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FEDERAL OIL VALUATION

Efforts to Revise Regulations and an Analysis of Royalties in Kind





**United States
General Accounting Office
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**Resources, Community, and
Economic Development Division**

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The Honorable Ralph Regula
Chairman, Subcommittee on Interior
and Related Agencies
Committee on Appropriations
House of Representatives

The Honorable Barbara Boxer
United States Senate

The Honorable Carolyn Maloney
House of Representatives

In fiscal year 1997, the Department of the Interior's Minerals Management Service (MMS) collected about \$4.1 billion in royalties from approximately 22,000 oil and gas leases on federal lands. By law, the states in which these leases are located receive a share of the royalties collected, which are calculated as a percentage of the value of the oil or gas that is produced.

The value of much of the oil from federal leases has been based on posted prices—offers by purchasers to buy oil from a specific area. However, recent evidence indicates that oil is now often sold for more than the posted prices, suggesting that the value of the oil from federal leases and the amount of federal royalties should both be higher. On the basis of this evidence, in 1995 MMS began revising its regulations for valuing oil from federal leases and in February 1998 issued its most recent revision.¹ The proposed regulations would reduce the use of posted prices to value much of the oil from federal leases and would instead generally require that other, and oftentimes higher, prices be used. By requiring that higher prices be used to value much of the oil from federal leases, the proposed regulations would increase federal royalties by as much as \$66 million annually, according to MMS.

Although states that receive distributions of these royalties generally support the proposed regulations, oil industry representatives generally oppose them, believing that oil companies should not pay royalties on higher prices and that they would suffer increased administrative requirements. As an alternative, the oil industry has suggested that MMS instead be required to accept, as the federal government's royalties, a percentage of the actual oil and gas produced from federal leases (known

¹MMS has addressed gas valuation in separate regulations.

as royalties in kind), rather than cash royalties based on the value of that oil and gas. MMS would then sell this oil and gas to generate revenues. Legislation mandating that MMS accept federal oil and gas royalties in kind has been introduced in both the U.S. Senate and the House of Representatives.

Interested in the increased revenues that would result from the proposed regulations, as well as the oil industry's opposition to them, you asked us to address the following: (1) the information used by MMS to justify the need for revising its oil valuation regulations; (2) how MMS has addressed concerns expressed by the oil industry and states in developing these regulations; and (3) the feasibility of the federal government's taking its oil and gas royalties in kind, as indicated by existing studies and programs.

Results in Brief

In justifying the need to revise its oil valuation regulations, the Minerals Management Service relied heavily on the findings and recommendations of an interagency task force—composed of representatives from the Minerals Management Service and the departments of Commerce, Energy, Justice, and the Interior—assembled in 1994 by Interior to study the value of oil produced from federal leases in California. The task force concluded that the major oil companies' use of posted prices in California to calculate federal royalties was inappropriate and recommended that the federal oil valuation regulations be revised. The Minerals Management Service subsequently determined that in other parts of the country as well, posted prices should not be used as the basis to calculate royalties on oil from federal leases.

Beginning in 1995, the Minerals Management Service solicited public comments on the proposed regulations in five Federal Register notices; it solicited comments in each notice and revised its proposed regulations three times in response to the comments received. For example, the proposed regulations now include a separate valuation system for oil from federal leases in certain Rocky Mountain states in response to comments that the oil market in these states is geographically isolated from other markets. However, the agency did not agree with all the comments it received and in these cases provided reasons for not incorporating the suggested changes; for example, it did not change the proposed regulations to include the oil industry's comment that the federal government should accept its royalties in kind, noting that it planned to seek input on this issue through other means. In total, the agency asked for comments on 39 major issues and received 183 letters from states,

representatives of the oil industry, and other parties. On its most recent revision of the proposed regulations, the agency received 34 comments but has not yet publicly addressed them.

Information from studies of royalties in kind, as well as specific royalty-in-kind programs operated by various entities, indicates that it would not be feasible for the federal government to take its oil and gas royalties in kind except under certain conditions. These conditions include having relatively easy access to pipelines to transport the oil and gas, leases that produce relatively large volumes of oil and gas, competitive arrangements for processing gas, and expertise in marketing oil and gas. However, these conditions are currently lacking for the federal government and for most federal leases. Specifically, the federal government does not currently have relatively easy access to pipelines, has thousands of leases that produce relatively low volumes, has many gas leases for which competitive processing arrangements do not exist, and has limited experience in oil and gas marketing.

Background

The Minerals Management Service (MMS), an agency of the Department of the Interior, collected about \$2.5 billion in royalties for gas sold from leases on federal lands and about \$1.6 billion in royalties for oil sold from leases on federal lands in fiscal year 1997. There are approximately 22,000 federal oil and gas leases, which are located in 30 states, off the shore of California, and in the Gulf of Mexico. The federal government distributes about half of the royalties collected from federal leases located in states back to those states (although Alaska receives 90 percent) and shares a smaller portion of the royalties collected from leases off the shore of California and in the Gulf of Mexico with California and the Gulf states. About 78 percent of the federal leases are located in nine western states, but they produce relatively small amounts of oil and gas. In 1996, the most recent year for which data were available, these leases provided less than 13 percent of the total federal royalties; leases in the Gulf of Mexico provided about 83 percent of the total federal royalties (and leases in the rest of the country and off the shore of California provided the remaining 4 percent).

Oil and gas royalties are calculated as a percentage (usually 12-1/2 percent for onshore federal leases and 16-2/3 percent for federal leases off the shore of California and in the Gulf of New Mexico) of the value of production, less certain allowable adjustments (reflecting, e.g., the cost of transporting oil to markets). The value of production is generally

determined by multiplying the volume produced (which is measured in barrels of oil and in cubic feet of gas) by the sales price.

