



UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

123445

RESOURCES, COMMUNITY
AND ECONOMIC DEVELOPMENT
DIVISION

January 27, 1984

B-214062

RESTRICTED -- Not to be released outside
Accounting and except on the basis of special approval
by the Office of Congressional Relations,

The Honorable Max Baucus
United States Senate

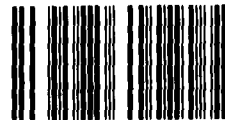
RELEASED

Dear Senator Baucus:

Subject: Interior Department Activities Concerning Proposed
Natural Gas Tight Formations in Montana
(GAO/RCED-84-10)

Your letters of May 4 and June 23, 1982, raised questions about natural gas tight formations, in general, and about proposed tight formations in Montana, in particular. A tight formation is a geologically distinctive body of rock strata; a principal characteristic is its low permeability which means that, under normal conditions, the gas it contains generally seeps out slowly. Under the provisions of the Natural Gas Policy Act of 1978 (15 U.S.C. 3301 et seq.), gas produced from tight formations may qualify for a higher price. The higher price is intended to encourage production of natural gas from such formations.

On the basis of your letters and discussions with your office, we agreed to answer three questions about activities of the Department of the Interior's Minerals Management Service (Minerals Management)¹ in recommending to the Federal Energy Regulatory Commission (the Commission) that an area be designated as tight formation areas. These questions relate to an application submitted by the Petroleum Corporation of America² (the Petroleum Corporation) for three formations to be designated as tight formations in the state of Montana.



123445

¹Responsibilities for tight formations in onshore lands were transferred to Minerals Management from the U.S. Geological Survey on January 19, 1982. These responsibilities, except for royalty management, were transferred to the Bureau of Land Management on December 3, 1982.

²The application was submitted jointly with others; however, this report relates to Petroleum Corporation activities.

(308562)

527690

Section 107 of the 1978 act authorized the Commission to set higher ceiling prices for certain categories of high-cost natural gas which are produced "under such other conditions as the Commission determines to present extraordinary risks or costs," as an incentive to encourage producers to develop and produce such gas. Pursuant to the act, the Commission established (1) an incentive price schedule for natural gas from tight formations, (2) criteria for deciding which formations qualify for the incentive price, and (3) procedures to be followed in recommending and approving such formations. Jurisdictional agencies--generally states, for non-federal lands, and Minerals Management, for federal lands--may recommend that an area be designated as a tight formation area. The Commission approves or disapproves these recommendations.

On the basis of a July 28, 1981, application by the Petroleum Corporation for an area in the state of Montana covering both federal and nonfederal lands, the Montana Oil and Gas Conservation Board (the Montana Board) recommended to the Commission on January 29, 1982, that most of the area be designated as three tight formation areas. Minerals Management's North Central Region recommended against this in a February 24, 1982, letter to the Commission. On March 3, 1982, Minerals Management and Petroleum Corporation representatives met to discuss the reasons for the negative recommendation. On March 26, 1982, Minerals Management's North Central Region sent a second recommendation letter to the Commission which reversed its position and concurred with the Montana Board's favorable recommendation.

The Commission held a public hearing on the proposed formations on August 20, 1982. On April 7, 1983, the Commission remanded the application to the Montana Board. The Commission stated that because of problems with the data submitted in support of the application and other reasons, it would be premature to take action, on the basis of the current record. On June 13, 1983, the Montana Board notified the Commission that it did not plan to resubmit the application.

This letter summarizes the results of our work. Additional detail is contained in the five enclosures. Enclosure I presents background information on tight formations, in general, and about the proposed formations in Montana, in particular. Enclosures II, III, and IV address the three questions we agreed to answer:

- Was Minerals Management's staff prohibited from meeting with the Petroleum Corporation's representatives?
- Why did Minerals Management send a second letter of recommendation to the Commission?

--Was Minerals Management's reversal of position well explained and supported by staff analysis?

Enclosure V contains the Department of the Interior's comments on a draft of this report.

WAS MINERALS MANAGEMENT'S STAFF
PROHIBITED FROM MEETING WITH
PETROLEUM CORPORATION'S REPRESENTATIVES?

We could find no law, regulation, or policy that Minerals Management contravened by meeting with the Petroleum Corporation's representatives on March 3, 1982. Neither the Natural Gas Policy Act nor the Administrative Procedures Act (5 U.S.C. 551 et seq.) specifies procedures that Minerals Management must follow in connection with its recommendations.

The Administrative Procedures Act specifies procedures to be followed in agency rulemakings, including the requirements for obtaining public participation and ex parte communications.³ The act applies to the Commission's rulemakings whereby recommended areas can be designated as tight formations; however, it does not apply to Minerals Management's tight formation recommendations. Under the Commission's regulations, Minerals Management's role is that of an advisor and is limited to making a recommendation about a tight formation, rather than making the final determination. Also, no regulations or policies of the Commission, Department of the Interior, or Minerals Management establish procedures that a jurisdictional agency is to follow in formulating a recommendation.

WHY DID MINERALS MANAGEMENT SEND A SECOND
LETTER OF RECOMMENDATION TO THE COMMISSION?

