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GAO

Report to Congressional Requesters

April 2004

MINERAL REVENUES

Cost and Revenue Information Needed to Compare Different Approaches for Collecting Federal Oil and Gas Royalties

GAO
Accountability * Integrity * Reliability

GAO-04-448

Highlights of GAO-04-448, a report to Representative Nick J. Rahall, Ranking Minority Member, House Committee on Resources, and Representative Carolyn B. Maloney

Why GAO Did This Study

In fiscal year 2003, the federal government collected $5.6 billion in royalties from oil and gas production on federal lands. Although most oil and gas companies pay royalties in cash, the Department of the Interior's Minerals Management Service (MMS) has the option to take a percentage of the oil and gas produced and sell this product—known as "taking royalties in kind (RIK)." MMS has taken royalties in kind continuously since 1998 with the goal of achieving administrative savings while maintaining revenue. GAO attempted to (1) quantify the administrative savings that may be attributable to the RIK sales and (2) compare the sales revenues from RIK sales to what would have been collected in cash royalty payments.

What GAO Recommends

GAO reported on MMS's RIK Program in 2003 and recommended that MMS identify and acquire key information to monitor and evaluate the RIK Program prior to expanding the program further. While MMS has made some progress, it has yet to implement these recommendations. Should the Congress seek more assurance of the level of success of the RIK Program, it might consider directing MMS to establish a systematic evaluation of the revenue impacts of all future sales and to quantify overall changes in the administration of royalty collections. In commenting on the draft report, Interior generally agreed with GAO's observations.

www.gao.gov/cgi-bin/getrpt?GAO-04-448.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Jim Wells at (202) 512-3841 or wellsj@gao.gov.

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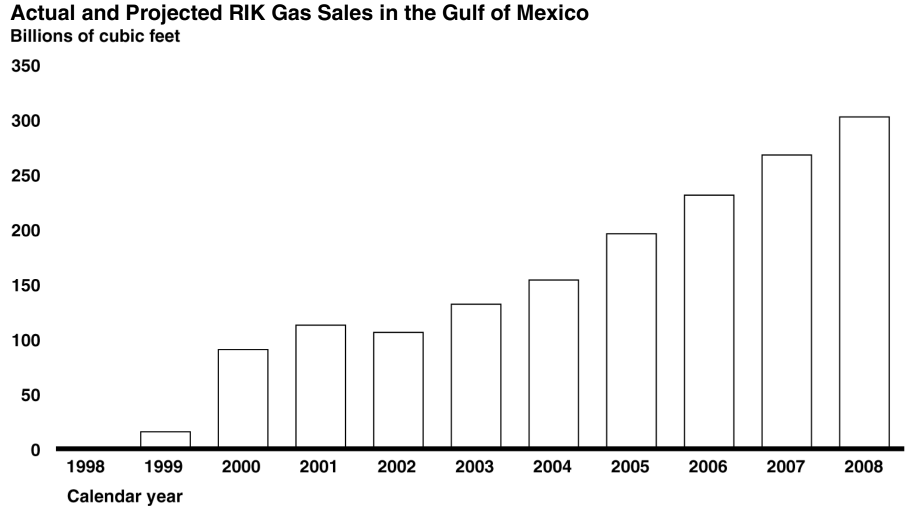
What GAO Found

Although data on administrative savings are limited, there are substantial audit savings attributable to RIK sales, but there are no quantified savings in the overall administration of royalty collections. MMS has anticipated savings in auditing and litigation expenses. While MMS data showed that auditing costs for RIK sales were less than auditing costs for cash sales on a per lease basis, MMS redirected the resources it saved to auditing additional leases. At this time, MMS cannot quantify the benefit from additional auditing. The costs of litigation, which the Solicitor's Office in the Department of the Interior performs for MMS, are not tracked. However, officials with the Solicitor's Office were unable to attribute any savings in litigation to the increased use of RIK and said that future litigation costs are difficult to predict. Finally, MMS must weigh these benefits against additional costs required to conduct RIK sales.

Despite limitations in MMS's analyses and revenue data that prevented a more comprehensive assessment of all RIK sales, our estimate of the revenue impacts from RIK sales in three areas indicates a mixed performance. Specifically, RIK oil sales in Wyoming increased revenues by 2.6 percent, for a gain of $967,000 on sales of $37 million. RIK oil sales in the Gulf of Mexico decreased revenues by $7.2 million, for a loss of 5.5 percent on sales of $131 million. RIK gas sales in the Gulf increased revenues by $4 million, for a gain of 2 percent on revenues of $210 million. However, these sales only represent 11 percent of the gas and 57 percent of the oil that MMS took in kind from inception of the pilots through November 2003. MMS does not analyze all sales because there is no requirement to do so, staff considers existing information on sales sufficient, few staff are assigned to analyzing sales, and MMS management has a lengthy review process for finalizing sales analyses.

Actual and Projected RIK Gas Sales in the Gulf of Mexico



Source: GAO analysis of MMS data.

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Abbreviations

ABC	activity-based cost
DOE	Department of Energy
GAO	General Accounting Office
MMBtu	one million British thermal units
MMS	Minerals Management Service
MOPS	Matagorda Offshore Pipeline System
MRM	Minerals Revenue Management
NYMEX	New York Mercantile Exchange
RIK	royalty in kind
SPR	Strategic Petroleum Reserve

United States General Accounting Office
Washington, D.C. 20548

April 16, 2004

The Honorable Nick J. Rahall
Ranking Minority Member
Committee on Resources
House of Representatives

The Honorable Carolyn B. Maloney
House of Representatives

In fiscal year 2003, the Department of the Interior's Minerals Management Service (MMS) collected about $5.6 billion in royalties from oil and gas production on federal lands. MMS traditionally accepts the federal government's oil and gas royalties in cash. Under the Mineral Leasing Act of 1920 and the Outer Continental Shelf Lands Act, MMS also has the authority to take a portion of the actual oil and gas produced, referred to as "taking royalties in kind." MMS then sells this oil and gas to the highest bidders at competitive auctions. MMS established Royalty-in-Kind (RIK) pilot sales with the intent of testing whether MMS can (1) decrease the cost of administering royalties and (2) maintain or increase royalty revenues. MMS began to evaluate the use of federal royalty oil as an alternative to cash royalty payments through a series of pilot sales in Wyoming beginning in 1998. In addition, MMS has conducted pilot sales for gas and oil in the Gulf of Mexico. We estimate that revenue from RIK pilot sales was about $682 million in fiscal year 2003. Based on MMS estimates for further expansion of RIK sales, MMS could be collecting between $1.5 billion and $2.5 billion per year in revenue from RIK pilot sales by 2008.