Oil Pricing

Contracts under which domestic oil is sold specify one of three types of sales prices: (1) posted prices, which are offers made by purchasers to buy oil from a specific area; (2) spot prices, under which the buyer and seller agree to the delivery of a specific quantity of oil in the following month; and (3) prices of crude oil futures contracts that are sold on the New York Mercantile Exchange (NYMEX). Posted prices can change frequently, and contracts using posted prices frequently specify that an additional premium be paid. Spot prices can change daily; two commonly cited spot prices are the prices paid for Alaska North Slope (ANS) and West Texas Intermediate crude oil.² NYMEX futures contracts each establish a price for the future delivery of 1,000 barrels of sweet crude oil (similar in quality to West Texas Intermediate oil) at Cushing, Oklahoma, where several major oil pipelines intersect and storage facilities exist.

When oil is bought and sold by parties with competing economic interests, the exchange is said to be “at arm’s length” and the price paid establishes a market value for the oil. Roughly one-third of the oil from federal leases is sold at arm’s length; the remaining two-thirds is exchanged between parties that do not have competing economic interests under terms that do not establish a price or market value. For example, oil companies that both produce and refine oil may transport the oil they produce to their own refineries rather than sell it. These oil companies may also exchange similar quantities of oil with other oil companies—rather than sell it—to physically place oil closer to their refineries and thereby reduce their costs of transporting it. Other oil companies that do not refine oil (often referred to as independent producers) may sell the oil they produce to marketing subsidiaries or to other companies with which they share economic interests.

The value of oil from a federal lease is determined by the price paid in a sale “at the lease,”³ which is how independent producers traditionally sold their oil. Since the collapse of world oil prices in 1986, however, independent producers have employed marketers and traders to transport

²Domestic oil is described by the location of its origin (e.g., western Texas) and often by its relative weight (either light, intermediate, or heavy); it may also be referred to as “sweet,” which means it contains relatively little sulfur and requires less refining, or “sour,” which means it contains substantial sulfur and requires more refining.

³In a sale that occurs at the lease, the buyer pays the seller to physically take the oil at the geographic location of the lease.

their oil from their leases to market centers and to refineries, where the oil is sold at higher prices. Under these circumstances, federal regulations provide that the price paid at the actual point of sale can be adjusted to approximate the price that would have been paid if the oil had been sold at the lease and that federal royalties can be paid on the adjusted price.

Royalties in Kind

While oil and gas royalties are most often paid in cash, they may instead be paid with a portion of the actual oil or gas that is produced (e.g., the lessor, who receives the royalties, would take 12-1/2 barrels of oil from every 100 barrels of oil that is produced). This practice of taking royalties in kind is uncommon because few lessors can or want to store oil or gas or market and sell it. However, some lessors accept royalties in kind under certain circumstances because they can sell the oil or gas for more than they would have received if the royalties had been paid in cash. Paying royalties in kind rather than in cash eliminates the need to determine the sales price of the production because royalties in kind are calculated only on the basis of the volume of oil or gas that is produced.

Representatives of the oil industry have suggested that the federal government accept some or all of its oil and gas royalties in kind and have testified before the Congress supporting a federal royalty-in-kind program. Legislation has been introduced in the Congress that would require the federal government to accept all its oil and gas royalties in kind (a recent amendment to the legislation would exempt certain wells). MMS has estimated that this legislation would cost the federal government between about \$140 million and \$367 million annually.

Oil Valuation Regulations

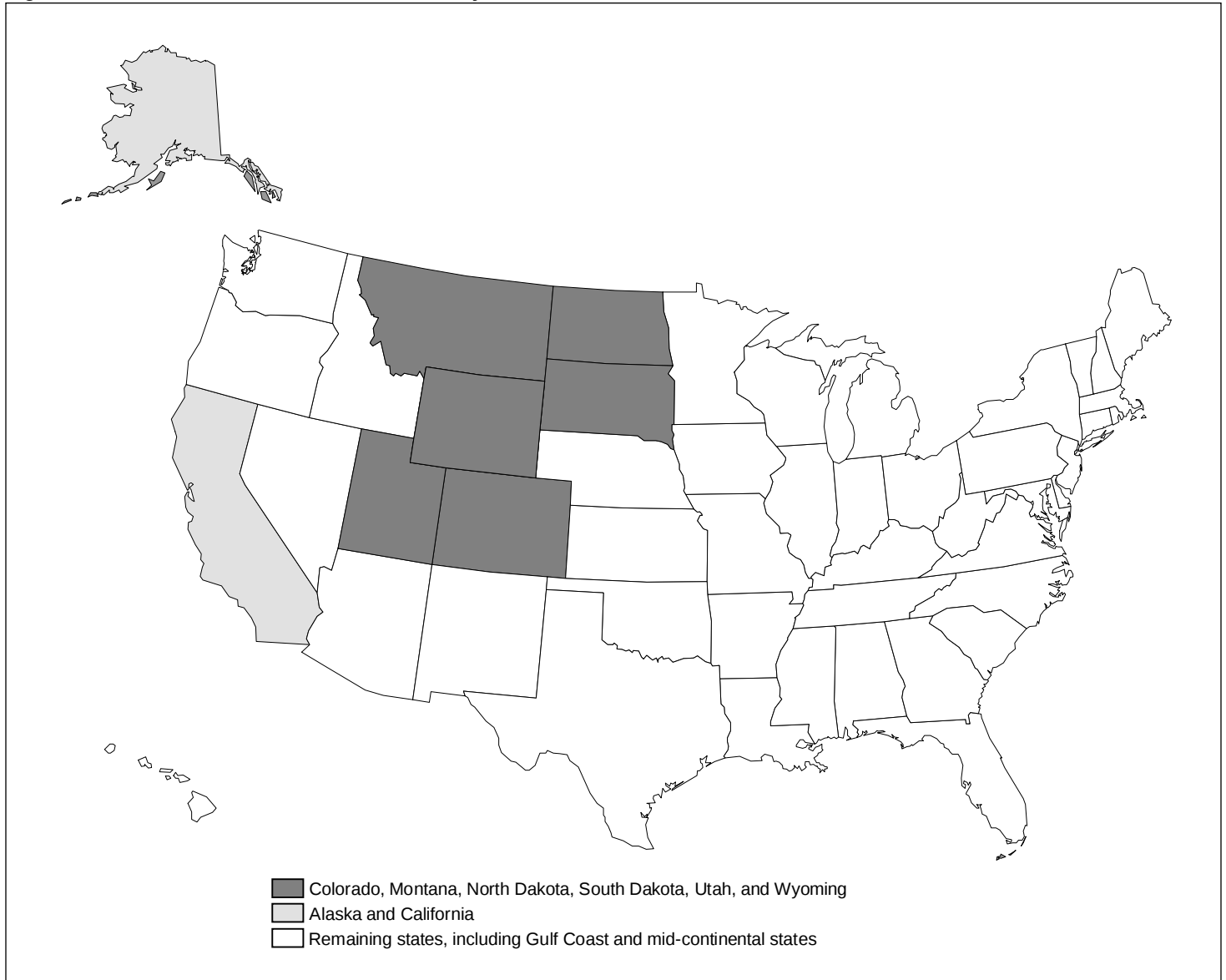
MMS promulgated the oil valuation regulations that are currently in effect in 1988. These regulations define the price of oil sold in arm's-length transactions, for the purpose of determining federal royalties, as all financial compensation accruing to the seller. This compensation, known as gross proceeds, includes the quoted sales price and any premiums the buyer receives. For other transactions (i.e., those not at arm's length), the price of the oil is defined as the higher of either the gross proceeds or the amount arrived at by the first applicable valuation method from the following list of five alternatives: (1) the lessee's posted or contract prices, (2) others' posted prices, (3) others' arm's-length contract prices, (4) arm's-length spot sales or other relevant matters, and (5) a netback⁴ or