The first Minerals Management letter, dated February 24, 1982, which recommended that the three areas not be designated as tight formation areas, contained factual errors, including an incorrect description of the area covered by the recommendation. According to a Minerals Management geologist's memorandum to the files, Petroleum Corporation and Minerals Management met on March 3, 1982, at the Corporation's request. At the meeting, the Corporation's representatives noted the factual errors regarding

³In this context, an ex parte communication is a nonpublic oral or written communication whereby all the parties to an agency proceeding have not received reasonable prior notice (5 U.S.C. 551 (14)).

the description of the recommended area and the number of gas wells within the area.

Minerals Management staff, meeting the following day, decided that a revised letter should be sent to the Commission, at least to correct the factual errors. According to a memorandum to the files, the most discussed topic at the meeting was whether the applicant had proven that the Montana formations met the Commission's permeability criteria. The memorandum stated that, during the meeting, Minerals Management staff concluded that all information in the application should be analyzed to determine if the recommendation needed changing.

During the next 3 weeks or so, the Minerals Management staff geologist performed additional analysis of the information. The staff geologist concluded that the Montana formations did meet the Commission's tight formation criteria and incorporated the reversal of position in his draft of the second recommendation letter. The reversal letter did not explain why a second letter was being sent nor why Minerals Management reversed its position.

WAS MINERALS MANAGEMENT'S REVERSAL OF POSITION
WELL EXPLAINED AND SUPPORTED BY STAFF ANALYSIS?

On March 26, 1982, Minerals Management sent a letter to the Commission that reversed the negative recommendation in its February 24, 1982, letter but did not state a reason for the reversal or why the previous objections were no longer valid. Although we did not attempt to reach an independent determination as to whether the proposed formations met the Commission's criteria, we do not believe the positive recommendation contained in the second letter was well supported by Minerals Management's staff analysis. In the memorandum to the files summarizing the staff analysis, the Minerals Management geologist's conclusion that the expected permeability was close to the Commission's criteria seems to be inconsistent with his statement that his calculations resulted "in permeability figures well above the maximum allowed" and with his supporting worksheets. Furthermore, a supervisor of the geologist who drafted the March 26, 1982, letter told us that he did not review the geologist's permeability calculations in the staff analysis.

On August 12, 1982, the Director of the Minerals Management Service sent comments on the proposed rulemaking to the Commission. Although Minerals Management stated that it still believed the formations met the Commission's technical criteria, it apparently questioned whether the Montana formations met the standards of the Natural Gas Policy Act, namely, presenting extraordinary risks or costs.

During the Commission's August 20, 1982, hearing on the Montana formations, questions were raised about the adequacy of support for Minerals Management's positive recommendation. Thereafter, Minerals Management decided to perform an independent reevaluation of the application. The reevaluation report, completed on September 30, 1982, was done by a team headed by a supervisory petroleum engineer from Minerals Management's Albuquerque office.

In November 1982, the Acting Associate Director of Minerals Management's Onshore Minerals Operations sent a memorandum to the Minerals Manager of the North Central Region office regarding the results of the reevaluation of the Montana tight formation application. The memorandum and attached September 30 reevaluation report stated that the Montana application, as presented in the existing record, did not justify a favorable recommendation to the Commission because the applicant had not presented adequate support to show that the formations met the Commission's tight formation criteria.

AGENCY COMMENTS

The Department of the Interior reviewed a draft of this report and commented that the conclusions reached are appropriate within the context of the Montana case. (See enc. V.) Interior's comments on the draft report are discussed further in enclosures II and IV.

In response to our conclusion that we encountered no law, regulation, or policy which Minerals Management contravened by meeting with the applicant's representatives, the Interior Department said that such meetings are not unusual or unprecedented. Interior said that what made this meeting the subject of controversy, however, was Minerals Management staff's failure to inform those who opposed the application in advance of the meeting. Furthermore, Interior said that Minerals Management failed to accord opposing parties the opportunity to be heard before Minerals Management reversed its original position. Finally, Interior acknowledged that as a result of this oversight or misjudgment, an atmosphere was created which implied and consequently was viewed by the opposing parties, at a minimum, as ex parte communication.

In response to our conclusion that Minerals Management's reversal of its position was not well explained and supported by staff analysis, Interior concurred that the Minerals Management field office's second letter, which reversed the position stated in its first letter, was inappropriate under the circumstances. Interior noted, however, that it is not inappropriate to reverse an earlier position if circumstances warrant. Nevertheless, Interior stated that the available information did not warrant a reversal in the Montana case. Interior acknowledged that the

reevaluation initiated by agency management reached the conclusion that the available data were inconclusive insofar as determining whether or not the area involved should have been designated as tight formation areas.

OBJECTIVES, SCOPE, AND METHODOLOGY

As noted above, we limited our work for this report to answering three questions relating to Minerals Management's activities. We did not attempt to determine whether the formations covered by the application should be designated as tight formations, nor did we evaluate the activities of other federal or state agencies.

To answer the questions, we held discussions with representatives of the following organizations: the Petroleum Corporation of America, which filed an application for a tight formation designation; the state of Montana's Oil and Gas Conservation Board, which conducted hearings on the application; Montana-Dakota Utilities Company and the Montana Public Service Commission, both of which opposed the application; Minerals Management, both at headquarters and in the North Central Region; Interior's Office of the Solicitor; and the Commission.

