CASE 6852: OCD ON ITS OWN MOTION TO CONSIDER SPECIAL RULES FOR DESIGNATION OF "TIGHT FORMATIONS" OR "TIGHT SANDS"

CASE NO.

6852

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 Regulatory 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 eligible for designation by the FERC as "tight formation."

(5) That natural gas produced from said "tight formations" should receive a reasonable incentive price.

(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
Director

S E
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.

Case No. 6852
Order No. R-6388
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

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.

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): exceeds:	but does not exceed:	The maximum allowable production rate (in Mcf/day) may not exceed:
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 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.

Case open for DWK April 30, 1980

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 the ~~effective date of these special rules~~ 1980. These special rules apply only to tight formation designations and do not apply to individual well filing requirements for price category determinations.

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 ~~a~~ any geological formation ~~within a particular geographical area which is the subject matter of a tight formation designation application.~~ or portion thereof described by geological or 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

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
EXHIBIT NO. 1
CASE NO. 6552

a. geographical and geological descriptions of the formation; 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

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.

2. Evidence shall be based on each of the following geological and engineering guidelines:

a. The estimated average <u>in situ</u> 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:
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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 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 (c), 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

(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.

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

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.

1. All applications for tight formation designation in the State of New Mexico, 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 ~~brief~~ statement of the purpose of each exhibit, shall be submitted to the Division (and to the USGS ~~where~~ when federal or Indian lands are involved) when the application is filed or at least 15 days prior to a hearing. 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 ~~with~~ 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. Any order issued by the Division pursuant to these special rules shall be submitted by the Division within 15 days after its issuance 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:

Memo

From

R. L. STAMETS
Technical
Support Chief

To

T. Te Sands Order
John Jenkins
Odessa Natural Gas Co
1515 Arapahoe
2 Park Central, Suite 737
Denver, CO 80202

OIL CONSERVATION DIVISION SANTA FE

Tight Sands

Tenneco Oil Company
Attn: Legal Department
6800 Park Ten Blvd.
Suite 200 North Building
San Antonio, Texas 78213

Case 6852

Robert Anderson

Coquina Oil Company
Box 2960
Midland 79702

David Knowlton
718 17th St.
Denver, 80202
Wants copy of "Tight Sands"
Order

4-11-80

Casper Division
Production, U.S. & Canada

Marathon Oil Company

P.O. Box 120
Casper, Wyoming 82602
Telephone 307/235-2511

April 7, 1980

Mr. Joe D. Ramey, Director
Oil Conservation Commission
State of New Mexico
State Land Office Building
Santa Fe, New Mexico 87501

RE: Rules for Designation of "Tight Formations" or "Tight Sands" (Case 6852)

Dear Mr. Ramey:

I would appreciate receiving a copy of the rules or procedures which the Oil Conservation Commission might establish at the Examiner Hearing Set - April 9, 1980, on Case 6852.

Should there be a charge for this service, I will send a prompt remittance.

Yours very truly,

Allan R. Livingston

Allan R. Livingston
Division Reservoir Engineer

ARL:mk

Memo

From

R. L. STAMETS
Technical
Support Chief

To

George Deeter
~~Conf~~ Conoco Inc
Box 2197
Houston, TX 77001

Tite Sands Order

OIL CONSERVATION DIVISION SANTA FE

Fred E. Turner
Light Gas
One Energy Square
Suite 552
4925 Greenville Avenue
Dallas 75206

Case 6852

George M. Yates

SUITE 300
SECURITY NATIONAL BANK BUILDING
P. O. BOX 1933
ROSWELL, NEW MEXICO 88201
PHONE (505) 623-6601

April 30, 1980

RECEIVED
MAY 05 1980
OIL CONSERVATION DIVISION
SANTA FE

New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87105
Attn: Mr. Joe Ramey

Re: Case No. 6852
Tight Formation
Designations

Gentlemen:

This letter is in response to the Division's request for comments at the Hearing on April 9, 1980, concerning its proposed rules for designation of tight formations pursuant to Section 107 of the Natural Gas Policy Act and the Interim regulations of the Federal Energy Regulatory Commission.

The Independent Petroleum Association of New Mexico has no specific comments on these rules other than that we feel they will expeditiously carry out the intent and purpose of tight formation development contemplated in the Natural Gas Policy Act of 1978.

We further wish to commend the Division for its diligent efforts in administering the Natural Gas Policy Act in a most fair and equitable manner ;if we can help you in any way please call on our organization.

Sincerely,

George M. Yates
Chairman
Crude Oil & Natural
Gas Committee

RHS/GMY/vc

BASS ENTERPRISES PRODUCTION CO.
FORT WORTH NATIONAL BANK BUILDING
FORT WORTH, TEXAS 76102

April 24, 1980

RECEIVED
APR 02 1980
OIL CONSERVATION DIVISION
SANTA FE

Re: Proposed Special Rules and Proceeding for Tight Sand Designations under Section 107 of the Natural Gas Policy Act of 1978

Oil Conservation Division
of the Energy & Minerals
Department
State of New Mexico
Santa Fe, New Mexico

Gentlemen:

Reference is made to the hearing held on April 9, 1980, in Santa Fe on the captioned subject. Bass Enterprises Production Co. (Bass) hereby submits the following comments and suggestions in regard to the proposed rules and procedures for tight sand designations.

1. Bass proposes that we be allowed to designate gas produced from a particular well as tight sand gas on a case-by-case basis.

2. Bass requests further clarification on the procedures to be used to supplement pending well determination applications with appropriate tight sand evidence. Would we be required to submit new applications or amend the existing ones? Would our applications be retroactive to the July 16, 1979, date?

3. On page 3, paragraph D. 2. a. of the proposed rules and regulations, we request that the words "pay section" be deleted and the following substituted in lieu of same: "Pay or gas producing section of the formation." This substitution is to conform with the Federal Energy Regulatory Commission's Interim Rule covering high cost natural gas produced from tight formations (Docket No. RM 79-76).

4. On page 4, paragraph D. 2. b., define stabilized production rate in a more definitive manner, i.e., what guidelines or parameters are used to arrive at the stabilized production rate.

Tight - taken directly from 271.705 (b)(1)

See p 22 of FERC comments

5. On page 4, paragraph D. 2. b., define what constitutes stimulation, i.e., would acid clean-up of a well be considered stimulation? Would stimulation require enchanced recovery technique which would require substantial or extraordinary expenditures employed in order to substantially increase the production from a tight formation?

We are requesting that our comments and suggestions be considered by the Commission in formulating your final rules and procedures for the tight sand designations.

Yours very truly,

James E. Greve

James E. Greve
Vice President

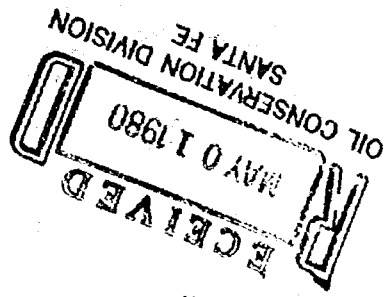
JEG/cf

Tenneco Oil
Exploration and Production
A Tenneco Company

Southwestern Division

6800 Park Ten Blvd. • Suite 200 North
San Antonio, Texas 78213
(512) 734-8161

April 28, 1980



State of New Mexico
Energy and Minerals Department
of the Oil Conservation Division
P. O. Box 2770
Santa Fe, New Mexico 87501

Attention: Mr. Ernest Padilla

Re: Case No. 6852
Special Rules and Procedures
for Tight Formation Designations
under Section 107 of
the N.G.P.A.

Gentlemen:

The Southwestern Division of Tenneco Oil Company takes this opportunity to file this written comment and recommendation with respect to the Division's proposed Special Rules and Procedures for Tight Formation Designations.

In this regard, Tenneco concurs in the comments made by the many producers present at the April 9th Hearing which the Division called with respect to its proposed Special Rules and Procedures. Tenneco, however, would like to make one additional comment and recommendation, that being that the definition of "formation" as found in the Special Rules Paragraph B.5., should be changed to read as follows:

> "Formation" means a geological formation or portion thereof within a particular geographical area which is the subject matter of a tight formation designation application.

Adding the words "or portion thereof" to your original proposed definition of a formation makes allowance for an Application for Tight Sand Designation for an area as small as that surrounding a single well. Tenneco believes that this flexibility is necessary to address the geological condition inherent in the Morrow Formation as found in New Mexico.

For instance, the Morrow Formation is not a well-defined continuous homogenic formation but rather is a formation which may vary dramatically in both porosity and permeability in very short distances. Also, the Morrow consists of many producing zones and sand deposits due to the changing and erratic environmental deposition of the sand (e.g., channel sand deposits or over/bank deposits) resulting in the possibility of adjacent wells having productive zones in the Morrow which do not correlate. This erratic deposition dramatically affects the quality of zones within the Morrow in such ways as sorting, grain size, grain size distribution, clays, cementing, etc... All of these parameters as well as others affect the porosity and permeability of the For-

mation at a particular location. Because of this irregular nature of the Morrow, it may be anticipated that permeability may vary by a factor of up to 100 in adjacent wells. Though there may be wells already completed in the Morrow which have been cored or tested exhibit permeabilities greater than one md., however, due to the above stated reasons there is no certainty that an adjacent completion location will exhibit like permeability.