⁴A netback involves adjusting a price that is established for a sale occurring away from the lease site to approximate a sales price that would have been paid at the lease, by taking deductions reflecting the transportation costs and the quality of the oil sold.

any other reasonable method. The first two alternatives, and to a lesser extent the third, can rely on posted prices in establishing value.

Under the revised oil valuation regulations that are currently proposed, MMS would continue to require that, for the purpose of determining federal royalties, gross proceeds be used to establish the price of oil that is sold in arm's-length transactions. For transactions that are not at arm's length, however, the proposed regulations substantially change the means for determining the price of the oil, no longer relying on the use of posted prices and instead relying on spot prices.

To determine federal royalties, the proposed regulations define the price of oil not sold in arm's-length transactions differently in each of three domestic oil markets: (1) Alaska and California (including leases off the shore of California); (2) the six Rocky Mountain states of Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming; and (3) the rest of the country, including the Gulf of Mexico. These regions are depicted in figure 1. Appendix I contains additional information on each of these oil markets.

Figure 1: Three Domestic Oil Markets Identified by MMS

Source: Based on information provided by MMS.

In Alaska and California, the price of oil not sold in arm's-length transactions is defined in the proposed regulations as the ANS spot price, adjusted for the location of the lease and the quality of the oil. In the six

Rocky Mountain states, this price is defined by the first applicable valuation method from the following list of four alternatives: (1) an MMS-approved tendering program (akin to an auction) conducted by the lessee; (2) the weighted average of the lessee's arm's-length purchases and sales from the same oil field, if they exceed 50 percent of the lessee's purchases and sales in that specific oil field; (3) NYMEX prices, adjusted for the location of the lease and the quality of the oil; or (4) a method established by the MMS Director. For the rest of the country, the price of oil is defined as local spot prices, adjusted for the location of the lease and the quality of the oil. MMS estimates that its proposed regulations would increase federal royalties by \$66 million annually.

Information Used by MMS to Justify Revised Regulations

MMS' decision to revise the oil valuation regulations relied on the findings of an interagency task force that examined whether the use of posted prices for the purpose of determining federal royalties in California was appropriate. The task force concluded that posted prices were inappropriately used for this purpose and recommended that MMS revise its oil valuation regulations. MMS also relied on additional studies, for which it had contracted, that concluded that posted prices did not reflect market value in other areas of the country as well. In addition, various states supplied MMS with information on legal settlements they had reached with major oil companies concerning the undervaluation of oil from state leases.

Findings of the Interagency Task Force

By 1991, the City of Long Beach, California, reached an agreement with six of seven major oil companies to accept \$345 million to settle a lawsuit it had filed years earlier. Although the lawsuit and settlement included issues other than the valuation of oil, one of the major issues was whether the companies' use of posted prices represented the market value of oil produced from leases owned by the city and the state. After conducting a preliminary assessment of the implication of the settlement for federal oil leases in California and consulting with state officials, in June 1994 the Department of the Interior assembled an interagency task force with representatives from MMS, Interior's Office of the Solicitor, the departments of Commerce and Energy, and the Department of Justice's Antitrust Division. MMS also initiated audits of two of the seven major oil companies that produced oil from federal leases in California.