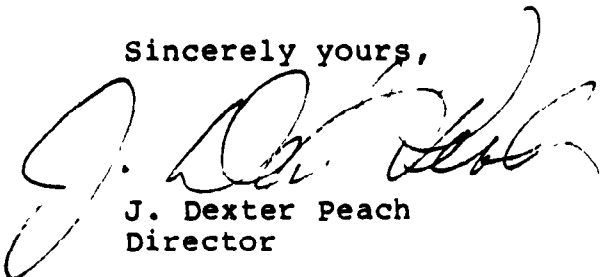
Also, we reviewed the Natural Gas Policy Act of 1978, its implementing regulations, and related documents; the hearings transcript regarding the Petroleum Corporation's application; letters of recommendation from the Montana Board and Minerals Management, and documents supporting the latter; and related materials.

Our work was conducted in accordance with generally accepted government auditing standards. Our audit work was conducted between June 1982 and October 1983.

- - - -

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of the report. At that time we will send copies to interested parties and make copies available to others upon request.

Sincerely yours,



J. Dexter Peach
Director

Enclosures - 5

BACKGROUND

This enclosure provides background information on natural gas from tight formations and on events relating to the proposed tight formations in Montana.

GAS FROM TIGHT FORMATIONS

Tight formations are geologically distinctive bodies of rock strata which exhibit low permeability; this means that, under normal conditions, the nonassociated natural gas¹ they produce generally seeps out slowly.

Incentive pricing for gas from such formations is based on the Natural Gas Policy Act of 1978 (15 U.S.C. 3301 et seq.). The act established eight categories and numerous subcategories of gas, on the basis of such factors as when and where the gas was discovered. The act also established a ceiling price that producers may charge for each category. One of the categories is section 107--high-cost natural gas--which specifies four subcategories of high-cost gas. In addition, the act provides that the Commission may establish incentive prices for additional subcategories which are produced "under such other conditions as the Commission determines to present extraordinary risks or costs." The act does not mention gas from tight formations, but such gas was identified as a potential subcategory in the Conference Report on the act and elsewhere.²

The December 1983 maximum lawful price for tight formation gas was \$5.682 per million British thermal units (Btu's).³ Tight formation gas has the highest ceiling price under the act. Without the incentive price for tight formations, such new gas would generally be subject to a significantly lower ceiling of \$2.841 or \$3.564 per million Btu's.

¹Nonassociated natural gas is gas that is not in contact with crude oil in the reservoir.

²These are cited in the Commission's "Notice of Proposed Rule-making and Public Hearings on High Cost Natural Gas Produced from Tight Formations." See Federal Register, Vol. 44, No. 175, p. 52254.

³Maximum lawful ceiling prices under the Natural Gas Policy Act of 1978 are generally stated in terms of price per million Btu's. A British thermal unit is a measure of energy content. Maximum lawful prices are published periodically by the Commission.

The Commission issued a Notice of Proposed Rulemaking on August 29, 1979, requesting comments on a proposal to establish an incentive price for tight formation gas. Subsequently, on August 15, 1980, the Commission issued its Order No. 99, which established criteria for designating tight formations and an incentive price for such gas, and published implementing regulations.

The regulations provide that, to designate a tight formation, a jurisdictional agency is to submit a written recommendation to the Commission; the jurisdictional agency for nonfederal lands is generally the state, and the Department of the Interior for federal lands. After receiving such a recommendation, the Commission is to publish a Notice of Proposed Rulemaking in the Federal Register. After receiving and reviewing comments, the Commission is to approve or disapprove the recommendation.

Through August 11, 1983, the Commission received recommendations covering 241 proposed tight formations. Of these proposed formations, 168 were approved in whole or in part, 3 formations (recommended in the Montana application) were remanded to the jurisdictional agency for further consideration, 2 proposed recommendations were withdrawn by the jurisdictional agencies, 1 recommendation will receive no further Commission action because it duplicates acreage previously recommended by the jurisdictional agency, and 67 were awaiting Commission action.

EVENTS RELATING TO THE PROPOSED TIGHT FORMATIONS IN MONTANA

In July 1981, the Petroleum Corporation of America and others filed an application to have three natural gas formations designated as tight formations. The application covered formations underlying portions of Phillips and Valley Counties, Montana, in the north central part of the state, and included both federal and nonfederal lands.

In October 1981, the Board of Oil and Gas Conservation of the state of Montana--the jurisdictional agency for the nonfederal lands--held a hearing in Billings, Montana. The Petroleum Corporation's attorney told us that, during the course of the hearings, the applicant deleted a portion of the lands from its original application. The Montana Board held additional hearings on December 4 and 5, 1981. The Petroleum Corporation's application was opposed by Montana-Dakota Utilities Company, the Montana Public Service Commission, and the Montana Consumer Counsel. Representatives of Interior's Minerals Management Service--the jurisdictional agency for the federal lands--attended all 3 days of hearings.

The Montana Board sent a letter received by the Commission on January 29, 1982, which recommended that most of the area covered by the application be approved as tight formation areas. However, the Board removed some portions from the application because they were not deemed to meet the criteria required of tight formations.