To address MMS progress toward a more systematic evaluation of MMS's RIK efforts, you asked us to (1) quantify any savings in administering royalty collections that are attributable to the RIK pilots and (2) compare sales revenues from RIK pilots to what would have been collected under cash royalty payments.

In responding to the objectives, we discussed the RIK sales program with MMS officials and oil and gas marketers who are active in Wyoming and the Gulf of Mexico, where MMS has conducted almost all of its RIK pilot sales. We initially reviewed documents analyzing RIK sales and the costs to administer these sales. However, we found at the start of our review that MMS had only released two draft reports that analyzed the impact of RIK sales, and these reports and other informal studies only addressed the revenue impacts associated with 9 percent of the royalty oil sold through

July 2002 and about 44 percent of the royalty gas sold through March 2002. The reports remained in draft until approved by management in March 2004. While the two studies asserted that RIK sales produce administrative savings, the studies did not conclusively quantify any savings. Given the nature of MMS's limited analysis of administrative cost and revenue impacts, we attempted to address the objectives by acquiring and analyzing additional MMS data. However, in the course of our analysis, we found that sufficiently detailed administrative cost information necessary to compare RIK to cash royalties does not exist, leaving us unable to completely assess the administrative impacts.

In evaluating the revenue impact of RIK sales, we obtained royalty data from MMS's financial data system. However, this system was designed to collect and disburse revenues and not to specifically analyze the revenue impacts of RIK sales; therefore it was not suitable for doing a comprehensive evaluation of the RIK sales. In addition, some erroneous and missing data required time-consuming inspections of the royalty data to ensure their reliability and integrity. As a result, we were only able to assess the revenue impacts in case studies representing parts of three RIK pilot sales areas: Wyoming oil, Gulf of Mexico oil, and Gulf of Mexico natural gas. The sales we analyzed represented about 57 percent of the royalty oil and 11 percent of the royalty gas MMS took in kind from inception of these pilots through November 2003. We performed significance tests on the results of our case studies and found them to be statistically significant at the 5 percent level. However, it was not possible to project the total revenue impact of all the RIK pilot sales from these case studies because the difference between RIK revenues and cash royalty revenues can vary greatly over time and because the case studies are not representative samples of all RIK sales. In addition, we were unable to obtain data that would have enabled us to measure the effects of audits on revenues from RIK and cash sales, which adds uncertainty to our estimates in the case studies. Therefore, we are unable to determine conclusively how well the RIK pilot sales have done compared to what would have been expected from cash sales over the long term.

We conducted our work from February 2003 through March 2004 in accordance with generally accepted government auditing standards. For a more detailed discussion of the scope and methodology of our review, see appendix I.

Results in Brief

There are substantial administrative savings in auditing royalty collections that are attributable to the RIK pilots, but there are no quantified savings in the overall administration of royalty collections. MMS has stated that the RIK pilots should create savings primarily by reducing the costs of auditing royalty payments and by decreasing overall litigation. RIK royalty auditing costs are substantially less than cash royalty auditing costs on a per-lease basis, but MMS simply redirected any resources it saved to auditing more cash payments. Although more audits of these cash payments could result in higher revenue collections if the audits identified royalty underpayments, MMS is not currently able to determine this benefit because the auditing of cash payments takes several years to complete. Similarly, the Department of the Interior's Solicitor's Office could not identify any change in the amount of litigation attributable to the RIK pilots or predict the extent to which RIK would affect its future litigation workload. MMS did incur other administrative costs under RIK that it would not have incurred by accepting cash royalty payments. For example, it incurred $1.7 million in direct costs to conduct the RIK pilot sales during fiscal year 2003 and one-time costs of $13 million to purchase information systems that, among other things, were intended to bill, collect, and report revenues from the RIK pilots.

Our analysis of the revenue impacts from three case studies of RIK pilots indicated a mixed performance when compared to cash royalty payments. Specifically, we estimated that (1) RIK sales in Wyoming increased revenues by about 2.6 percent, for a gain of $967,000 on sales of about $37 million; (2) a 6-month oil sale in the Gulf of Mexico decreased revenues by 5.5 percent, for a loss of $7.2 million on sales of about $131 million; and (3) natural gas sales in the Gulf of Mexico increased revenues by about 2 percent, for an estimated gain of about $4 million on sales of about $210 million. These sales represented about 11 percent of the gas and 57 percent of the oil that MMS took in kind from inception of the pilots through November 2003. Limitations in MMS's data and a lack of MMS analyses of RIK sales precluded us from comprehensively analyzing the revenue impact of more RIK sales in a timely manner. Currently, MMS is not required to analyze sales or document them, the staff responsible for conducting sales considers the information on sales results sufficient, few staff are assigned to analyzing sales, and MMS management has not placed a priority on the time-consuming review of sales results.