It is because of the possibility that a particular zone within the Morrow will vary from location to location due to the depositional nature of the sands and because in many instances a zone may be found in one well in the Morrow which cannot be correlated with any other zones identified in logs from adjacent Morrow wells, that Tenneco believes the definition should be changed such that a zone in the Morrow may be designated as a tight sand formation and that zone be limited in areal extent to as small as one spacing unit. Formations similar in character to the Morrow include the Atoka, Wolfcamp, Cisco, and others.

Our reading of the United States Federal Energy Regulatory Commission's Interim Rule and Request for Further Comment issued February 20, 1980 relative to high-cost natural gas produced from tight formations (Docket No. #RM 79-76) allows for the flexibility inherent in the definition suggested by Tenneco. For instance, page 13 of the Introduction and Summary to the Rule states that "Tight formations or portions thereof in any basin, field, or field area, will be determined according to procedures similar to those adopted for approving alternate filing requirements which appear in Section 274.207" (emphasis added). Again at page 14 of the Introduction and Summary, FERC states "jurisdictional agencies should limit their recommendations to those geological areas of the formation, and those strata which meet the guidelines. The jurisdictional agency should clearly identify the correct strata or geological formation if two or more formations, not all of which are tight, overlap each other."

Tenneco's suggested definition of tight formation is not intended to intimate that each application should be limited to the area surrounding the well upon which the application is based. However, the definition written as suggested would allow a producer who has encountered a low permeability section in the Morrow to file a typical application for a tight formation designation for the zone found in his well even though the zone may not appear in adjacent wells or if in adjacent wells be more permeable in nature in those wells. Without the suggested change in the definition, that producer would have to go to the extremes required in the alternative tight sand filing requirements anticipated by FERC even though the alternative requirements seem to anticipate a really unusual situation in an otherwise homogenous tight sand reservoir as would be typically found in Colorado, Utah, and Wyoming.

Very truly yours,

TENNECO OIL COMPANY

Jim G. Strother
Division Production Manager

JGS:DLM:njp

Amoco Production Company
Denver Region
Security Life Building
Denver, Colorado 80202
303-820-4040

Proposal for Tight Gas Pricing Hearings
for the State of New Mexico
April 9, 1980

Amoco Production Company proposes the following procedures and guidelines for the designation of tight gas areas pursuant to the Interim Regulations issued by the Federal Energy Regulatory Commission on February 20, 1980.

I. Any operator be permitted to request a hearing be scheduled to consider an area and/or field for tight gas classification. At such time as the hearing request is filed, the operator should furnish the Commission the following:

   A. Map and/or description of the tentative proposed boundaries.

   B. Typical log showing proposed horizon(s) and the tentative proposed vertical limits.

   C. Other support data as operator deems appropriate to clarify position.

II. Commission publish notice that hearing has been scheduled, with a description of the area and formation(s) to be considered.

III. At the hearing, the operator should submit data as required by FERC rules or be prepared to support data submitted by other

operators. At this hearing, we propose that the Commission recognize:

A. All accepted engineering methods to determine <u>in situ</u> permeability such as, but not restricted to, the following:

   1. Prefrac BU and/or drawdown test data, including analysis of DST data.
   2. Postfrac BU and/or drawdown test data, usually analyzed by type curve matching.
   3. Performance history type curve matching.
   4. Routine core analysis data along with lab test results, as appropriate, to determine effects of stress, gas slippage and water saturation. For deep wells, routine air permeabilities are generally considerably too high.

B. Recognize the average of the lowest of perforations as being satisfactory for determining well depth.

C. Approve use of a typical log for designating vertical boundaries, similar to procedure followed for field rule hearings.

D. Approve use of the following formulas, or similar type formulas, for estimating flow rate at atmospheric pressure:

   1. Pressure due to weight of gas column =

      Press. $(e^{(.0000347)(\text{Gr. of Gas})(\text{Depth to Mid-Perfs.})} - 1)$

   2. $Q_2 = \dfrac{Q_1 \ (P_s^2 - P_{wf2}^2)}{(P_s^2 - P_{wf1}^2)}$

      Q = Measured natural flow rate

P_s = Initial reservoir pressure, measured or determined from press. transient test or est. using SITP and (1).

P_{wf1} = FBHP at Q_1, measured or est., using FTP and (1).

P_{wf2} = Est. using atmos. press. and (1).

n = 1.0

III. At the conclusion of said hearing, the Commission should review and compile data and submit to FERC along with their recommendation.

SPECIAL RULES AND PROCEDURES FOR
TIGHT SAND 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 the effective date of these special rules.

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. condensate is excluded

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 a geological formation within a particular geographical area which is the subject matter of a tight formation designation application.

C. Procedure

1. To the extent that the Division's general rules of procedure

pool areas pdf
to

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
EXHIBIT NO. 1
CASE NO. 6852

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 shall be set for public hearing.

3. A complete set of exhibits which an applicant proposes to offer or introduce at a hearing, together with a brief statement of the purpose of each exhibit, shall be submitted to the Division (and to the USGS where federal or Indian lands are involved) when the application is filed or at least 15 days prior to a hearing.

4. Applications which include Federal, Indian, state or fee lands, or any combination thereof, shall be filed with the Division.

5. Where practicable, applications may be consolidated for hearing at the discretion of the Director of the Division.

6. Orders issued pursuant to these special rules shall be forwarded to FERC by the Division under Section 271.705 of the FERC rules and regulations applicable to NGPA as recommendations either approving or disapproving the application. within 15 days after entering order

D. Evidence

1. Evidence offered by an applicant at a hearing shall include:

a. geographical and geological descriptions of the formation; 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

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.

2. Evidence shall be based on each of the following geological and engineering guidelines:

a. The estimated average <u>in situ</u> 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:
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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 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 (c), 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:

(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.

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

EXAMINER HEARING

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" or "tight sands" as outlined in the FERC interim rules and regulations issued February 20, 1980, relating to Section 107(b) of the Natural Gas Policy Act of 1978.

CASE 6852

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For Consolidated Oil & Gas: Lynn Teschendorf, Esq.
Consolidated Oil and Gas
Denver, Colorado

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

For Independent Petroleum Association of New Mexico:	Robert Strand, Esq. Roswell, New Mexico
For Amoco Production Co.:	Bob Thompson Amoco Production Company Houston, Texas
For El Paso Natural Gas:	David T. Burleson, Esq. El Paso Natural Gas Co. El Paso, Texas

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

I N D E X

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

MR. NUTTER: We'll call next Case Number 6852, which is 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" or "tight sands", as outlined in the FERC interim rules and regulations issued February 20, 1980, relating to Section 107(b) of the Natural Gas Policy Act of 1978.

Call for appearances in this case.

MR. PADILLA: Ernest L. Padilla on behalf of the Oil Conservation Division, Mr. Examiner.

MR. NUTTER: Other appearances?

MS. TESCHENDORF: Lynn Teschendorf for Consolidated Oil and Gas. I'll just have a statement.

MR. STRAND: Mr. Examiner, Robert Strand, attorney from Roswell, entering an appearance for the Independent Petroleum Association of New Mexico, and I'll also have a statement.

MR. THOMPSON: Bob Thompson from Amoco Production Company, and I would like to submit some written comments.

MR. BURLESON: David T. Burleson for El Paso Natural Gas Company.

MR. NUTTER: Would you proceed, Mr. Padilla?

MR. PADILLA: Mr. Examiner, the purpose

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

of this case is to establish special rules and procedures for tight sands designations under Section 107 in the Natural Gas Policy Act of 1978.

On February 20th, 1980, the FERC issued interim rules for tight sands designations in which they set forth certain guidelines whereby jurisdictional agencies could recommend to the FERC tight sands under their guidelines.

Essentially, on Exhibit One what we're trying to do is tell the industry how to go about making an application for a tight sand designation to the Division.

Beginning on the first page of these rules, and I left some in the back, I don't know whether everyone was able to get a copy. If they didn't get a copy, then we can make additional copies later.

For those of you who didn't receive copies of this, I'll be happy to have some more made so that you may get them. In the meantime you might find someone to look on with.

MR. NUTTER: I think, Mr. Padilla, for the benefit of those who don't have copies, if you would read each paragraph, or skim through each paragraph, and state what it states.

MR. PADILLA: Okay. Beginning at the top of this first page, essentially what we're saying there is

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

that upon the effective date of these special rules the Division will accept applications for tight sands designations.

Then we get into a definition phase, or section. We've adopted the crude oil definition that the -- is outlined in the FERC interim rules. That rule eliminates or excludes condensate from the definition of crude oil.

So crude oil, as defined in there, means a mixture of hydrocarbons that exists in the liquid phase in the natural underground reservoirs and remains liquid at atmospheric pressure after passing through the surface separation facilities.

The Division is the Oil Conservation Division of the Energy and Minerals Department of the State of New Mexico.

FERC is the Federal Energy Regulatory Commission, and USGS means the office of the United States Geological Survey in Albuquerque, New Mexico.