The task force examined documents submitted by the companies in the lawsuit that had formerly been sealed by the court, reviewed the results of

MMS' audits, and employed consultants to analyze the market for oil in California. The market studies noted that the seven major oil companies dominated the oil market in California by controlling most of the facilities that produce, refine, and transport oil in the state—that is, most of these transactions were not at arm's length—and that this domination in turn suppressed posted prices. According to one of the studies, transactions involving ANS crude oil were at arm's length however—although ANS oil is refined in California, it is transported into the state by a company that does not own any refineries in California, and it is actively traded. As a result, ANS oil commanded substantial premiums over California oil that was comparable in quality. The task force concluded that the major oil companies in California inappropriately calculated federal royalties on the basis of posted prices, rather than include the premiums over posted prices that they paid or received. The task force estimated that the companies should have paid between \$31 million and \$856 million in additional royalties (the wide range reflects the use of different methodologies and different treatments of accrued interest) for the period 1978 through 1993. In its final report issued in 1996, the task force recommended that MMS revise its oil valuation regulations to reduce reliance on the use of posted prices for valuing oil for royalty purposes.

Studies of Oil Markets

MMS contracted for additional studies to determine the extent to which posted prices were used to value oil from federal leases in California and in other areas and whether their use accurately reflected market value. These studies provided MMS with information on how oil is exchanged, marketed, and sold, as well as information on the relevance of posted prices, spot markets, and NYMEX futures prices in oil markets. The studies concluded that posted prices do not represent the market value of oil, citing situations in which oil is bought and sold at premiums above posted prices throughout the country. The studies cited the common practice of oil traders' and purchasers' quoting a posted price plus a premium, in what is known as the P-plus market, as additional evidence that posted prices are less than market value.

States' Legal Settlements

Several states provided information to MMS about their experiences in resolving disputes with oil companies regarding the valuation of oil from leases on state lands. In general, the states disputed the oil companies' use of posted prices as the basis for determining royalties paid to the states, and the disputes were settled by using spot prices and NYMEX prices. For example:

- Alaska reported settling a lawsuit filed against three major oil companies for about \$1 billion. These companies produced oil and transported it directly to their refineries, paying state royalties based on prices the companies had themselves calculated. The state contended that these transactions from 1977 through 1990 were not at arm's length and that the calculated prices were less than the market value of the oil. The amount of the settlement was determined using a complicated formula that was based on an average of spot prices; in addition, two of the companies agreed to use ANS spot prices to value subsequent transactions.
- A major oil company agreed to pay Texas \$17.5 million to settle allegations that between 1986 and 1995 it had paid royalties on prices for oil from state leases that were less than market value. The company also agreed that it would subsequently value oil from state leases on the basis of NYMEX futures prices.
- Louisiana reported it settled 10 disputes involving oil companies that owned their own refineries and paid state royalties on posted prices from 1987 through 1998; these companies agreed to collectively pay about \$6 million to settle these claims and to make future royalty payments based on average spot prices in the Louisiana oil market.
- New Mexico reported two settlements with a major oil company that used its own posted prices as a basis for state royalties from 1985 through 1995. The company paid the state about \$2 million and agreed to calculate royalties based on higher NYMEX prices and higher posted prices offered by a nearby refinery.

How MMS Has Addressed Industry's and States' Concerns

From December 1995 through June 1998, in five Federal Register notices and in 14 meetings throughout the country, MMS solicited public comments on its proposal to change the way oil from federal leases is valued for royalty purposes, and it has revised the proposed regulations three times in response to the comments received. Comments submitted by states were often at odds with comments provided by the oil industry: States generally support the proposed regulations because MMS anticipates that royalty revenues—which are shared with the states—will increase; the oil industry, on the other hand, generally opposes the proposed regulations because they would increase oil companies' royalty payments and administrative burden. When MMS disagreed with a comment received, the agency provided reasons for not revising the proposed regulations as suggested. In total, MMS solicited comments on 39 major issues and

received 183 letters in response. MMS has received 34 letters on its most recent revision of the proposed regulations but has not yet publicly addressed these comments.

First Four Federal Register Notices

In its first Federal Register notice, published in December 1995, MMS announced that it was considering revising its oil valuation regulations because it had acquired evidence indicating that posted prices no longer represented market value. MMS solicited comments on seven major issues and received 25 letters. In response, representatives of the oil industry generally commented that they opposed any changes to the current regulations but that pending litigation prevented them from offering specific comments on the issues identified by MMS. Several states, on the other hand, commented that they believed that posted prices no longer reflected market value, provided evidence supporting their position, and recommended that MMS adopt spot prices or NYMEX futures prices for valuing oil from federal leases that was not sold at arm's length.

MMS' second Federal Register notice, published in January 1997, contained the proposed regulations and asked for comments on 10 specific issues. The proposed regulations retained the use of gross proceeds for valuing federal oil sold at arm's length—but reduced the number of oil companies that could use this method by restricting its applicability to those companies that had not sold oil in the past 2 years—and eliminated the use of posted prices for oil not sold at arm's length. For these sales, MMS proposed that the value of oil from federal leases in Alaska and California would be based on ANS spot prices and that the value of oil from other federal leases would be based on NYMEX futures prices. Both the ANS and NYMEX prices would be adjusted for differences in the location of the leases and the quality of the oil.

MMS received 70 written responses to this second notice. The oil industry generally opposed the proposed regulations, commenting that they were burdensome, that ANS and NYMEX prices did not reflect the market value of oil, that adjustments to these prices were burdensome and inadequate, and that the government should take its oil royalties in kind if it was dissatisfied with the current valuation regulations. Independent oil producers also commented that NYMEX prices should not be applied to the Rocky Mountain states because this oil market is geographically separate from the rest of the country. The states generally supported the proposed regulations, but individual states differed in their opinions on the applicability of NYMEX prices to value oil from federal leases and offered

suggestions on the price adjustments for location and quality. The oil industry and several states opposed the proposed 2-year limitation on the use of the gross proceeds methodology, believing it was unnecessarily restrictive.