In January 2003, we reported to the Congress that MMS had not developed sufficient management control over its RIK sales, including the collection of the data necessary to quantify the revenue impacts and the administrative savings attributable to the RIK program.[1] In our report, we recommended that the Secretary of the Interior instruct the appropriate managers in MMS to identify and acquire key information to monitor and evaluate the RIK program prior to expanding the program. We recommended that such information include the revenue impacts of all RIK sales and the administrative costs and savings attributable to RIK. MMS generally agreed with our recommendations and emphasized their current efforts and future plans to improve the evaluation of RIK. We recognized MMS's progress in establishing management control and documenting the results of its RIK sales. However, as RIK sales have continued to grow, it is still difficult to completely quantify the administrative cost and revenue impact of the RIK program. As MMS looks to continue to expand the use of RIK, we are suggesting that if the Congress wants to ensure a systematic and timely evaluation of RIK efforts, the Congress may want to consider directing MMS to conduct an evaluation of all future RIK sales and to quantify any changes in the administrative cost and revenue impact on royalty collections as a result of RIK.

Background

In general, royalty rates for onshore federal oil and gas leases are 12- 1/2 percent of the value of the oil and the gas produced, whereas royalty rates for offshore leases are generally 16- 2/3 percent. MMS also administers programs under which royalties are reduced or suspended to encourage exploration and production. The administration of cash royalty payments has been challenging for MMS. MMS relies upon royalty payors to self-report the amount of oil and gas they produce, the value of this oil and gas, and the cost of transportation and processing that they deduct from cash royalty payments. With 22,000 producing leases and often several companies paying royalties on each lease each month, the auditing of these cash royalty payments has become a formidable task. In addition, payors and MMS often disagree over the value of the oil and gas and the transportation and processing deductions, leading to time-consuming and costly appeals and litigation for those disagreements that they cannot resolve. MMS claims that compared to cash royalty payments, RIK can substantially simplify the administration of royalties because it reduces these disagreements and the time that MMS must spend resolving them. While RIK offers the promise of simplified administration, MMS must also

[1] U.S. General Accounting Office, *Mineral Revenues: A More Systematic Evaluation of the Royalty-in-Kind Pilots Is Needed*, GAO-03-296 (Washington, D.C.: Jan. 9, 2003).

consider the revenue impact of RIK. The Mineral Leasing Act of 1920 and the Outer Continental Shelf Lands Act authorize taking royalties in kind. These two acts directed the Secretary of the Interior to obtain fair market value for the oil and gas taken in kind.[2] The Outer Continental Shelf Lands Act defined "fair market value" as the average unit price for the mineral sold either from the same lease or, if such sales did not occur, in the same geographic area. Moreover, the fiscal years 2001 through 2004 Appropriation Acts for Interior and related agencies directed MMS to collect at least as much revenue from RIK sales as MMS would have collected from traditional cash royalty payments.

In recent years, MMS conducted three major RIK pilots involving (1) oil in Wyoming, (2) oil in the Gulf of Mexico, and (3) natural gas in the Gulf of Mexico. For oil in Wyoming, MMS has taken royalties in kind since October 1998. Although the amount of royalty oil that MMS takes in kind in Wyoming is less than 1 percent of all federal royalty oil, MMS has gained valuable experience during these sales. MMS has also taken royalty oil in kind in the Gulf of Mexico in two 6-month sales between November 2000 and March 2002. Unlike in Wyoming, the amount of royalty oil that MMS took in the Gulf approached 20 percent of all federal royalty oil during the second 6-month sale from October 2001 through March 2002. MMS's RIK oil pilot in the Gulf was put on hold when the president directed that MMS use royalty oil to fill the nearby Strategic Petroleum Reserve (SPR). Finally, for natural gas in the Gulf of Mexico, MMS has consistently taken natural gas in kind since December 1998. MMS currently takes about 19 percent of total federal royalty gas in pilots conducted in the Gulf of Mexico, and this program continues to grow.

[2]The Mineral Leasing Act uses the term "market price" not "fair market value." The requirement to obtain market price does not cover competitive sales, which by their very nature, provide some protection to the federal government.

Savings in Auditing RIK Occur, but Overall Impact on Royalty Administration Costs Cannot Be Completely Quantified

While there are substantial administrative savings in auditing royalty collections that are attributable to the RIK pilots, there are no quantified savings in the overall administration of royalty collections. MMS's overall budget to administer royalties has declined slightly as MMS increased the use of RIK, but the development of many other changes in royalty administration during the same time makes it difficult to assess the relative impact of RIK. MMS only began collecting detailed administrative cost information starting in fiscal year 2003, so it is not possible to attribute costs to the different royalty administration activities before then. MMS's development of a more specific cost information system in 2003 may help with future impact assessments, but will not allow any comparison to the past. MMS claims that the administrative cost savings from using RIK comes primarily from a reduction in audit and litigation activities that would have occurred under cash royalty collections. Information collected by MMS starting in 2003 has supported MMS's assertion that RIK pilots can create savings by reducing the costs of auditing royalty payments. While MMS has redirected auditing resources it saved to auditing more cash payments, it is not yet able to determine the benefit of this increased audit effort on overall royalty collection. Regarding litigation savings, no litigation cost information has been collected nor have any savings been identified. Finally, these potential savings must be weighed against additional specific costs that would otherwise not be incurred under cash royalties, such as operating costs in fiscal year 2003 of $1.7 million to conduct the RIK sales. MMS also incurred a capital investment of $13 million to purchase information systems.

MMS's Budget to Administer Royalty Collections Has Declined Slightly, but the Impact of RIK Is Not Clear

In October 2001, MMS reorganized and created the Minerals Revenue Management organization (MRM) within MMS to collect, disburse, and audit royalty revenues. Since its creation, MRM's budget has declined by about 7 percent, from $86.5 million in fiscal year 2002 to $80.4 million in fiscal year 2004. Approximately 41 percent of MRM's budget over this period supported financial management, including the collection and disbursement of royalty revenues. Nearly all of the remaining 59 percent of the budget supported compliance asset management, a major function of which is the auditing of oil and gas royalty revenues. Budget documents indicate that MRM has maintained about 572 full-time personnel from fiscal years 2002 through 2004, of which 184 were assigned to financial management and 388 were assigned to compliance asset management. An official within the Department of the Interior added that the actual number of employees on board was 558 in 2004, with some of this difference due to a decrease in the number of personnel assigned to compliance asset management. Within compliance asset management is the RIK Office that oversees RIK pilot sales, the Small Refiners Program, and the filling of the SPR.

