2. "Division" means the Oil Conservation Division of the Energy and Minerals Department of the State of New Mexico.
3. "FERC" means the Federal Energy Regulatory Commission.
4. "USGS" means the office of the United States Geological Survey in Albuquerque, New Mexico.
5. "Formation" means any geological formation or portion thereof described by geological as well as geographical parameters which is the subject of a tight formation designation application.

C. Procedure

1. To the extent that the Division's general rules of procedure for public hearings are not altered or amended by these special rules, such general rules of procedure shall be applicable and are incorporated herein by reference.
2. All applications for tight formation designation in the State of New Mexico, in which Federal, Indian, state, or fee lands, or any combination thereof, are involved, shall be filed with the Division.
3. All applications for tight formation designation shall be set for public hearing.

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Exhibit A

4. A complete set of exhibits which an applicant proposes to offer or introduce at a hearing, together with a statement of the meaning and purpose of each exhibit, shall be submitted to the Division (and to the USGS when federal or Indian lands are involved) when the application is filed or at least 15 days prior to a hearing. These exhibits shall cover all aspects of the required evidentiary data described in Section D below. One additional complete set of such exhibits and statements, enclosed in an unsealed postage-paid packet, shall also accompany the application or be presented at the hearing; this packet and its contents will be forwarded to the FERC by the Division after the hearing, together with the Division order recommending disposition of the application.
5. Where practicable, applications may be consolidated for hearing at the discretion of the Director of the Division.
6. Within 15 days after its issuance, any order promulgated by the Division pursuant to these special rules shall be submitted by the Division to the FERC in accordance with Section 271.705 of the FERC rules and regulations applicable to NGPA for approval or disapproval of a tight formation designation.

D. Evidence

1. Evidence offered by an applicant at a hearing shall include:
 - a. a map and geographical and geological descriptions of the area and formation for which the designation is sought; and
 - b. geological and engineering data to support the application; and
 - c. a map or list which clearly locates or describes wells which have produced oil or gas, or both, from the formation within the geographical area of the application; and

*substitute
new
D(DC)*

- See also
10000
D(1)(e)*
- must
D(1)(e)*
- d. a report of the extent to which an applicant believes existing State and Federal regulations will assure that development of the formation will not adversely affect or impair any fresh water aquifers that are being used or are expected to be used in the foreseeable future for domestic or agricultural water supplies; and
- e. any other information which the Division may require. *Change D(1)(e) to D(1)(f)*
2. Evidence shall be based on each of the following geological and engineering guidelines:
- a. The estimated average in situ gas permeability, throughout the pay section, is expected to be 0.1 millidarcy or less.
- (1) Permeability may be established and demonstrated by any customary or acceptable methods, techniques, or testing acceptable in the oil and gas industry.
- b. The stabilized production rate, either at atmospheric pressure or calculated against atmospheric pressure, of wells completed for production in the formation, without stimulation, is not expected to exceed the production rate determined in accordance with the following table:

If the average depth to the top of the formation (in feet):		The maximum allowable production rate (in Mcf/day) may not exceed:
exceeds:	but does not exceed:	
0	1000	44
1000	1500	51
1500	2000	59
2000	2500	68
2500	3000	79
3000	3500	91
3500	4000	105
4000	4500	122
4500	5000	141

If the average depth to
the top of the formation
(in feet):

The maximum allowable
production rate (in Mcf/day)
may not exceed:

<u>exceeds:</u>	<u>but does not exceed:</u>	
5000	5500	163
5500	6000	188
6000	6500	217
6500	7000	251
7000	7500	290
7500	8000	336
8000	8500	388
8500	9000	449
9000	9500	519
9500	10000	600
10000	10500	693
10500	11000	802
11000	11500	927
11500	12000	1071
12000	12500	1238
12500	13000	1432
13000	13500	1655
13500	14000	1913
14000	14500	2212
14500	15000	2557

*Dallas area
1/2 (c)*

c. No well drilled into the recommended tight formation is expected to produce more than five barrels of crude oil per day prior to application of stimulation techniques or processes.

d. If an application meets the guidelines contained in subparagraphs 2 b and 2 c above, but does not meet the guideline contained in subparagraph 2 a, an applicant may, in the alternative, show that the formation exhibits low permeability characteristics and that the incentive price is necessary to provide reasonable incentive for production of the natural gas from the formation due to extraordinary risks or costs associated with such production.

(1) An application based on the guideline outlined in subparagraph 2 d above shall include data

to support the contention that the guidelines contained in paragraph 2 b and 2 c above are met, and in addition thereto, shall contain:

- (a) the types and extent of enhanced production techniques which are expected to be necessary, and
- (b) the estimated expenditures necessary for employing those techniques, and
- (c) an estimate of the degree of increase in production from use of such techniques together with engineering and geological data to support that estimate.

add. memo
I(2)(c)

AMENDMENTS TO SPECIAL RULES AND
PROCEDURES FOR TIGHT FORMATION
DESIGNATION UNDER SECTION 107 OF
THE NATURAL GAS POLICY ACT OF 1978.

Definitions:

1. Add a new subsection 6.
 6. "Infill drilling" means any drilling in a substantially developed formation (or a portion thereof) subject to requirements respecting well-spacing or proration units which were amended by the Division or the Oil Conservation Commission after the formation (or portion thereof) was substantially developed and which were adopted for the purpose of more effective and efficient drainage of the reservoirs in such formation. Such amendment may provide for the establishment of smaller drilling or production units or may permit the drilling of additional wells on the original units.

Evidence:

1. Delete D(1)(c) in its entirety and insert in lieu thereof:
 - c. a map or list which clearly locates or describes wells which are currently producing oil or gas, or both, from the formation within the geographical area of the formation, and

2. Delete (D)(1)(d) in its entirety and insert in lieu thereof:

- d. a report of the extent to which an applicant believes existing State and Federal regulations will assure that development of the formation will not adversely affect or impair any fresh water aquifers (during both hydraulic fracturing and waste disposal operations) that are being used or are expected to be used in the foreseeable future for domestic or agricultural water supplies; and

3. Delete (D)(1)(e) in its entirety and add in lieu thereof:

- e. if the formation has been authorized to be developed by infill drilling prior to the date of recommendation, information and data demonstrating that the formation cannot be developed without the incentive price established in 18 CFR §271.703(a).

4. Re-number former sub-section (e) as (f).

- f. any other information which the Division may require.

5. Delete (D)(2)(c) in its entirety and insert in lieu thereof:

- c. No well drilled into the recommended tight formation is expected to produce, without

stimulation, more than five barrels of
crude oil per day.

6. Add a new subsection (D)(2)(e):

- e. Where a formation has been authorized to be developed by infill drilling prior to the date ^{of} recommendation, the Division shall exclude from its recommendation any portion of such formation which, in its judgment, can be developed without the incentive price specified in 18 CFR §271.703(a).

AUG 25 1980

OIL CONSERVATION DIVISION
SANTA FE UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Charles B. Curtis, Chairman;
Georgiana Sheldon, and George R. Hall.

High-Cost Natural Gas
Produced From Tight
Formations

Docket No. RM79-76

ORDER NO. 99

FINAL RULE

(Issued August 15, 1980)

I. INTRODUCTION

The Federal Energy Regulatory Commission (Commission) firmly supports the national policy to encourage production of natural gas from unconventional sources that can be put into production only at extraordinary risk or cost. One such source of gas is a fairly common geological feature known as a "tight formation" or "tight sand" that is described in detail below. By the final regulations promulgated in this order the Commission establishes an incentive price ceiling for certain natural gas produced from tight formations.

This rule implements the Congressional authorization to the Commission in section 107(b) of the Natural Gas Policy Act of 1978 (NGPA) (15 U.S.C. § 3317), to set a "special price" which is "necessary to provide reasonable incentives for the production of . . . high-cost natural gas." In exercising this authority, the Commission has been concerned that any section 107 special

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price provide an incentive during the period before the NGPA deregulation beginning in 1985. The key question addressed by the Commission in this rulemaking is what incentive price best meets the statutory standard of a "necessary" incentive during the transitional period between issuance of this rule and 1985.

In addition to specifying an incentive price, the regulations also provide guidelines for formally designating tight formations and for determining which wells drilled into such formations will qualify for the incentive price. Under the rule, most new wells and recompleted wells producing from designated tight formations will be eligible for the incentive price.

II. BACKGROUND

A "tight formation" is a sedimentary layer of rock cemented together in a manner that greatly hinders the flow of any gas through the rock. ^{1/} Because such a formation is characterized by low permeability, wells drilled into gas-bearing formations of this kind usually produce at very low rates.

To stimulate production from these formations, producers must use expensive enhanced recovery techniques. The technique usually

^{1/} One commenter was concerned that the Commission referred to "tight sands" in the preamble of the interim rule. Any use or reference to "sands" in the interim rule or in this rule does not have the effect of limiting the applicability of the rule to "tight sands." The rule makes the incentive price available for all gas produced from qualifying tight formations.

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applied to tight formations involves massive hydraulic fracturing, which creates a system of cracks permitting trapped gas to flow more easily into a wellbore.

It is estimated that between 200 and 700 trillion cubic feet (Tcf) of natural gas is trapped in tight formations within the United States. Depending upon the applicable price incentive, it is estimated that the gas recoverable in tight formations might equal the amount of proven domestic conventional gas reserves.

The estimated amount of tight formation gas includes formations that are presently being developed as well as formations that are known but undeveloped. This rule will provide an incentive price for production of gas produced from several types of drilling programs: (1) infill wells drilled into certain developed tight formations; (2) recompletion of wells that are already producing from formations vertically situated in relationship to the designated tight formations; and (3) new wells drilled and completed in undeveloped tight formations. Most of the first gas to be produced from tight formations under this incentive program is likely to be gas produced through recompleted wells. Some of these wells can be brought into production without any additional drilling by completing existing wells in tight formations.

The Commission issued a Notice of Inquiry (Docket No. RM79-44, 44 Fed. Reg. 34969, June 18, 1979) regarding high-cost gas. The public response to the notice generally recommended that tight formation gas be considered for qualification as a high-cost

gas. President Carter, in his energy address to the nation on July 16, 1979, also urged the Commission to set a price incentive for tight formation gas.

A Notice of Proposed Rulemaking was issued by the Commission on August 29, 1979 (Docket No. RM79-76, 44 Fed. Reg. 52255, September 7, 1979), proposing an incentive price ceiling for tight formation gas. Public hearings were held in Washington, D. C. on September 24th and in Denver, Colorado, on September 27th. Numerous written comments were received. The Commission encouraged State agencies that would be affected by these regulations to participate in the rulemaking process.

Interim regulations were developed from the proposed regulations taking into account the suggestions submitted during the public proceedings. The interim regulations were issued on February 20, 1980, along with newly proposed regulations for recompletion tight formation gas. The Commission requested comments on both the interim regulations and the proposed regulations.

The Commission has been persuaded by the final series of comments to adjust upward the incentive price ceiling for new tight formation gas, to incorporate an incentive price ceiling for recompletion tight formation gas, and to refine further the designation and well category determination procedures of the interim rule.

III. SUMMARY OF THE RULEA. Price

These regulations establish an incentive price ceiling for new and recompletion tight formation gas produced from designated tight formations (see § 271.703(b)(2) and (3)). The maximum lawful price for both categories is the effective negotiated contract price (see § 271.703(a)) between the buyer and seller or 200 percent of the maximum lawful price for section 103 gas, whichever is lower.

B. Negotiated Contract Price Requirement

The incentive price established in this rule is only a ceiling price. Once gas is found to qualify as new or recompletion tight formation gas, the seller can collect a price higher than the otherwise applicable maximum lawful price up to the ceiling if the contract contains an effective negotiated contract price.

As defined in § 271.702 of this rule an effective negotiated contract price is one that either is established by reference to the incentive pricing authority of the Commission under section 107 of the NGPA or is established by a fixed rate or fixed escalator clause, i.e. a clause that changes the price for the gas by a specified amount on a specified date.

C. Designation of Tight Formations

As provided in the interim rule, the price incentives in the final rule are available only for gas produced from tight formations that are designated in accordance with the procedures set forth in the rule. The designation procedure begins with the jurisdictional agency. The jurisdictional agency will establish procedures and conduct investigations to identify tight formations that meet the guidelines set forth in § 271.703(c). The jurisdictional agency will then recommend to the Commission that specific formations or portions thereof be designated as tight formations.

The guidelines for identifying tight formations contain standards regarding permeability, gas productivity, and production of associated oil. In addition, if infill drilling had been approved for the formation prior to the date of recommendation, the guidelines require an exclusion for any portions of the formation for which an incentive price is not warranted.

1. Permeability Standard

The Commission has established a permeability limit of 0.1 millidarcy. Pursuant to this limitation the average permeability throughout the "pay" or gas-producing section of the recommended formation may not exceed 0.1 millidarcy. If the formation does not meet the 0.1 millidarcy permeability standard, the jurisdictional agency may still recommend the formation under the alternative guideline contained in § 271.703(c)(2)(ii). Under

this guideline, the jurisdictional agency must make an adequate showing that the formation exhibits low permeability characteristics and must find that, due to extraordinary costs, the incentive price is necessary for production.

2. Gas Productivity Standard

The guidelines also impose a gas productivity standard. According to this standard production expected from the recommended formation, without stimulation, may not exceed a certain rate. The standard applicable to a given formation depends upon the average depth from the surface location to the top of the formation. The cost of drilling and completing gas wells increases exponentially with the depth of the well, so deeper wells must produce more to be economical. We have provided this productivity scale to allow a greater production rate for the deeper, more expensive wells.

3. Associated Oil Productivity Standard

A well in a designated tight formation may not be expected to produce more than five barrels of crude oil per day. The definition of crude oil includes only hydrocarbons that exist in the liquid phase in underground reservoirs and remain liquid at atmospheric pressure after passing through surface separating facilities. The five-barrel limit has been imposed because the

value of oil in greater quantities should, by itself, provide the necessary incentive for the development of the formation, obviating the need for additional incentives.

4. Infill Drilling Standard

A guideline has been added in § 271.703(c)(2)(i)(D) concerning infill drilling that was authorized prior to the date of recommendation. Under this guideline the jurisdictional agency should exclude that portion of the formation it determines can be developed without the incentive price.

D. Recommendation and Designation of Tight Formations

Section 271.703(c)(3) of the rule also provides that a jurisdictional agency's recommendation must be accompanied by engineering, geological, geographic, and other information identifying the characteristics of the formation. Upon receipt of a recommendation the Commission will publish it in the Federal Register, will accept written comments on the recommendation, and will provide an opportunity for public hearing. After the comments have been reviewed, the Commission will prescribe a rule approving, disapproving, or modifying the recommendation. No modification will be made until the jurisdictional agency has been consulted. If the formation is approved, the Commission will list the qualifying formation in new § 271.703(d) of the regulations.

E. Well Determinations

Once a recommended formation has been approved by the Commission, a well category determination can be made regarding the eligibility of the gas as either new tight formation gas or recompletion tight formation gas. To qualify for one of these categories, the gas must meet the definitional criteria set forth in the definitions of new or recompletion tight formation gas in § 271.703(b)(2) and (3), respectively.

Section 274.205 of the rule also provides two sets of filing requirements for well determinations: one for new tight formation gas and the other for recompletion tight formation gas. In the case of new gas, the requirements are designed to elicit the following information: first, whether such gas has been produced from a designated tight formation; second, whether the surface drilling of the well was begun on or after July 16, 1979; and third, whether the gas qualifies as new natural gas or is produced through a new onshore production well. In the case of recompletion gas, the application must show that the gas is produced from a designated tight formation through a well which was not completed for production from the designated tight formation before July 16, 1979.

IV. COMMENT ANALYSISA. Price

Under § 271.702 of the interim rule, an incentive price ceiling of 150 percent of the section 103 price was available for "new tight formation gas," defined in § 271.703 as gas:

- (1) which is new natural gas, or gas produced through a new onshore production well;
- (2) which is produced from a designated tight formation through a well the surface drilling of which began on or after July 16, 1979; and
- (3) for the first sale of which a negotiated contract price is effective.

At the time the interim rule issued, the Commission proposed the following definition for tight formation gas produced through recompleted wells:

- (c) "Recompletion tight formation gas" is natural gas:
- (1) which is produced from a designated tight formation through a well, the surface drilling of which was begun before July 16, 1979, if such well was not completed for production from such formation before July 16, 1979; and
- (2) for the first sale of which a negotiated contract price is effective.

and proposed a maximum price as follows:

- (2) Recompletion tight formation gas. The maximum lawful price, per MMBtu, for recompletion tight formation gas shall be the lesser of:
 - (i) the negotiated contract price; or
 - (ii) the maximum lawful price specified for the Subpart C of Part 271 in Table I of § 271.101(a) [section 103].

In this final rule, the Commission has increased the interim ceiling price for new tight formation gas and has also made the incentive price applicable to recompletion tight formation gas. Modifications to the above-quoted definitions were made and are described in a separate discussion below.

The ceiling price for new tight formation gas provided in the interim rule was considered by the Commission to be a substantial incentive at 150 percent of the section 103 price. ^{2/} However, the Commission was open to suggestions recommending a higher incentive price but requested that such recommendations be supported by data.

The Commission's reluctance to adopt a higher price also reflected a concern that a higher price might create perverse incentives, that is, manpower and material resources would be shifted from the production of other types of gas to less productive but higher priced tight formation gas with the consequence being a decrease in the nation's total production of natural gas. Because the interim record was punctuated with legal and practical questions, the Commission set a moderate interim price and invited further comment and submission of information on the need for a higher price.