Minerals Management's North Central Region sent a letter, dated February 24, 1982, to the Commission which offered three reasons why the formations did not meet the Commission's permeability and production guidelines and concluded that "this application is not approvable." This letter was received at the Commission's Office of the Secretary on March 1. However, the appropriate unit within the Commission did not receive the letter until March 16 because it was misrouted.⁴

In the meantime, copies of the February 24, 1982, letter were sent to various interested parties, including an attorney representing the Petroleum Corporation. Concerned about the letter, the attorney contacted the Acting Deputy Minerals Manager for Oil and Gas, Minerals Management Service, and requested a meeting to discuss the letter. A meeting was scheduled for March 3.

Attending the March 3, 1982, meeting were the attorney and a petroleum engineer from the Petroleum Corporation, and the Chief of Staff Operations and several other staff members from Minerals Management. Petroleum Corporation representatives stated that the Minerals Management letter contained factual errors, such as an incorrect description of the area. They also contended that the recommendation was incorrect; their contention was based on technical interpretations of evidence about the proposed formations. Minerals Management staff acknowledged that the letter contained factual errors, including the description of the area, and asked the Petroleum Corporation's representatives to supply them with a map of the area included in the application. This map was available at the hearings but had not been obtained by the Minerals Management staff attending the hearings.

Minerals Management staff told us they met the next day, March 4, and agreed that their first letter contained factual errors. They also decided to review the application again and prepare a second letter to at least correct the description of

⁴The Division of Natural Gas Policy Act Compliance (the Compliance Division, now the Division of Producer Audits and Pricing) is primarily responsible for administering the designation of tight formations.

the area. A Minerals Management geologist reevaluated the application, obtained a map from Petroleum Corporation's representatives, and drafted a letter recommending approval. The Acting Deputy Minerals Manager of the North Central Region signed the official letter dated March 26, 1982, which recommended that the application be approved, except for the portions which had already been deleted.

According to an official of the Commission's Compliance Division, because part of the area covered by the application underlies federal lands, he had expected to receive a recommendation from Minerals Management. On March 4, the day after Petroleum Corporation and Minerals Management representatives met, a staff member of the latter called the Commission's Compliance Division. A Compliance Division branch chief told us that the Minerals Management staff member advised him that the recommendation was being reconsidered. Therefore, the Compliance Division did not act on Minerals Management's February 24, 1982, letter when it arrived on March 16.

On April 21, 1982, the Compliance Division received Minerals Management's March 26 letter recommending approval; this letter had also been misrouted within the Commission. The following day, the Compliance Division also received, from an attorney representing Montana-Dakota Utilities Company, a letter contesting Minerals Management's reversal of its position.

The Commission issued a Notice of Proposed Rulemaking on June 1, which was published in the Federal Register of June 4. It stated that any written requests for public hearings should be received by June 16 and that any comments be received by July 1.

The Commission issued a Notice of Public Hearing on July 1, which was published in the Federal Register of July 7. It stated that, pursuant to a request from an interested party, a public hearing would be held on the matter on July 27.

On July 14, the Commission issued a change in the hearing date to August 20. This revision was published in the Federal Register of July 20.

On August 12, 1982, the Director of the Minerals Management Service sent comments to the Commission's Compliance Division on the proposed rulemaking. The comments stated that Minerals Management agreed with the conclusions in the March 26, 1982, recommendation letter sent in by its North Central Region office that the formations met the Commission's technical criteria. However, it also stated that Minerals Management "strongly opposes and rejects the rationale that drilling of these shallow

formations" and producing gas from the formations would "present extraordinary risks or costs" As previously mentioned, this last phrase appears in that section of the Natural Gas Policy Act which authorizes the Commission to establish incentive prices. On August 20, 1982, the Commission held its hearings.

The Commission's preliminary staff analysis indicated that the Montana formations may not have met its criteria. On November 12, 1982, the Commission held a hearing to determine whether the Montana formations and other recommended formations, consolidated to facilitate the hearing, had met its tight formation criteria. The hearing's principal issue was the proper methodology for calculating permeability and expected rate of production.

On April 7, 1983, the Commission remanded the Montana application to the Montana Board and requested that the state provide additional information and resubmit its application. The Commission stated that it had received six sets of data for permeability averages and production rates and that each set of data posed problems. Also, the Commission stated that those opposed to the proposed rulemaking had (1) challenged the accuracy of all of the data, (2) alleged that the incentive price was not needed, and (3) alleged that Minerals Management had taken improper actions such as reversing its position in the March 26, 1982, letter after having made post-hearing contacts with persons who had filed the tight formation application. Because of these problems, the Commission concluded that it would be premature and inappropriate to take action on the application, on the basis of the current state of the record. The Commission stated that, should Montana decide to resubmit its application, it should submit with that recommendation any new evidence that addressed the issues that were raised. On June 13, 1983, the Montana Board notified the Commission that it did not plan to resubmit the application.

The Assistant to the Director of the Compliance Division stated that according to the Commission's records, the Petroleum Corporation's application was the first one it received covering any part of the state of Montana. Also, it was the only one from a state in which the federal and state jurisdictional agencies sent in opposing recommendations and the only one in which the federal jurisdictional agency reversed its recommendation.

WAS MINERALS MANAGEMENT'S STAFF PROHIBITED FROM
MEETING WITH PETROLEUM CORPORATION'S REPRESENTATIVES?