Other developments in the administration of royalty collection have made it difficult to attribute changes in the MRM budget to RIK activities. Whereas RIK sales significantly change the processes for collecting royalty revenues, other developments, including the substantial change in the duties of the personnel responsible for auditing oil and gas revenues and for ensuring compliance with applicable rules and regulations, have ultimately affected the way MMS deploys its personnel—a major component of MRM's budget. For example, in June 2000 MMS implemented new oil valuation regulations that provide more specific guidance on what prices companies must report to MMS on the sales of oil to their affiliates, and this should decrease discrepancies between MMS auditors and royalty payors. Similarly, MMS's increased willingness to write formal agreements on these prices is also expected to decrease such disagreements. The change in the way MMS audits oil and gas revenues since its reorganization is also expected to decrease its workload. For example, MMS auditors no longer routinely compare all production volumes reported by the operators of oil and gas leases against all sales volumes reported by royalty payors to search for possible underpayments. Instead, MMS auditors now perform this activity on a case-by-case basis as needed. MMS auditors are also increasingly selecting the property as the entity to audit rather than selecting an individual company. Finally, when MMS does select a company to audit, there are fewer companies to select because of the recent mergers of the large oil and gas companies.

Prior to fiscal year 2003, MMS lacked the necessary data to conclusively quantify the difference in administrative costs under different royalty collection methods. Under Interior's agencywide initiative, MMS implemented an activity-based cost (ABC) management system in fiscal year 2003. The system identifies specific work activities in order to measure their costs, monitor and evaluate program performance and results, and improve the way MMS does its work. In essence, MMS personnel record the hours spent on specific work activities, such as RIK audits, and convert these hours into labor costs. These labor costs are then added to nonlabor costs, such as travel and materials costs, to produce total direct costs for the identified work activities. MMS has captured the costs of the work activities included in the collection and auditing of royalty revenues during fiscal year 2003. Such information may help MMS compare the costs of administering the RIK sales to the costs of administering cash royalty collections; however, there is no way to make this comparison prior to fiscal year 2003.

RIK Reduces Audit Costs, But Overall Impact on Royalty Collection Is Not Quantified

According to MMS, the auditing and compliance effort is significantly reduced under RIK because MMS and the RIK purchaser agree to a contractual price before the sale and because transportation deductions are no longer an issue when MMS sells the oil or gas at the lease. MMS further explained that auditing RIK leases can be done within as little as 120 days after the sale because it has all the necessary price information at that time, while up to 3 years transpire before MMS initiates an audit of cash royalty payments. During such cash royalty audits, MMS personnel must physically collect and inspect collaborative pricing and transportation documents, often at the payors' offices, while similar pricing information for RIK sales is instantly available in MMS's information systems.

The data from MMS's newly implemented ABC management system does support MMS's assertion that the auditing of certain RIK sales revenues is less costly on a per-lease basis than the auditing of comparable cash royalty payments. A review of the auditing and compliance costs for oil and gas leases in the Gulf of Mexico and Wyoming—two locations in which MMS received both cash and in-kind royalty payments during fiscal year 2003—showed that the costs to audit cash sales per lease were substantially higher than the costs to audit in-kind royalties in both areas. In the Gulf of Mexico, MMS reported spending $6,765,000 to audit cash sales from 242 oil and gas leases, or $27,956 per lease, while spending $458,000 to audit all 297 gas leases included in the RIK pilot sales, or $1,542 per lease. Similarly, MMS reported spending $820,000 to audit cash royalties from 912 oil and gas leases in Wyoming, or $899 per lease, while spending $38,000 to audit all 580 RIK oil leases in Wyoming, or $66 per lease.

While the ABC data suggest that the auditing costs for RIK sales revenues are less than the auditing costs for cash royalty payments, this difference does not necessarily mean that MMS is spending less money as it moves more leases into its RIK sales. MMS explained that instead of decreasing its audit budget, it has used these freed-up resources to audit additional cash royalty payments that it would not have otherwise audited. In addition, MMS has stated that auditing additional cash royalty payments could result in the collection of additional revenues. For fiscal year 2000, the latest year for which audit data are available, MMS reported that its audit activities, together with state and tribal audits of federal royalty revenues, generated about $219 million (or 5 percent) on royalty revenues of about $4.6 billion. However, MMS will not know the results of auditing additional cash royalty payments for several years because it takes time to select leases for audit, conduct the audits, and resolve related appeals and litigation. In the future, it is possible that MMS may experience different rates of revenue increase, either upwards or downwards, as it expands its audit coverage because of the different leases it selects for audit.

Litigation Costs Are Not Tracked

MMS's new ABC system provided costs associated with taking royalties in kind during fiscal year 2003, but it did not capture the costs associated with specific types of litigation performed by others for MMS. Litigation sometimes arises after MMS or state and tribal auditing efforts identify a discrepancy that cannot be resolved by MMS and the payors. Such discrepancies commonly involve the value of oil and gas or the costs of transporting this oil and gas to market. MMS has maintained that the taking of royalties in kind reduces litigation. However, the savings that could result from avoiding litigation cannot be quantified by MMS because MMS does not conduct the litigation. Instead MMS relies primarily upon the Department of the Interior's Solicitor's Office, which does not track specific types of litigation costs for MMS. Officials in the Solicitor's Office reported that since fiscal year 1999, between two and four of their attorneys worked full-time on MMS royalty issues. In addition, these officials said that attorneys within the Department of Justice represent MMS in court. Officials in the Solicitor's Office could not attribute any decrease in litigation to an increase in the use of RIK. They also stated that the nature of the royalty litigation could change as a result of RIK; while litigation over valuation and transportation deductions may decrease, litigation over RIK contracts and discrepancies over volumes sold may increase. They also cautioned that future litigation over administrative decisions and rule making is impossible to predict. Finally, regardless of the volume of RIK sales, they cautioned that as long as MMS receives some cash royalty payments, there would always be the potential for litigation on valuation issues and transportation allowances.