^{2/} Regarding incentive prices, the Conference Report stated that the price need not be cost-justified. H. Rep. No. 95-1752, 95th Cong., 2d Sess., 88 (1978).

The next round of comments submitted in response to the interim rule presented for the most part conclusions unsubstantiated with data or empirical information, even though the Commission strongly urged that such supporting information be submitted on the price issue. The Commission particularly requested that additional information be submitted to enable it to make the requisite statutory findings that a higher incentive price is "necessary to provide reasonable incentives." Despite this appeal, most of the commenters asserted without substantiating information that a higher price is necessary and that the price should be indexed to a commodity value of gas.

Commenters can be divided into three groups. Some suggested a commodity value based upon the marginal value of gas supplies such as imported gas. Others suggested a Btu-equivalent price based upon oil products with which gas would compete. The third but smaller group of commenters supported prices in line with the interim price.

Comments filed on behalf of several members of the U. S. Senate, producers, and governmental agencies supported a Btu-equivalent price for new tight formation gas. Some suggested using decontrolled domestic oil, while others suggested imported oil. Utilizing an oil price as an index would probably require

a ceiling price around 250 percent of the section 103 price as of August, 1980.

Others suggested pricing new tight formation gas at the border price of imported Mexican or Canadian gas, which is approximately 200 percent of the section 103 price as of August, 1980.

Numerous arguments were offered in support of the higher incentive price. Several commenters argued that production costs for gas from tight formations are approximately twice as high as production costs from conventional formations. The greater cost of tight formation production, they contended, is attributable to the massive hydraulic fracturing that is required to enable gas to flow at a producible rate to a wellbore.

Commenters stated that gas production from tight formations is also accompanied by a slow rate of production that extends the payback period to approximately twice what would be expected for a conventional well. The commenters contended that together, the increased costs and the extended payback period require the price of tight formation gas to be approximately four times greater than the price for conventional gas in order to provide an incentive for the development and production of tight formation gas.

A commodity price was further supported by the commenters' argument that tight formation reserves can be added to the nation's total gas reserve potential only if investment dollars are attracted to tight formation development. If the incentive

price is high enough, investment dollars will be attracted to the development of tight formation gas reserves. The anticipated return on capital investment in a tight formation will be compared, however, to other investment opportunities. The commenters argued that energy investment dollars will not flow to tight formation development if the price for such gas is not, at least, comparable to the free market value of the gas.

Commenters argued that the statute permits a commodity value price if that price is necessary to provide reasonable incentives for production of high-cost gas. They also emphasize that the Conference Report suggests that the price need not be cost-based or require cost justification. ^{3/} They argued that a cost comparison between tight formation drilling and conventional drilling indicates that tight formation gas must be priced at least twice as high as conventional gas to provide an incentive that exceeds the cost basis. It is asserted by these commenters that the Commission is free to boost the incentive to reflect a commodity value price for this gas if the Commission finds that the price will provide reasonable incentives.

Several Senators further argued that this statutory interpretation is supported by the legislative history. The House Ad Hoc Committee of Energy stated that the incentive price is extended

^{3/} H. Rep. No. 95-1952, 95th Cong. 2d Sess., 88 (1978).

to provide the "fullest practicable development" of our gas reserves. 4/ This can be accomplished by extending a commodity value price so as to make development of tight formations competitive with other energy sources. In this way, tight formations can successfully compete with other energy sources for investment dollars.

The interim price was supported by Northwest Pipeline, the Public Service Commission of New York, and Southern California Gas Company. Texas Oil and Gas Company suggested a variation of the interim price, i.e. 150 percent of the otherwise applicable maximum lawful price, either the section 103 or 102 price. Professor Dorfman from the University of Texas and the Interstate Oil Compact Commission suggested a graduated price based on the depth of a well. Under this last approach a shallow well would qualify for a price approximately at the interim price but a deep well would qualify for a higher price approaching the Btu-equivalent price of oil.

Some commenters maintained that a higher price would result in a windfall to producers and not necessarily result in increased production from tight formations. They shared the concern about perverse incentives expressed by the Commission in the interim rule, that even if increased production from tight formations occurred,

4/ 2. Rep. No. 95-543 (Vol. I), 95 Cong., 1st Sess., 46 (1977).

drilling rigs would be diverted from conventional wells to tight formations. They argued that because the drilling rig industry would be unable to meet the increase in the total demand for new rigs there would be less activity in other, more productive formations. Their conclusion was that the nation's total gas production would decline because of the shift of investment dollars and drilling activity from conventional sources to tight formations that have lower rates of productivity.

Commenters further argued that actual delivery of gas produced from tight formations would be deferred because of a lack of pipeline capacity to handle increased production from many tight formations.

On statutory grounds, these commenters argued that price treatment under section 107 does not warrant a Btu-equivalent or a commodity-value price. Indexing the price of tight formation gas to a commodity value effectively deregulates the price because the suggested commodities, imported oil, domestic decontrolled oil, and imported Canadian or Mexican gas, are free of price controls.

In support of this argument, the commenters stated that Congress's explicit deregulation of certain categories of gas, including for example high-cost gas, section 107(c)(1) through (4), did not mean that other categories can or should be deregulated. Although the Commission was given discretion over determination of additional categories of high-cost gas under

section 107(c)(5) and establishment of a ceiling price for these additional categories under section 107(b), they contended that the Commission does not have the authority to deregulate the price of such gas.

After these comments were received, the Commission held a hearing on June 10, 1980, to discuss the commenters' suggestions regarding the interim rule. This meeting provided an opportunity for a frank exchange between interested parties and the Commission regarding, among other issues, the price issue. Since the majority of participants at this hearing urged a price higher than the interim price, the discussion centered around the economic basis for a higher price and the policy that would be furthered by a higher price.

V. PRICE ANALYSIS

The Commission is in a unique position in implementing section 107. Congress established a pricing scheme in Title I of the NGPA and mandated prices which it believed provided appropriate incentives for all categories of gas, except for categories of high-cost gas under section 107(c)(5). Thus, in sharp contrast to other categories of gas under the NGPA, Congress left unanswered the question of what incentive price should be set for high-cost gas and granted to the Commission the discretionary authority to establish the appropriate incentive price.

In establishing prices for high-cost gas, the Commission must be sensitive not to undermine Congress's overall pricing scheme. Section 107(c)(5) prices must not create perverse incentives but must be in harmony with the overall Congressional scheme.

In addition, the Commission must balance the competing interests of suppliers and consumers. On the supply side, gas producers must make long term resource commitments for the development of tight formations. It is in the nation's interest that they view development of tight formation gas as an attractive investment. The higher the incentive price, the more attractive it will be to develop this resource. The price should provide an incentive for producers to begin such development now. Absent this additional incentive, some producers may decide to defer production efforts until decontrol, which begins in 1985. On the other hand, consumers should not be required to pay a price higher than the otherwise applicable NGPA price unless there is a reasonable basis for assuming that a higher price is necessary and will result in an increased supply of gas.

Keeping in mind the needs of producers and consumers, the focus of our pricing inquiry is to determine the necessary incentive for the transition period between now and 1985. It is our intention to establish a price that will stimulate production of gas from tight formations during the transition period.

The Commission has developed and applied two different approaches in determining the necessary and appropriate incentive

price for this transition period. One approach is value-related, while the other is cost-related. The value-related approach attempts to index the price of tight formation gas to that of other energy forms. The cost-related approach looks instead to the costs and risks associated with tight formation gas production. Taken together, the two approaches define a range of reasonableness for the incentive price which would seem to be fully consistent with the statutory mandate.

A. Value-Related Price Approach

Congress, in enacting the NGPA, stated that natural gas prices should no longer be set on a utility-type, cost-based approach as had been the practice under the Natural Gas Act (NGA). In connection with this change from cost-based prices to incentive prices, Congress realized that the NGA prices discouraged producers from producing expensive, unconventional resources. The incentive prices established by Congress are not based upon a strict commodity-value concept because the NGPA price ceilings do not explicitly track any alternative fuel price. But it seems that the Congress intended a pricing scheme that related incentive prices to the price of competing fuels rather than just to the cost of producing gas.

Many commenters who urged a commodity-value approach for tight formation gas would have the Commission adopt an incentive price tied explicitly to the price of some other fuel. The fuels most

commonly suggested were crude oil and fuel oil. These commenters, concluded, on the basis of current prices, that the price for tight formation gas should be \$6.00 or more.

The commodity value of gas is tied to end-user costs of competing or alternative fuels. The value of each additional unit of gas to the end user will depend upon the alternative fuel capability of that user. Over the near term (0-5 years), additional or "marginal" gas supplies will tend to be used in industrial or electric utility applications. For these uses, the principle competing fuel will be No. 6 (residual) or No. 2 (distillate) fuel oil. Few, if any, of these applications can be served by burning unrefined crude oil. So the appropriate basis for measuring the end-use market value of tight formation gas is fuel oil. Therefore, the Commission believes that a properly designed commodity-value approach must utilize fuel oil rather than crude oil as the point of reference.

The appropriate maximum lawful first sale (wellhead) price of tight formation gas can be derived using this approach by subtracting from the end-use market value of fuel oil the average cost of moving gas from wellhead to industrial and utility customers. It should be apparent that the comments of those who recommended a wellhead price for tight formation gas based on Btu equivalence with imported crude oil do not present a logically consistent model. The Commission cannot adopt the

suggestion to derive the first sale price ceiling of tight formation gas by reference to the price of imported fuel oil. There can be no assurance that these two prices would result in comparable values at the point of end use, which is the best transactional point for measuring value of fuel because no further value is added to the fuel when it is burned.

Having established that the preferred method of implementing a commodity-value approach is by reference to the price of fuel oil, the Commission must next decide which grade of fuel oil is most appropriate. Because the Commission seeks to establish a favorable incentive for tight formation gas, it has chosen to use No. 2 fuel oil, which is generally the more expensive.

The most recently available Btu-equivalent price based on the delivered price for No. 2 fuel oil to electric utility facilities was \$5.78 ^{5/} effective April, 1980 as reported by the Energy Information Agency (EIA). ^{6/} Prices of No. 6 residual fuel oil were lower by \$2.00 or more.

^{5/} In quoting prices throughout the discussion of the price analysis, the Commission eliminated in most instances references to unit measures, of Mcf (thousand cubic feet) and MMBtu (million British thermal units). For the purpose of this discussion, the terms are interchangeable because an average Mcf contains approximately one MMBtu.

^{6/} The Energy Information Agency publishes monthly a report entitled Energy Data Report, FPC Form No. 423.

Using this Btu-equivalent delivered price, the imputed value of tight formation gas at the wellhead can be obtained by subtracting the average cost of transporting gas from the wellhead to the user. Transportation costs will vary depending primarily upon the distance of the industrial or utility user from the tight formation source. However, referring to the EIA's Monthly Energy Review for March, 1980, the average transportation and distribution costs for gas appear to be roughly \$1.00 for industrial and utility customers. Reducing the Btu-equivalent delivered price, \$5.78, by this \$1.00 average transportation cost results in a "net back" wellhead value of equal to \$4.78 for marginal supplies of gas. As measured by this method, we believe a price around \$4.78 reflects the upper bound on the wellhead value of gas to the economy for additional domestic production as defined by the commodity-value or the Btu-equivalent approach using No. 2 fuel oil as an index. ^{7/} This price is sharply lower than the \$6.00 price advocated by proponents of a simple imported crude oil equivalent price for tight formation gas.

^{7/} The extensive record on incremental pricing developed in connection with the Commission's Title II implementation activities forcefully suggests that high sulfur residual fuel oil should be used to define a commodity value. However, because the Btu-equivalent price for No. 6 oil is now in the range of \$2.50 to \$3.75 even before subtracting \$1.00 of transportation charges, the Commission is of the opinion that despite the logic and strong record linking the gas produced from tight formations to residual fuel oil, indexing the prices for tight formation gas to this fuel would not provide adequate incentive.

Another commodity-value approach that the Commission considers to be of merit would relate the maximum lawful price for tight formation gas to the price of imported gas rather than to fuel oil. At present, the border price for Canadian and Mexican gas is \$4.47.

B. Cost-Related Approaches

A "necessary" price within the meaning of the statute must at a minimum cover reasonable production costs and provide a reasonable profit. While the Commission need not establish a cost-justified price, estimates regarding the costs of production do provide one vital source of information for judging the adequacy of an incentive price. The Commission has considered two cost-related approaches, a supply-response approach, and a relative-costs approach that compares costs of tight formation production to the costs of other NGPA production.

1. Supply-Response Approach

At the time this rulemaking was initiated, the National Petroleum Council (NPC) had begun an extensive study of the resource base and production potential of domestic gas reserves

in undeveloped tight formations. 8/ The Commission has analyzed the NPC data to estimate potential supply responses to price increases. 9/

The available NPC data indicate that prices higher than the otherwise applicable maximum lawful prices under sections 102 or 103 of the NGPA will produce increases in supply. A significant supply response occurs in the \$3.50-\$4.00 price range. Beyond this range, however, additional increases in price produced smaller increases in supply. Analysis of the NPC data also indicates that beyond the \$3.50-\$4.00 price range, the effective cost of the additional supply response may be as high as \$ 7.54. Therefore, the NPC data would support a price of \$4.00 on the basis of economically efficient increases in supply. 10/

8/ The National Petroleum Council is a Federal advisory committee to the Secretary of Energy. The sole purpose of the NPC is to advise, inform, and make recommendations to the Secretary of Energy on any matter requested by the Secretary relating to petroleum or the petroleum industry. The Commission encouraged its staff to contact the NPC regarding an exchange of information which the NPC has collected on this topic.

9/ A subsidiary problem is to estimate the time pattern of response. To know that eventually the response to a price of X dollars will be Y Tcf's is of only limited assistance if the price of X dollars will be in effect for only a few years and then a different and deregulated price will apply.

10/ Commission staff noted that the NPC estimates were based on certain assumptions regarding the availability of capital, manpower, equipment, and pipeline capacity. Staff believes that the NPC assumptions were somewhat optimistic and that these factors will actually restrain the supply-response. However, staff was not able to quantify the affect these factors would have on the supply response and therefore did not account for them in their supply-response analysis.

2. Relative-Incentive Approach

A second cost-related approach would relate the ceiling price for tight formation gas to the prices Congress established in the NGPA to provide incentives for developing conventional gas. The measure of a necessary price for high-cost gas under this approach would be derived from consideration of the relative cost, yield, and risk of production from tight formations as compared with conventional gas production.

Relative Cost

Several commenters argued without providing substantiating data that the average total cost of drilling and completing a tight formation well is roughly twice as great as the cost of bringing a comparably deep conventional well into production. This is because the cost of fracturing can be as great as the cost of drilling a well. All other things being equal, this means that a producer will require an incentive price at least twice as high for tight formation production as for conventional production in order for the expected financial return from the two production categories to be equal.

Clearly, this two-fold ratio will not hold for every tight formation well. Some production has a sufficiently low relative cost that it enjoys a positive incentive relative to current conventional development opportunities even at existing NGPA prices.

But, on the average, if the relative cost of tight formation drilling is higher, then logic implies that such gas should be afforded a relatively high incentive price for production from this source to be a comparably attractive investment.

Relative Yields

A second prong of this approach is to examine the relative yields of tight formation wells compared to conventional wells. This is more difficult to analyze because upon fracturing, the production rate of a tight formation well may be comparable to or even exceed production from a conventional well during its first year or two. After that point in time, however, production usually falls off dramatically and continues at a relatively low rate for 15 to 20 years or more. In contrast, production rates of conventional wells tend to be relatively high for a period typically between 5 to 7 years, but then drop off dramatically. In that 5 to 7 year period a conventional well typically will have produced as much gas as the tight formation well will produce over its 15 to 20 year life.

Commenters argued that the the discounted present value of the revenues expected from tight formation wells tends to be much lower than the discounted present value of the revenues expected from wells drilled in conventional formations. However, it is difficult to define and to quantify "typical" production profiles

for tight formation wells and conventional wells, making it impossible to consider lower yields, by themselves, a basis for a higher tight formation gas incentive price.

Relative Risks

The third step in determining a price using the relative incentive approach is to examine relative risks of production. Section 107(c)(5) refers to production "under such conditions as the Commission determines to present extraordinary risks or costs" (emphasis added). The record identifies two types of risks involved in tight formation gas production. One is the normal drilling risk of failing to find a gas bearing formation. The second risk especially pertinent to tight formation development is that of a partially or totally unsuccessful fracturing job. This second element of risk exposure provides a basis for arguing that tight formation production is more risky than conventional gas production. Neither the record nor staff's analysis has yielded an acceptable quantitative estimate of the extent to which the risk exposure of tight formation drilling exceeds conventional activities.

In summary, a "necessary" price can be viewed as the price necessary to create an equal or positive relative incentive as compared with the NGPA incentive for typical conventional drilling. Other NGPA categories, especially sections 102 and 103, provide a new incentive environment to producers. The premise

underlying the relative incentive approach is that the price under section 107(c)(5) must be necessary to create a "reasonable" incentive in comparison with other NGPA categories. The record indicates that the Commission can reasonably determine that the combined factors of risk, cost, and yield warrant a relative incentive price for tight formation gas that is at least twice as high as would otherwise be available under Title I (generally the NGPA section 103 or 102 price). This two-fold ratio would indicate a current price of about \$4.50 in the case of section 103 (development) wells and about \$5.00 in the case of section 102 (new gas).