We could find no law, regulation, or policy which Minerals Management contravened by meeting on March 3, 1982, with the Petroleum Corporation's representatives. In our review, we assessed Minerals Management's role in the designation of tight formations and reviewed the laws, regulations, and policies that might possibly be applicable to its role.

WHAT IS MINERALS MANAGEMENT'S ROLE?

The regulations governing the designation of tight formations provide that "Upon the written recommendation by a jurisdictional agency . . . the Commission may approve a recommendation that a natural gas formation be designated as a tight formation" (18 CFR 271.703(c)(1) (underscoring added)). The language in this section makes clear a distinction between the role of the jurisdictional agency--to make a recommendation--and the role of the Commission--to approve or disapprove a recommendation.

To clarify this point, we met with officials of the Commission's Office of the General Counsel, including the Associate General Counsel and the Assistant General Counsel for Natural Gas Policy Act Compliance. They noted that a jurisdictional agency's role in designating a tight formation is not explained elsewhere in Commission guidance. They explained that the jurisdictional agency's role is not that of an agent, because such a role would involve a presumption that the Commission would rely on the jurisdictional agency's determination. Instead, they said that the role is similar to that of an advisor, whose advice the Commission is not bound to follow and whose recommendation is in the nature of a petition for rulemaking.

The respective roles of Minerals Management and the Commission in designating tight formations are different from their roles in another aspect of natural gas regulation--that of establishing gas well category determinations. Once the Commission has approved a recommended formation, a well category determination can be made regarding the eligibility of the gas for the proper pricing category. The 1978 act and Commission regulations governing gas well determinations--determining the proper pricing category for an individual well--provide that a jurisdictional agency is to make a determination as to whether a well qualifies under the defined requirements. The Commission staff reviews a well determination made by a jurisdictional agency for substantial evidence.

Thus, in the case of the well determination, a distinction is made between the role of the jurisdictional agency--to make a determination--and the Commission--to review and, if warranted, disapprove the determination. According to officials of the Commission's Office of the General Counsel, in this instance the jurisdictional agency is acting essentially as the Commission's agent.

WHAT STANDARDS APPLY TO MINERALS MANAGEMENT
IN FORMULATING A RECOMMENDATION?

As mentioned earlier, we encountered no law, regulation, or policy that Minerals Management contravened by holding the March 3, 1982, meeting. Specifically, we examined the Administrative Procedures Act (5 U.S.C. 551 et seq.), which generally provides for public participation in federal agencies' decision-making; the Natural Gas Policy Act of 1978, which provides for incentive pricing of high-cost natural gas; the Commission's regulations which govern tight formations (18 CFR 271.703); and regulations and policies applicable to Interior or to Minerals Management.¹ We found no explicit standards which specify procedures to be followed by Minerals Management in deciding whether to recommend a tight formation.

The Administrative Procedures Act specifies procedures to be followed in agency rulemakings. These include requirements for obtaining public participation in agency rulemakings and requirements with respect to ex parte² communications. Under the Commission regulations, Minerals Management's role is limited to making a recommendation about a tight formation, rather than making a final determination.

The Natural Gas Policy Act provides for the establishment of incentive prices for high-cost sources of natural gas. However, it does not cite tight formation gas specifically and does not establish any criterion for designating tight formations or other high-cost sources of gas.

¹This includes Interior's interim notice to lessees which delegated authority for making tight formation recommendations to its regional offices and specified the guidelines for making application for a tight formation designation. See Federal Register, Vol. 45, No. 68, p. 23529.

²In this context, an ex parte communication is a nonpublic oral or written communication whereby all the parties to an agency proceeding have not received reasonable prior notice (5 U.S.C. 551 (14)).

The Commission's regulations implementing the act, as noted above, specify the respective roles of jurisdictional agencies and the Commission in designating tight formations; however, they do not establish any procedures that a jurisdictional agency is to follow in formulating a recommendation.

According to officials of the Commission's Office of the General Counsel, the Commission purposely did not specify procedures to be followed by jurisdictional agencies. The jurisdictional agencies were given the responsibility for formulating tight formation recommendations because the Commission felt that they would be in a better position to complete these steps. Furthermore, no procedural requirements were established because both the states and Interior were presumed to have their own procedural standards for assuring fairness.

Furthermore, on the basis of our review and discussions with officials of Interior's Office of the Solicitor and with Minerals Management officials, both in headquarters and in the North Central Region, we found no internal Interior or Minerals Management regulations or policies that would be applicable.

CONCLUSION

We assessed the respective roles of Minerals Management and the Commission in designating a tight formation, and we reviewed relevant legal and related materials. We encountered no law, regulation, or policy that would have prohibited the March 3, 1982, meeting.

AGENCY COMMENTS

Interior reviewed a draft of this report and commented that meetings such as the one that took place between Minerals Management and the Petroleum Corporation representatives are not unusual or unprecedented. Interior stated, however, that the controversy arose over Minerals Management staff's failure to give advance notice of the meeting to those who opposed the application and further, the failure to accord them the opportunity to be heard before Minerals Management reversed its original position. Interior acknowledged that as a result of this oversight or misjudgment, an atmosphere was created which implied and consequently was viewed by those opposed, at a minimum, as ex parte communication.