In its third Federal Register notice, published in July 1997, MMS responded to the comments received by revising its proposed regulations: It deleted the proposed limitation on the use of the gross proceeds methodology, specifically asked for alternative suggestions for valuing oil not sold in arm's-length transactions, and solicited comments on six additional issues. MMS received 28 written responses. Independent oil producers supported the deletion of the limitation on the use of the gross proceeds methodology. However, they also suggested an alternative system to value oil not sold at arm's length by identifying and using a series of valuation methods based on comparable sales or purchases at the lease.

In its fourth Federal Register notice, published in September 1997, MMS reopened the comment period on the proposed regulations and solicited comments on eight additional issues, including the independent producers' suggestion to identify and use a series of alternative methods to value oil not sold at arm's length, a suggestion to value such oil using spot prices, and the need for a separate valuation system for the Rocky Mountain states. MMS disagreed with and dismissed the oil industry's suggestion to initiate a royalty-in-kind program as an alternative to the proposed regulations, stating that the agency would seek input on this issue through other avenues. MMS received 28 letters in response to this notice. The oil industry generally supported the suggestion to use a series of methods to value oil not sold at arm's length but offered no consensus on the nature of these valuation methods or their relative order; supported establishing a separate valuation methodology for the Rocky Mountain states, agreeing that this market is geographically isolated; and again suggested that the federal government take its royalties in kind.

Current Status of the Proposed Regulations

MMS published its fifth and most recent Federal Register notice in February 1998, in which it again revised its proposed regulations. The regulations currently propose a separate system for valuing oil not sold at arm's length in the Rocky Mountain states, thereby identifying three different domestic oil markets. The proposed regulations also eliminate the use of NYMEX prices in the rest of the country (but retain them as a last alternative for valuing oil not sold at arm's length in the Rocky Mountain states), offer a definition of an oil company's affiliate (transactions with

affiliated companies are not considered to be at arm's length), and adopt spot prices as a basis for valuing oil not sold at arm's length outside Alaska, California, and the Rocky Mountains. MMS also made other modifications and sought comments on seven more issues; it received 34 letters in response.

Although states generally support the proposed regulations, respondents from the oil industry continue to oppose them. The oil industry opposes the proposed identification of three oil markets, saying that this situation would be burdensome and would require oil companies to maintain three separate accounting systems. Representatives from the oil industry and two Rocky Mountain states further commented that the proposed valuation system for oil not sold at arm's length in the Rocky Mountain states is unworkable because of the nature of the Rocky Mountain oil market. The oil industry also opposes MMS' proposed definition of an affiliate, stating that it is too broad and would cause many sales that occur at arm's length to be valued inappropriately.

MMS has not yet publicly addressed the comments it received in response to its fifth Federal Register notice. In May 1998, in an amendment to the 1998 Emergency Supplemental Appropriations Act for the Department of Defense, the Congress directed MMS to not use any appropriated funds to publish final oil valuation regulations before October 1, 1998. MMS was in the process of responding to the comments but ceased its efforts as a result of this directive.

Additional Efforts Made by MMS

In addition to publishing five notices in the Federal Register, MMS held 14 meetings around the country to further explain the proposed regulations and to solicit additional comments on them. In April 1997, the agency held public meetings in Houston, Texas, and Lakewood, Colorado. In May 1997, it met with representatives from the oil industry and Louisiana to solicit views on the first draft of the regulations. Following its September 1997 Federal Register notice, MMS held public meetings in Washington, D.C.; Lakewood, Colorado; Houston, Texas; Bakersfield, California; Casper, Wyoming; and Roswell, New Mexico. In February and March 1998, MMS also held public meetings on its current version of the proposed regulations in Houston, Texas; Washington, D.C.; Lakewood, Colorado; Bakersfield, California; and Casper, Wyoming.

MMS also placed the five Federal Register notices, all 183 letters it received in response to these notices, and additional information concerning the

proposed oil valuation regulations on the Internet home page of its Royalty Management Program. We found this site easy to use.

Feasibility of a Royalty-In-Kind Program

Although most oil and gas lessors take their royalties in cash, several limited programs exist in the United States and Canada under which lessors accept their royalties in kind: Oil royalty-in-kind programs are currently operated by MMS,⁵ the Canadian Province of Alberta, the City of Long Beach, the University of Texas, and the states of Alaska, California, and Texas; gas royalty-in-kind programs are also currently operated by Texas and the University of Texas. (App. II provides more information on these programs.) According to information from studies and the programs themselves, royalty-in-kind programs seem to be feasible if certain conditions are present. In particular, the programs seem to be most workable if the lessors have (1) relatively easy access to pipelines to transport the oil or gas to market centers or refineries, (2) leases that produce relatively large volumes of oil or gas, (3) competitive arrangements for processing gas, and (4) expertise in marketing oil or gas. However, these conditions do not exist for the federal government or for most federal leases: The federal government does not currently have relatively easy access to pipelines, has thousands of leases that produce relatively low volumes, has many gas leases for which competitive processing arrangements do not exist, and has limited experience in oil or gas marketing.

Easy Access to Pipelines

Once produced from a lease, oil or gas generally becomes more valuable (i.e., can be sold for higher prices) the closer it is moved to a market center or refinery, and pipelines are often the only cost-effective means of transporting it. Several of the entities operating royalty-in-kind programs told us that having relative ease of access to pipelines is a key component of their programs because it assures them that they can transport their production when they need to at a relatively low cost. For example, Alberta uses its regulatory authority to direct its lessees to deliver the province's oil royalties, using extensive pipelines that transport the oil to centrally located storage tanks, where oil marketers who are under contract with Alberta sell the oil. In Texas, state law mandates that all gas pipelines in the state accept and transport gas from the state's gas royalty-in-kind program. Representatives of the oil royalty-in-kind programs in the City of Long Beach, the states of California and Texas, and

⁵The purpose of MMS' royalty-in-kind program is to supply oil to small refineries that may otherwise not be able to obtain oil at competitive prices; it currently provides oil from 170 leases to several small refineries.

the University of Texas reported that because oil from certain leases could be transported on only one pipeline charging high fees, they were unable to accept royalties in kind from these leases or incurred losses in selling this oil because of the high transportation fees.