C. Conclusion - Price Issue

Applied collectively to the information gathered on the record in this proceeding, the value-related and cost-related approaches yield a \$3.50-\$5.00 zone of prices that can be considered reasonably necessary to create an incentive for tight formation gas production.

As a basis for narrowing this range, the Commission acknowledges that the cost of producing tight formation gas will vary considerably among formations and among specific drilling projects. Virtually any incentive ceiling price that the Commission establishes for tight formation gas will provide a more than ample return on some wells and an insufficient return on other wells.

Indeed, the same can be said of the present NGPA ceiling prices for which new tight formation production would otherwise qualify. If the Commission chooses the low end of the \$3.50 to \$5.00 range, its action would tend to minimize any unnecessary windfalls associated with this rulemaking. On the other hand, a low price will operate to discourage producers from drilling more difficult formations and could retard the development of costly, but promising, fracturing and recovery techniques.

The Commission seeks to resolve this difficult issue in favor of providing as great a production incentive as can be supported by both cost-related and commodity-value concepts. From the standpoint of energy policy, economic policy, and environmental policy, enhanced production of natural gas is in the nation's interest. On the basis of these policy considerations, the Commission rejects the low end of the \$3.50 to \$5.00 range because it seeks to create a truly favorable drilling environment for tight formation producers.

On the other hand, the Commission rejects the high end of the price range (above \$4.78) on the ground that such prices are not supported by assessments of the commodity value of marginal gas supplies. In seeking to provide a high price, but one capable of being supported by both commodity-related and cost-related concepts, the Commission is drawn to the \$4.50 to \$4.78 range.

A final policy consideration for selecting a specific ceiling price for tight formation gas focuses on the price of imported natural gas, the fuel most likely to be directly displaced by increased tight formation production. On policy grounds, a strong argument can be made that domestic producers of high-cost gas should be permitted to receive at least the \$4.47 border price paid by U.S. pipelines for imported gas.

The Commission hereby adopts a price ceiling for tight formation gas at 200 percent of the NGPA section 103 price. For the month of August, 1980, the maximum price is \$4.548. Future tight formation gas prices will escalate each month as the section 103 price escalates. For September and October, 1980, the maximum price of tight formation gas will be \$4.586 and \$4.624, respectively. Maximum prices for subsequent months will be included in the Commission's quarterly ceiling price publications.

A final point of emphasis on the issue of prices for tight formation gas is that the Commission by this rule is establishing ceiling prices only. A producer of tight formation gas does not have authority to charge these ceiling prices unless the producer has the requisite contractual authority. If the contract entered by the producer and the purchaser includes a negotiated contract price as described in this rule, the producer can collect the contract price even if it exceeds the otherwise applicable NGPA price, but the producer cannot collect a price which exceeds the ceiling price established by this rule. The concept of negotiated contract price is discussed more extensively below.

D. Recompletion Tight Formation Gas

At the time the interim rule was issued, the Commission proposed establishing an incentive price for gas produced from existing wells which were not completed for production in a designated tight formation before July 16, 1979. The proposed incentive price for such gas was the section 103 price.

Most commenters agreed that gas produced from recompleted wells should qualify for an incentive on par with the price afforded new tight formation gas. The commenters generally justified their recommendation on the basis that costs of producing from a recompleted well are comparable to costs of producing from a new well (even though drilling costs are lower or are not incurred at all) because a producer would still incur the completion costs that represent a significant portion of the cost of production from a tight formation.

Another factor that argues in favor of an increased incentive price is that recompletion gas is the most readily accessible tight formation gas. The Commission's goal is to encourage producers to employ the most cost efficient and least time consuming programs for recovering tight formation gas. A price discrepancy between new gas and recompletion gas, may cause producers to embark upon new well drilling programs with a lag time up to 3 years from inception to delivery in order to receive the higher incentive price for new gas rather than institute more cost-efficient recompletion programs.

To encourage producers to bring tight formation gas into production as soon as possible, the Commission is, therefore, establishing the same incentive price for both categories of gas. The maximum lawful price for recompletion tight formation gas under the final rule is 200 percent of the section 103 price.

E. Other Considerations

The price set in the interim rule at 150 percent of the section 103 price was significantly grounded on a concern that a higher price would create perverse incentives that could result in less, rather than more gas supply on a national basis. A key concern was the predicted inability of the drilling rig industry to meet the increased demand for rigs to drill in tight formations while meeting the demand for rigs for other conventional formations. The NPC study has concluded and has convinced the Commission that the drilling rig industry has the capability to respond to likely increased demand that may result from this rule. If recompletion tight formation gas is the first to be placed into production, we believe this rule, in the short run, will place a smaller demand on the drilling rig industry than originally predicted.

Similarly, we find the arguments that have been raised regarding the adequacy of currently available pipeline capacity near tight formations to be a minor matter. Customarily, arrangements regarding transportation are made in advance of gas production. In the case of tight formation development, such large capital investments must be committed that it is reasonable to

assume that a producer will negotiate with a pipeline for capacity long before the gas begins to flow. We believe that pipelines will make every effort to provide transportation capacity to satisfy the needs of the production industry.

A third concern, not ascribed to by many commenters, is the potential inadequacy of capital to invest in tight formation development. We cannot predict how much capital will be available in the future for tight formation development. It is reasonable however to expect that a good investment will attract capital regardless of the economic environment. If tight formation gas is priced appropriately high, such development will successfully compete for investment capital.

F. Negotiated Contract Price

The negotiated contract price requirement appeared in the interim rule definition of "new tight formation gas" and the proposed definition of "recompletion tight formation gas." The negotiated contract price requirement was also reflected in the maximum lawful prices for new and recompletion tight formation gas.

The interim definitions of "negotiated contract price" and "fixed rate or fixed escalator clause" have been adopted in the final rule. Thus, as defined in § 271.702(a)(1) the term "negotiated contract price" means any price established by a contract

which either references the incentive pricing authority of the Commission under section 107 of the NGPA or contains a fixed rate or fixed escalator clause. Fixed rate or fixed escalator clause defined in § 271.702(a)(2) means a provision in a contract for the first sale of natural gas which changes the price for gas by a specified amount on a specified date.

In the interim rule, the Commission stated that negotiated contract requirement was added to insure that the incentive maximum lawful price is extended as an incentive for the production of additional new tight formation gas, rather than as a windfall to the sellers. The same rationale would apply to recompleted tight formation gas. The Commission noted that contracts which do not presently contain a negotiated contract price may be amended to permit collection of the incentive price. In addition the Commission clarified that the negotiated contract price requirement in no way constitutes an interpretation of an area rate clause.

The overwhelming majority of comments opposed the negotiated contract requirement on legal and policy grounds and urged that it be deleted. Many comments stated that the Commission is without authority under the NGPA or NGA to require that specific contract language be employed as a condition precedent to collecting the maximum lawful price. The comments asserted that the statutory scheme of the NGPA and the NGA in view of the Mobile Sierra line of cases grants parties to gas sales contracts an absolute right

to pay or to collect any price they may agree upon, subject only to price ceilings lawfully imposed by a governmental authority. In particular, paragraphs 101(b)(5) and (9) of the NGPA permit parties to sell gas at the applicable highest maximum lawful price not in excess of the contract price. It is argued that the Commission lacks authority to impose a requirement that contracts be renegotiated before the maximum lawful price can be collected.

Certain commenters asserted that contracts entered into post-NGPA, specifically reference the NGPA in order to permit the collection of higher prices and that the requirement to specifically reference section 107 could not possibly have been foreseen. Therefore, it is claimed that the rule operates unfairly to preclude sellers, who renegotiated their contracts in contemplation of NGPA prices and who undertook development of tight formations in anticipation of the Commission's action, from collecting the incentive price.

Under section 107, it is contended that the Commission's authority goes to establishing tight formation gas as high-cost natural gas and establishing an incentive price for its development and production. While it is agreed that the Commission has the discretion to establish the parameters for classification, it is submitted that the Commission does not have the authority to condition a well determination upon the presence of specific

contract language. Rather, it is claimed that the NGPA provides that once an incentive price is established the producer must have contractual authority to collect the price (a contract that references the NGPA established price is sufficient to permit collection of the incentive price).

In addition, it is submitted that if the Commission's purpose in issuing this rule is to encourage the development and production of tight formation gas the negotiated contract requirement will not advance this purpose.

Still other commenters submitted that market forces will operate to set prices at an appropriate level only for those tight formations yet to be developed. It is asserted that most tight formations are already identified and are located near conventional gas which is already being produced or is dedicated to pipelines. For these reasons, it is argued that the negotiated contract requirement will place pipelines in superior bargaining positions and they will either refuse to renegotiate contracts up to the incentive price or will require additional consideration. In both cases the requirement will operate as a disincentive to production.

This argument led some commenters to request that purchasers be precluded from demanding additional consideration for existing contracts. If a purchaser refuses to amend his contract he should be required to release the seller from existing contractual

obligations. It is also proposed that the Commission should permit producers to file petitions for exceptional relief in circumstances in which the pipeline is being arbitrary and capricious in not offering the required amendment, and in which the producer petitioner can demonstrate that the full incentive price is necessary for further development and production of tight formation gas.

The Commission reaffirms the position taken in the interim rule that it must limit the availability of the incentive price ceiling to those contracts which specifically refer to it (or to the extent permitted under a fixed rate or fixed escalator clause) because its pricing authority is limited to setting incentive prices "necessary" to encourage additional production. Therefore, the negotiated contract price requirement has been retained in § 271.703(a) of the final rule which sets forth the maximum lawful price for both categories of tight formation gas. However, the Commission agrees that an effective negotiated contract price is not a necessary incident to obtaining a well determination and has deleted the requirement from the definitions of new and recompletion tight formation gas.

The Commission believes that the price ceiling if applied to all tight formation gas may operate as a windfall to sellers rather than an incentive to increase production of tight formation gas. This occurs in any case in which one incentive price

is established to cover a broad range of production costs and risks. This is especially true where both parties to the contract did not contemplate the availability of an incentive price. The Commission believes that the imposition of the negotiated contract price requirement is therefore necessary to insure that a purchaser is given an opportunity to bargain for increased production of tight formation gas before he agrees to pay a price higher than the otherwise applicable maximum lawful price. In this regard, the negotiated contract price requirement will operate as part of the ceiling price which the Commission is establishing under section 107(b). Thus, in the Commission's view a "necessary" price for tight formation gas is one that is contractually agreed upon either at or below the ceiling price.

The statutory scheme of the NGPA or the NGA and the Mobile-Sierra line of cases do not compel a different conclusion. As we stated in the interim rule, parties to gas sales contracts are free to enter into or amend their contracts to permit the collection of the incentive maximum lawful price. Existing contracts that specifically reference the Commission's incentive pricing authority under section 107 of the NGPA or that contain fixed rate or fixed escalator clauses are sufficient to permit collection of any price up to the ceiling price of 200 percent of the 193 price.

IV. DEFINITIONS FOR NEW AND RECOMPLETION TIGHT FORMATION GAS

Under § 271.703(b)(1) of the interim rule, gas qualifies as

"new tight formation gas" is natural gas: (1) which is either new natural gas or gas produced through a new onshore production well; (2) which is produced from a designated tight formation through a well the surface drilling of which began on or after July 16, 1979; and (3) for the first sale of which a negotiated contract price is effective.

In addition, the Commission requested comments on the proposed definition of "recompletion tight formation gas." Under this proposal, gas qualifies as

"recompletion tight formation gas" is natural gas: (1) which is produced from a designated tight formation through a well the surface drilling of which was begun on or before July 16, 1979, if such well was not completed for production from such formation before July 16, 1979; and (2) for the first sale of which a negotiated contract price is effective.

A. Negotiated Contract Price

As stated in the previous section, the negotiated contract price requirement has been deleted from the definitions of new and recompletion tight formation gas, but has been retained in § 271.703 that establishes the maximum lawful price.

B. Spud Date

Only a few comments discussed the requirement that to qualify as new tight formation gas, the gas had to be produced from a well the surface drilling of which began on or after July 16, 1979. One comment suggested that the spud date should be

changed to "the date before which a well was not being commercially produced."

Another commenter suggested that February 19, 1977, be adopted as the spud date, for both categories of gas, since it is the pivotal date in the wellhead pricing scheme under the NGPA. This commenter argued that producers who commenced drilling into tight formations prior to July 16, 1979, did so with the expectation that the Commission adopt the suggestion in the Conference Report that gas produced from tight formations should be eligible for incentive price treatment.

Comments of a similar nature were made prior to the adoption of the interim rule. The first suggestion that the cut-off date apply to the date on which gas was first commercially produced from the well has been at least partially accommodated since the incentive price is now available for recompletion gas. In effect, so long as the well was not completed for production in the tight formation prior to July 16, 1979, the gas may qualify for the incentive price. The date of July 16, 1979, (as a spud date) was chosen in the interim rule in recognition of the fact that this rule was undertaken to give effect to a policy initiated by the President's July 16, 1979, speech. This date then, is consistent with the Conference Report, at page 88, which indicates that the pivotal date for section 107(c)(5) gas is the date the Commission exercises its authority under section 107(c)(5). The Commission is not free to make available special prices for gas whose

development was encouraged by previously available prices. Therefore, July 16, 1979, will remain as a spud date for new tight formation gas, and as a completion date, for recompletion tight formation gas.

C. Conclusion

The definitions of new and recompletion tight formation gas appear in § 271.703(b)(2) and (3) of the rule. Gas qualifies as new tight formation gas if it is produced from a designated tight formation through a well which was spudded on or after July 16, 1979, and it is either new natural gas (as defined in section 102(c) or (d) of the NGPA), or gas produced through a new onshore production well, (as defined in section 103(c)). To qualify as recompletion tight formation gas, the natural gas must be produced from a designated tight formation through a well which was spudded before July 16, 1979, but not completed for production from such formation before July 16, 1979.

VII. PROCEDURE FOR DESIGNATING TIGHT FORMATIONS

A. Procedure in General

The procedure for designating tight formations was contained in § 271.705 of the interim rule. That section set forth guidelines for identifying tight formations and established procedures whereby a jurisdictional agency may recommend the designation of a tight formation. Upon the receipt of a jurisdictional agency

recommendation, the Commission will publish it in the Federal Register and will accept comments on the recommendation. After a review of the comments the Commission will prescribe a rule approving or disapproving the designation of the recommended tight formation.

Several comments and proposals concerning the designation procedure in general were received. Some commenters urged the Commission to "pre-designate" or at a minimum to take the lead in designating formations that have been studied by the Department of Energy (DOE) and the United States Geological Survey (USGS). Another suggestion was that there be automatic approval of jurisdictional agency or the USGS recommendations that meet the permeability, gas productivity, and crude oil production guidelines, reserving for Commission action recommendations made under the alternate permeability guidelines. Other commenters stated that the jurisdictional agency process combined with the Commission process will be lengthy, unnecessarily burdensome and will cause a substantial delay in the production of gas from tight formations. These commenters suggest that the time periods and standard of review set forth in section 503(a) and (b) be utilized.

The Commission is not persuaded that a modification to the designated procedure is warranted. As stated in the interim rule the Commission does not have the information needed to accurately

identify qualifying tight formations. ^{11/} The interim rule's designation procedure was established to enable the Commission to fully utilize the information and expertise available to jurisdictional agencies and to thereby prevent undue delay in the identification of tight formations. To the extent that other Federal agencies have studied certain tight formations, we expect this information will be available to jurisdictional agencies and will facilitate the jurisdictional agency process.

Still another commenter submitted that there are not enough procedural safeguards in the interim rule. The rule does not provide producers an opportunity to seek review of a jurisdictional agency's refusal to make a recommendation. Commenters suggested a procedure to allow review in such a case.

Jurisdictional agencies are not obligated to recommend tight formations. The Commission believes the review procedure suggested is unnecessary and would constitute an unwarranted intrusion into the state jurisdictional agency process.

Proposals respecting interim collection authority were also received. One commenter urged that producers be permitted to make interim collections prior to designation of a formation after it has submitted information and certified to the

^{11/} The Commission adopted this procedure in response to comments which suggested that the Commission should rely on the jurisdictional agencies' information and expertise in designating tight formations.

jurisdictional agency that the formation meets the criteria set forth in the guidelines. Pursuant to this proposal, interim collections would be allowed pending jurisdictional agency designation recommendation and final Commission approval. Another comment requested clarification of whether interim collection authority will be permitted prior to designation of the formation upon filing of an application for a well determination.

As discussed above, the procedure in the final rule provides for the expeditious designation of tight formations. The Commission believes that interim collection of the incentive price prior to designation of the formation is inappropriate. However, the Commission in § 273.204 has provided for retroactive collection for gas produced from qualifying wells in designated tight formations.

IV. GUIDELINES

The interim rule provided that the Commission would approve the designation of any formation recommended by a jurisdictional agency if it met the three guidelines relating to permeability, gas production, and oil production. Certain of the comments were directed to these guidelines. The Commission has added a guideline that will be discussed below concerning formations or portions thereof which have been authorized to be developed by infill drilling programs.

The interim rule also provided that if a formation met the gas productivity and oil production guidelines but did not meet the permeability standard, then the Commission would consider the recommendation if the jurisdictional agency made an adequate showing that the formation exhibited low permeability characteristics and that an incentive price would be necessary. No comments specifically addressed this provision, and it has been adopted without change in § 271.703(c)(2)(ii) of the final rule.