WHY DID MINERALS MANAGEMENT SEND A SECOND
LETTER OF RECOMMENDATION TO THE COMMISSION?

Minerals Management's February 24, 1982, letter to the Commission included (1) a description of the area covered by Petroleum Corporation's application, (2) a conclusion that the "application is not approvable," and (3) three reasons for this conclusion.

The first of the three reasons for not approving the application included the statement that, "There are 600 producing gas wells and an additional 39 wells are waiting on connection within the area of the application." In a March 3, 1982, meeting with Minerals Management staff, Petroleum Corporation representatives noted that these numbers were incorrect with respect to the revised area. Minerals Management staff agreed that the numbers were too high and did not reflect that the area covered by the initial application had been reduced. (The two other reasons cited in the letter related to treatment of data on permeability and expected rate of production and are discussed in enc. IV.)

Minerals Management officials said that they held a meeting on March 4, 1982, and decided that a second letter should be sent to the Commission to at least correct the misstatements. According to a Minerals Management geologist's memorandum to the files, the most discussed topic at the meeting was whether the applicant had proven that the Montana formations met the Commission's permeability criteria. The memorandum stated that during the meeting, Minerals Management staff concluded that all information in the application should be analyzed to determine if its recommendation needed changing.

During the next 3 weeks or so, the Minerals Management staff geologist performed additional analyses of the permeability and other characteristics of the reduced area. According to that geologist's March 31, 1982, memorandum to the files,

"After a more detailed review of available information, it was decided that . . . since the average permeability derived from the available data was quite close to the guideline cutoff, the revised recommendation should follow the Montana Board's [positive] determination."

"Therefore, on March 26 a revised recommendation to FERC [the Commission] was prepared which concurred with the Montana Boards [sic] decision . . . to

approve a 'tight sand' determination for the remainder of the application area"

The staff geologist told us that his draft of the second recommendation letter incorporated a reversal of the position. In enclosure IV, we discuss whether Minerals Management's staff analysis demonstrated that a reversal of its position was warranted.

Minerals Management's March 26, 1982, letter to the Commission notes agreement with the Montana Board's decision to remove certain areas from the application. It further states, "We also concur that the subject formations are 'tight' under the remainder of the area" Finally, it states, "This amends our letter of February 24, 1982."

WAS MINERALS MANAGEMENT'S REVERSAL OF POSITIONWELL EXPLAINED AND SUPPORTED BY STAFF ANALYSIS?

We do not believe the positive recommendation contained in the March 26, 1982, letter was well explained and supported by Minerals Management's staff analysis. However, we did not attempt to reach an independent determination as to whether the proposed tight formations met the Commission's criteria.

THE SECOND LETTER DID NOT EXPLAIN WHY
MINERALS MANAGEMENT REVERSED ITS POSITION

Minerals Management's March 26, 1982, letter reversed its previous position but provided no justification for so doing. The Commission has no specific requirement to include such justification. However, in light of the initial disagreement between the Montana Board and Minerals Management, we believe the latter should have explained the reason for reversing its position in the second letter.

Discussion in the second letter regarding Minerals Management's change of position is limited to the following:

"Minerals Management Service concurs in the Montana Board's decision We also concur that the subject formations are 'tight' under the remainder of the area"

"A copy of the Montana Board's Order No. 151-81 is attached. This amends our letter of February 24, 1982."

Thus, the March 26 letter offers no explanation for the reversal of position, nor does it explain why the previous objections were no longer valid. We believe that in the interest of assisting the Commission in deciding whether to designate the formations, Minerals Management should have explained both points.

THE REVERSAL WAS NOT SUPPORTED BY MINERALS
MANAGEMENT'S STAFF ANALYSIS

To be designated as a tight formation, a formation is generally required to meet several criteria, including expected average permeability and expected rate of gas production. The Commission's regulations specify allowable levels for each. During the Montana Board's hearings, considerable attention was devoted to these two characteristics of the proposed formations. However, Minerals Management's staff analysis did not convincingly

demonstrate that a reversal of position was warranted with respect to these two criteria.

Expected average permeability

The first Minerals Management letter stated that those testifying at the Montana Board's hearings in support of the Petroleum Corporation application had ". . . employed excessive manipulation of the available data to arrive at values for producing formation average permeabilities and average daily per well gas producing rates." After the March 3 meeting, the Minerals Management geologist conducted additional analyses, focusing especially on permeability.

Permeability, as noted earlier, refers to the rate at which gas flows out of the formation into the well bore (or pipe). Permeability can be calculated from two independently measured variables. The first is pounds of pressure per square inch, showing the amount of pressure built up over an interval of time by gas escaping from the formation. The second is the thickness of the gas-producing zone, called the net pay zone. Calculations based on these two variables yield a measure of permeability. The Commission's regulations established a ceiling for average permeability.

Minerals Management's March 26 letter asserted that the formations met the criteria by stating that ". . . the subject formations are tight, in accordance with Commission tight formation regulations." This conclusion is not convincingly demonstrated by internal Minerals Management documents. Results of the Minerals Management staff's analysis of permeability are described in memoranda to the file dated March 31 and May 25, 1982, both of which were written by the staff geologist to explain developments leading to the March 26 letter. The March 31 memorandum states that:

"After a more detailed review of available information, it was decided that since the majority of the control points were situated within or near the area withdrawn by the applicant, and rejected by the Montana Board, and since the average permeability derived from the available data was quite close to the guideline cutoff, the revised recommendation should follow the Montana Board's [positive] determination."