And I've defined formation as a geologic formation within a particular geographical area which is the subject matter of a tight formation designation application.

The next section deals with the procedures. To the extent that the Division's general rules of procedure for public hearings are not altered or amended by

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

these special rules, then such rules will be incorporated by reference and are applicable to public hearings.

MR. NUTTER: Now in other words, by that you're meaning the same -- it's not altered or amended by these special rules that we give the notice that we give for hearing and the time of publication, and things like that.

MR. PADILLA: That's correct.

MR. NUTTER: Those would still be applicable.

MR. PADILLA: Correct.

MR. NUTTER: Okay.

MR. PADILLA: Rule 2 under Subsection C says that all tight formation -- all applications for tight formation designation shall be set for public hearing. We will not handle any administratively.

And the next rule is that a complete set of exhibits shall be submitted, together with a brief statement of the purpose of each exhibit, shall be submitted 15 days in advance of the hearing or at the time of -- or when the application is filed. These exhibits shall be submitted to the Division and to the USGS in Albuquerque, a copy of each to both.

Rule 4 outlines, or takes care of intermingled lands; in other words, Federal, State, Indian, or

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

fee. We have worked out a solution with the USGS in Albuquerque whereby we will -- the Division will entertain all applications for tight sand designations. We came to the conclusion that for two separate agencies to be making designations would be inconsistent, or it could wind up being inconsistent. You have contiguous tracts of land, one getting approval and the other disapproval, or at least it could come out that way.

The USGS, however, will concur or file their own statement concerning the application, should they not necessarily agree with the order that the Division comes out. This would be included in our submittal to the FERC. And that's generally what they're doing now, anyway, as far as, say, pool-wide orders or something of that nature, they either -- they generally ratify that order or they may amend it in some -- in some manner.

Rule 5, or Section 5, where practicable, applications may be consolidated for the hearing at the discretion of the Director of the Division. If you have contiguous tracts of land, or they're close by, then -- and both applications come in about the same time, then we may consolidate, we may decide to consolidate that just to save, just to save time.

And orders pursuant to these special rules then will be forwarded pursuant to Section 271.705 of

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

the FERC rules relating to that same formation. I have received one comment already on this particular rule, indicating that we should within 15 days after we come out with an order we should forward it, and this would be consistent with general rules for NGPA -- or special rules for NGPA, where as stated in the earlier -- in the earlier case, it would be handled in the same manner. After, 15 days after we come out with an order we would then forward it so that we would expedite the -- I don't see anything wrong with that 15-day requirement on our part there.

As far as evidence is concerned, to be offered by an applicant at a hearing, essentially it includes everything that's in the FERC guidelines, including what would be part of our recommendation to the FERC. We're asking for geographical and geological descriptions of the formation, geologic and engineering data to support the application, a map or list indicating -- which outlines or locates wells that have produced oil or gas or both, and of course, a report of the extent to which an applicant believes existing State and Federal regulations will assure that development of the formation will not impair fresh water aquifers in the area.

I assume in this portion an applicant would want to indicate the type of casing that -- or Division rules for casing requirements for that area, if there

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

are any, and it may be necessary to identify the fresh water aquifers in the area that have been -- that are part of the State Engineer's files, or they can be found through the State Engineer's files.

And we try to be -- I think the whole scope of these things is that they're so broad that it's going to be very judgmental as to what -- what we -- what comes in, but I think as far as the maps and geologic engineering, the more the better, or the better case you put on the -- the better the case the better it's going to be.

On that Subsection d relating to fresh water aquifers, we have stated in there that this information or this water would be water that is expected to be used in the foreseeable future, if it's not already being used.

And then, of course, any other information that the Division may require, which would ordinarily come up during the course of a hearing. If we see that possibly you should submit an additional map, or something like that, of that nature, then we would ask for it at that time.

MR. WALTHALL: Can I interrupt at this point?

MR. PADILLA: Certainly.

MR. WALTHALL: Gary Walthall with Tenneco. As to the fresh waters, is that pursuant, really, to the Underground Drinking Water Act, Federal? That is, is there

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

a specific act also involved, or anything of that nature, of what is fresh water, you know, clarification as to that?

MR. PADILLA: I couldn't elaborate on that. I don't know. I would only look at the wording of existing State and Federal regulations and if you think that includes that, then I suppose that that would apply.

MR. WALTHALL: I mention that because I think under the Underground Drinking Water Act, the Federal act, they have protecting waters that are foreseeable, or could be used, or could be potentially used in the future, and anywhere up to 10,000 total dissolved solids. So I don't know whether you should specify that or not, but I was just curious as to whether it was a particular TDS or chloride-type content.

MR. NUTTER: I might make the observation here that under the statute the Oil Conservation Division is charged with protecting fresh water supplies designated by the State Engineer in this state and he has designated to us that all waters 10,000 parts per million or less are fresh waters in his opinion. So that would be in keeping with these EPA things --

MR. WALTHALL: Yeah.

MR. NUTTER: -- that you're talking about.

MR. PADILLA: Now as far as the guidelines

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

that we've incorporated from the FERC rules, interim rules, we've pretty much retained the same thing except to the extent of trying to give you an idea of what we would require for establishing permeability. We've said that permeability may be established or demonstrated by any customary acceptable methods, techniques, or testing acceptable in the oil and gas industry. I'm not sure that we want to confine ourselves to any particular formula or method. I think any method which an applicant may use to demonstrate permeability or evidence to such permeability will be acceptable.

As far as the stabilized production rate is concerned, we've said that it may be either at atmospheric pressure calculated against atmospheric pressure, simply because we do have a no-venting order in effect, so it could be at -- if you have actual data at atmospheric pressure or calculations in lieu thereof would be acceptable.

And then I think the remainder of this is right out of the FERC guidelines.

MR. NUTTER: Well now, Mr. Padilla, I notice that Subsection c there at the top of the last page, says that 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. And over in your definition you define crude oil as being

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

liquids that are in the reservoir under natural conditions and remain as a liquid when produced. So this again does not include condensate here, is that correct?

MR. PADILLA: That's correct. I suppose there would be a question of whether or not condensate would be a credit against gas in place prior to stimulation, I'm not -- or production against gas. I've tried to get some idea from the FERC as to whether or not that -- you'd have to do that, and they indicated that there's no -- they hope that we don't have to get to that stage, or that it would not be that crucial in any --

MR. NUTTER: And that's in this portion in b, where you have a maximum allowable stabilized production rate for a given depth of so many Mcf per day.

MR. PADILLA: That's correct.

MR. NUTTER: And if a well were making a considerable amount of condensate the question would be whether that condensate would be converted into Mcfs and be charged against this maximum allowable rate of production.

MR. PADILLA: Correct. They don't know whether -- they just never even thought of it, so they seem to think that it doesn't apply. The only guidance I can get that's close to this is in stripper wells where you can make your -- average out your production before or after

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

the separation facilities. In stripper wells you could eliminate condensate by -- by calculating your production after the separation facilities.

MR. NUTTER: And then the rest of this Subparagraph d here is taken directly from the interim regs of the FERC.

MR. PADILLA: Right. That's the alternate if you don't meet the .1 millidarcy standards, the economic considerations, in view of the risk.

MR. NUTTER: Are there any questions of Mr. Padilla regarding these regs? Yes, sir?

MR. COLE: My name is Jack Cole from Farmington. I have a question.

Under Paragraph 2. I don't have a page number here but it has to do with the geological engineering guidelines for permeability.

Now in the application where you say permeability may be established or demonstrated by any customary or acceptable method or technique or testing acceptable to the oil and gas industry, where you're relating to a permeability figure, does that -- are you intending to say that each application, be it one well or ten wells, then the application must have a core analysis with it or proof that that particular well had less than one millidarcy of permeability? Or are you going to do it by geographical

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

area?

MR. PADILLA: Well, I think -- well, first of all your application is going to involve a geographical area, say, a township, and you're going to ask for that area to be designated as a tight sand because the permeability in that area is .1 millidarcy or less.

What I'm saying here by this language is that to establish it before analysis or bottom pressure or any way you can do it.

MR. COLE: Okay. My main question is I don't own a township any place and I may be making application just on one well, and if prior to my application you have determined that any well in that township will qualify, then I should automatically have that, too.

MR. PADILLA: Right. You would then just file under the filing requirements of the previous case. I mean you wouldn't have to reprove your case that that's a tight sand.

Under the filing requirements of the previous case you would have to show, or provide a log indicating which is -- referencing the tight formation.

MR. COLE: In other words, there will be an example set forth whenever you determine.

MR. NUTTER: Now, what does that question mean?

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

MR. COLE: Well, if you rule on a well filed in such-and-such a township, then when we make an application in that same township, we refer to that well and that ruling?

MR. NUTTER: I don't think we'd make a ruling on a well. We'd make a ruling on a geographical area, and then under his previous case, Section d on page 13 says you'd make a -- when filing for your individual well which happened to be in the area where designation of tight formation had been made, then under paragraph d of page 13 of the previous case, you'd make a reference identifying the Division and FERC orders which recommended and designated the tight formation in which the well is completed, and that tight formation will have a geographic boundary to it.