A. Permeability Standard

The interim rule required that the estimated in situ gas permeability, throughout the pay section be 0.1 millidarcy or less. A few commenters suggested that this standard is still unduly restrictive and will disqualify many formations that should be considered "tight." Higher standards ranging from 0.15 millidarcy to 0.5 millidarcy were suggested. ^{12/}

Several arguments were presented in support of a greater permeability threshold. First, average permeability depends on the number of wells drilled and their location in the formation. Since most tight formations have not been developed extensively, the average permeability of a small number of wells would probably not be representative of the formation as a whole. Thus,

^{12/} The NPC study and "various DOE reports" are cited for the proposition that a formation may be "tight" if it has a permeability of 1.0 millidarcy.

the amount of necessary preliminary drilling and the greater expense and time involved in in situ permeability testing requires a millidarcy standard that is flexible enough to warrant the increased costs.

Some comments urged that the permeability standard be eliminated. One commenter asserted that a permeability determination of 0.1 millidarcy requires an expensive drawn down and build up test. It was proposed that a 30-day flow test based upon the depth criteria set forth in the interim rule be the sole factor in determining if a zone is tight.

Another alternative presented was that the designation by the jurisdictional agency should be based solely on production rates from newly drilled wells that had been tested in accordance with the procedures set forth by the United States Bureau of Mines Monograph No. 7. This commenter stated that the gas productivity standard should be retained until such time as information based on the testing of actual wells indicates that a revision would be appropriate.

The Commission remains cognizant of the difficulties inherent in adopting a permeability guideline. However, the objective of the rule is to identify and provide incentives for the development of tight formations, not to

provide incentives to develop all formations with low pre-stimulation production rates. The Commission still believes that the problem presented by formations of extremely variable characteristics is not present in many tight formations and that estimates of average permeability may reasonably represent the permeability that will be encountered from one location to the next. However, if the average permeability cannot be reasonably estimated or if the average permeability does not fall within the 0.1 millidarcy guideline, then under the alternate guideline the formation may still be recommended for designation if the jurisdictional agency makes an adequate showing that the incentive price is necessary for production of gas from the formation because the formation is high-risk and high-cost and has low permeability characteristics.

B. Gas Production Standard

The interim rule set forth maximum allowable production rates. One commenter suggested that the gas productivity standard should only be applied to formations from zero to two thousand feet in depth since the costs of drilling and completing deeper wells multiply at a rate disproportionate to those for shallower drilling. If the standards for deeper wells are retained, the commenter urged a 35 percent higher price.

A similar argument was made that the straight payout of original drilling, completion, and equipping costs over a more feasible period than is indicated by the present gas productivity standard would be more appropriate for these high-risk ventures. This commenter proposed that in the event a Stn-equivalent price is not allowed, then the maximum allowable production rate should be increased.

The Commission believes that the higher incentive maximum lawful price provided in this rule will be adequate to cover the increased costs of equipping and completing deeper wells. Therefore, a revision to the gas productivity formula is unnecessary.

C. Production of Crude Oil

The interim rule provided that no well drilled into the recommended tight formation should be expected to produce more than five barrels of crude oil per day. This requirement was added to ensure that the gas is not produced with any more than a de minimus amount of oil. The production of more than five barrels of oil per day would, in itself, create an incentive for the development of the formation. One commenter claims that this limitation is unclear since "oil" is undefined and questioned whether it would include "condensate" from gas wells.

The interim rule and § 271.702(a)(3) of the final rule refers to the definition of "crude oil" contained in § 270.102(b)(5) of our regulations. Thus, as defined, crude oil includes any mixtures of hydrocarbons that are liquid in underground formations and remain liquid at atmospheric pressure.

Another commenter suggested that this guideline should be modified to provide that:

. . . no well drilled into the recommended tight formation is expected to produce, without stimulation, more than five barrels of crude oil per day . . .

The commenter asserted that the addition of the phrase "without stimulation" appears in the gas productivity standard and should be tracked here to remove any ambiguity. We agree. Section 271.703(c)(2)(i)(C) has been so modified in the final rule.

D. Infill Drilling

In the preamble to the interim rule, the Commission stated that its objective in establishing the incentive program

"consist[s] of identifying and including tight formations that could not be commercially developed absent application of enhanced production techniques, and excluding the types of development activities that could occur under the otherwise applicable maximum lawful prices." (mimeo at p.24).

The Commission did not adopt any of the several alternatives considered which would have mechanically excluded infill or developed portions of an otherwise tight formation.

The Commission chose instead to rely on the skill and judgment of the jurisdictional agencies to identify and exclude the portions of a formation which would otherwise qualify as a tight formation but which could be developed without the incentive price. The following guidance was provided to jurisdictional agencies:

While new infill wells are not excluded from qualification under this rule, jurisdictional agencies should be sensitive to the fact that some portions of tight formations have been developed to such an extent as to indicate that the incentive maximum lawful price is not necessary to encourage full production of that portion of the formation. If the agency has information which indicates such portions can be developed without the incentive price, such portions should be excluded from the jurisdictional agency's recommendation (mimeo at p.27).

Subsequent to the adoption of the interim rule, it has come to the Commission's attention that there is some uncertainty regarding the appropriateness of recommending formations or portions of formations that are currently being developed by infill drilling programs. To clarify this uncertainty and to give effect to the policy enunciated in the interim rule, the Commission has added a new guideline, at § 271.703(c)(2)(i)(D). Under this guideline, if a formation or portion thereof was authorized to be developed by an infill drilling program prior to the date of recommendation and the jurisdictional agency has information which in its judgment indicates that such formation or portion subject to infill drilling can be further developed without the

incentive price established in § 271.703(a), then the jurisdictional agency may not include such formation or portion thereof in its recommendation.

Two aspects of this guideline warrant clarification. The guideline has been added to focus jurisdictional agency attention on only those formations (or portions thereof) where development by infill drilling has been authorized prior to the date of recommendation. In this situation development of such formation may have been economical at previously available prices and therefore may indicate that the full development could occur absent the incentive price. If information available to the jurisdictional agency indicates that this is the case, it should not recommend the formation or should exclude that portion of the formation from its recommendation. Secondly, it should be emphasized that once a formation has been approved by the Commission as a designated tight formation, future infill wells will be eligible to receive the incentive price.

A definition of "infill drilling" has been added in § 271.703(b)(6). As defined, "infill drilling" means any drilling that occurs in a substantially developed formation or portion thereof that is subject to requirements respecting well-spacing or proration units which were amended by the jurisdictional agency after the formation or portion thereof was substantially developed and which were adopted for the purpose of promoting more effective

and efficient drainage of the reservoir in such formation. Such amendment may provide for the establishment of smaller drilling or production units or may permit the drilling of additional wells on the original units.

The Commission wishes to emphasize that the infill drilling must have taken place in a substantially developed formation or portion of a formation after a jurisdictional agency amendment to well-spacing or proration unit requirements. In some situations, field or spacing rules are in effect and applicable to undeveloped portions of a field and these rules are amended prior to substantial development in order to permit the drilling of wells at closer spacing than permitted by the original rules. Where the original units had not been drilled prior to the creation of the smaller units or prior to the adoption of amended rules which permit the drilling of an additional well on the original unit, drilling in such circumstances would not be covered under this definition.

IX. CONTENTS OF RECOMMENDATIONS

The interim rule prescribed information that is required to accompany the jurisdictional agency's recommendation that a formation be designated as a tight formation. The comments criticized the requirement that a jurisdictional agency must submit a map or list locating all wells "which have produced" natural gas from the recommended tight formation. The comments argued that this requirement is unnecessary, burdensome, and may be impossible to

meet in cases where records on these wells were either never compiled, were lost, or were destroyed over the years. One comment suggests that the requirement be limited to the identification of wells producing on or after January 1, 1980. Another proposal is that the requirement be retained for only those formations that did not meet the 0.1 millidarcy permeability standard and are being recommended under the alternative standard.

In response to these comments we have reduced the burden by amending § 271.703(c)(3)(iii) of the final rule to require jurisdictional agencies to submit either a map or list which locates wells which are currently producing from the recommended tight formation. We have retained the requirement, as amended, so that the Commission can have information indicating how much the formation was developed prior to its being recommended as a tight formation.

X. ENVIRONMENTAL IMPACT

As stated in the interim rule, staff completed an environmental assessment of this rule in which staff concluded that establishing an incentive price would not constitute a major Federal action significantly affecting the quality of the human environment.

The Commission will continue to investigate the possible effects of the tight formations program and will make a final

determination as to environmental impact at such time as the jurisdictional agencies submit their recommendations for tight formations. The information of the jurisdictional agencies when they make their recommendations includes information regarding the identification and location of fresh water aquifers which may be affected by development of the formation.

XI. RETROACTIVE COLLECTIONS

Some commenters questioned whether interim collection authority under §§ 273.202 and 273.203 would be permitted prior to final designation of a formation as a tight formation. As previously stated the Commission is not providing interim collection authority prior to final designation of the formation. However, the retroactive collection provisions contained in § 273.204(a)(1)(ii) of the Commission's regulations are applicable to new and recompletion tight formation gas that qualifies under § 271.703(b) to receive the incentive maximum lawful price set forth in § 271.703(a).

XII. EFFECTIVE DATE

These rules shall become effective as final regulations September 22, 1980.

(Department of Energy Organization Act, 42 U.S.C. § 7101, et seq.; E. O. 12009, 42 Fed. Reg. 46267; Natural Gas Policy Act of 1978, 15 U.S.C. §§ 3301-3432.)

Subpart B of Part 273, and Subpart B of Part 274, of Subchapter H, Chapter I, Title 18, Code of Federal Regulations, are revised as set forth below, effective as final rules on September 22, 1980.

By the Commission.

(S E A L)

Kenneth F. Plumb

Kenneth F. Plumb,
Secretary.

1. Part 271 is amended in Table of Contents under Subpart G to read as follows:

SUBPART G -- HIGH-COST NATURAL GAS

Sec.
271.701 Applicability.
271.702 General rules.
271.703 Tight formations.

2. Subpart G of Part 271 is revised to read as follows:

SUBPART G -- HIGH-COST NATURAL GAS

§ 271.701 Applicability

This subpart implements section 107(b) and (c) of the NGPA and applies to the first sale of natural gas which a jurisdictional agency determines is:

(a) Tight formation gas for which there is a negotiated contract price.

(b) [Reserved]

§ 271.702 General rules.

(a) Definitions. For purposes of this subpart:

(1) "Negotiated contract price" means any price established by a contract which either specifically references the incentive pricing authority of the Commission under section 107 of the NGPA or contains a fixed rate or a fixed escalator clause.

(2) A "fixed escalator clause" is a provision in a contract for the first sale of natural gas which changes the price for the gas by a specified amount on a specified date.

(3) For the definition of "crude oil," see §270.102(b)(5).

(b) Cross reference. For special rules applicable to high-cost natural gas retroactive collections, see §273.204.

§ 271.703 Tight formations.

(a) Maximum lawful price for tight formation gas. The maximum lawful price, per MMBtu, for the first sale of tight formation gas for which there is a negotiated contract price shall be the lesser of:

(i) the negotiated contract price; or

(ii) 200 percent of the maximum lawful price specified for Subpart C of Part 271 in Table I of § 271.101(a).

(b) Definitions.

(1) "Tight formation gas" means new tight formation gas or recompletion tight formation gas.

(2) "New tight formation gas" is natural gas:

(i) which is new natural gas, (as defined in section 102(c)), certain OCS gas qualifying for the new natural gas ceiling price (as defined in section 102(d)), or gas produced through a new on-shore production well (as defined in section 103(c)); and

(ii) which is produced from a designated tight formation through a well the surface drilling of which began on or after July 16, 1979.

(3) "Recompletion tight formation gas" is natural gas which is produced from a designated tight formation through a well, the surface drilling of which was begun before July 16, 1979, if such well was not completed for production from such designated formation before July 16, 1979.

(4) "Formation" means any geological formation, or portion thereof described by geological as well as geographical parameters.

(5) A "designated tight formation" is a natural gas formation which is designated a tight formation by the Commission pursuant to paragraph (c) of this section.

(6) "Infill drilling" means any drilling in a substantially developed formation (or a portion thereof) subject to requirements respecting well-spacing or proration units which were amended by the jurisdictional agency after the formation (or portion thereof) was substantially developed and which were adopted for the purpose of more effective and efficient drainage of the reservoirs in such formation. Such amendment may provide for the establishment of smaller drilling or production units or may permit the drilling of additional wells on the original units.

(c) Designation of tight formations.

(1) General. Upon the written recommendation by a jurisdictional agency, submitted in accordance with the requirements of this section, the Commission may approve a recommendation that a natural gas formation be designated as a tight formation.

(2) Guidelines. (i) The Commission will approve the designation of any formation recommended by a jurisdictional agency if the formation meets each of the following guidelines:

(A) The estimated average in situ gas permeability, throughout the pay section, is expected to be 0.1 millidarcy or less.

(B) The stabilized production rate, against atmospheric pressure, of wells completed for production in the formation, without stimulation, is not expected to exceed the production rate determined in accordance with the following table:

If the average depth to the top of the formation (in feet)		The maximum allowable production rate (in Mcf/day) may not exceed:
<u>exceeds:</u>	<u>but does not exceed:</u>	
0	1000	44
1000	1500	51
1500	2000	59
2000	2500	68
2500	3000	79
3000	3500	91
3500	4000	105
4000	4500	122
4500	5000	141
5000	5500	163
5500	6000	188
6000	6500	217

If the average depth to
the top of the formation
(in feet)

The maximum allowable
production rate (in Mcf/day)
may not exceed:

<u>exceeds:</u>	<u>but does not exceed:</u>	
6500	7000	251
7000	7500	290
7500	8000	336
8000	8500	388
8500	9000	449
9000	9500	519
9500	10000	600
10000	10500	693
10500	11000	802
11000	11500	927
11500	12000	1071
12000	12500	1238
12500	13000	1432
13000	13500	1655
13500	14000	1913
14000	14500	2212
14500	15000	2557

(C) No well drilled into the recommended tight formation is expected to produce, without stimulation, more than five barrels of crude oil per day.

(D) If the formation or any portion thereof was authorized to be developed by infill drilling prior to the date of recommendation and the jurisdictional agency has information which in its judgment indicates that such formation or portion subject to infill drilling can be developed absent the incentive price established in paragraph (a) of this section then the jurisdictional agency shall not include such formation or portion thereof in its recommendation.

(ii) The Commission will consider and may approve or disapprove a recommendation by a jurisdictional agency to designate as a tight formation any formation which meets the guidelines contained in subparagraph (2)(i)(B) and (C), but does not meet the guideline contained in subparagraph (2)(i)(A), if the jurisdictional agency makes an adequate showing that the formation exhibits low permeability characteristics and the price established in paragraph (a) of this section is necessary to provide reasonable incentives for production of the natural gas from the recommended formation due to the extraordinary costs associated with such production.

(3) Content of recommendations. A recommendation that a formation should qualify as a designated tight formation shall contain the following information:

(i) geological and geographical descriptions of the formation which is recommended for classification as a tight formation;

(ii) geological and engineering data to support the recommendation and the source of that data;

(iii) a map which clearly locates wells which are currently producing from the recommended tight formation or a list locating all wells which are currently producing natural gas from the recommended tight formation;

(iv) a report of the extent to which existing State and Federal regulations will assure development of the recommended tight formation will not adversely affect any fresh water aquifers (during both hydraulic fracturing and waste disposal operations) that are or are expected to be used as a domestic or agricultural water supply;

(v) if the formation is recommended under paragraph (c)(2)(ii) of this section, the types and extent of enhanced production techniques which are expected to be necessary and the estimated expenditures necessary for employing those techniques; and the degree of increase in production to be expected from use of such techniques and engineering and geological data to support that estimate;

(vi) any other information which the jurisdictional agency deems relevant; and

(vii) any other information requested by the Commission.

(4) Commission review of recommendations. Upon receipt of a recommendation submitted in accordance with this section, the Commission shall publish in the Federal Register, a notice of proposed rulemaking containing such recommendation. After review of any comments, the Commission will prescribe a rule approving or disapproving the recommendation.

(d) Designated tight formations. [Reserved].

3. Section 273.204(a)(1) is amended by deleting "; and" in clause (i) and inserting in lieu thereof a period at the end of clause (i), and by deleting "new" in clause (ii) and by deleting the semi-colon and inserting in lieu thereof a period at the end of clause (ii).

4. Section 274.205 is amended by revising paragraph (e) to read as follows:

§ 274.205 High-cost natural gas.

* * * * *

(e) Natural gas produced from designated tight formations.

(1) New tight formation gas. A person seeking a determination for purposes of Subpart G of Part 271 that natural gas is new tight formation gas shall file with the jurisdictional agency an application which contains the following items:

(i)(A) If the gas is produced from a well which qualifies as a new, onshore production well, all information required in § 274.204 (except for the item specified in paragraph (d)(1) of that section); or

(B) If the gas qualifies for the new natural gas price, the information required in § 274.202 or § 274.203;

(ii) a map which locates and identifies the well for which the determination is sought as being within the designated tight formation;

(iii) the heading and pertinent portions of the well log, or a drilling report identifying the designated tight formation; and

(iv) a statement by the applicant, under oath, that:

(A) the surface drilling of the well for which a determination is sought was begun on or after July 16, 1979;

(B) the gas is being produced from a designated tight formation; and

(C) the applicant has no knowledge of any other information not described in the application which is inconsistent with his conclusions.