The May 25 memorandum states that the

". . . average permeability on and near the crest [the highest part of the structure and believed to exhibit

the greatest permeability] might be considered a close one to call, due to the controversy over effective net pay thickness, and since permeability generally tends to be poorer on the flanks than on the crest of structures it was decided we should go along with the Montana Board and allow a 'tight' determination for the remainder of the area."

The conclusion in both memoranda that the formations' expected permeability was close to the ceiling appears to be inconsistent with information contained elsewhere in the memoranda. The May 25 memorandum provides greater detail than the March 31 memorandum on the analysis performed. At one point, it states:

"I recalculated permeabilities using thicknesses of effective pay zones [the gas producing area] equal to one-half of the values used by Crafton [a consulting engineer for the Petroleum Corporation]. Using the lesser values for thickness, which we believe are generous values, results in permeability figures well above the maximum allowed by FERC [Commission] guidelines"1

We examined the geologist's attached worksheets for one of the three zones. The worksheets show that, on the basis of his calculations, the average permeability value considerably exceeded the Commission's ceiling. This was true using the original measurements of pay zone, and even more so for the smaller pay zones. Even if only one of the three zones did not meet the Commission's permeability guidelines, the entire recommended area would have to be disapproved by the Commission.

In both memoranda to the file, the geologist's conclusion that the expected permeability was close to the Commission's guidelines seems to be inconsistent with his statement that his calculations resulted "in permeability figures well above the maximum allowed" and with his supporting worksheets. Furthermore, when we discussed this with the geologist's supervisor in July 1982, he told us that he had not reviewed the geologist's calculations in the staff analysis.

¹In this calculation, expected permeability varies inversely with the thickness of the formation. A larger value for thickness would yield a lower permeability value, and vice versa.

Expected rate of gas production

A second major issue in this application was the expected rate of gas production from the proposed formations. The Commission's regulations established a series of maximum prestimulation stabilized production rates²--varying with depth--for gas produced from wells drilled into a tight formation. To be designated as a tight formation, the prestimulation production rate may not exceed the rate appropriate to the formation's depth.

The regulations provide guidelines for determining which wells should be considered in determining the expected rate of gas production. The regulations state that, to be considered, wells should be "completed for production in the formation" ³ This suggests that "dry holes"--wells that produce quantities of gas too small for commercial production--should be included only if completed for production. Furthermore, the Commission's regulations do not appear to provide a basis for excluding highly productive wells.

In the first letter, Minerals Management asserted that the applicant had employed excessive manipulation of the data. The letter stated,

" . . . it is our opinion the applicant's witnesses were too prone to throw high daily production rates out of the data sets and to include too many dry hole '0' rates in order to get under the guideline rate and thus obtain a favorable determination."

Although Minerals Management's second letter reversed its position and concurred with the Montana Board's favorable recommendation, it provided no explanation of why the original objections regarding permeability and production rate values were no longer valid.

Subsequent developments

In addition to the two recommendation letters sent in by its North Central Region, the Director of Minerals Management provided

²Because gas normally seeps out slowly from a tight formation, such formations are typically "fractured"--or stimulated--by injecting fluids and other material under pressure into the formation. Such methods are intended to increase the rate at which gas flows out of the formation.

³See 18 CFR 271.703(c)(2)(i)(B).

comments on the Commission's proposed rulemaking that the recommended Montana area be designated as tight formation areas. On June 28, 1982, the Acting Minerals Manager for the North Central Region sent a copy of proposed comments to Minerals Management headquarters asking for a review before the letter was sent to the Commission. The comments noted that

" . . . the Commission's preliminary findings do not address the issue which is presented in this application as to whether shallow formations present extraordinary risks or costs"

Furthermore, it asked ". . . do these formations present extraordinary risks or costs to put natural gas into production?"

The comments sent to the Commission, however, were more explicit. While agreeing with the conclusions in the March 26, 1982, letter, from the North Central Region, the comments, dated August 12, 1982, from the Director of the Minerals Management Service to the Director of the Commission's Compliance Division stated that Minerals Management

". . . strongly opposes and rejects the rationale that drilling of these shallow formations . . . would present extraordinary risks or costs"

The Commission noted these Minerals Management concerns in its remanding order.

The final phrase may refer to the language of the 1978 act, which authorizes the Commission to establish incentive prices for categories which are produced "under such other conditions as the Commission determines to present extraordinary risks or costs" (underscoring added). However, the Commission's implementing regulations for natural gas from tight formations do not require a demonstration that production from a proposed formation presents such risks or costs. Instead, they specify several objective criteria--such as expected permeability and expected gas production--which a formation must meet.

Thus, Minerals Management apparently questioned whether the formations met the spirit of the Natural Gas Policy Act, even if they met the letter of the Commission's regulations. This point was discussed at the Commission's August 20, 1982, hearing. The Commission did not approve or disapprove the application; it remanded the application to the Montana Board on April 7, 1983.