Yes, sir.

MR. GREVE: Jim Greve with Bass Enterprises.

In determining geographic area, I assume we will have to have at least one well that penetrates the particular formation or can we come in if we have large areas that have not been penetrated in a basin? How would we go about proving that?

MR. NUTTER: Can't prove it's tight if you haven't penetrated it, I don't believe.

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

MR. GREVE: So then you would have to pick up at least one well, the nearest penetration to that area?

MR. NUTTER: It would probably take more than one well. It's probably going to take two wells and some geological inference between the wells, or a small area around the one given well that has penetrated.

Any further questions? Yes, sir.

MR. THOMPSON: Bob Thompson, Amoco Production Company.

We have prepared some written comments which for the most part are consistent with what's been proposed today, but we would like to submit them for your review and consideration.

I also have one question. For instance, on the Dakota formation, when a formation crosses state lines, has there been any effort or communication with Colorado to see if a hearing could be held or consolidated?

MR. PADILLA: None. We didn't go that far.

MR. THOMPSON: Well, to a great extent a lot of the evidence we've got were for --

MR. PADILLA: Would be the same?

MR. THOMPSON: Yeah, would be the same. I know Colorado had mentioned that they had discussed with

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Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

you the possibility of doing that and it would work to all the operators' advantage to do that.

MR. STRAND: Mr. Examiner.

MR. NUTTER: Yes.

MR. STRAND: Bob Strand with Independent Petroleum Association.

A couple of comments and a couple of questions.

Mr. Padilla, in the title to your proposed regulations you refer to tight sands. I would highly recommend that that be changed to tight formations to conform with the FERC style of the case in their particular docket number 7976.

MR. PADILLA: I don't know how I missed that.

MR. STRAND: Question, do you intend to have some type of formal memorandum of understanding with the USGS relating to the role they're going to play in this particular recommendation process?

MR. PADILLA: We have discussed that. We'll either be getting a letter or we tried to work it out informally. If we see that it's necessary to have a formal memorandum of understanding, we have explored that possibility. At least we've talked about it but so far we haven't said one way or the other, other than agreeing that we

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

should hold the -- all the hearings.

We could handle it as a letter from them indicating to us that we should hold the hearings. At least informally already we have ironed out those problems.

MR. STRAND: The reason I ask, Mr. Padilla, is that they have recently come out, just in the last few days, with a notice to lessees relating to the USGS role in the tight formation procedures, and I haven't seen a copy, we haven't gotten it yet, but I've been told that they would be taking under that notice to lessees, a much more active part than is evidently contemplated by the Division.

MR. PADILLA: Well, they'll be getting a copy of the exhibits and a brief statement of the hearing, and to what extent they're going to use it, I think they'll probably use it to the extent of cross examining, because they're limited in presenting any testimony to the contrary or otherwise. They have to go through Washington to do that and they don't want to do that.

My understanding is that we'll just be working like we work with any other -- with any other situation that involves federal lands. They may ratify it or they may ask for additional information in certain cases.

MR. STRAND: But am I correct that the ultimate responsibility, as you understand it, to make the

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

recommendation will be with the Division?

MR. PADILLA: Sure, yes. We're not -- we're not going to sit together and write up an order, in other words. We've going to -- we're going to write our own order. If they don't like that order then they can -- they can file their own separate opinion, or something.

MR. STRAND: I would also concur with the 15-day requirement that you mentioned or someone has suggested earlier as to the length of time for submitting an order, or a recommendation, I should say, to the FERC.

Again, Mr. Padilla, the FERC interim rules left open the consideration number one of what they call recompletion-type formation gas and also to some extent the re-entry situation. Will you be coming out with additional regulations if they do make any decision on those?

MR. PADILLA: I suppose that we would have to. We see no choice but to come out with additional rules supplementing these ones, or other rules, but when they will come out with new rules, I don't know, relating to recompletions.

MR. STRAND: Mr. Examiner, that's all I have.

MR. NUTTER: Are there any other questions of the witness? Yes, sir.

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

MR. WALTHALL: Gary Walthall, with Tenneco.

Is my understanding correct that an applicant can submit on a well-by-well basis determination for tight formation, or does this have to be, you know, in a large geographical area?

MR. PADILLA: We would hope it would be in a larger geologic -- geographical area. We don't want to define or limit that to any -- or to a certain minimum. But --

MR. WALTHALL: You've probably aware that in some formations that permeability variation could be anywhere, well, from 10 to .1 or below that, so you'd get a variation --

MR. PADILLA: I think we'd want to discourage, you know, applications that come in here on a section by section basis. We'd want to -- and I'm not sure that you would get an average in situ permeability figure, or at least a good cross section of averages in that -- in that case, where you go on a well by well basis.

MR. MOTLOCH: David Motloch, with Tenneco.

What would this do to the operator who drills the first well? Does he have to wait for an offset before he tries to get a determination of tight sand?

MR. PADILLA: I'm not sure that there are a whole lot of areas where wells haven't been drilled

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

already; that you wouldn't have some type of information. I mean, we're not -- I don't think there are that many areas where you would be talking about a completely barren area.

MR. NUTTER: Well, I don't think that would preclude, though, Mr. Padilla, would it, the possibility of a rank wildcat that encountered an extremely tight formation being designated as being a tight formation well, would it?

MR. PADILLA: I don't think so, no.

MR. NUTTER: Where it's the only well out there.

MR. PADILLA: No.

MR. NUTTER: Generally, we're talking about the areas where the formation is known and being developed. I don't think an individual wildcat well would necessarily be precluded if you had a core to show a tenth of a millidarcy.

MR. PADILLA: I think, in trying to get some guidelines from the FERC, they've indicated to me that you could actually have a purely hypothetical case with no wells drilled in that area at all, and I guess it would be a rank wildcat area.

They seem to contemplate, you know, just a situation where you could actually have some kind of study without having drilled any wells. I can't -- I can't visual-

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

ize that myself.

MR. NUTTER: That's what you were talking about awhile ago.

MR. BOLING: Bob Boling, Artesia, New Mexico.

Would dry holes make good evidence?

MR. NUTTER: No, not necessarily. They may have relative -- have to have a lot of porosity and be full of water.

MR. BOLING: I mean a dry, tight hole. I mean a tight dry hole.

MR. GREVE: I can agree with that. There are, at least where we're concerned, which is southeast New Mexico, Eddy County, large areas that have not been drilled, particularly with reference to the Poker Lake Unit, and this -- this becomes a problem in determining, from what I hear, perhaps a section is too small and a township is, perhaps, all right. I don't know if there's any in-between around. Then you get into a problem, particularly in that part of the world, where you have multiple sands within the Morrow formation, and we will have very much a difficulty in determining average permeability from existing data.

The only thing I can think you could do is go back, perhaps, to porosity/permeability relationship, because most, if any, DST, and the few cores have been taken.

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

But the DST's that have been taken have been taken usually on the intervals that have the very high porosity, which do not give a true average formation characteristic.

MR. NUTTER: Lot of problems.

Mr. Thompson, you submitted this written comment of these rules today. I think it might be in order to have further written statements from the operators. We're not in any particular hurry to issue this thing. We'd rather do it a little more slowly and do it better, and with the benefit of some of these people's thoughts, I think, on paper. Would you have objection to holding this open for three weeks, or something like that, for written comments?

MR. PADILLA: No, I think that would be helpful, because even as far as writing some of these rules, if you have a better way of saying it, I'd consider that.

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

MS. TESCHENDORF: I have a statement.

MR. NUTTER: Well, we're going to call for your statements here in a minute.

MS. TESCHENDORF: Okay.

MR. NUTTER: If there are no further questions, Mr. Padilla may be excused.

Now I'll ask for comments, and remember, we are going to leave this thing open for written statements

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

I'll get to that in a minute.

Comments, please?

MS. TESCHENDORF: Lynn Teschendorf with Consolidated Oil and Gas.

First of all, I'd like to say that we appreciate the Division proposing these regulations and looking at this so promptly.

I just have a very few comments. The first one concerning the definition of formation on page 1 there.

The FERC definition, contained in 271.703 of their regulations, they state that a formation means any geological formation or portion thereof.

I would recommend that you include that language. I believe the FERC intends that tight formations be looked at in the same respect as their new onshore reservoirs are. In other words, there may a portion of a formation that the Oil Division has classified that under the FERC regulations can be limited even further for purposes of their regulations, and I would recommend that that type of language be included to coincide with the FERC regulations.

MR. NUTTER: Okay, do you interpret that when they say geological formation or portion thereof, they mean a portion thereof this way, or this way?

MS. TESCHENDORF: Well, it says any geol-

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

ogical formation or portion thereof described by geological as well as geographical parameters.

MR. NUTTER: So this way and this way both, then, maybe.

MS. TESCHENDORF: Yes. I appreciate Mr. Padilla's recommendation to include the 15-day limitation on forwarding the applications. As he indicated, it would be consistent with the Division's other NGPA regulations.

My last real comment concerns the evidentiary submissions. I would recommend that this order contain some kind of cross reference to the order that comes out in the previous case. I can foresee that it very likely would happen that some operator would pick up these special rules and procedures for tight formations and be unaware that there are filing requirements somewhere else. So you ought to cross reference the orders so they know where else to look.