The federal government does not currently have the statutory or regulatory authority over pipelines that would ensure relative ease of access for transporting oil and gas from federal leases. In addition, some pipelines are privately owned, and the owners are free to set their own transportation fees. In some areas of the country, oil from federal leases can be transported on just a single pipeline, and the owner of that pipeline may charge substantial fees. In 1995, MMS conducted a limited royalty-in-kind program on federal leases in the Gulf of Mexico, collecting gas royalties in kind and offering gas for sale near the leases. Because purchasers had to transport the gas and pay transportation fees to use the privately owned pipelines, the purchase bids that MMS received were relatively low. MMS estimated that this program lost about \$4.7 million (about 7 percent) when compared to the revenues the agency would have received if it had taken its gas royalties in cash. Oil and gas marketers we contacted confirmed that the federal government would need to transport any royalties in kind it received to market centers or refineries in order to increase its revenues.

Large Volumes

To be cost-effective, royalty-in-kind programs must have volumes of oil and gas that are high enough for the revenues made from selling these volumes to exceed the programs' administrative costs. The volumes of oil or gas that are needed for programs to be cost-effective vary among programs. For example, when Wyoming tried in 1997 to initiate a limited oil royalty-in-kind program on 508 leases that produced, on average, less than 3 barrels of oil in royalties per day, it did not receive any bids that would have allowed the state to generate more revenues than it already received by taking its royalties in cash. Texas and the University of Texas generally do not accept royalty volumes of less than 10 barrels daily in their oil royalty-in-kind programs. MMS does not accept oil royalties in kind from leases supplying less than around 50 barrels per day, because it believes that the benefits to refiners from smaller volumes would not offset its administrative costs. And while Alberta accepts all of its oil royalties in kind, these royalty volumes are relatively large: 200 to 10,000 barrels per day are common. Similar situations exist in gas royalty-in-kind programs; for example, program representatives from Texas and the University of Texas told us that they needed to have large volumes of

gas—a minimum of either 300,000 or 2,000,000 cubic feet per day, depending on the pipeline used, to obtain pipeline transportation.

The majority of oil and gas leases on federal lands produce relatively small volumes and are geographically scattered across many miles—particularly for federal leases located in the western states. For example, MMS estimates that about 65 percent of the wells on federal oil leases in Wyoming produce less than 6 barrels of oil daily, which would result in less than 1 barrel per day in oil royalties in kind. Most federal leases in the San Juan Basin of New Mexico also produce low volumes.

Competitive Gas Processing Arrangements

Because natural gas may need to be processed before it can be sold, arranging for this processing is a critical consideration in operating a gas royalty-in-kind program. The University of Texas noted that many of the university's leases produce small volumes of gas requiring processing and that these volumes must be aggregated into a larger amount to be accepted by gas-processing plants.

Many federal leases also produce small volumes of gas that need to be processed. In certain areas, there is only a single plant to process the gas from many of these leases. In these circumstances, the lack of competition might allow the plants to charge high fees. For example, MMS estimates that the federal government could lose up to \$4.3 million annually if the agency accepted royalties in kind from federal leases in Wyoming for which there is access to only a single gas-processing plant.

Marketing Expertise

Lessors who accept royalties in kind must sell the oil or gas to realize revenues, and they are likely to receive higher prices if they move it away from the lease and closer to marketing centers or refineries. Storing, transporting, marketing, and selling oil or gas can be complicated processes; profit margins are often thin; and there may be little room for error. The nonfederal royalty-in-kind programs have generally been in existence for years, and the entities running these programs have gained both experience and expertise. For example, Alberta has been actively marketing its oil royalties in kind since 1974. Similarly, the University of Texas has been accepting its gas royalties in kind and arranging for transportation since 1985.

In contrast, the federal government has limited experience in marketing oil or gas royalties in kind. In addition to the limited oil royalty-in-kind

program that MMS currently operates, in 1995 it conducted a limited gas royalty-in-kind program in the Gulf of Mexico. However, MMS' experience in these programs has been limited to sales that occur at the lease; the agency has not transported its oil or gas to market centers or received higher revenues than it would have realized if it had instead taken cash royalties.

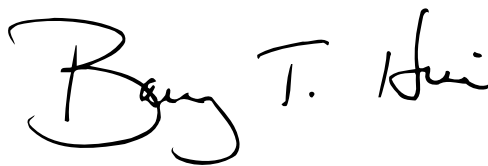
Agency Comments

We provided a copy of a draft of this report to the Department of the Interior for its review and comment. The Department commented that this report provides a fair description of its oil valuation rulemaking efforts and of the issues it would face if required to implement a mandatory royalty-in-kind program. The Department also provided some minor technical clarifications, which we incorporated. Interior's comments are reproduced in appendix III.

We performed our review from March 1998 through July 1998 in accordance with generally accepted government auditing standards. Our scope and methodology are discussed in appendix IV.

We will send copies of this report to appropriate congressional committees, the Secretary of the Interior, and other interested parties. We will also make copies available to others upon request.

If you or your staff have any questions, please call me at (202) 512-3841. Major contributors are listed in appendix V.

A handwritten signature in black ink, reading "Barry T. Hill". The signature is written in a cursive, flowing style.

Barry T. Hill
Associate Director, Energy,
Resources, and Science Issues

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Abbreviations

ANS	Alaska North Slope
GAO	General Accounting Office
MMS	Minerals Management Service
NYMEX	New York Mercantile Exchange

Domestic Oil Markets

In developing its proposed oil valuation regulations, the Minerals Management Service (MMS) received comments from the oil industry making the point that separate oil markets exist in different geographic areas of the United States. In response to these comments, MMS' proposed regulations now identify three domestic oil markets: (1) Alaska and California; (2) the six Rocky Mountain states of Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming; and (3) the rest of the country.