(2) Recompletion tight formation gas. A person seeking a determination for purposes of Subpart G of Part 271 that natural gas is recompletion tight formation gas shall file with the jurisdictional agency an application which contains the following items:

(i) ^{(1) FERC FORM NO. 121} ~~(ii)~~ the well completion report;

(ii) ~~(iii)~~ a map which locates and identifies the well for which the determination is sought as being within the designated tight formation;

(iv) ~~(iii)~~ the heading and pertinent portions of the well log, or a drilling report identifying the designated tight formation; and

(v) ~~(iv)~~ a statement by the applicant, under oath, that:

(A) the gas is being produced from a designated tight formation;

(B) *the well was not completed for production in the*
~~the well did not produce natural gas in commercial~~
designated tight formation prior to July 16, 1979;
~~quantities from the designated tight formation prior to July~~
~~16, 1979; and~~

(C) the applicant has no knowledge of any other information not described in the application which is inconsistent with his conclusions.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

CASE NO. 7029
Order No. R-6388-A

IN THE MATTER OF THE HEARING CALLED
BY THE OIL CONSERVATION DIVISION ON ITS
OWN MOTION TO CONSIDER AMENDMENTS TO ITS
SPECIAL RULES AND PROCEDURES FOR THE
DESIGNATION OF "TIGHT FORMATION,"
PROMULGATED BY DIVISION ORDER NO. R-6388
TO COMPLY WITH FERC ORDER NO. 99, ISSUED
AUGUST 15, 1980, PROMULGATING FINAL REGULATIONS
WITH RESPECT TO SECTION 107 OF THE NGPA.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on October 1,
1980, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 10th day of February, 1981, the Division
Director, having considered the testimony, the record, and
the recommendations of the Examiner, and being fully advised
in the premises,

FINDS:

(1) That due public notice having been given as required
by law, the Division has jurisdiction of this cause and the
subject matter thereof.

(2) That by its Order No. R-6388, dated June 30, 1980,
the New Mexico Oil Conservation Division promulgated its
"Special Rules and Procedures for Tight Formation Designation
Under Section 107 of the Natural Gas Policy Act of 1978."

(3) That the rules and procedures adopted by said order
were predicated upon the interim regulations issued February 20,
1980, by the Federal Energy Regulatory Commission (FERC) and
were intended to be amended should the final regulations
promulgated by the FERC differ substantially from the afore-
said interim regulations.

(4) That by its Order No. 99, issued August 15, 1980, the
FERC promulgated its final rules on high-cost natural gas
produced from tight formations, said rules to become effective
September 22, 1980.

(5) That said final rules differ in certain respects from the interim regulations, and certain amendments to the Division's rules and procedures as promulgated by Order No. R-6388 are therefore necessary, to wit:

(6) That Section B, Definitions, should be amended by the addition of the following definition:

6. "Infill drilling" means any drilling in a substantially developed formation (or a portion thereof) subject to requirements respecting well-spacing or proration units which were amended by the Division or the Oil Conservation Commission after the formation (or portion thereof) was substantially developed and which were adopted for the purpose of more effective and efficient drainage of the reservoirs in such formation. Such amendment may provide for the establishment of smaller drilling or production units or may permit the drilling of additional wells on the original units.

(7) That subparagraph c of subsection 1, Section D, Evidence, should be amended to read in its entirety as follows:

- "c. a map or list which clearly locates or describes wells which are currently producing oil or gas, or both, from the formation within the geographical area of the formation, and"

(8) That subparagraph d of subsection 1, Section D, Evidence, should be amended to read in its entirety as follows:

- "d, a report of the extent to which an applicant believes existing State and Federal regulations will assure that development of the formation will not adversely affect or impair any fresh water aquifers (during both hydraulic fracturing and waste disposal operations) that are being used or are expected to be used in the foreseeable future for domestic or agricultural water supplies; and"

(9) That old subparagraph e of subsection 1, Section D, Evidence, reading "any other information. . . ." should be renumbered "f" and read in its entirety as follows:

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Case No. 7029

Order No. R-6388-A

"f. any other information which the Division may require."

(10) That a new subparagraph e of subsection 1, Section D, Evidence, should be added, reading in its entirety as follows:

"e. if the formation has been authorized to be developed by infill drilling prior to the date of recommendation, information and data demonstrating that the formation cannot be developed without the incentive price established in 18 CFR §271.703(a)."

(11) That subparagraph c of subsection 2, Section D, Evidence, should be amended to read in its entirety as follows:

"c. No well drilled into the recommended tight formation is expected to produce, without stimulation, more than five barrels of crude oil per day."

(12) That a new subparagraph e should be added to subsection 2, Section D, Evidence, reading in its entirety as follows:

"e. If the formation or any portion thereof was authorized to be developed by infill drilling prior to the date of recommendation and the Division has information which in its judgment indicates that such formation or portion subject to infill drilling can be developed absent the incentive price established in 18 CFR §271.703(a), then the Division shall not include such formation or portion thereof in its recommendation."

(13) That the "Special Rules and Procedures for Tight Formation Designations Under Section 107 of the Natural Gas Policy Act of 1978," promulgated June 30, 1980, by Order No. R-6388, and amended as described above, should be re-promulgated reading in their entirety as depicted on Exhibit A, attached hereto and made a part hereof.

IT IS THEREFORE ORDERED:

(1) That the "Special Rules and Procedures For Tight Formation Designations Under Section 107 of the Natural Gas Policy Act of 1978," as depicted by Exhibit A attached hereto and made a part hereof, are hereby adopted by the New Mexico Oil Conservation Division, effective immediately.

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Case No. 7029

Order No. R-6388-A

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



JOE D. RAMEY,
Director

S E A L

dr/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
P. O. Box 2088
SANTA FE, NEW MEXICO 87501

SPECIAL RULES AND PROCEDURES FOR
TIGHT FORMATION DESIGNATIONS UNDER SECTION
107 OF THE NATURAL GAS POLICY ACT OF 1978

Amended 2-1-81

A. General

Applications for tight formation designations under Section 107 of the NGPA and applicable FERC rules and regulations shall be accepted by the Division at its Santa Fe, New Mexico office after June 30, 1980. These special rules apply only to tight formation designations and do not apply to individual well filing requirements for price category determination.

B. Definitions

1. "Crude Oil" means a mixture of hydrocarbons that exists in the liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separation facilities.
2. "Division" means the Oil Conservation Division of the Energy and Minerals Department of the State of New Mexico.
3. "FERC" means the Federal Energy Regulatory Commission.
4. "USGS" means the office of the United States Geological Survey in Albuquerque, New Mexico.
5. "Formation" means any geological formation or portion thereof described by geological as well as geographical parameters which is the subject of a tight formation designation application.
6. "Infill drilling" means any drilling in a substantially developed formation (or a portion thereof) subject to requirements respecting well-spacing or proration units which were amended by the Division or the Oil Conservation Commission after the formation (or portion thereof) was substantially

Order No. R-6388-A
Exhibit A

developed and which were adopted for the purpose of more effective and efficient drainage of the reservoirs in such formation. Such amendment may provide for the establishment of smaller drilling or production units or may permit the drilling of additional wells on the original units.

C. Procedure

1. To the extent that the Division's general rules of procedure for public hearings are not altered or amended by these special rules, such general rules of procedure shall be applicable and are incorporated herein by reference.
2. All applications for tight formation designation in the State of New Mexico, in which Federal, Indian, state, or fee lands, or any combination thereof, are involved, shall be filed with the Division.
3. All applications for tight formation designation shall be set for public hearing.
4. A complete set of exhibits which an applicant proposes to offer or introduce at a hearing, together with a statement of the meaning and purpose of each exhibit, shall be submitted to the Division (and to the USGS when federal or Indian lands are involved) when the application is filed or at least 15 days prior to a hearing. These exhibits shall cover all aspects of the required evidentiary data described in Section D below. Three additional complete sets of such exhibits and statements, enclosed in an unsealed postage-paid packet, shall also accompany the application or be presented at the hearing; this packet and its contents will be forwarded to the FERC by the Division after the hearing, together with the Division order recommending disposition of the application.
5. Where practicable, applications may be consolidated for hearing at the discretion of the Director of the Division.
6. Within 15 days after its issuance, any order promulgated by the Division pursuant to these special rules shall be submitted by the Division to the FERC in accordance with Section 271.705 of the FERC rules

and regulations applicable to NGPA for approval or disapproval of a tight formation designation.

D. Evidence

1. Evidence offered by an applicant at a hearing shall include:
 - a. a map and geographical and geological descriptions of the area and formation for which the designation is sought; and
 - b. geological and engineering data to support the application; and
 - c. a map or list which clearly locates or describes wells which are currently producing oil or gas, or both, from the formation within the geographical area of the formation, and
 - d. a report of the extent to which an applicant believes existing State and Federal regulations will assure that development of the formation will not adversely affect or impair any fresh water aquifers (during both hydraulic fracturing and waste disposal operations) that are being used or are expected to be used in the foreseeable future for domestic or agricultural water supplies; and
 - e. if the formation has been authorized to be developed by infill drilling prior to the date of recommendation, information and data demonstrating that the formation cannot be developed without the incentive price established in 18 CFR §271.703(a).
 - f. any other information which the Division may require.
2. Evidence shall be based on each of the following geological and engineering guidelines:
 - a. The estimated average in situ gas permeability, throughout the pay section, is expected to be 0.1 millidarcy or less.
 - (1) Permeability may be established and demonstrated by any customary or acceptable methods, techniques, or testing acceptable in the oil and gas industry.

- b. The stabilized production rate, either at atmospheric pressure or calculated against atmospheric pressure, of wells completed for production in the formation, without stimulation, is not expected to exceed the production rate determined in accordance with the following table:

If the average depth to the top of the formation (in feet):		The maximum allowable production rate (in Mcf/ day) may not exceed:
<u>exceeds:</u>	<u>but does not exceed:</u>	
0	1000	44
1000	1500	51
1500	2000	59
2000	2500	68
2500	3000	79
3000	3500	91
3500	4000	105
4000	4500	122
4500	5000	141
5000	5500	163
5500	6000	188
6000	6500	217
6500	7000	251
7000	7500	290
7500	8000	336
8000	8500	388
8500	9000	449
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9500	10000	600
10000	10500	693
10500	11000	802
11000	11500	927
11500	12000	1071
12000	12500	1238
12500	13000	1432
13000	13500	1655
13500	14000	1913
14000	14500	2212
14500	15000	2557

- c. No well drilled into the recommended tight formation is expected to produce, without stimulation, more than five barrels of crude oil per day.

- d. If an application meets the guidelines contained in subparagraphs 2 b and 2 c above, but does not meet the guidelines contained in subparagraph 2 a, an applicant may, in the alternative, show that the formation exhibits low permeability characteristics and that the incentive price is necessary to provide reasonable incentive for production of the natural gas from the formation due to extraordinary risks or costs associated with such production.
 - (1) An application based on the guidelines outlined in subparagraph 2 d above shall include data to support the contention that the guidelines contained in paragraph 2 b and 2 c above are met, and in addition thereto, shall contain:
 - (a) the types and extent of enhanced production techniques which are expected to be necessary, and
 - (b) the estimated expenditures necessary for employing those techniques, and
 - (c) an estimate of the degree of increase in production from use of such techniques together with engineering and geological data to support that estimate.
- e. If the formation or any portion thereof was authorized to be developed by infill drilling prior to the date of recommendation and the Division has information which in its judgment indicates that such formation or portion subject to infill drilling can be developed absent the incentive price established in 18 CFR §271.703(a), then the Division shall not include such formation or portion thereof in its recommendation.

dr/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
1 October 1980

EXAMINER HEARING

IN THE MATTER OF:

The hearing called by the Oil Conser-) CASE
vation Division on its own motion to) 7029
consider amendments to its special)
rules and procedures for the desig-)
nation of "tight formation", pro-)
mulgated by Division Order No. R-6388)
to comply with FERC Order No. 99, is-)
sued August 15, 1980, promulgating)
final regulations with respect to)
Section 107 of the NGPA.)

and)

The hearing called by the Oil Conser-) CASE
vation Division on its own motion to) 7030
consider amendments to its SPECIAL)
RULES FOR APPLICATIONS FOR WELLHEAD)
PRICE CEILING CATEGORY DETERMINATIONS)
as promulgated by Division Order)
R-5878, as amended.)

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation	Ernest L. Padilla, Esq.
Division:	Legal Counsel to the Division
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1 MR. NUTTER: The hearing will come to
2 order, please.

3 The first case we'll call this morning
4 will be Case Number 7029, which is in the matter of the
5 hearing called by the OCD on its own motion to consider
6 amendments to its special rules and procedures for the design-
7 nation of tight formation promulgated by Order No. R-6388,
8 complying with FERC Order No. 99, issued August 15th, 1980,
9 promulgating final regulations with respect to Section 107
10 of the NGPA.

11 I'll call for appearances in this case.

12 MR. PADILLA: Mr. Examiner, Ernest L.
13 Padilla on behalf of the Oil Conservation Division, and I
14 suppose that I'll be the witness today, as well.

15 MR. NUTTER: Are there other appearances?

16 MS. TESCHENDORF: Lynn Teschendorf for
17 Consolidated Oil and Gas. I've just got some comments.

18 MR. THOMPSON: Bob Thompson, Amoco
19 Production Company, and I may have some comments, also.

20 MR. BURLESON: David Burleson with El
21 Paso Natural Gas Company.

22 MR. NUTTER: Ernie, are the subject
23 matter of Cases 7029 and 7030 similar enough that we could
24 consolidate them for testimony, or would you rather have
25 them conducted separately?

1 MR. PADILLA: I would prefer that they be
2 consolidated. I think that I will, however, speak to each
3 one individually -- separately.

4 MR. NUTTER: But you can handle them
5 consolidated.

6 MR. PADILLA: Yes.

7 MR. NUTTER: We'll call now Case Number
8 7030, which is in the matter of the hearing called by the
9 OCD on its own motion to consider amendments to its special
10 rules for applications for wellhead price ceiling category
11 determinations, as promulgated by Division Order No. R-5878,
12 as amended.

13 For purpose of testimony we will conso-
14 lidate Case Number 7029 with Case 7030, although separate
15 orders will be issued.

16 Would you proceed, Mr. Padilla.

17 MR. PADILLA: Mr. Examiner, initially I
18 believe everyone has -- there are some amendments in the back
19 of the room and anyone that didn't get any, we can make some
20 more, but there should be sufficient forms.

21 If anyone didn't get any, I think maybe
22 I should tell my secretary to start rolling the presses right
23 now.

24 MR. NUTTER: Were there sufficient
25 copies that everyone that's interested in having a copy of

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1 these proposed amendments has one, or do we need some more
2 copies?

3 Anyone that needs extra copies, raise
4 their hand, please.

5 Mr. Padilla, would you proceed? Please
6 start by stating your position for the record and what the
7 purpose of the amendment is?

8 MR. PADILLA: Mr. Examiner, my name is
9 Ernest L. Padilla. I'm the attorney for the Oil Conservation
10 Division.

11 The purpose for this hearing is to make
12 certain amendments by virtue of FERC Order No. 99 that was
13 issued by the FERC relative to tight formation designations
14 under the Natural Gas Policy Act of 1978.

15 Mr. Examiner, you may recall that on the
16 30th day of June, 1980, the Division issued special rules
17 for designating tight formations in the State of New Mexico.
18 And those rules provide for guide -- or provide guidelines
19 and the procedures whereby producers may come to the Division
20 and apply for tight formation designation.

21 MR. NUTTER: And those were promulgated
22 by Order No. R-6388.

23 MR. PADILLA: That's correct.

24 MR. NUTTER: And were based on the in-
25 terim regulations for tight sands, which had been promulgated

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1 by the FERC.

2 MR. PADILLA: Correct.

3 MR. NUTTER: And now final regs have been
4 promulgated by FERC, so you want to update R-6388 rules to
5 comply with the final regs of the FERC.

6 MR. PADILLA: Yes, sir.

7 MR. NUTTER: Okay.

8 MR. PADILLA: Let me go through what I
9 have proposed to the Division in the way of admendments.

10 First of all, as far as definitions are
11 concerned, I have added a new definition, and that is the
12 definition for infill drilling.

13 Basically what I have done is copied al-
14 most verbatim the rule -- the definition that the FERC has
15 given to infill drilling. That would, of course, be added
16 to the definition section of Order No. 6388.

17 The next thing, as far as evidence is
18 concerned, I have deleted what is now subparagraph D (1) (c)
19 in that a requirement is made for submittal of a map or a
20 list showing all wells that are currently producing from that
21 formation or a portion of the formation. Previously the rule,
22 I believe, stated that -- something to the effect that the
23 map or list would list all wells that have produced from the
24 formation.

25 That has been changed to say that only

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1 wells that are currently producing need to be shown.

2 The next rule change, and that would be
3 on page two, which is not shown as page two, but nevertheless,
4 it's the second page, I delete subparagraph D (1) (d) in its
5 entirety and insert in lieu thereof a report concerning
6 potential impact to fresh water aquifers through development
7 of the tight formation.

8 The only thing that has been added to that
9 is new language that the FERC has inserted in their require-
10 ments indicating that this impact would only -- is limited
11 during hydraulic fracturing and waste disposal operations.
12 I think that diminishes to some extent the impact of the in-
13 terim rule.

14 MR. NUTTER: Well, you don't mean to imply
15 that it's all right to impair fresh water other times than
16 when you're hydraulically fracturing or disposing of the --

17 MR. PADILLA: No, but I think what --
18 what the FERC -- what that means is that the FERC recognizes
19 that generally any contamination would occur basically during
20 salt water disposal operations or during injection of --

21 MR. NUTTER: These are times when you have
22 to be especially careful.

23 MR. PADILLA: Yes.

24 MR. NUTTER: Okay.

25 MR. PADILLA: I have deleted, also, sub-

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1 paragraph D (1) (e) and added in lieu thereof a paragraph
2 concerning -- or where we would request information or data
3 demonstrating that the formation cannot be commercially de-
4 veloped without the incentive price and, of course, this goes
5 back to the definition of infill drilling and also to a new
6 guideline which has been added in the FERC regulations. I
7 believe we may have comments on that, but let's hold that till
8 later.