A Minerals Management representative told us in September 1982 that he believed the reversal of position in the March 26,

1982, letter was adequately supported. He also told us that an independent reevaluation of the application would be performed and that Minerals Management would restudy its role in recommending tight formations applications.

On September 30, 1982, Minerals Management completed its reevaluation report. The reevaluation was done by a team headed by a Minerals Management supervisory petroleum engineer from its Albuquerque office. In November 1982, the Acting Associate Director of Minerals Management's Onshore Minerals Operations sent a memorandum to the Minerals Manager of the North Central Region on the results of the reevaluation. The memorandum concluded that, on the basis of the existing record,

" . . . we are of the opinion that the application, as presented, does not justify a favorable recommendation to the Federal Energy Regulatory Commission (FERC) for inclusion of the lands in question as a tight gas sand area"

According to the Chief of the Bureau of Land Management's Division of Fluid Mineral Operations, the Bureau plans to complete its restudy of Interior's role in recommending tight formation applications by January 1984.

CONCLUSION

The second recommendation letter did not offer a reason for the reversal of position, nor why the objections stated in the first letter were no longer valid. Moreover, on the basis of our analysis of Minerals Management's two letters of recommendation, supporting memoranda, and discussions with Minerals Management staff, we conclude that Minerals Management's analysis of the key issues of expected permeability and expected rate of gas production did not convincingly support the positive recommendation contained in the second letter.

AGENCY COMMENTS

Interior concurred that the Minerals Management field office's second letter which reversed its earlier position was inappropriate under the circumstances. It noted, however, that it is not inappropriate to reverse an earlier position if circumstances warrant. Interior agreed that in the Montana case, nevertheless, the available information did not warrant a reversal. Also, Interior acknowledged that its reevaluation of the Montana case reached the conclusion that available data were inconclusive insofar as determining whether or not the area involved should have been designated as tight formation areas.



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

DEC _ 7 983

Mr. J. Dexter Peach
United States General Accounting
Office
Washington, D.C. 20548

Dear Mr. Peach:

Thank you for your letter of November 7, 1983, requesting that we review and comment on your proposed report entitled, "Interior Department Activities Concerning Proposed Natural Gas Tight Formations in Montana." The following are our comments concerning the draft report.

The conclusions reached are appropriate within the context of the case. We have no basic disagreement with the conclusions, as presented, and submit the following for further consideration.

With respect to the issue of the meeting between Petroleum Corporation of America (PCA) and Minerals Management Service (MMS) staff (on March 3, 1982, at the request of PCA), it should be pointed out that such meetings are not unusual or unprecedented. What made this meeting the subject of controversy, however, was the failure of MMS staff to inform the protestants in advance of the meeting with PCA and, further, to accord them the opportunity to be heard before reversing their original position. As a result of this oversight or misjudgment, it created an atmosphere which implied and consequently was viewed by the adverse parties, at a minimum, as ex parte communication.

We concur that the letter of March 26, 1982, by which the MMS field office reversed the position stated in its letter of February 24, 1982, was inappropriate under the circumstances. That is not to say that it is inappropriate to reverse an earlier position if circumstances warrant. However, in this case, the available information did not warrant a reversal. An independent analysis and interpretation of the data available to the MMS staff was initiated by MMS management and the conclusion reached was that these data were inconclusive insofar as determining whether or not the formations involved should be designated as tight.

Addendum

We suggest the following corrections in the report:

A. Page one of the transmittal letter:

1. First paragraph, second sentence:

"A tight formation is a geological structure . . ." should be corrected to read "A tight formation is a lithologically distinctive body of rock strata . . ."

Mr. J. Dexter Peach

2

2. Second paragraph, last part of the last sentence:

". . . designation of three natural gas tight formations . . ." should be corrected to read ". . . three formations to be designated as tight . . ."

3. Footnote 1:

"Responsibilities for tight formations in onshore lands were transferred to the Minerals Management Service from the U.S. Geological Survey on January 19, 1982. These responsibilities, except for royalty management, were transferred to the Bureau of Land Management on December 3, 1982."

- B. Page six of the transmittal letter:

Second paragraph, second sentence:

The word ". . . structures . . ." should be changed to ". . . formations . . ."

- C. Enclosure I:

1. Page 7, second paragraph:

"Tight formations are geological structures . . ." should be corrected to read "Tight formations are lithologically distinctive body of rock strata . . ."

2. Page 8, fourth paragraph:

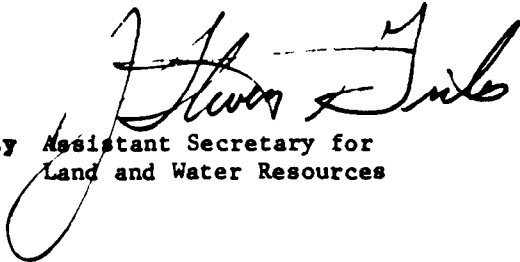
- (a) First sentence:

". . . natural gas structures . . ." should be changed to ". . . formations . . ."

- (b) Second sentence:

". . . structures . . ." should be changed to ". . . formations . . ."

Sincerely,


Deputy Assistant Secretary for
Land and Water Resources

[GAO note: Interior's page and paragraph references have been changed to correspond to the page and paragraph references in the final report.]