That's all I have. Thank you.

MR. NUTTER: Thank you. Any other comments?

If there are no other statements, we will hold this case open for three weeks. We will accept written comments on Case Number 6852 up to and including April 30, 1980. If there is nothing further in Case Number 6852, we will take the case under advisement at this time.

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

REPORTER'S CERTIFICATE

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing and attached Transcript of Hearing before the Oil Conservation 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.

Sally W. Boyd C.S.R.

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 6852 heard by me on 4/9 1980.

, Examiner
Oil Conservation Division

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

EXAMINER HEARING

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" or "tight sands" as outlined in the FERC interim rules and regulations issued February 20, 1980, relating to Section 107(b) of the Natural Gas Policy Act of 1978.

CASE 6852

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For Consolidated Oil & Gas: Lynn Teschendorf, Esq.
Consolidated Oil and Gas
Denver, Colorado

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

For Independent Petroleum Association of New Mexico: Robert Strand, Esq.
Roswell, New Mexico

For Amoco Production Co.: Bob Thompson
Amoco Production Company
Houston, Texas

For El Paso Natural Gas: David T. Burleson, Esq.
El Paso Natural Gas Co.
El Paso, Texas

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

I N D E X

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

MR. NUTTER: We'll call next Case Number 6852, which is 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" or "tight sands", as outlined in the FERC interim rules and regulations issued February 20, 1980, relating to Section 107(b) of the Natural Gas Policy Act of 1978.

Call for appearances in this case.

MR. PADILLA: Ernest L. Padilla on behalf of the Oil Conservation Division, Mr. Examiner.

MR. NUTTER: Other appearances?

MS. TESCHENDORF: Lynn Teschendorf for Consolidated Oil and Gas. I'll just have a statement.

MR. STRAND: Mr. Examiner, Robert Strand, attorney from Roswell, entering an appearance for the Independent Petroleum Association of New Mexico, and I'll also have a statement.

MR. THOMPSON: Bob Thompson from Amoco Production Company, and I would like to submit some written comments.

MR. BURLESON: David T. Burleson for El Paso Natural Gas Company.

MR. NUTTER: Would you proceed, Mr. Padilla?

MR. PADILLA: Mr. Examiner, the purpose

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

of this case is to establish special rules and procedures for tight sands designations under Section 107 in the Natural Gas Policy Act of 1978.

On February 20th, 1980, the FERC issued interim rules for tight sands designations in which they set forth certain guidelines whereby jurisdictional agencies could recommend to the FERC tight sands under their guidelines.

Essentially, on Exhibit One what we're trying to do is tell the industry how to go about making an application for a tight sand designation to the Division.

Beginning on the first page of these rules, and I left some in the back, I don't know whether everyone was able to get a copy. If they didn't get a copy, then we can make additional copies later.

For those of you who didn't receive copies of this, I'll be happy to have some more made so that you may get them. In the meantime you might find someone to look on with.

MR. HUTTER: I think, Mr. Padilla, for the benefit of those who don't have copies, if you would read each paragraph, or skim through each paragraph, and state what it states.

MR. PADILLA: Okay. Beginning at the top of this first page, essentially what we're saying there is

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

that upon the effective date of these special rules the Division will accept applications for tight sands designations.

Then we get into a definition phase, or section. We've adopted the crude oil definition that the -- is outlined in the FERC interim rules. That rule eliminates or excludes condensate from the definition of crude oil.

So crude oil, as defined in there, means a mixture of hydrocarbons that exists in the liquid phase in the natural underground reservoirs and remains liquid at atmospheric pressure after passing through the surface separation facilities.

The Division is the Oil Conservation Division of the Energy and Minerals Department of the State of New Mexico.

FERC is the Federal Energy Regulatory Commission, and USGS means the office of the United States Geological Survey in Albuquerque, New Mexico.

And I've defined formation as a geologic formation within a particular geographical area which is the subject matter of a tight formation designation application.

The next section deals with the procedures. To the extent that the Division's general rules of procedure for public hearings are not altered or amended by

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

these special rules, then such rules will be incorporated by reference and are applicable to public hearings.

MR. NUTTER: Now in other words, by that you're meaning the same -- it's not altered or amended by these special rules that we give the notice that we give for hearing and the time of publication, and things like that.

MR. PADILLA: That's correct.

MR. NUTTER: Those would still be applicable.

MR. PADILLA: Correct.

MR. NUTTER: Okay.

MR. PADILLA: Rule 2 under Subsection C says that all tight formation -- all applications for tight formation designation shall be set for public hearing. We will not handle any administratively.

And the next rule is that a complete set of exhibits shall be submitted, together with a brief statement of the purpose of each exhibit, shall be submitted 15 days in advance of the hearing or at the time of -- or when the application is filed. These exhibits shall be submitted to the Division and to the USGS in Albuquerque, a copy of each to both.

Rule 4 outlines, or takes care of intermingled lands; in other words, Federal, State, Indian, or

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

fee. We have worked out a solution with the USGS in Albuquerque whereby we will -- the Division will entertain all applications for tight sand designations. We came to the conclusion that for two separate agencies to be making designations would be inconsistent, or it could wind up being inconsistent. You have contiguous tracts of land, one getting approval and the other disapproval, or at least it could come out that way.

The USGS, however, will concur or file their own statement concerning the application, should they not necessarily agree with the order that the Division comes out. This would be included in our submittal to the FERC. And that's generally what they're doing now, anyway, as far as, say, pool-wide orders or something of that nature, they either -- they generally ratify that order or they may amend it in some -- in some manner.

Rule 5, or Section 5, where practicable, applications may be consolidated for the hearing at the discretion of the Director of the Division. If you have contiguous tracts of land, or they're close by, then -- and both applications come in about the same time, then we may consolidate, we may decide to consolidate that just to save, just to save time.

And orders pursuant to these special rules then will be forwarded pursuant to Section 271.705 of

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

the FERC rules relating to that same formation. I have received ono comment already on this particular rule, indicating that we should within 15 days after we come out with an order we should forward it, and this would be consistent with general rules for NGPA --- or special rules for NGPA, where as stated in the earlier -- in the earlier case, it would be handled in the same manner. After, 15 days after we come out with an order we would then forward it so that we would expedite the -- I don't see anything wrong with that 15-day requirement on our part there.

As far as evidence is concerned, to be offered by an applicant at a hearing, essentially it includes everything that's in the FERC guidelines, including what would be part of our recommendation to the FERC. We're asking for geographical and geological descriptions of the formation, geologic and engineering data to support the application, a map or list indicating --- which outlines or locates wells that have produced oil or gas or both, and of course, a report of the extent to which an applicant believes existing State and Federal regulations will assure that development of the formation will not impair fresh water aquifers in the area.

I assume in this portion an applicant would want to indicate the type of casing that --- or Division rules for casing requirements for that area, if there

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

are any, and it may be necessary to identify the fresh water aquifers in the area that have been --- that are part of the State Engineer's files, or they can be found through the State Engineer's files.

And we try to be -- I think the whole scope of these things is that they're so broad that it's going to be very judgmental as to what --- what we -- what comes in, but I think as far as the maps and geologic engineering, the more the better, or the better case you put on the -- the better the case the better it's going to be.

On that Subsection d relating to fresh water aquifers, we have stated in there that this information or this water would be water that is expected to be used in the foreseeable future, if it's not already being used.

And then, of course, any other information that the Division may require, which would ordinarily come up during the course of a hearing. If we see that possibly you should submit an additional map, or something like that, of that nature, then we would ask for it at that time.

MR. WALTHALL: Can I interrupt at this point?

MR. PADILLA: Certainly.

MR. WALTHALL: Cary Walthall with Tenneco. As to the fresh waters, is that pursuant, really, to the Underground Drinking Water Act, Federal? That is, is there

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

a specific act also involved, or anything of that nature, of what is fresh water, you know, clarification as to that?

MR. PADILLA: I couldn't elaborate on that. I don't know. I would only look at the wording of existing State and Federal regulations and if you think that includes that, then I suppose that that would apply.

MR. WALTHALL: I mention that because I think under the Underground Drinking Water Act, the Federal act, they have protecting waters that are foreseeable, or could be used, or could be potentially used in the future, and anywhere up to 10,000 total dissolved solids. So I don't know whether you should specify that or not, but I was just curious as to whether it was a particular TDS or chloride-type content.

MR. NUTTER: I might make the observation here that under the statute the Oil Conservation Division is charged with protecting fresh water supplies designated by the State Engineer in this state and he has designated to us that all waters 10,000 parts per million or less are fresh waters in his opinion. So that would be in keeping with these EPA things --

MR. WALTHALL: Yeah.

MR. NUTTER: -- that you're talking about.

MR. PADILLA: Now as far as the guidelines

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

that we've incorporated from the FERC rules, interim rules, we've pretty much retained the same thing except to the extent of trying to give you an idea of what we would require for establishing permeability. We've said that permeability may be established or demonstrated by any customary acceptable methods, techniques, or testing acceptable in the oil and gas industry. I'm not sure that we want to confine ourselves to any particular formula or method. I think any method which an applicant may use to demonstrate permeability or evidence to such permeability will be acceptable.