RIK Sales Require Additional Costs Not Incurred When Collecting Cash Royalties

The administration of the RIK pilot sales includes additional activities that are not necessary when accepting cash royalty payments and therefore add to the cost of collecting royalties in kind. Such activities include identifying properties from which to sell oil and gas, calculating minimum acceptable bids, awarding and monitoring contracts, billing purchasers, negotiating transportation rates, and reconciling discrepancies in volumes. In fiscal year 2003, MMS's preliminary ABC data showed direct costs of $1.7 million to conduct activities for the RIK pilot sales that it would not have incurred had it accepted cash royalty payments.[3] Of this $1.7 million, MMS reportedly spent $475,000 to identify properties, calculate minimum acceptable bids, and conduct sales; $464,000 to market the royalty oil and gas; $176,000 to monitor the credit worthiness of purchasers; $496,000 for auditing leases and reconciling volumes; and $127,000 for policy compliance and legal support.

MMS also incurred one-time costs of more than $13 million to acquire three information systems, part of whose functions are to bill, collect, and report on revenues from the RIK pilots. When fully implemented, these systems may help address the management control weakness that we previously identified involving the manual entry of data into unlinked computer spreadsheets.[4] The first of these systems, the gas information system, is wholly dedicated to the administration of the RIK gas pilot sales and cost $7.3 million. Implemented in January 2003, the system automates the billing, collecting, and reporting functions. MMS's second system, the liquids information system, cost almost $5 million and was implemented in June 2003. Like the gas system, it is designed to automate the billing, collecting, and reporting functions, but unlike the gas system it is not wholly dedicated to the RIK pilot sales, but also supports the Small Refiners Program and the filling of the SPR. MMS's third system, the Risk and Performance Management System, cost about $0.9 million and is designed to measure the results of the RIK gas sales and the Small Refiners Program for periods during 2003. In addition, MMS's preliminary ABC data shows that MMS incurred direct costs of $682,000 in fiscal year 2003 to develop and maintain these information systems. MMS will also incur additional costs in future years to operate and maintain these systems.

[3]We relied upon the direct costs identified by MMS—costs that MMS defines as directly supporting its mission. We regarded the RIK direct costs as being most indicative of the incremental costs to administer the RIK pilots. We did not analyze indirect costs—those costs that MMS defines as sustaining the organization, normally referred to as overhead, including information technology support, general management, and general administrative support. Indirect costs are allocated back to the mission-supporting activities based on the ratio of the labor cost contained in each direct work activity to the total labor cost in all direct work activities.

[4]U.S. General Accounting Office, *Mineral Revenues: A More Systematic Evaluation of the Royalty-in-Kind Pilots is Needed*, GAO-03-296 (Washington, D. C.: Jan. 9, 2003).

The Revenue Impact of RIK Sales Is Mixed

Our analysis of sales in three RIK pilots indicates a mixed performance when comparing RIK sales revenue to what might have been collected under cash royalty payments. Specifically, (1) RIK sales in Wyoming increased revenues by about 2.6 percent, for an estimated gain of $967,000 on sales of about $37 million; (2) a 6-month oil sale in the Gulf of Mexico decreased revenues by 5.5 percent, for an estimated loss of $7.2 million on sales of about $131 million; and (3) natural gas sales in the Gulf of Mexico produced more revenues than would have been collected from cash royalty payments—an increase of about 2 percent, for an estimated gain of $4 million on revenues of $210 million. These sales represented about 11 percent of the gas and 57 percent of the oil that MMS took in kind from inception of the pilots through November 2003. Our attempts to review the revenue impact of more RIK sales were precluded by specific limitations in MMS financial data and the availability of only two independent MMS draft reports.[5] As we observed in our January 2003 report, MMS continues to expand its RIK pilots without analyzing and documenting the revenue impacts of all its RIK sales. MMS is making some progress in this area, but still has not demonstrated that it has received fair market value, or at least as much as it would have received in cash royalty payments.

RIK Oil Sales in Wyoming Increased Revenues by About 2.6 Percent

MMS chose to conduct its first RIK oil sales in Wyoming because of the state's active oil markets and the cooperative spirit of state officials. MMS offered for sale the federal government's royalty share of oil together with the state of Wyoming's royalty oil that was for 6-month periods beginning in October 1998.[6] Bidders offered a fixed amount of money either more or less than published market prices, such as Wyoming posted prices, Canadian posted prices, and the oil futures contract on the New York Mercantile Exchange (NYMEX).[7] The winning bidders, which included companies that

[5]Staff independent of the MMS RIK sales staff conducted draft studies for 18 months of the Wyoming oil sales and 19 months of the Gulf of Mexico gas sales. See *Wyoming Oil Royalty In Kind Pilot, Evaluation Report (June 1, 2002)* and *Texas General Land Office/Minerals Management Service 8(g) Gas Royalty In Kind Pilot, A Report (March 27, 2002)*.

[6]Wyoming participated in all but the first 6-month sale.

[7]A NYMEX futures contract is an agreement through the New York Mercantile Exchange for a future purchase or sale of 1,000 barrels of sweet crude oil, similar in quality to West Texas Intermediate oil. While most NYMEX contracts result in a financial gain or loss, rather than the delivery and receipt of oil, parties to the agreement can exchange oil at Cushing, Oklahoma, where several oil pipelines intersect and where storage facilities exist.

market, refine, transport and/or produce oil in Wyoming and adjacent states, accepted delivery of the oil at the lease. Although MMS's RIK sales in Wyoming accounted for only about 1 percent of total federal royalty oil, MMS acquired significant knowledge on how to conduct sales and market oil onshore. For example, MMS determined that companies more commonly bid on royalty oil from properties that are connected to pipelines and prefer flexibility in choosing a specific price upon which to base their bid. In addition, MMS learned in 2002 that it was not profitable to transport the volumes from many scattered leases to one central location for sale.