Alaska and California

A large portion of the oil produced in Alaska comes from the Prudhoe Bay region on the state's North Slope. Alaska North Slope (ANS) crude oil, an intermediate grade of oil, is transported about 800 miles south through the Trans-Alaskan Pipeline System to Valdez, Alaska, where it is loaded onto oil tankers. Most ANS oil is shipped to oil refineries in the Puget Sound, Los Angeles, and San Francisco, although some is shipped to the Far East or refined in Alaska. ANS oil represents about 40 percent of the oil that is refined in California.

In California, oil is produced from onshore leases—in the San Joaquin, Santa Maria, Ventura, and Los Angeles basins in southern California—and from leases off the coast—from Point Arguello southeast to Huntington Beach. Although a variety of grades of crude oil are produced in California, most of its oil is heavy. About two-thirds of the oil in California is produced by seven major oil companies, which also own about three-quarters of the refinery capacity in the state and have major investments in oil pipelines in the state. Many of these pipelines are common carrier lines that are regulated by the state and therefore must be made available to transport the oil of independent producers. However, these seven major oil companies also own three heated pipelines—which make the heavy oil more liquid and therefore more easily transported through pipelines—that are not common carrier lines; the seven major oil companies use their heated lines to transport their oil to their refineries in Los Angeles and San Francisco. Nearly all of the oil produced in California is refined within the state, and most of it is refined into gasoline.

About 15 percent of the oil produced nationwide from federal leases is produced in Alaska and California. Most of this oil is transported by the major oil companies from the federal leases directly to their refineries, or it is exchanged for oil that is ultimately moved to these refineries, rather than being sold on the open market.

Rocky Mountain States

Production from the six Rocky Mountain states of Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming includes a wide range of crude oils from geographic basins in a variety of areas. These basins are often physically separated from one another by rugged terrain and long distances, resulting in local markets within the larger Rocky Mountain market. Individual wells often produce very low volumes—a few barrels a day are not uncommon. Important producing areas include the Powder River and Big Horn basins in Wyoming, the Williston Basin in Montana and North Dakota, the Uinta Basin in Utah, the Piceance Basin in western Colorado, and the Paradox Basin of the Four Corners area. About 8 percent of the oil produced nationwide from federal leases is produced in this region, and about 65 percent of this amount comes from the Wyoming basins.

Oil produced in this region is refined almost exclusively within the region by small refineries. The larger of these small refineries are located in Billings, Montana; Denver, Colorado; Salt Lake City, Utah; and various locations in Wyoming. Most of the oil from the region is produced by independent producers who do not own refineries. These producers may market their oil themselves, or they may sell it to oil traders or marketers, who in turn sell and transport the oil to refineries.

The Rest of the Country

In the rest of the country, most of the oil is produced from leases located in the Gulf of Mexico and onshore leases located in western Texas, the Gulf states, and the mid-continental states. Leases in the Gulf of Mexico account for about 75 percent of the total federal royalties received from oil leases nationwide. The region has a large number of oil companies, a well-integrated pipeline system, a large number of refineries, and a high refining capacity.

Oil that is produced in western Texas and in New Mexico is refined locally or is gathered and transported via pipeline to the market center at Midland, Texas. From Midland, the oil flows either southeast to refineries along the Gulf Coast or northeast to the market center of Cushing, Oklahoma. From Cushing, oil often flows northeast to major oil refineries in Illinois. Oil that is produced in the Gulf of Mexico is generally transported via pipeline to market centers or refineries at Empire and Saint James, Louisiana. This oil can be refined locally or can be piped north to Cushing and ultimately to the Illinois refineries. Because of the extensive pipeline system, oil produced in this region can be easily

transported; for this reason, the area has many oil traders, and oil is predominantly sold by these marketers.

Royalty-In-Kind Programs

We examined seven oil royalty-in-kind programs and two gas royalty-in-kind programs that are currently operating in the United States and Canada. Sales of the oil that is taken as royalties occur competitively at the lease, noncompetitively at the lease, or after the oil has been transported to storage tanks. Sales of most of the gas that is taken as royalties occur after the gas is transported.

Oil Royalty-In-Kind Programs

We identified four oil royalty-in-kind programs under which the recipients of the oil royalties sell the oil in competitive sales that occur at the lease: programs operated by the City of Long Beach in California, the University of Texas, and the states of California and Texas. The primary purpose of all of these programs is to maximize revenues. In operating these programs, these entities generally select specific leases to include, solicit bids from interested parties to purchase the oil that has been taken as royalties in kind, and issue short-term contracts (normally from 6 to 18 months) to the successful bidders to purchase this oil. Bidders generally offer premiums above posted prices and must arrange and pay to transport the oil to market centers or refineries. These programs are limited in scope, involving relatively few of the entities' oil leases that produce high volumes, and none of the programs currently has more than 13 active contracts.

Alaska and MMS both operate oil royalty-in-kind programs under which they sell the oil in noncompetitive sales to small refiners. In both programs, the sale occurs at the lease, and the purchaser arranges and pays to transport the oil to the refinery. Under Alaska's program, the state directly negotiates sales with small refiners. By law, Alaska must realize revenues from selling this oil that are at least equal to what the state would receive under current sales prices for oil; however, the state tries to obtain bonuses on this oil of at least a 15 cents per barrel. Currently, Alaska has three contracts involving about 170,000 barrels of oil per day. Under MMS' program, the agency solicits interest from small refiners and makes oil from certain leases available if there is interest. MMS must receive an amount equal to the cash royalties that would have been paid plus a fee to cover its administrative costs. Currently, MMS administers six contracts covering 170 leases located in the Gulf of Mexico and off the shore of California.