As far as the stabilized production rate is concerned, we've said that it may be either at atmospheric pressure calculated against atmospheric pressure, simply because we do have a no-venting order in effect, so it could be at -- if you have actual data at atmospheric pressure or calculations in lieu thereof would be acceptable

And then I think the remainder of this is right out of the FERC guidelines.

MR. NUTTER: Well now, Mr. Padilla, I notice that Subsection c there at the top of the last page, says that 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. And over in your definition you define crude oil as being

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

liquids that are in the reservoir under natural conditions and remain as a liquid when produced. So this again does not include condensate here, is that correct?

MR. PADILLA: That's correct. I suppose there would be a question of whether or not condensate would be a credit against gas in place prior to stimulation, I'm not -- or production against gas. I've tried to get some idea from the FERC as to whether or not that -- you'd have to do that, and they indicated that there's no -- they hope that we don't have to get to that stage, or that it would not be that crucial in any --

MR. NUTTER: And that's in this portion in b, where you have a maximum allowable stabilized production rate for a given depth of so many Mcf per day.

MR. PADILLA: That's correct.

MR. NUTTER: And if a well were making a considerable amount of condensate the question would be whether that condensate would be converted into Mcfs and be charged against this maximum allowable rate of production.

MR. PADILLA: Correct. They don't know whether -- they just never even thought of it, so they seem to think that it doesn't apply. The only guidance I can get that's close to this is in stripper wells where you can make your -- average out your production before or after

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

the separation facilities. In stripper wells you could eliminate condensate by -- by calculating your production after the separation facilities.

MR. NUTTER: And then the rest of this Subparagraph d here is taken directly from the interim regs of the FERC.

MR. PADILLA: Right. That's the alternate if you don't meet the .1 millidarcy standards, the economic considerations, in view of the risk.

MR. NUTTER: Are there any questions of Mr. Padilla regarding these regs? Yes, sir?

MR. COLE: My name is Jack Cole from Farmington. I have a question.

Under Paragraph 2. I don't have a page number here but it has to do with the geological engineering guidelines for permeability.

Now in the application where you say permeability may be established or demonstrated by any customary or acceptable method or technique or testing acceptable to the oil and gas industry, where you're relating to a permeability figure, does that -- are you intending to say that each application, be it one well or ten wells, then the application must have a core analysis with it or proof that that particular well had less than one millidarcy of permeability? Or are you going to do it by geographical

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

area?

MR. PADILLA: Well, I think -- well, first of all your application is going to involve a geographical area, say, a township, and you're going to ask for that area to be designated as a tight sand because the permeability in that area is .1 millidarcy or less.

What I'm saying here by this language is that to establish it before analysis or bottom pressure or any way you can do it.

MR. COLE: Okay. My main question is I don't own a township any place and I may be making application just on one well, and if prior to my application you have determined that any well in that township will qualify, then I should automatically have that, too.

MR. PADILLA: Right. You would then just file under the filing requirements of the previous case. I mean you wouldn't have to reprove your case that that's a tight sand.

Under the filing requirements of the previous case you would have to show, or provide a log indicating which is -- referencing the tight formation.

MR. COLE: In other words, there will be an example set forth whenever you determine.

MR. NUTTER: Now, what does that question mean?

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

MR. COLE: Well, if you rule on a well filed in such-and-such a township, then when we make an application in that same township, we refer to that well and that ruling?

MR. NUTTER: I don't think we'd make a ruling on a well. We'd make a ruling on a geographical area, and then under his previous case, Section d on page 13 says you'd make a -- when filing for your individual well which happened to be in the area where designation of tight formation had been made, then under paragraph d of page 13 of the previous case, you'd make a reference identifying the Division and FERC orders which recommended and designated the tight formation in which the well is completed, and that tight formation will have a geographic boundary to it.

Yes, sir.

MR. GREVE: Jim Greve with Bass Enterprises.

In determining geographic area, I assume we will have to have at least one well that penetrates the particular formation or can we come in if we have large areas that have not been penetrated in a basin? How would we go about proving that?

MR. NUTTER: Can't prove it's tight if you haven't penetrated it, I don't believe.

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

MR. GREVE: So then you would have to pick up at least one well, the nearest penetration to that area?

MR. NUTTER: It would probably take more than one well. It's probably going to take two wells and some geological inference between the wells, or a small area around the one given well that has penetrated.

Any further questions? Yes, sir.

MR. THOMPSON: Bob Thompson, Amoco Production Company.

We have prepared some written comments which for the most part are consistent with what's been proposed today, but we would like to submit them for your review and consideration.

I also have one question. For instance, on the Dakota formation, when a formation crosses state lines, has there been any effort or communication with Colorado to see if a hearing could be held or consolidated?

MR. PADILLA: None. We didn't go that far.

MR. THOMPSON: Well, to a great extent a lot of the evidence we've got were for --

MR. PADILLA: Would be the same?

MR. THOMPSON: Yeah, would be the same. I know Colorado had mentioned that they had discussed with

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

you the possibility of doing that and it would work to all the operators' advantage to do that.

MR. STRAND: Mr. Examiner.

MR. NUTTER: Yes.

MR. STRAND: Bob Strand with Independent Petroleum Association.

A couple of comments and a couple of questions.

Mr. Padilla, in the title to your proposed regulations you refer to tight sands. I would highly recommend that that be changed to tight formations to conform with the FERC style of the case in their particular docket number 7976.

MR. PADILLA: I don't know how I missed that.

MR. STRAND: Question, do you intend to have some type of formal memorandum of understanding with the USGS relating to the role they're going to play in this particular recommendation process?

MR. PADILLA: We have discussed that. We'll either be getting a letter or we tried to work it out informally. If we see that it's necessary to have a formal memorandum of understanding, we have explored that possibility. At least we've talked about it but so far we haven't said one way or the other, other than agreeing that we

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

should hold the -- all the hearings.

We could handle it as a letter from them indicating to us that we should hold the hearings. At least informally already we have ironed out those problems.

MR. STRAND: The reason I ask, Mr. Padilla, is that they have recently come out, just in the last few days, with a notice to lessees relating to the USGS role in the tight formation procedures, and I haven't seen a copy, we haven't gotten it yet, but I've been told that they would be taking under that notice to lessees, a much more active part than is evidently contemplated by the Division.

MR. PADILLA: Well, they'll be getting a copy of the exhibits and a brief statement of the hearing, and to what extent they're going to use it, I think they'll probably use it to the extent of cross examining, because they're limited in presenting any testimony to the contrary or otherwise. They have to go through Washington to do that and they don't want to do that.

My understanding is that we'll just be working like we work with any other -- with any other situation that involves federal lands. They may ratify it or they may ask for additional information in certain cases.

MR. STRAND: But am I correct that the ultimate responsibility, as you understand it, to make the

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

recommendation will be with the Division?

MR. PADILLA: Sure, yes. We're not -- we're not going to sit together and write up an order, in other words. We've going to -- we're going to write our own order. If they don't like that order then they can -- they can file their own separate opinion, or something.

MR. STRAND: I would also concur with the 15-day requirement that you mentioned or someone has suggested earlier as to the length of time for submitting an order, or a recommendation, I should say, to the FERC.

Again, Mr. Padilla, the FERC interim rules left open the consideration number one of what they call recompletion-type formation gas and also to some extent the re-entry situation. Will you be coming out with additional regulations if they do make any decision on those?

MR. PADILLA: I suppose that we would have to. We see no choice but to come out with additional rules supplementing these ones, or other rules, but when they will come out with new rules, I don't know, relating to recompletions.

MR. STRAND: Mr. Examiner, that's all I have.

MR. NUTTER: Are there any other questions of the witness? Yes, sir.

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

MR. WALTHALL: Gary Walthall, with Tenneco.

Is my understanding correct that an applicant can submit on a well-by-well basis determination for tight formation, or does this have to be, you know, in a large geographical area?

MR. PADILLA: We would hope it would be in a larger geologic -- geographical area. We don't want to define or limit that to any -- to a certain minimum. But --

MR. WALTHALL: You've probably aware that in some formations that permeability variation could be anywhere, well, from 10 to .1 or below that, so you'd get a variation --

MR. PADILLA: I think we'd want to discourage, you know, applications that come in here on a section by section basis. We'd want to -- and I'm not sure that you would get an average in situ permeability figure, or at least a good cross section of averages in that -- in that case, where you go on a well by well basis.

MR. MOTLOCH: David Motloch, with Tenneco.

What would this do to the operator who drills the first well? Does he have to wait for an offset before he tries to get a determination of tight sand?

MR. PADILLA: I'm not sure that there are a whole lot of areas where wells haven't been drilled

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

already; that you wouldn't have some type of information. I mean, we're not -- I don't think there are that many areas where you would be talking about a completely barren area.

MR. NUTTER: Well, I don't think that would preclude, though, Mr. Padilla, would it, the possibility of a rank wildcat that encountered an extremely tight formation being designated as being a tight formation well, would it?

MR. PADILLA: I don't think so, no.