In a draft report issued in March 2001, updated in June 2002, and finalized in March 2004, MMS estimated that it received slightly more revenue in its first three RIK sales than it would have received in cash royalty payments. Specifically, MMS reported that it collected $810,000 more from RIK sales than it would have received in cash royalty payments, or an increase of about 2.9 percent on sales of $27.66 million from October 1998 through March 2000. MMS based its conclusion on a comparison of winning RIK bids to severance taxes that producers reported and paid to the state of Wyoming. State severance taxes are calculated as a percentage of the value of all oil that companies sell, regardless of whether the oil is produced from federal, state, or private lands. Because the state of Wyoming's oil valuation statutes are similar to how the federal government values oil, MMS assumed that the price that companies reported for state severance taxes on RIK properties was equal to the price that the government would have received in cash royalty payments. However, MMS did not demonstrate that the average sales prices for cash royalty payments were equal to the average sales prices used to calculate Wyoming severance taxes, initially creating some uncertainty about MMS's revenue calculations.

To address the uncertainty in MMS's assumption about the relationship between cash royalty payments and severance tax prices, we analyzed the relationship. For nine federal properties[8] that accounted for about 47 percent of the oil that MMS sold in Wyoming during the first seven RIK sales, we compared Wyoming severance tax data with MMS's financial data for the 33-month period prior to the RIK sales and concluded that Wyoming severance tax prices are a reasonable proxy for cash royalty payments. Therefore, based on Wyoming severance tax data, we estimated that MMS

[8]Properties consist of one or more leases. In Wyoming, producing properties often contain more than one contiguous lease.

collected $967,000 more from the RIK sales from October 1998 through March 2002 than it would have collected in cash royalty payments—an increase of about 2.6 percent on sales of about $37 million. The results of our analysis of selected Wyoming RIK sales are consistent with MMS's conclusion that the RIK sales that it analyzed resulted in slightly more revenue that it would have realized if it had accepted cash royalty payments. A more detailed discussion of our analysis appears in appendix I.

Six Months of RIK Oil Sales in the Gulf of Mexico Decreased Revenues by About 5.5 Percent, But Long Term Impacts Could Differ

Although MMS has a long-standing history of selling royalty oil through the Small Refiners Program, MMS did not sell offshore royalty oil directly to other qualified purchasers until November 2000. MMS sold, through two separate 6-month sales, up to 20 percent of the federal government's royalty share of oil in the offshore Gulf of Mexico to all purchasers meeting predetermined financial qualifications, whether they were small refiners, large refiners, producers, or marketers.[9] Winning bidders offered a fixed amount of money that was more than or less than a formula based on one of two widely published oil prices—Koch's published price for West Texas Intermediate oil in the first sale and the NYMEX futures contract in the second sale. During the first sale, MMS offered about 39,000 barrels of oil per day, but awarded contracts for only about 7,600 barrels per day. Only two companies submitted bids. MMS attributed the lack of interest to the delivery points for the oil being at market centers onshore rather than offshore near the lease. During the second sale, which commenced in October 2001, MMS offered and awarded approximately 48,000 barrels of oil from six major pipeline systems. Nearly all of the oil consisted of two types, referred to as the Mars and Eugene grades, produced in water depths up to about 4,000 feet. The delivery point for the oil was offshore near the lease, and competition was robust. MMS terminated the Gulf RIK oil pilots after the second sale when ordered by a Presidential directive to transfer oil from these properties to the SPR.

As of July 2003, MMS had not evaluated the revenue impacts of either sale. Because of the larger amount of oil sold during the second sale, we chose to analyze this sale and estimated that MMS received about $7.2 million less in revenues than it would have received had it accepted cash royalty payments—a 5.5 percent loss on sales of about $131 million. We selected 13

[9]The first sale was automatically extended for another 5 months.

of the 26 leases included in the second sale that collectively accounted for about 89 percent of the oil offered and sold. For the 16-month period prior to the start of the second oil sale, we compared the average monthly sales price for oil from each lease to the price as prescribed by MMS's oil valuation regulations for sales between affiliated parties (transactions not at arm's-length).[10] We then computed a weighted average difference in the monthly prices for the entire 16-month period and assumed that this weighted average difference would have persisted over the 6-month RIK sales period had royalties been paid in cash. A detailed explanation of our analysis appears in appendix I.

Because revenue from RIK sales and from cash sales can differ considerably in any given month, a longer period of evaluation is needed to determine whether a specific type of RIK sales can generate at least as much royalty revenue as cash sales. The reason that RIK and cash sales revenues differ month to month is that they are generally based on different sets of market prices. For example, the formula that MMS used to award RIK bids in the second Gulf of Mexico sale differs from the formula prescribed in the oil valuation regulations primarily in two ways: (1) the bidding formula relies on prices from a period that is almost a month earlier than that prescribed by the oil valuation regulations, thereby creating a timing difference and (2) the bidding formula relied on an adjustment to NYMEX futures price, referred to as "the roll." The roll is an adjustment that compensates for differences in oil futures prices for subsequent months. If futures prices for the next three trade months trend downward, the roll is a positive adjustment. If futures prices trend upward for the next three trade months, the roll is a negative number. Rising oil futures prices that accompanied uncertainty in the financial markets after the September 11 terrorist attacks resulted in generally lower-than-anticipated RIK royalties caused by the timing differential and a negative roll, thereby contributing significantly to the negative performance of the second sale.