9 Essentially what this says, though, is that
10 where that formation is being substantially developed under
11 the 103 price, or under any other price, we would like in-
12 formation demonstrating that, say, the Section 103 price of
13 the NGPA is not adequate and therefor you need the 107 price
14 as an incentive or an inducement to produce that portion of
15 the formation.

16 I've renumbered the -- or going on to
17 number 4, I've renumbered former subsection (e) as (f) and
18 that is just a catchall. Any other information which the
19 Division may require, and that would generally occur at a
20 hearing concerning an application for tight formation desig-
21 nation or recommendation where it occurs at the hearing that
22 we would want to have some other information, not only to
23 help the Division, but probably to help the FERC understand
24 what -- what the proceedings before the Division had been.

25 In number 5 I've deleted where it was

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1 formerly subparagraph D (2) (c) in its entirety, and inserted
2 there in lieu -- in lieu thereof, no well drilled into the
3 recommended tight formation is expected to produce without
4 stimulation more than five barrels of crude oil per day.

5 All this is is a -- is different language
6 meaning the same thing, so I've essentially copied the new
7 FERC language and I've added probably the most important ad-
8 dition here, other than the definition of tight -- or infill
9 drilling, is the item numbered number 6, which is -- which is
10 now D (2) (e), and I'll read that in its entirety.

11 It says, where a formation has been
12 authorized to be developed by infill drilling prior to the
13 date of recommendation -- I've left out the "of" -- of recom-
14 mendation, the Division shall exclude from its recommendation
15 any portion of such formation which in its judgment can be
16 developed without the incentive price specified in 18 CFR
17 Section 271.703(a).

18 This addition goes to the essence of the
19 new guideline essentially. What I think it means is that
20 formation is currently being developed under the Section 103
21 price, then the Division shall exclude from its recommenda-
22 tion that portion of the formation.

23 And that is basically all I have on Case
24 Number 7029.

25 Let me go on now to Case 7030 and this

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1 is a much simpler thing. This again concerns Section 107 of
2 the Natural Gas Policy Act and it applies to the filing re-
3 quirements for Section 107.

4 Now, going to rule 17, which concerns
5 Section 107, I've deleted paragraph 17 (2) (d) in its entirety
6 and inserted in lieu thereof --

7 MR. NUTTER: Mr. Padilla, do you have an
8 exhibit on this?

9 MR. PADILLA: It should be sitting right --
10 right there.

11 MR. NUTTER: Okay, thank you.

12 MR. PADILLA: Originally I -- we had in
13 there a reference identifying the Division and FERC orders
14 which recommended and designated respectively the tight forma-
15 tion in which the well is completed. The FERC has changed
16 that, or I think originally we added this thing because we
17 thought it was necessary. Now the FERC has required a map
18 which locates and identifies the well for which the determina-
19 tion is sought as being within the designated tight formation.
20 I think it's basically the same thing, so I've just changed
21 that to add the FERC language, and I think probably it may be
22 easier to show -- to show the map rather than try to remember
23 what the order number identifying the tight formation was.

24 And item number two there is I've got an
25 entirely new subsection to take care of the recompletion

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1 tight formation gas. Essentially this is nothing but what the
2 FERC requires now under its rule -- its filing requirements
3 in Section 274.205, I believe that's (e)(2), which applies to
4 recompletion tight formation. The only thing that we've really
5 added there is from what is in the FERC rules as Subsection B,
6 which is the Division Form 132 and the required attachments.

7 And that, also, that means also that we
8 would have to change our Form C-132 to include this new Rule
9 17 (3) for recompletion tight gas.

10 And I -- that's about all I have on this
11 case, and I'll answer any questions, that you may have, or
12 anyone else may have, or attempt to answer the questions.

13 MR. NUTTER: Are there any questions of
14 Mr. Padilla?

15
16 QUESTIONS BY MR. NUTTER:

17 Q Mr. Padilla, in eliminating Section 17 --
18 17 (2)(d) would we have any idea which order designated that
19 formation if you just substituted a map there? Shouldn't
20 there be some identification as to the formation and the order
21 number authorizing it?

22 A I think it might be beneficial but I
23 don't know that there'd be that many tight formations where
24 we'd be that concerned about which formation it's going to be
25 in.

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1 Q We have to know that it has been a desig-
2 nated tight formation, though, don't we?

3 A Yes.

4 Q Is that included in any of the other
5 data that is submitted?

6 A Not really, I don't think. Not that I
7 can recall.

8 Q I would think we could keep 17(2)(d) and
9 add this requirement for the map.

10 A The map.

11 Q To locate the specific well we're talking
12 about. We have to know that it is in an approved designated
13 tight formation, I believe.

14 A Well, the thing, I think after the FERC
15 publishes the Division's recommendation on any new -- on any
16 tight formation, that recommendation or that designation will
17 eventually become an FERC rule, so concerning that particular
18 formation and the limits of the formation. In that respect
19 I think maybe it may not be necessary; it would be a matter
20 of FERC rule.

21 Q It's not possible to get an individual
22 well approved as a tight formation well without having that
23 formation previously designated and approved, is it?

24 A Yes, that's correct.

25 Q It can't be done. Okay. Are there any

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1 further questions of Mr. Padilla? Mr. Stamets.

2
3 QUESTIONS BY MR. STAMETS:

4 Q Mr. Padilla, on a replacement well in an
5 area that has been designated as tight formation, is that well
6 eligible for the tight sand incentive price?

7 A I believe it would be because if all
8 that's required in tight formations is whether it's been --
9 the spud date for new tight formation gas; the spud date would
10 be July 16th, 1979; recompletion tight gas would -- this --
11 the spudding would occur prior to July 16th, 1979, but not
12 completed for production prior to July 16th, 1979.

13 Q Would there be any requirement that the
14 operator justify why the original well was plugged?

15 A Possibly under Section 103 but not under
16 tight formation, once that formation had been designated a
17 tight formation.

18 MR. STAMETS: That's all.

19
20 QUESTIONS BY MR. NUTTER:

21 Q Referring to your proposed Section -- new
22 subsection D(2)(e) for R-6388, how would the Division be able
23 to determine in its judgment that a portion of the formation
24 could be developed without the incentive price? You're
25 talking about the infill drilling program.

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1 A Yes. That's why I've added this item
2 number three on the second page, which is D(1)(c), and that
3 requires an applicant to give the Division information or data
4 demonstrating that, where infill drilling has been authorized.
5 That requires the applicant to demonstrate that the formation
6 could not be developed under the 103 price, or absent, with-
7 out the incentive price.

8 Q So if the formation --

9 A In other words, part of the evidence, or
10 part of the submittal for where infill drilling is occurring
11 has to include information and data concerning the necessity
12 of the incentive price.

13 Q So really this D(1)(e) is saying that if
14 the formation has been authorized to be developed by infill
15 drilling prior to the date of recommendation, they would sub-
16 mit information and data demonstrating that the portion of
17 the formation where they're going -- where the well is that
18 they are seeking this determination, cannot be developed with-
19 out the incentive price.

20 A Well, no. I think that this concerns the
21 formation that is being applied for for designation. It
22 doesn't concern any one particular well. It concerns the
23 subject matter which would be the formation that the applicant
24 is seeking to have designated a tight formation.

25 Q Okay. This is for the formation.

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1 A Right. It doesn't apply to the individual
2 well filing under the filing requirements, simply because we
3 would have already decided, or the FERC would have already
4 approved our recommendations on --

5 Q Okay, so Section D(2)(e), then, is for a
6 given area of that formation and if that -- if that area is
7 deleted from the tight sand provision, then there wouldn't
8 be any point in anyone applying for a well in that portion
9 that's been deleted.

10 A Right.

11 Q Say we've got the infill program approved
12 for, let's just take as an example, the Blanco-Mesaverde,
13 and we had a tight formation hearing and designated all except
14 the Fairway to be a tight formation, then no one would apply
15 for a tight formation designation for an individual well in
16 the Fairway.

17 A Correct.

18 Q But on the outskirts, where it was desig-
19 nated a tight formation, they could apply.

20 A Right.

21 Q And there would be no further proof, then,
22 for an individual well required.

23 A No. Well, they couldn't apply under 107
24 if that portion was excluded from our recommendation.

25 Now, I didn't mean that we may be -- that

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1 they may -- that the FERC would agree with us, either. We
2 may exclude something and I think the FERC could say, now,
3 you shouldn't have deleted that portion of that.

4 Q And is there any implication in the FERC
5 regs that once a tight formation, or a portion -- once a form-
6 ation or a portion of a formation is designated as a tight
7 formation, that that couldn't be amended later by another
8 recommendation and designation? Is any implication in FERC
9 that that can't be done?

10 A I don't know. It seems to me that once
11 it's designated, I think that the only way that it could be
12 altered is to include it in -- as a tight formation, but I
13 don't think you, once it's designated a tight formation that
14 you could come back and say, no, that shouldn't be a tight
15 formation. But you could go the other way and say someone
16 may apply for a portion of the formation that has been excluded
17 and say this should have been included in tight --

18 Q This should have been included.

19 A -- formation.

20 Q So it could be amended and expanded, pos-
21 sibly.

22 A Expanded.

23 Q Okay.

24 MR. NUTTER: Are there any further ques-
25 tions? Yes, sir.

1
2 QUESTIONS BY MR. THOMPSON:

3 Q Bob Thompson, Amoco Production Company.
4 Again referring to this D(1)(c), I'm concerned that it's much
5 broader than it needs to be to accomplish the objectives out-
6 lined in Order 99 of the FERC.

7 It appears to me that an operator who wants
8 an area designated would have to show the entire formation,
9 the incentive price would be needed for the entire formation,
10 and the order itself only would require that type of showing
11 for areas of the formation, or portions of the formation,
12 which have not been substantially developed, and correlate,
13 for example, in Basin Dakota, where you have 320 units, which
14 had not been drilled as of June, 1979, those should be excluded
15 from the necessary showing.

16 So I think based on this D(1)(c) and
17 D(2)(c), those considerations should be taken into account,
18 as far as the definition goes, and as far as Mr. Padilla's
19 interpretation that he felt like the infill drilling program
20 would only apply to areas within the various formations which
21 were being developed at the 103 price, I think that should --
22 or some language indicating that intent, should also be in-
23 cluded in there because of the way it's currently written,
24 every well in the entire formation would have to be justified
25 on an economic basis.

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1 A That's a comment or --

2 Q That's a comment.

3 A Okay. If you, if I may ask, if you have
4 any language or anyway of saying this the way you would like
5 for it to read --

6 Q I could certainly send you a letter in
7 writing indicating how we might be able to refine the rules
8 to at least not -- so they won't be overly broad, would more
9 closely comport with the Order 99. Certainly it would have
10 to be FERC's intent that we only have to show that the incentive
11 price is necessary in areas that were substantially developed,
12 and it's going to be -- it's going to be impossible, a burden,
13 to show the entire formation that we need the incentive price,
14 and I also acknowledge some of the areas in the Basin Dakota
15 can be developed at ~~least~~ ^{less} than the incentive price, but many
16 of the other areas, we would have to have the incentive price
17 in order to develop them, so that needs to be recognized, I
18 thought, in this definition of infill drilling, and also the
19 requirements that the producer has to show in order to get a
20 formation designated.

21 MR. PADILLA: Mr. Examiner, if I may make
22 a suggestion, I think that it would be appropriate to leave
23 the record open for a period of time so that people who are
24 present here would have an opportunity to comment on this --
25 on these rules and possibly suggest other language. I'm not

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1 tied to this language. This is just a proposal.

2 MR. NUTTER: I was just thinking of leaving
3 the record open.

4 Are there any other questions of Mr.
5 Padilla? Now's your chance to ask questions. If you have
6 comments, you can send them in by mail; we're going to leave
7 the record open. If you have any questions of him, though,
8 now's the time.

9 Yes, sir, Mr. Little.

10
11 QUESTIONS BY MR. LITTLE:

12 Q Are these applications supposed to be prior
13 or after a well is drilled?

14 A Well, I think if you've already drilled
15 wells that have been spudded that qualify for either tight
16 formation, new light formation gas, in other words, the well
17 was spudded after July 16th, 1979, or if it qualifies for re-
18 completion type gas with a spud date prior to July 16th, 1979,
19 but not completed for production prior to July 16th, 1979,
20 you could still qualify the well.

21 So you don't have to -- if the well meets
22 that requirement I don't see why you couldn't collect where
23 there is a provision for retroactive collection back to that
24 time. So it's not necessary that you designate the formation
25 prior to drilling the well. If the well qualifies under the

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1 spud date requirement.

2 MR. NUTTER: Ms. Teschendorf?

3
4 QUESTIONS BY MS. TESCHENDORF:

5 Q Mr. Padilla, I believe you said in effect
6 that if the formation is currently being developed at the
7 Section 103 price, then the Division would not want to qualify
8 it as a tight formation, but I think you might want to include
9 something in your rules, and though I'll acknowledge, as Mr.
10 Thompson has, that a large portion of the Basin Dakota is
11 being developed with Section 103 prices, but I think the sec-
12 tions that are being developed are the high grade sections,
13 the ones that have the highest success ratios, the ones that
14 are most likely to succeed.

15 As time goes on, inflation is going up,
16 costs are going up, the fringe areas are going to be developed,
17 and we're going to be looking at economics for a formation,
18 and I think we should be looking at forecasts, too, future
19 forecasts, too, an estimate of what it's going to cost in
20 these areas, taking into account inflation and higher costs
21 in the poorer areas.

22 A I can't disagree with that. I think that
23 it's -- the problem is going to be deciding what is being
24 substantially developed now under Section 103 prices; prices
25 which are the highest prices available for -- other than the

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1 107 price.

2 Q What I'm saying is, you know, a drilling
3 program might stop next month because right now the wells
4 that are currently being drilled are economical as Section
5 103's. Next month they might not be, and I think somewhere
6 in your rules you need to take that into account.

7 A Well, I think that item number three allows
8 you to do that, and demonstrate that -- that -- on the second
9 page, that the formation cannot be developed; that doesn't
10 restrict it to now. I think that you can say that in the
11 future the formation cannot be developed without the incentive
12 price.

13 MR. THOMPSON: While you're on that phrase,
14 wouldn't it be better to say the formation, or a portion of
15 the formation, cannot be developed?

16 MR. PADILLA: I've defined formation as
17 including a portion of the formation, so that's why I left it
18 as formation. The formation, I believe Ms. Teschendorf caught
19 that the last time around, and she suggested that we have my
20 definition of formation not include or a portion thereof.

21 MR. NUTTER: Are there any other questions
22 of Mr. Padilla? Yes, sir, Mr. Strand.

23

24

QUESTIONS BY MR. STRAND:

25

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1 Q Bob Strand, Harvey E. Yates Company.
2 Ernie, I got here a little late so we may have to go back
3 over this, but you're talking about the Division making a
4 judgment as to whether the incentive price should be allowed
5 where -- where an area is being adequately developed under the
6 103 price. Now you're talking solely about infill areas, are
7 you not?

8 A That's correct.

9 Q And you do not intend to make any economic
10 judgment as to other areas that may be applied for for
11 the tight formation status?

12 A I don't think that fourth guideline, that
13 new guideline, would price anything but infill drilling.

14 MR. NUTTER: Any other questions? Yes,
15 sir.

16 MR. BALMER: Don Balmer, El Paso Natural
17 Gas Company.

18
19 QUESTIONS BY MR. BALMER:

20 Q Ernie, are you speaking for the USGS also,
21 or does the OCD, will they designate tight formations with
22 regard to Federal lands, also, or will the USGS make that designation themselves?
23

24 A The way we're currently doing that is all
25 hearings for tight formation designation come through the

1 Division and they will then -- later on they will ratify our
2 order or -- well, ratify or disagree with our order, depending
3 on how -- but from the standpoint of uniform application of
4 the rules, the FERC rules, the USGS and the Division have
5 agreed that all designations -- or all hearings will be held
6 by the Division, so we wouldn't be applying different inter-
7 pretations to the FERC guidelines.

8 Q They would merely ratify them or disagree
9 with them and then later on if you had an individual well det-
10 ermination, it would go to the appropriate hearing.

11 A Right. The current one that we now have
12 is in order to submit everything to the FERC, we are waiting
13 for the USGS' ratification and if they -- or whatever action
14 they want to take on that, on our order, and then to save time,
15 we'll just submit their ratification together with all the
16 information and data that we have in the file.

17 Q Thank you.

18 MR. NUTTER: Are there other questions?
19 We'll take the Case Number 7030 under advisement. We will
20 leave the record open in Case Number 7029 for written comments
21 on the amendments of Order Number R-6388. It will be left
22 open until October 15th, 1980.

23
24 (Hearing concluded.)
25

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C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREPY CERTIFY that
the foregoing Transcript of Hearing before the Oil Conserva-
tion Division was reported by me; that the said transcript
is a full, true, and correct record of the hearing, prepared
by me to the best of my ability.

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I do hereby certify that the foregoing is
a complete and correct transcript of the hearing in
the case of 57029-7030
heard by me on 10/1 1980.

[Signature], Examiner
Oil Conservation Division

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October 10, 1980

Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Gentlemen:

On behalf of I.P.A.N.M. we are filing the attached comments in reference to Case No. 7029.