MR. NUTTER: Where it's the only well out there.

MR. PADILLA: No.

MR. NUTTER: Generally, we're talking about the areas where the formation is known and being developed. I don't think an individual wildcat well would necessarily be precluded if you had a core to show a tenth of a millidarcy.

MR. PADILLA: I think, in trying to get some guidelines from the FERC, they've indicated to me that you could actually have a purely hypothetical case with no wells drilled in that area at all, and I guess it would be a rank wildcat area.

They seem to contemplate, you know, just a situation where you could actually have some kind of study without having drilled any wells. I can't -- I can't visual-

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

ize that myself.

MR. NUTTER: That's what you were talking about awhile ago.

MR. BOLING: Bob Boling, Artesia, New Mexico.

Would dry holes make good evidence?

MR. NUTTER: No, not necessarily. They may have relative -- have to have a lot of porosity and be full of water.

MR. BOLING: I mean a dry, tight hole. I mean a tight dry hole.

MR. GREVE: I can agree with that. There are, at least where we're concerned, which is southeast New Mexico, Eddy County, large areas that have not been drilled, particularly with reference to the Poker Lake Unit, and this -- this becomes a problem in determining, from what I hear, perhaps a section is too small and a township is, perhaps, all right. I don't know if there's any in-between around. Then you get into a problem, particularly in that part of the world, where you have multiple sands within the Morrow formation, and we will have very much a difficulty in determining average permeability from existing data.

The only thing I can think you could do is go back, perhaps, to porosity/permeability relationship, because most, if any, DST, and the few cores have been taken

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

But the DST's that have been taken have been taken usually on the intervals that have the very high porosity, which do not give a true average formation characteristic.

MR. NUTTER: Lot of problems.

Mr. Thompson, you submitted this written comment of these rules today. I think it might be in order to have further written statements from the operators. We're not in any particular hurry to issue this thing. We'd rather do it a little more slowly and do it better, and with the benefit of some of these people's thoughts, I think, on paper. Would you have objection to holding this open for three weeks, or something like that, for written comments?

MR. PADILLA: No, I think that would be helpful, because even as far as writing some of these rules, if you have a better way of saying it, I'd consider that.

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

MS. TESCHENDORF: I have a statement.

MR. NUTTER: Well, we're going to call for your statements here in a minute.

MS. TESCHENDORF: Okay.

MR. NUTTER: If there are no further questions, Mr. Padilla may be excused.

Now I'll ask for comments, and remember, we are going to leave this thing open for written statements.

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

I'll get to that in a minute.

Comments, please?

MS. TESCHENDORF: Lynn Teschendorf with Consolidated Oil and Gas.

First of all, I'd like to say that we appreciate the Division proposing these regulations and looking at this so promptly.

I just have a very few comments. The first one concerning the definition of formation on page 1 there.

The FERC definition, contained in 271.703 of their regulations, they state that a formation means any geological formation or portion thereof.

I would recommend that you include that language. I believe the FERC intends that tight formations be looked at in the same respect as their new onshore reservoirs are. In other words, there may a portion of a formation that the Oil Division has classified, that under the FERC regulations can be limited even further for purposes of their regulations, and I would recommend that that type of language be included to coincide with the FERC regulations.

MR. NUTTER: Okay, do you interpret that when they say geological formation or portion thereof, they mean a portion thereof this way, or this way?

MS. TESCHENDORF: Well, it says any geol-

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

ogical formation or portion thereof described by geological as well as geographical parameters.

MR. NUTTER: So this way and this way both, then, maybe.

MS. TESCHENDORF: Yes. I appreciate Mr. Padilla's recommendation to include the 15-day limitation on forwarding the applications. As he indicated, it would be consistent with the Division's other NGPA regulations.

My last real comment concerns the evidentiary submissions. I would recommend that this order contain some kind of cross reference to the order that comes out in the previous case. I can foresee that it very likely would happen that some operator would pick up these special rules and procedures for tight formations and be unaware that there are filing requirements somewhere else. So you ought to cross reference the orders so they know where else to look.

That's all I have. Thank you.

MR. NUTTER: Thank you. Any other comments?

If there are no other statements, we will hold this case open for three weeks. We will accept written comments on Case Number 6852 up to and including April 30, 1980. If there is nothing further in Case Number 6852, we will take the case under advisement at this time.

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

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Santa Fe, New Mexico 87501
Phone (505) 455-7409

REPORTER'S CERTIFICATE

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing and attached Transcript of Hearing before the Oil Conservation 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.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 6852 heard by me on 4/9 1980.

Examiner
Oil Conservation Division

J. O. SETH (1883-1963)

A. K. MONTGOMERY
FRANK ANDREWS
SETH D. MONTGOMERY
FRANK ANDREWS III
OWEN M. LOPEZ
VICTOR R. ORTEGA
JEFFREY R. BRANNEN
JOHN B. POUND
GARY R. KILPATRIC
THOMAS W. OLSON
WALTER J. MELENDRES
BRUCE L. HERR
MICHAEL W. BRENNAN
ROBERT P. WORCESTER
JOHN B. DRAPER
NANCY M. ANDERSON
JOHN K. SILVER
RUDOLPH B. SACKS, JR.
W. CLINT PARSLEY
ROBERT M. AURBACH

MONTGOMERY & ANDREWS
PROFESSIONAL ASSOCIATION
ATTORNEYS AND COUNSELORS AT LAW
325 PASEO DE PERALTA
POST OFFICE BOX 2307
SANTA FE, NEW MEXICO 87501

TELEPHONE 505-982-3873

TELECOPY 505-982-4289

April 8, 1980

New Mexico Energy and
Minerals Department
Oil Conservation Division
State Land Office
Santa Fe, New Mexico 87503

RECEIVED
APR 1 1980
OIL CONSERVATION DIVISION
SANTA FE

Re: NMOCD Case No. 6851
NMOCD Case No. 6852

Gentlemen:

Please be advised that David T. Burleson of the office of General Counsel of El Paso Natural Gas Company, El Paso, Texas, is associated with our firm for the presentation of evidence and argument in the above-referenced cases.

Sincerely,

Gary R. Kilpatric

GRK:to

Amoco Production Company
Denver Region
Security Life Building
Denver, Colorado 80202
303-820-4040

Proposal for Tight Gas Pricing Hearings
for the State of New Mexico
April 9, 1980

Amoco Production Company proposes the following procedures and guidelines for the designation of tight gas areas pursuant to the Interim Regulations issued by the Federal Energy Regulatory Commission on February 20, 1980.

I. Any operator be permitted to request a hearing be scheduled to consider an area and/or field for tight gas classification. At such time as the hearing request is filed, the operator should furnish the Commission the following:

A. Map and/or description of the tentative proposed boundaries.

B. Typical log showing proposed horizon(s) and the tentative proposed vertical limits.

C. Other support data as operator deems appropriate to clarify position.

II. Commission publish notice that hearing has been scheduled, with a description of the area and formation(s) to be considered.

III. At the hearing, the operator should submit data as required by FERC rules or be prepared to support data submitted by other

operators. At this hearing, we propose that the Commission recognize:

A. All accepted engineering methods to determine in situ permeability such as, but not restricted to, the following:

1. Prefrac BU and/or drawdown test data, including analysis of DST data.
2. Postfrac BU and/or drawdown test data, usually analyzed by type curve matching.
3. Performance history type curve matching.
4. Routine core analysis data along with lab test results, as appropriate, to determine effects of stress, gas slippage and water saturation. For deep wells, routine air permeabilities are generally considerably too high.

B. Recognize the average of the lowest of perforations as being satisfactory for determining well depth.

C. Approve use of a typical log for designating vertical boundaries, similar to procedure followed for field rule hearings.

D. Approve use of the following formulas, or similar type formulas, for estimating flow rate at atmospheric pressure:

1. Pressure due to weight of gas column = Press. $(e^{(.0000347)(Gr.\ of\ Gas)(Depth\ to\ Mid\text{-}Perfs.)}-1)$

2. $Q_2 = \dfrac{Q_1\ (P_s^2 - P_{wf2}^2)}{(P_s^2 - P_{wf1}^2)}$

Q = Measured natural flow rate

P_s = Initial reservoir pressure, measured or determined from press. transient test or est. using SITP and (1).

P_{wf1} = FBHP at Q_1, measured or est., using FTP and (1).

P_{wf2} = Est. using atmos. press. and (1).

n = 1.0

III. At the conclusion of said hearing, the Commission should review and compile data and submit to FERC along with their recommendation.

Amoco Production Company
Denver Region
Security Life Building
Denver, Colorado 80202
303-820-4040

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P_{wf2} = Est. using atmos. press. and (1).

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III. At the conclusion of said hearing, the Commission should review and compile data and submit to FERC along with their recommendation.

Memo

From

ERNEST L. PADILLA
GENERAL COUNSEL

To Doug Richardson
Marathon Oil Co.
P.O. Box 2659
Casper, Wyo 82602

Wants copy of order
in Case 4852.