MMS officials agree that a 6-month term is an insufficient period of time during which to evaluate a sales methodology. Specifically, MMS added that it had intended to continue the oil sales in the Gulf of Mexico but that the President directed that royalty oil be used to fill the SPR, and royalty oil

[10]We chose MMS's valuation regulations for transactions not at arm's-length for comparison because these regulations rely upon readily available published oil prices at market centers through which the oil must flow.

from the leases included in the pilot sales was the only feasible source. Although MMS generally agrees with the magnitude of the revenue impact that we identified during the 6-month period of the second sale, MMS believes that we should have examined a longer period of time, even though the oil that was sold during this sale was thereafter transferred to the SPR. After learning of our analysis, MMS conducted its own evaluation of many of the same leases. MMS combined the results of the 6-month second sale with the following 12 months during which oil from these same leases was transferred to the SPR. MMS estimated that during this combined 18-month period, its sales methodology increased revenues by $4.9 million. This estimate, however, does not mean that MMS collected $4.9 million more than it would have collected in cash royalty payments. MMS's estimate is based on combining cash collections from RIK sales in the first 6 months with market index prices at the time that MMS transferred the oil to the Department of Energy (DOE) for filling of the SPR. MMS estimated that it lost $6 million in cash during the first six months and that the value of the oil transferred to DOE was $10.9 million more than it would have received in cash royalties had the RIK pilot sales continued for the next 12 months.

We do not believe that MMS's evaluation of the SPR program is necessarily indicative of how the RIK program would have performed had it been allowed to continue. The SPR program does not generate royalty income for the federal government in the same way as the RIK program does. In the SPR program, the royalty oil, or an equivalent amount from another source, is pumped into the reserve, and revenues will only be generated upon its removal and sale at some unspecified period in the future. In addition, the data that MMS used in estimating the revenue impacts of its Gulf of Mexico oil sales was problematic in several ways. First and most important, MMS did not adjust its revenue estimate by quality bank adjustments. Quality bank adjustments are either positive or negative adjustments to sales revenues that pipeline companies compute because the royalty oil is of either better or worse quality than the average quality of oil in the pipeline. Payors either add or subtract these adjustments from both their cash and in-kind royalty payments to MMS. Quality bank adjustments can be substantial—during the second RIK sale, they lowered MMS's revenues on the leases we examined by $2.5 million. Second, MMS did not use the actual transfer volumes to the SPR in its financial database, opting instead to use volumes recorded in its production database or to use estimates of these volumes, adding uncertainty to the accuracy of its revenue calculations. For example, we examined the production volumes for 8 of the 13 leases we reviewed during the 6-month sale and found significant discrepancies between these volumes and the volumes in its financial database. Similarly, independent auditors performing an audit of MMS's fiscal year 2002 financial statements noted that MMS's use of estimated volumes did not ensure an accurate calculation of the SPR amounts transferred to DOE. Third, we identified some minor discrepancies in the prices MMS used to calculate the value of the SPR transfers, such as using an index other than that used during the 6-month sale and assuming that companies bid exactly the same on the SPR transfers as they did in the 6-month sale, but it is unclear as to whether these discrepancies would significantly alter MMS's calculations.

Sales of Royalty Gas from Two Pipelines in the Gulf of Mexico Generated Higher Revenues Than Would Have Been Expected from Cash Royalties

After initial experimentation with selling royalty gas in 1995 and simultaneously with the contracting of gas marketers in 1999, MMS established sales procedures for offshore royalty gas similar to those in 2003. Beginning in June 1999, MMS tested the sale of offshore royalty gas from 11 federal offshore leases. Production from these leases flowed through the Matagorda Offshore Pipeline System or through the Blessing Pipeline System.[11] MMS entered a cooperative agreement with the Texas General Land Office to conduct the RIK sales because under section 8(g) of the Outer Continental Shelf Lands Act, royalty revenues for federal leases located in coastal waters are to be shared with the state. MMS sold the royalty gas for 1-month periods at competitive auctions, during which purchasers who met minimum financial qualifications bid an increment or decrement relative to applicable published gas indexes. Several months into the pilot, MMS started dividing the gas into two separate packages—a larger package (base volume), for which MMS guaranteed that it would deliver the specified volume at a fixed first-of-the-month price, and a smaller package (swing volume), for which MMS did not guarantee the volume delivered and which MMS offered at published prices that varied daily. Beginning in 2000, MMS began combining its monthly gas sales into two sales periods for administrative reasons. MMS now conducts gas sales for delivery from April through October, corresponding to the period during which natural gas is used extensively for air conditioning, and for delivery from November through March, corresponding to the period during which natural gas is used extensively for heating.

[11]Although not technically named the Blessing Pipeline System, GAO and MMS refer to it by this name because the pipelines terminate at a gas plant in Blessing County, Texas.

In accordance with its cooperative agreement with the Texas General Land Office, MMS issued a draft report in March 2002 on the analysis of its gas sales from the Blessing and the Matagorda Offshore Pipeline Systems from June 1999 through December 2000. The report stated that the RIK sales increased revenues by nearly $1 million over what it would have collected in cash royalties—an increase of about 1 percent on sales of almost $100 million. MMS obtained this estimate by comparing RIK sales revenues to cash royalty sales from 18 other leases located in the same geographic area. However, because of limitations with its financial data, MMS did not subtract the costs of transporting the gas to its sales points onshore, comparing gross unit prices rather than prices net of transportation allowances.

After reviewing MMS's study and conducting our own analysis, we reached conclusions similar to those of MMS—that revenues from the sale of RIK gas from the Blessing and Matagorda Offshore Pipeline Systems were higher than MMS would have received in cash royalty payments. We included additional RIK leases in our analysis, excluded some cash royalty payments that MMS later identified as not coming from leases on the same pipeline systems, and extended the time frame of our study to December 2001. We estimated that, including the cost to transport the RIK gas to its onshore sales points, revenues were increased by about 2 percent. Hence, we estimate that MMS realized about $4 million more than it would have collected in cash royalties, or a gain of about 2 percent on sales of about $210 million. A more detailed description of our analysis appears in appendix I.