Thank you for your attention in this matter.

Yours truly,


George M. Yates
Vice-President

GMV/vc

BEFORE THE
OIL CONSERVATION DIVISION
STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING)
CALLED BY THE OIL CONSERVATION)
DIVISION ON ITS OWN MOTION TO)
CONSIDER AMENDMENTS TO ITS)
SPECIAL RULES AND PROCEDURES)
FOR THE DESIGNATION OF "TIGHT)
FORMATIONS")

*This added (underlined)
language would appear
to clarify the rules.*

CASE NO. 7029

COMMENTS
INDEPENDENT PETROLEUM ASSOCIATION OF NEW MEXICO

The comments offered by the Independent Petroleum Association of New Mexico are directed solely at the problem of infill wells, and in particular at proposed rules (D)(1)(e) and (D)(2)(e). The former requires that an applicant furnish information and data demonstrating that the formation cannot be developed without the new incentive price; the latter requires the Division to exclude from its recommendations any portion of any formation which it feels can be developed without the incentive price.

The Federal Energy Regulatory Commission issued its Notice of Proposed Rulemaking concerning tight formations on August 29, 1979. In that Notice, the FERC included a list of formations which could qualify, the Dakota formation being among them. The FERC was well aware at that time that the Dakota was being infill drilled.

On February 20, 1980, the FERC issued its interim rule, stating:

"some portions of tight formations have been developed to such an extent as to indicate that the incentive maximum lawful price is not necessary to encourage full production of that portion of the formation."

It seems clear that up until this point, the FERC intended that only those portions of tight formations that had already been substantially developed by infill drilling should be barred from getting the incentive price.

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This intention is borne out by the form of the final regulations. For one thing, "infill drilling" is defined as any drilling occurring in a substantially developed formation or portion thereof. Therefore, Order 99 is only applicable to those portions of the formation which have been substantially developed.

Furthermore, the FERC has emphasized that once a formation has been approved as a designated tight formation, future infill wells will be eligible to receive the incentive price. Thus, it seems clear that although the jurisdictional agency should look at the economics of the drilling performed in substantially developed areas, it cannot seek economic testimony for areas which have not yet been infill drilled. There are even practical problems in developing such testimony. Since the wells have not yet been drilled, rough estimates are all that can be made of future costs and risks. This is especially true because the infill wells drilled thus far have been the best prospects. They have been the most likely to succeed, and Section 103 prices have been an adequate incentive. But as drilling continues on the less desirable locations, producers will encounter both increased costs and risks. The success ratio will decline rapidly, and a greater incentive must be offered before further development will take place.

In conclusion, the Independent Petroleum Association of New Mexico encourages the Division to amend its proposed rules as follows:

Delete (D)(1)(e) in its entirety and in lieu thereof:

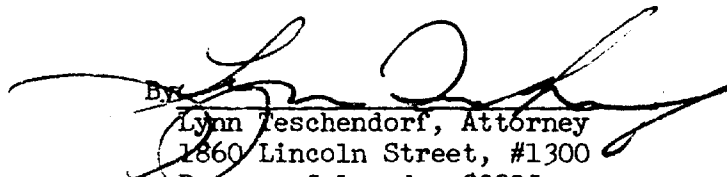
e. if the formation has been authorized to be developed by infill drilling prior to the date of recommendation, information and data demonstrating that any portion of that formation which has already been substantially developed by infill drilling cannot be further developed without the incentive price established in 18 CFR § 271.703(a).

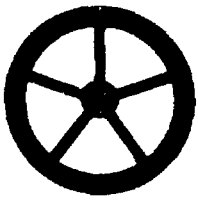
Add a new subsection (D)(2)(e):

e. Where a formation has been authorized to be developed by infill drilling prior to the date of recommendation, the Division shall exclude from its recommendation any portion of such formation which has already been substantially developed by infill drilling, and which in its judgement can be developed without the incentive price specified in 18 CFR § 271.703(a).

Respectfully submitted.

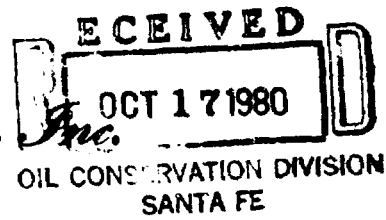
INDEPENDENT PETROLEUM
ASSOCIATION OF NEW MEXICO

By 
Lynn Teschendorf, Attorney
1860 Lincoln Street, #1300
Denver, Colorado 80295



LINCOLN TOWER BUILDING
1860 LINCOLN STREET
DENVER, COLORADO 80295
(303) 861-5252

Consolidated Oil & Gas, Inc.



October 10, 1980

Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87501

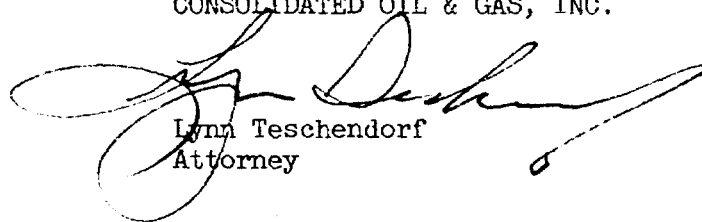
Re: Case No. 7029

Gentlemen:

Enclosed are copies of further comments offered by
Consolidated in the above-referenced case.

Very truly yours,

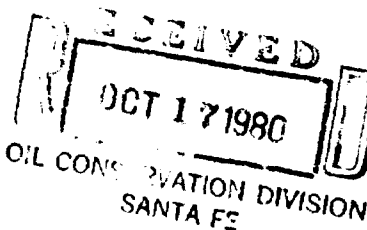
CONSOLIDATED OIL & GAS, INC.


Lynn Teschendorf
Attorney

LHT:mek

cc: Merrion & Bayless
Amoco Production Company
Dugan Production Company
Harvey E. Yates Company

BEFORE THE
OIL CONSERVATION DIVISION
STATE OF NEW MEXICO



IN THE MATTER OF THE HEARING)
CALLED BY THE OIL CONSERVATION)
DIVISION ON ITS OWN MOTION TO)
CONSIDER AMENDMENTS TO ITS)
SPECIAL RULES AND PROCEDURES)
FOR THE DESIGNATION OF "TIGHT)
FORMATIONS")

CASE NO. 7029

FURTHER COMMENTS-
CONSOLIDATED OIL & GAS, INC.

Consolidated supports the position of Amoco taken in their comments dated October 9, 1980. However, Consolidated wishes to add a point of clarification.

In the preamble to Order No. 99 at page 52, the FERC states:

"In some situations, field or spacing rules are in effect and applicable to undeveloped portions of a field and these rules are amended prior to substantial development in order to permit the drilling of wells at closer spacing than permitted by the original rules."

It is submitted that this is exactly applicable to the Dakota situation in May of 1979. At that time, the Dakota infill order was adopted, and thereafter substantial development occurred in the form of infill drilling (i.e., the drilling of wells at closer spacing than permitted by the original rules). Under these circumstances, such drilling should not be considered as infill drilling under the FERC's definition. The FERC went on to state:

"where the original units had not been [infill] drilled prior to the creation of the smaller units or prior to the adoption of amended rules which permit the drilling of an additional well on the original unit, drilling in such circumstances would not be covered under the definition." (p.52)

The bracketed language has been added to reflect what Consolidated believes to be the FERC's intent, as indicated by the analysis above.

Thus, Consolidated urges the Division to amend its rules so that, in the situation where infill drilling has not occurred until after adoption of an infill order, those portions of the formation are not excluded from qualification as a tight formation, and are not subject to the requirement of submission of economic data.

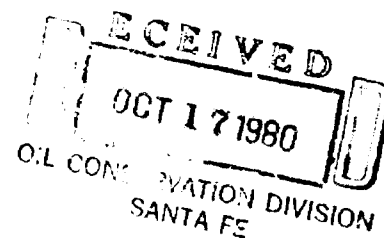
Respectfully submitted,

CONSOLIDATED OIL & GAS, INC.

By 

Lynn Teschendorf, Attorney
1860 Lincoln Street, #1300
Denver, Colorado 80295

BEFORE THE
OIL CONSERVATION DIVISION
STATE OF NEW MEXICO



CASE NO. 7029

IN THE MATTER OF THE HEARING)
CALLED BY THE OIL CONSERVATION)
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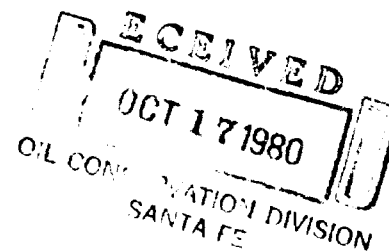
Respectfully submitted,

CONSOLIDATED OIL & GAS, INC.

By 

Lynn Teschendorf, Attorney
1860 Lincoln Street, #1300
Denver, Colorado 80295

BEFORE THE
OIL CONSERVATION DIVISION
STATE OF NEW MEXICO



IN THE MATTER OF THE HEARING)
CALLED BY THE OIL CONSERVATION)
DIVISION ON ITS OWN MOTION TO)
CONSIDER AMENDMENTS TO ITS)
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Respectfully submitted,

CONSOLIDATED OIL & GAS, INC.

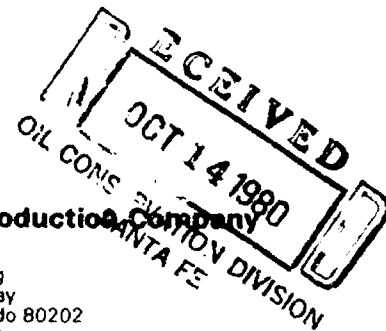
By 

Lynn Teschendorf, Attorney
1860 Lincoln Street, #1300
Denver, Colorado 80295



Robert E. Thompson, Jr.
Attorney

Amoco Production Company
Denver Region
Amoco Building
17th & Broadway
Denver, Colorado 80202
303-830-4040



October 9, 1980

Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: In the matter of the hearing called
by the Oil Conservation Division on
its own motion to consider amendments
to its special rules and procedures
for the designation of "tight formations"
under the Natural Gas Policy Act of 1978

Gentlemen:

Enclosed please find herewith the Comments of Amoco Production
Company submitted for your consideration in the referenced case.

Yours very truly,

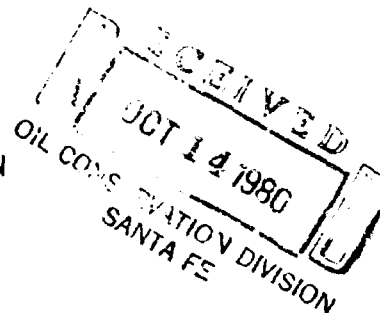
Robert E. Thompson, Jr.

RET:lc

Encls.

cc: Atlantic Richfield Company; Aztec Oil Company; Beta Development Co.;
Cenarol Oil and Gas Company; Consolidated Oil and Gas, Inc.;
Husky Oil Co. of Delaware; Iadd Petroleum Corp.; Marathon Oil Company;
McHugh, Jerome P.; Mobil Oil Corp.; Continental Oil Company; Crown
Central Petroleum Corp.; Dugan Production Corp.; El Paso Natural Gas
Co.; Getty Oil Co.; Gulf Oil Corp.; Odessa Natural Corp.; C. M. Paul;
Pioneer Production Corp.; Shell Oil Co.; Southern Union Gas Co.; Sun
Oil Co.; Tenneco Oil Co.; Union Texas Petroleum Corp.; and Texaco Inc.

BEFORE THE OIL CONSERVATION DIVISION
STATE OF NEW MEXICO



IN THE MATTER OF THE HEARING)
CALLED BY THE OIL CONSERVATION)
DIVISION ON ITS OWN MOTION TO)
CONSIDER AMENDMENTS TO ITS)
SPECIAL RULES AND PROCEDURES)
FOR THE DESIGNATION OF "TIGHT")
FORMATIONS" UNDER THE NATURAL)
GAS POLICY ACT OF 1978)

Case No. 7029

COMMENTS OF AMOCO PRODUCTION COMPANY

The above styled case was called by the Oil Conservation Division ("Division") to consider amendments to its special rules and procedures to comply with Order No. 99 issued August 15, 1980, by the Federal Energy Regulatory Commission ("FERC"). Amoco contends that the amendments relating to infill drilling proposed by the Division during its hearing held October 1, 1980, do not comport with the intent of the FERC expressed in Order No. 99.

An applicant for a tight gas recommendation must in accordance with paragraph (D)(1)(e) of the Division's proposed amendments offer the following evidence at the hearing:

"if the formation has been authorized to be developed by infill drilling prior to the date of recommendation, information and data demonstrating that the formation cannot be developed without the incentive price established in 18 CFR §271.703(a)."

Inasmuch as this provision requires an applicant to submit economic information and data for any geographical area which overlies a formation authorized to be developed by infill drilling, it is overly broad and fails to recognize that certain areas within a proposed tight formation are specifically excluded from the definition of infill drilling prescribed by the Federal Energy Regulatory Commission.

The FERC made the following statement in Order No. 99:

"The Commission wishes to emphasize that the infill drilling must have taken place in a substantially developed formation or portion of a formation after a jurisdictional agency amendment to well-spacing or proration unit requirements. In some situations, field or spacing rules are in effect and applicable to undeveloped portions of a field and these rules are amended prior to substantial development in order to permit the drilling of wells at closer spacing than permitted by the original rules. Where the original units had not been drilled prior to the creation of the smaller units or prior to the adoption of amended rules which permit the drilling of an additional well on the original unit, drilling in such circumstances would not be covered under this definition." (p. 52)

Additional support for this proposition is provided in the legal opinion written by Robert Nordhaus, General Counsel of the FERC, and transmitted to all jurisdictional agencies by letter dated June 27, 1980, under the signature of Mr. Howard Kilchrist which states:

"In some situations, field or spacing rules are in effect and applicable to undeveloped portions of a field and these rules are amended prior to substantial development in order to permit the drilling of wells at closer spacing than permitted by the original rules. Where the original units had not been drilled prior to the adoption of amended rules which permit the drilling of an additional well on the original unit, we do not consider this drilling activity to be of the infill type." (p. 4)

Therefore, Amoco respectfully requests that the amendments proposed by the Division be modified to exclude, both from its definition of infill drilling and from the requirement that an applicant furnish economic evidence, any portion of a formation which is not substantially developed and any portion of a formation attributable to a proration unit which had not been drilled when optional drilling of an additional well on such unit was authorized.

Respectfully submitted,

AMOCO PRODUCTION COMPANY

By Robert E. Thompson, Jr.
Robert E. Thompson, Jr., Attorney
Amoco Building
Denver, Colorado 80202

BEFORE THE
OIL CONSERVATION DIVISION
STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION ON ITS OWN MOTION TO
CONSIDER AMENDMENTS TO ITS
SPECIAL RULES AND PROCEDURES
FOR THE DESIGNATION OF "TIGHT
FORMATIONS"

CASE NO. 7029

CONSOLIDATED OIL & GAS, INC.'S COMMENTS

Consolidated's comments are directed solely to the problem of infill wells drilled into already developed tight formations, in particular, the Dakota formation of northwest New Mexico. FERC Order 99 clearly does not preclude the qualification of these infill wells for the tight formation incentive price. However, it does state that if the Division feels that the Dakota can be further developed without this incentive price, then it should not recommend it as a tight formation.

As the Division is aware, the infill drilling of the Dakota is well under way. Up to this time, the Section 103 price has definitely provided a sufficient incentive. But the Division is also aware of the rapid escalation of costs associated with drilling, and the spiraling rate of inflation. It is suggested here that in the very near future the Dakota infill drilling program may be terminated unless a higher price can be charged for the gas. Therefore, Consolidated recommends that if the Division seeks testimony on the economics of the infill drilling program, it should focus its attention on estimates of future costs and economics. Past history of wells completed or currently being drilled will not be at all indicative of whether the program will be continued by the various companies drilling in the Basin. The Section 103 price may have been a sufficient incentive in the past, but it may not be in the future.

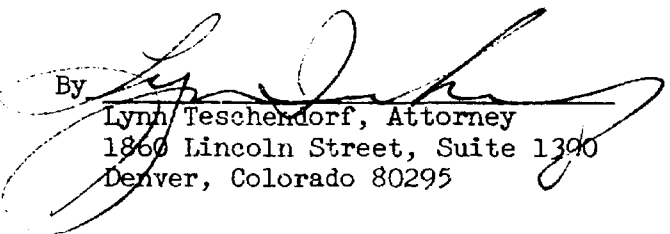
Another point to take into consideration is that the infill wells drilled thus far have been the best prospects. They have been the most likely to succeed, and Section 103 prices have been an adequate incentive. But as drilling continues on the less desirable locations, producers will encounter both increased costs and risks. The success ratio will decline rapidly, and a greater incentive must be offered before further development will take place.

I would like to move that the Division hold the record open for another 15 days for comment. The new tight formation rules were only made available today, and I'm sure many companies will need more time for furnishing suggestions.

Respectfully submitted,

CONSOLIDATED OIL & GAS, INC.

By


Lynn Teschendorf, Attorney
1860 Lincoln Street, Suite 1300
Denver, Colorado 80295

BEFORE THE
OIL CONSERVATION DIVISION
STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
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By

Lynn Teschendorf, Attorney
1860 Lincoln Street, Suite 1300
Denver, Colorado 80295

BEFORE THE
OIL CONSERVATION DIVISION
STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION ON ITS OWN MOTION TO
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Respectfully submitted,

CONSOLIDATED OIL & GAS, INC.