OIL CONSERVATION DIVISION SANTA FE

CASE 6843: (Continued from March 26, 1980, Examiner Hearing)

Application of Yates Petroleum Corporation for two compulsory poolings, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Yeso formation underlying two 40-acre proration units, the first being the SE/4 SE/4 and the second being the SW/4 SE/4 of Section 6, Township 19 South, Range 25 East, Penasco Draw Field, each unit 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 wells and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the wells and a charge for risk involved in drilling said wells.

CASE 6858: Application of H. L. Brown, Jr. for gas well commingling, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle Bluitt-Wolfcamp gas and condensate production from ten federal wells located as follows: Units K and P of Section 33 and L of 34, Township 7 South, Range 37 East; Units D and L of Section 3, C and J of 4, I of 5, C of 9 and G of 10; and one fee well in D of 10, all in Township 8 South, Range 37 East. Applicant would separate and meter the gas and condensate production from each well, then recombine the well's stream and commingle all wells into a small gasoline plant. Allocation of gas and condensate to each well would be on the basis of wellhead meter readings and allocation of gasoline plant production would be on the basis of gas production and BTU content at each well.

CASE 6859: Application of R & G Drilling Company for an unorthodox gas well location, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a well to be drilled 1890 feet from the North line and 1830 feet from the East line of Section 28, Township 28 North, Range 11 West, Kutz-Fruitland Pool, the NE/4 of said Section 28 to be dedicated to the well.

CASE 6860: Application of Flag-Redfern Oil Company for an exception to Order No. R-3221, Eddy 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 in Unit P of Section 3, Township 19 South, Range 31 East.

CASE 6861: Application of Zia Energy, Inc. for pool creation, special pool rules, and an NGPA determination, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new San Andres oil pool for its State "C" Well No. 1 located in Unit F of Section 17, Township 22 South, Range 37 East, and special rules therefor, including a provision for a limiting gas-oil ratio of 10,000 to 1. Applicant further seeks a new onshore reservoir determination for said State "C" Well No. 1.

CASE 6837: (Continued from March 26, 1980, Examiner Hearing)

Application of Curtis Little for compulsory pooling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Dakota formation underlying the W/2 of Section 7, 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. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6862: Application of ARCO Oil and Gas Company for an unorthodox oil well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its State 157 "D" Well No. 11 drilled 2123 feet from the South line and 1644 feet from the East line of Section 12, Township 22 South, Range 36 East, Drinkard Pool, the NW/4 SE/4 of said Section 12 to be dedicated to the well.

CASE 6863: Application of Bass Enterprises Production Co. for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its Big Eddy Unit Well No. 72 located in Unit R of Section 3, Township 21 South, Range 28 East, to produce undesignated Atoka and Morrow gas thru parallel strings of tubing.

CASE 6864: Application of Grace Petroleum Corporation for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Smith Ranch Well No. 11, to be drilled 1980 feet from the North line and 660 feet from the West line of Section 11, Township 20 South, Range 33 East, Teas-Penn Gas Pool, the N/2 of said Section 11 to be dedicated to the well.

Dockets Nos. 12-80 and 13-80 are tentatively set for April 23 and May 7, 1980. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - APRIL 9, 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 6850: In the matter of the hearing called by the Oil Conservation Division on its own motion to permit Jack F. Grimm, N. B. Hunt, George R. Brown, Am-Arctic, Ltd., The Travelers Indemnity Company, and all other interested parties to appear and show cause why the Mobil 32 Well No. 1 located in Unit D of Section 32, Township 25 South, Range 1 East, Dona Ana County, should not be plugged and abandoned in accordance with a Division-approved plugging program.

CASE 6851: 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 and amended by R-5878-A. The proposed amendments would make said SPECIAL RULES conform to FERC Order No. 65 which promulgated final regulations implementing filing requirements of the Natural Gas Policy Act of 1978.

CASE 6852: 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" or "tight sands" as outlined in the FERC interim rules and regulations issued February 20, 1980, relating to Section 107(b) of the Natural Gas Policy Act of 1978.

CASE 6853: Application of Caribou Four Corners, Inc. for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Cha Cha-Gallup Pool underlying the N/2 NE/4 of Section 18, Township 29 North, Range 14 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. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6854: Application of Jack A. Cole for an unorthodox gas well location, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of his Apache Hills Well No. 6, 1326 feet from the North line and 1843 feet from the West line of Section 17, Township 23 North, Range 3 West, Ballard-Pictured Cliffs Pool, the NW/4 of said Section 17 to be dedicated to the well.

CASE 6841: (Continued from March 26, 1980, Examiner Hearing)

Application of CIG Exploration, Inc. for two non-standard gas proration units, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of two non-standard gas proration units in Township 16 South, Range 28 East, the first being 219.6 acres comprising Lots 1 thru 8 of Section 1 and the second being 219.92 acres comprising Lots 1 thru 8 of Section 2, for the Wolfcamp, Pennsylvanian, and Mississippian formations, each unit to be dedicated to a well to be drilled at a standard location thereon.

CASE 6855: Application of Dome Petroleum Corporation for an unorthodox well location, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Santa Fe 3 Well No. 1 to be drilled 1220 feet from the North line and 900 feet from the West line of Section 3, Township 21 North, Range 10 West.

CASE 6856: Application of Texaco Inc. for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Blinebry, Tubb-Drinkard, and Fusselman production in the wellbore of its C. C. Fristoe "B" Federal NCT-2 Well No. 6 located in Unit H of Section 34, Township 24 South, Range 37 East, Justis Field.

CASE 6857: Application of Holly Energy, Inc. for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its State 14 Well No. 1, a Morrow test to be drilled 660 feet from the South line and 990 feet from the East line of Section 14, Township 18 South, Range 28 East, the S/2 of said Section 14 to be dedicated to the well.

Docket No. 9-80

CASE 6846: (Amended)

In the matter of Case No. 6846 being amended to reflect that the location for the unorthodox location of the well on the second unit is 330 feet from the North line and 2310 feet from the East line of Section 13, Township 21 South, Range 36 East, Lea County.

CASE 6846: (Continued from March 26, 1980, Examiner Hearing)

Application of Doyle Hartman for two compulsory poolings, two non-standard gas proration units, and two unorthodox well locations, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Eumont Gas Pool underlying two 80-acre non-standard gas proration units, the first being the S/2 NE/4 of Section 13, Township 21 South, Range 36 East, to be dedicated to a well to be drilled at an unorthodox location 1650 feet from the North line and 2310 feet from the East line of said Section 13, and the second being the N/2 NE/4 of said Section 13 to be dedicated to a well to be drilled at an unorthodox location 330 feet from the North line and 2310 feet from the East line of said Section 13. Also to be considered will be the cost of drilling and completing said wells and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the wells and a charge for risk involved in drilling said wells.

CASE 6865: Application of Getty Oil Company to reopen Case No. 6608, Lea County, New Mexico. Applicant, in the above-styled cause, seeks to reopen Case No. 6608 for consideration of the establishment of maximum efficient rates of withdrawal from the Grama Ridge-Wolfcamp Gas Pool.

****

Docket No. 10-80

DOCKET: EXAMINER HEARING - WEDNESDAY - APRIL 16, 1980

8:45 A.M. - OIL CONSERVATION DIVISION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

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

ALLOWABLE: (1) Consideration of the allowable production of gas for May, 1980, from fifteen prorated pools in Lea, Eddy, and Chaves Counties, New Mexico.

(2) Consideration of the allowable production of gas for May, 1980, from four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

****

Docket No. 11-80

DOCKET: COMMISSION HEARING - WEDNESDAY - APRIL 16, 1980

OIL CONSERVATION COMMISSION - 9 A.M. - ROOM 205
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

CASE 6609: (DE NOVO) (Continued from March 11, 1980, Commission Hearing)

Application of Napeco Inc. for pool creation and special pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Strawn oil pool for its Benson Deep Unit Well No. 1 located in Unit O of Section 33, Township 18 South, Range 30 East, and special rules therefor, including 160-acre spacing and standard well locations.

Upon application of Yates Petroleum Corporation and Napeco Inc. this case will be heard De Novo pursuant to the provisions of Rule 1220. Applicants allege this is not an "oil" pool but is a "volatile" oil pool.

Case 6852

In the matter of the hearing called by the Oil Conservation Division on its own motion to consider procedures for ~~making determination~~ receiving applications to designate geological structures termed "tight formation" or "tight sands" as outlined in the FERC interim rules (issued February 20, 1980) relating to Section 107(b) of the Natural Gas Policy Act of 1978.

and regulations

ROUGH

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, 19____, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this_____day of June, 19 80, the Divison 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 Regulatory 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 eligible for designation by the FERC as "tight formation."

(5) That natural gas produced from said "tight formations" ~~shall~~ should receive a reasonable incentive price.

(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 recieve 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 an order recommending a finding for ~~recommendation for~~ ~~the~~ tight formation designations.

(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.

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 _____, 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.

Case No. 6852
Order No. R-
Exhibit A

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 should 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 ~~within 15 days after the issuance~~ 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. geographical and geological descriptions of the a map and 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

   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

2. Evidence shall be based on each of the following geological and engineering guidelines:

   a. The estimated average <u>in situ</u> 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	2000 → 2500	59 → 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 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 paragraphs 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.