In the Province of Alberta, Canada, royalties from all of the provincial oil leases must be taken as royalties in kind, which constitutes about 125,000 barrels of oil per day. These oil royalties in kind are not taken at the lease.

Instead, the province directs its lessees to gather the oil from the leases (which are generally concentrated in one geographic area) and transport it to about 5,500 storage tanks that are centrally located; the province then reimburses the transportation fees. Alberta has 5-year contracts with three oil marketers, each whom is generally responsible for one of three grades of oil and receives fees equal to 5 cents per barrel to sell this oil.

Gas Royalty-In-Kind Programs

In addition to their oil royalty-in-kind programs, Texas and the University of Texas also operate small gas royalty-in-kind programs. Texas accepts gas royalties in kind from about 6 percent of its leases; the program is intended to increase royalty revenues for the state's school fund and to provide gas to state facilities—schools, universities, hospitals, and prisons—at a cheaper price than is offered by local gas distribution companies. The University of Texas accepts gas royalties in kind from seven of its leases and sells this gas under a single contract.

Comments From the Department of the Interior



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

JUL 24 1998

Mr. Barry T. Hill
Associate Director, Energy Resources
and Science Issues
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Hill:

Secretary Bruce Babbitt asked me to respond to your July 15, 1998, letter requesting the Department's comments on your draft report, *Federal Oil Valuation - Efforts to Revise Regulations and An Analysis of Royalties in Kind* (GAO/RCED-98-242). The Minerals Management Service (MMS) believes it provides a fair description of its oil valuation rulemaking efforts, as well as on the issues it would face if required to implement a *mandatory* Royalty-in-Kind program. We found no significant inaccuracies in the facts presented, but have orally provided a few technical corrections to your staff.

While the report contains no criticism of our oil rulemaking efforts, we believe the readers should know that MMS has done everything practicable to be fully responsive to the comments received. As noted, we solicited comments in 5 *Federal Register* notices, conducted 14 meetings nationwide, and revised the proposed regulations 3 times based on comments received. We have reopened the comment period through July 31 and requested comments on three additional changes to the proposed rule. We are highly confident that the final rule, scheduled for publication on October 1, 1998, will ensure an appropriate balance between the interests of industry, the States, and the Federal Government.

If you have any questions, please contact Bettine Montgomery at (202) 208-3976.

Sincerely,

Bob Armstrong
Assistant Secretary, Land and
Minerals Management

Scope and Methodology

To determine what information MMS used to justify the need for revising its oil valuation regulations, we reviewed MMS' reasons for proposing new regulations as published in Federal Register notices and read all of the comments submitted in response to the first notice that solicited information on oil marketing and the relevance of posted prices. We interviewed officials in MMS' Royalty Valuation Division and reviewed the marketing studies for which MMS had contracted. We also reviewed the final report of the interagency task force that examined federal oil valuation in California and interviewed individuals who had served on that task force and individuals who were involved in the City of Long Beach's litigation. In addition, we solicited information on lawsuits and settlements from state representatives present at a meeting of the State and Tribal Royalty Audit Committee in Denver, Colorado, and we subsequently contacted representatives of these various states for additional information.

To ascertain how MMS addressed concerns expressed by the oil industry and states in developing its proposed regulations, we identified 39 major issues on which MMS had solicited comments in its Federal Register notices. We selected a judgmental sample of about 50 percent of the 183 letters that were submitted to MMS in response to these notices. In selecting this sample, we sought to represent a cross-section of the oil industry and included in our sample major oil companies that both produced and refined oil, large independent companies that only produced oil, small independent producers, independent refiners, oil marketers, and oil industry trade associations. Because the number of letters MMS received from states was significantly less than the number of letters MMS received from representatives of the oil industry, we read all of the comments submitted by states. We summarized concerns expressed by the oil industry and states on each of the 39 issues and determined how MMS addressed these concerns—that is, whether and how the proposed regulations were revised in response to the comments. In addition, we interviewed representatives from the following oil industry associations: the American Petroleum Institute, the Independent Petroleum Association of America, the Independent Petroleum Association of Mountain States, the Independent Oil Producers Association, and the California Independent Petroleum Association. We attended or read transcripts from several public meetings conducted by MMS on the proposed regulations.

To determine what existing studies and programs indicate about the feasibility of the federal government's taking its oil and gas royalties in kind, we (1) identified and read two studies—a 1997 study by MMS of the

feasibility of royalties in kind and a 1997 analysis by the Congressional Research Service on the oil royalty-in-kind program run by the Canadian Province of Alberta—and interviewed their authors and (2) identified nine royalty-in-kind programs that are currently in operation and interviewed representatives of these programs: the seven oil royalty-in-kind programs operated by MMS, the Canadian Province of Alberta, the City of Long Beach, the University of Texas, and the states of Alaska, California, and Texas; and the two gas royalty-in-kind programs operated by Texas and the University of Texas. We also reviewed an attempt by Wyoming in 1997 to take oil royalties in kind, reviewed a pilot program conducted by MMS in 1995 in the Gulf of Mexico to take gas royalties in kind, and interviewed MMS representatives who are designing limited royalty-in-kind programs that are planned for federal leases in Wyoming and the Gulf of Mexico. In addition, we interviewed oil and gas marketers who are active in the Rocky Mountains, mid-continental, and Gulf of Mexico regions; we met with technical staff in MMS' Pacific Outer Continental Shelf Region in Camarillo, California; and we reviewed the proposed legislation mandating that MMS accept federal oil and gas royalties in kind, MMS' analysis of the financial impact of this proposed legislation, and the Barents Group's response to MMS' analysis.

We conducted our review from March 1998 through July 1998 in accordance with generally accepted government auditing standards.

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