By

Lynn Teschendorf, Attorney
1860 Lincoln Street, Suite 1300
Denver, Colorado 80295

Dockets Nos. 31-80 and 32-80 are tentatively set for October 15 and 29, 1980. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - OCTOBER 1, 1980

**9 A.M. - OIL CONSERVATION DIVISION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO**

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

- CASE 7029:** In the matter of the hearing called by the Oil Conservation Division on its own motion to consider amendments to its special rules and procedures for the designation of "tight formation", promulgated by Division Order No. R-6388, to comply with FERC Order No. 99, issued August 15, 1980, promulgating final regulations with respect to Section 107 of the NCPA.
- CASE 7030:** In the matter of the hearing called by the Oil Conservation Division on its own motion to consider amendments to its SPECIAL RULES FOR APPLICATIONS FOR WELLHEAD PRICE CEILING CATEGORY DETERMINATIONS as promulgated by Division Order No. R-5878, as amended. The proposed amendments relate to individual well filings for price category determination as "tight formation" gas under Section 107 of the NCPA.
- CASE 7031:** Application of Coronado Exploration Corp. for a unit agreement, Guadalupe County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Mesa Leon Unit Area, comprising 15,680 acres, more or less, of State, Federal, and fee lands in Township 6 North, Range 17 East.
- CASE 7007:** (Continued from September 3, 1980, Examiner Hearing)
Application of Harvey E. Yates Company for downhole commingling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Morrow and Atoka production in the wellbore of its North Travis 12 Deep Well No. 1 located in Unit 0 of Section 12, Township 18 South, Range 28 East.
- CASE 7023:** (Continued from September 17, 1980, Examiner Hearing)
Application of Shell Oil Company for pool creation and temporary special pool rules, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Pennsylvanian oil pool for its Askew Well No. 1 located in Unit L of Section 2, Township 5 South, Range 33 East, and the promulgation of special pool rules therefor, including a provision for 80-acre spacing.
- CASE 7019:** (Continued from September 17, 1980, Examiner Hearing)
Application of Amoco Production Company for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the W/2 of Section 30, Township 23 South, Range 25 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.
- CASE 7032:** Application of Dalport Oil Corporation for an exception to Order No. R-3221, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221 to permit disposal of produced brine into an unlined surface pit located between Units L and M of Section 9, Township 15 South, Range 30 East.
- CASE 7033:** Application of Adams Exploration Inc. for three non-standard proration units, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of three 80-acre non-standard proration units in the Vada-Pennsylvanian Pool, comprising the following acreage: SE/4 NE/4 and NE/4 SE/4 of Section 12, N/2 NE/4 of Section 12, and S/2 SE/4 of Section 2, all in Township 9 South, Range 34 East.
- CASE 6940:** (Continued from August 20, 1980, Examiner Hearing)
Application of Adobe Oil Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests down through the Wolfcamp formation underlying the NW/4 SE/4 for oil and the SE/4 for gas, Section 23, Township 20 South, Range 38 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 6996: (Continued from September 3, 1980, Examiner Hearing)

Application of John E. Schalk for compulsory pooling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Blanco Mesaverde Pool underlying the NE/4 of Section 8, Township 25 North, Range 3 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7034: Application of Merrion & Bayless for downhole commingling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of South Blanco-Pictured Cliffs and Otero-Chacra production in the wellbore of its Atlantic Well No. 1 located in Unit O of Section 32, Township 26 North, Range 6 West.

CASE 7035: Application of Merrion & Bayless for downhole commingling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Gallegos-Gallup and Basin-Dakota production in the wellbore of its Delhi Taylor Well No. 1 located in Unit M of Section 4, Township 26 North, Range 11 West.

CASE 7036: Application of J. Gregory Merrion for compulsory pooling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pictured Cliffs formation underlying the SE/4 of Section 34, Township 25 North, Range 6 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7037: Application of Mesa Petroleum Co. for downhole commingling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Chacra and Mesaverde production in the wellbore of its State Com AF Well No. 28 located in Unit I of Section 36, Township 29 North, Range 10 West.

CASE 7020: (Continued from September 3, 1980, Examiner Hearing)

Application of Mesa Petroleum Co. for pool creation, special pool rules and an oil discovery allowable, Rio Arriba and San Juan Counties, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Gallup oil pool for its South Blanco Federal Well No. 1-6 located in Unit A of Section 6, Township 23 North, Range 7 West, and special rules therefor, including a provision for 80-acre spacing units. Applicant further seeks a discovery allowable for the aforesaid well.

CASE 6822: (Continued from September 17, 1980, Examiner Hearing)

In the matter of Case 6822 being reopened pursuant to the provisions of Order No. R-6293 which order created the West Double X-Wolfcamp Gas Pool as a retrograde gas condensate pool and set special production limitations therein. Operator(s) may appear and present evidence to establish the true nature of the reservoir and proper rates of withdrawal therefrom.

CASE 7038: Application of Natura Energy Corporation for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the San Andres formation underlying the NE/4 NE/4 of Section 6, Township 19 South, Range 39 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7039: Application of Red Mountain & Associates for a waterflood project, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Chaco Wash-Mesaverde Oil Pool by the injection of water into the Chaco Wash Sand formation through eight wells at various orthodox and unorthodox locations in Section 28 of Township 20 North, Range 9 West.

CASE 7040: Application of Belco Petroleum Corporation for reclassification or a new gas pool and a non-standard proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the reclassification of the Wilson Strawn Pool as a gas pool or, in the alternative, the creation of a new gas pool for its State 12 Well No. 1 located in Unit G of Section 12, Township 21 South, Range 34 East; applicant further seeks approval of a standard gas proration unit for said well comprising the E/2 of said Section 12, or in the alternative, a non-standard unit comprising the NE/4, N/2 SE/4 and SE/4 SE/4 of said Section 12.

CASE 6618: (Reopened and Readvertised)

In the matter of Case 6618 being reopened pursuant to the provisions of Order No. R-6103 which order created the Travis-Lucas Gas Pool in Eddy County, New Mexico, with temporary special rules and regulations including a provision for 80-acre spacing units. Operators in said pool may appear and show cause why the pool should not be developed on 160-acre spacing units.

CASE 6648: (Reopened and Readvertised)

In the matter of Case 6648 being reopened pursuant to the provisions of Order No. R-6124 which order promulgated temporary special rules and regulations for the North Caprock-Mississippian Pool in Lea County, New Mexico, including a provision for 160-acre spacing and a 4000 to one gas-oil ratio limitation. Operators in said pool may appear and show cause why the pool should not be developed on 40-acre spacing with a 2000 to one GOR.

In the matter of the hearing
called by the Oil Conservation
Division on its own motion to
consider amendments to its special
rules and ~~regulation~~ procedures for
the designation of "tight formations";
issued by ^{Division} ~~the~~ Order No. R-6388,
to comply with FERC Order No. 99,
issued August 15, 1980, which promulgated
final regulations with respect to Section
107 of the NGA.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

CASE NO. 7029

Order No. R-6388-A

IN THE MATTER OF THE HEARING CALLED
BY THE OIL CONSERVATION DIVISION ON ITS
OWN MOTION TO CONSIDER AMENDMENTS TO ITS
SPECIAL RULES AND PROCEDURES FOR THE
DESIGNATION OF "TIGHT FORMATION," PROMULGATED
BY DIVISION ORDER NO. R-6388 TO COMPLY WITH FERC
ORDER NO. 99, ISSUED AUGUST 15, 1980, PROMULGATING
FINAL REGULATIONS WITH RESPECT TO SECTION 107 OF
THE NGPA.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on October 1, 1980,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this _____ day of January, 1981, the Division Director,
having considered the testimony, the record, and the recommendations
of the Examiner, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required
by law, the Division has jurisdiction of this cause and the
subject matter thereof.
- (2) That by its Order No. R-6388, dated June 30, 1980, the
New Mexico Oil Conservation Division promulgated its "Special
Rules and Procedures for Tight Formation Designation Under
Section 107 of the Natural Gas Policy Act of 1978."
- (3) That the rules and procedures adopted by said order
were predicated upon the interim regulations issued February 20,
1980, by the Federal Energy Regulatory Commission (FERC) and

were intended to be amended should the final regulations promulgated by the FERC differ substantially from the aforesaid interim regulations.

(4) That by its Order No. 99, issued August 15, 1980, the FERC promulgated its final rules on high-cost natural gas produced from tight formations, said rules to become effective September 22, 1980.

(5) That said final rules differ in certain respects from the interim regulations, and certain amendments to the Division's rules and procedures as promulgated by Order No. R-6388 are therefore necessary, to wit:

(6) That Section 8, Definitions, should be amended by the addition of the following definition:

6. "Infill drilling" means any drilling in a substantially developed formation (or a portion thereof) subject to requirements respecting well-spacing or proration units which were amended by the Division or the Oil Conservation Commission after the formation (or portion thereof) was substantially developed and which were adopted for the purpose of more effective and efficient drainage of the reservoirs in such formation. Such amendment may provide for the establishment of smaller drilling or production units or may permit the drilling of additional wells on the original units.

(7) That subparagraph c of subsection 1, Section D, Evidence, should be amended to read in its entirety as follows:

"c. a map or list which clearly locates or describes wells which are currently producing oil or gas, or both, from the formation within the geographical area of the formation, and"

(8) That subparagraph d of subsection 1, Section D, Evidence, should be amended to read in its entirety as follows:

- d. a report of the extent to which an applicant believes existing State and Federal regulations will assure that development of the formation will not adversely affect or impair any fresh water aquifers (during both hydraulic fracturing and waste disposal operations) that are being used or are expected to be used in the foreseeable future for domestic or agricultural water supplies; and"

(9) That old subparagraph e of subsection 1, Section D, Evidence, reading "any other information. . . ." should be renumbered "f" and read in its entirety as follows:

- "f. any other information which the Division may require."

(10) That a new subparagraph e of subsection 1, Section D, Evidence, should be added, reading in its entirety as follows:

- "e. if the formation has been authorized to be developed by infill drilling prior to the date of recommendation, information and data demonstrating that the formation cannot be developed without the incentive price established in 18 CFR §271.703(a)."

(11) That subparagraph c of subsection 2, Section D, Evidence, should be amended to read in its entirety as follows:

- "c. No well drilled into the recommended tight formation is expected to produce, without stimulation, more than five barrels of crude oil per day."

(12) That a new subparagraph e should be added to subsection 2, Section D, Evidence, reading in its entirety as follows:

"e. ← ~~the~~ If the formation or any portion thereof was authorized to be developed by infill drilling prior to the date of recommendation and the ^{Division} ~~jurisdictional agency~~ has information which in its judgment indicates that such formation or portion subject to infill drilling can be developed absent the incentive price established in ^{18 CFR § 271.703(a),} ~~paragraph (a) of this section~~ then the ^{Division} ~~agency~~ shall not include such formation or portion thereof in its recommendation.

(13) That the "Special Rules and Procedures for Tight Formation Designations Under Section 107 of the Natural Gas Policy Act of 1978," promulgated June 30, 1980, by Order No. R-6388, and amended as described above, should be re-promulgated reading in their entirety as depicted on Exhibit A, attached hereto and made a part hereof.

IT IS THEREFORE ORDERED:

(1) That the "Special Rules and Procedures For Tight Formation Designations Under Section 107 of the Natural Gas Policy Act of 1978," as depicted by Exhibit A attached hereto and made a part hereof, are hereby adopted by the New Mexico Oil Conservation Division, effective immediately.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
P.O. BOX 2088
SANTA FE, NEW MEXICO 87501

SPECIAL RULES AND PROCEDURES FOR
TIGHT FORMATION DESIGNATIONS UNDER SECTION
107 OF THE NATURAL GAS POLICY ACT OF 1978

A. General

Amended 2-1-81

Applications for tight formation designations under Section 107 of the NGPA and applicable FERC rules and regulations shall be accepted by the Division at its Santa Fe, New Mexico office after June 30, 1980. These special rules apply only to tight formation designations and do not apply to individual well filing requirements for price category determination.

B. Definitions

1. "Crude Oil" means a mixture of hydrocarbons that exists in the liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separation facilities.
2. "Division" means the Oil Conservation Division of the Energy and Minerals Department of the State of New Mexico.
3. "FERC" means the Federal Energy Regulatory Commission.
4. "USGS" means the office of the United States Geological Survey in Albuquerque, New Mexico.
5. "Formation" means any geological formation or portion thereof described by geological as well as geographical parameters which is the subject of a tight formation designation application.
6. "Infill drilling" means any drilling in a substantially developed formation (or a portion thereof) subject to requirements respecting well-spacing or proration units which were amended by the Division or the Oil Conservation Commission after the formation (or portion thereof) was substantially developed and which were adopted for the purpose of more effective and efficient drainage of the reservoirs in such formation. Such amendment may provide for the establishment of smaller drilling or production units or may permit the drilling of additional wells on the original units.

C. Procedure

1. To the extent that the Division's general rules of procedure for public hearings are not altered or amended by these special rules, such general rules of procedure shall be applicable and are incorporated herein by reference.
2. All applications for tight formation designation in the State of New Mexico, in which Federal, Indian, state, or fee lands, or any combination thereof, are involved, shall be filed with the Division.
3. All applications for tight formation designation shall be set for public hearing.
4. A complete set of exhibits which an applicant proposes to offer or introduce at a hearing, together with a statement of the meaning and purpose of each exhibit, shall be submitted to the Division (and to the USGS when federal or Indian lands are involved) when the application is filed or at least 15 days prior to a hearing. These exhibits shall cover all aspects of the required evidentiary data described in Section D below. ~~One~~ ^{Two} additional complete sets of such exhibits and statements, enclosed in an unsealed postage-paid packet, shall also accompany the application or be presented at the hearing; this packet and its contents will be forwarded to the FERC by the Division after the hearing, together with the Division order recommending disposition of the application.
5. Where practicable, applications may be consolidated for hearing at the discretion of the Director of the Division.
6. Within 15 days after its issuance, any order promulgated by the Division pursuant to these special rules shall be submitted by the Division to the FERC in accordance with Section 271.705 of the FERC rules and regulations applicable to NGPA for approval or disapproval of a tight formation designation.

D. Evidence

1. Evidence offered by an applicant at a hearing shall include:
 - a. a map and geographical and geological descriptions of the area and formation for which the designation is sought; and
 - b. geological and engineering data to support the application; and
 - c. a map or list which clearly locates or describes wells which are currently producing oil or gas, or both, from the formation within the geographical area of the formation, and

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Exhibit A

- d. a report of the extent to which an applicant believes existing State and Federal regulations will assure that development of the formation will not adversely affect or impair any fresh water aquifers (during both hydraulic fracturing and waste disposal operations) that are being used or are expected to be used in the foreseeable future for domestic or agricultural water supplies; and
 - e. if the formation has been authorized to be developed by infill drilling prior to the date of recommendation, information and data demonstrating that the formation cannot be developed without the incentive price established in 18 CFR §271.703(a).
 - f. any other information which the Division may require.
2. Evidence shall be based on each of the following geological and engineering guidelines:
- a. The estimated average in situ gas permeability, throughout the pay section, is expected to be 0.1 millidarcy or less.
 - (1) Permeability may be established and demonstrated by any customary or acceptable methods, techniques, or testing acceptable in the oil and gas industry.
 - b. The stabilized production rate, either at atmospheric pressure or calculated against atmospheric pressure, of wells completed for production in the formation, without stimulation, is not expected to exceed the production rate determined in accordance with the following table:

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If the average depth to
the top of the formation
(in feet):

The maximum allowable
production rate (in Mcf/day)
may not exceed:

<u>exceeds:</u>	<u>but does not exceed:</u>	
0	1000	44
1000	1500	51
1500	2000	59
2000	2500	68
2500	3000	79
3000	3500	91
3500	4000	105
4000	4500	122
4500	5000	141
5000	5500	163
5500	6000	188
6000	6500	217
6500	7000	251
7000	7500	290
7500	8000	336
8000	8500	388
8500	9000	449
9000	9500	519
9500	10000	600
10000	10500	693
10500	11000	802
11000	11500	927
11500	12000	1071
12000	12500	1238
12500	13000	1432
13000	13500	1655
13500	14000	1913
14000	14500	2212
14500	15000	2557

c. No well drilled into the recommended tight
formation is expected to produce, without
stimulation, more than five barrels of
crude oil per day.

d. If an application meets the guidelines contained
in subparagraphs 2 b and 2 c above, but does not
meet the guideline contained in subparagraph 2 a,
an applicant may, in the alternative, show that
the formation exhibits low permeability charac-
teristics and that the incentive price is necessary
to provide reasonable incentive for production of
the natural gas from the formation due to extra-
ordinary risks or costs associated with such
production.

(1) An application based on the guideline outlined
in subparagraph 2 d above shall include data

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Exhibit A

to support the contention that the guidelines contained in paragraph 2 b and 2 c above are met, and in addition thereto, shall contain:

- (a) the types and extent of enhanced production techniques which are expected to be necessary, and
- (b) the estimated expenditures necessary for employing those techniques, and
- (c) an estimate of the degree of increase in production from use of such techniques together with engineering and geological data to support that estimate.

8. ~~←~~ If the formation or any portion thereof was authorized to be developed by infill drilling prior to the date of recommendation and the ^{Division} ~~jurisdictional agency~~ has information which in its judgment indicates that such formation or portion subject to infill drilling can be developed absent the incentive price established in ^{19 CFR § 271.703(a)} ~~paragraph 1 of this section~~ then the ^{Division} ~~jurisdictional agency~~ shall not include such formation or portion thereof in its recommendation.

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Exhibit A