Data Limitations Prevent a More Comprehensive Analysis of RIK Sales

In analyzing RIK sales, we identified specific limitations in MMS's financial data that inhibited our analysis and precluded us from conducting a comprehensive computer-based assessment of all RIK sales. A small amount of erroneous, missing, and improperly coded financial data, together with other anomalous but legitimate financial data, required time-consuming inspections of these data and complex edit checks to ensure data reliability and integrity. For example, in our analysis of the three RIK pilot sales, we analyzed almost 60,000 financial transactions, followed at times by a line-by-line inspection of some of these data, discussions with MMS personnel, and manual checks of source documents. MMS staff confirmed that the financial data in their raw form were unreliable in assessing program performance; in some instances, MMS staff chose to use contract prices or production volumes in lieu of the financial data because they lacked confidence in the available financial data. In addition, the lack of a systematic method to electronically combine data in its financial database with well, pipeline, product quality, and market center data also prevented us from analyzing the revenue impacts of all offshore RIK sales. Although MMS obtains and records these data for individual properties included in its RIK sales, MMS personnel must manually obtain these data for each property through time-consuming phone calls and searches of industry databases. According to its procedures, MMS performs these data collection efforts each time it expands the RIK program into new areas. However, MMS's unsystematic collection and recording of these data may slow the development of benchmarks against which to compare RIK sales in the future.

In 2001, MMS took steps to improve its collection and management of royalty data and to develop the means to identify and correct erroneous financial data. For example, MMS began to develop a more consistent coding of RIK transactions, and MMS personnel in the RIK Office began to take a more active role in entering RIK transactions for the purpose of ensuring data reliability. In October 2001, MMS revised its electronic form for collecting royalty data in an attempt to correct erroneous data. More recently, MMS sought external assistance in developing software to identify erroneous data that can then be corrected or eliminated. While some of the data problems may have been resolved by MMS, other problems continue to be evident. Specifically, the misallocation of SPR volumes to some individual leases and the aggregating of sales from multiple gas leases will continue to complicate future analyses unless these problems are corrected. MMS says that it plans to correct these deficiencies as it further refines its newly acquired oil and gas information systems. See appendix I for more detailed information on data problems.

Lacking Formal Requirements, Many RIK Sales Remain Unanalyzed

Our ability to assess the revenue impact of RIK sales was further limited by the failure of MMS to analyze and document the results of its sales. We reported in January 2003 that MMS quantified the revenue impacts of only 9 percent of the 15.8 million barrels of federal royalty oil that it sold from October 1998 through July 2002 and about 44 percent of the 241 billion cubic feet of federal royalty gas that it sold from December 1998 through March 2002. MMS has since sold an additional 201 billion cubic feet of gas in the Gulf of Mexico and an additional 1.4 million barrels of oil in Wyoming through November 2003, but has not published an analysis of the revenue impacts of these sales. In total, we estimate that MMS has analyzed only 8 percent of the 17.2 million barrels of royalty oil and 24 percent of the 442 billion cubic feet of royalty gas sold during RIK pilot sales through

November 2003. This limited analysis of revenue impacts could be a significant issue as RIK sales expand in the future. Based on MMS's estimates for further expansion of the program, we estimate that MMS could be collecting between $1.5 billion and $2.5 billion per year in revenue from the RIK pilot sales by 2008.

MMS has not systematically analyzed and documented the results of all its RIK sales for four main reasons. The first and most significant reason is that MMS has no requirement that all sales results be analyzed and documented. Although the Congress directs MMS to (1) obtain fair market value and (2) collect at least as much revenue from the RIK sales as MMS would have collected from traditional cash royalty payments, MMS is not required to document how this directive is met. While MMS does analyze factors that will affect the revenues of upcoming sales, MMS lacks a systematic process for analyzing the final results of each of its sales. Second, staff responsible for conducting sales already believe that they have enough information on sales results. For example, MMS staff cited the second 6-month oil sale in the Gulf of Mexico in which market conditions unexpectedly moved in a manner that resulted in revenue collections that were less for this period than what would have been expected from cash royalty collections. MMS stated that they had enough information on the market conditions that drove the sales results even before completion of the 6-month sale. Third, insufficient staff is available for analyzing sales. We observed that staff who conduct sales are busy with identifying properties for inclusion in sales, establishing minimum acceptable bids, evaluating bids, and expanding the program. MMS has only one staff member independent of the RIK Program whose duties involve selectively analyzing RIK sales results at the direction of MMS management. To ensure proper management control and to remove the appearance of a conflict of interest, it is best to segregate the responsibility of a program's operation from the responsibility of reviewing the program, which MMS correctly did when it reviewed the Wyoming oil and the Gulf of Mexico gas sales. Fourth, a lengthy management review process limits the usefulness of analyses that are conducted. For example, MMS's report on the Wyoming pilot sales dated March 2001 and its report on gas sales in the Gulf of Mexico dated March 2002 remained in draft form pending final management approval until March 2004. In addition, a study of subsequent gas sales in the Gulf of Mexico, completed in April 2003, is still being reviewed and modified under the direction of MMS management.

MMS Has Recently Taken Steps to Address Deficiencies in Analyzing Sales Results and Quantifying Administrative Efficiency

Since our last report, MMS has hired an industry consulting group to develop a strategic plan to guide the transition of the RIK pilots through the end of 2008. MMS intends to develop a 5-year business plan based largely upon the consulting group's plan. The consulting group, among other things, has proposed that MMS (1) develop benchmarks that are indicative of fair market value; (2) develop a consistent process for monitoring RIK sales at regular time periods against these benchmarks; (3) develop a consistent process for deciding whether to accept cash royalty payments or to take RIK; (4) track administrative efficiency expressed as the cost per unit of royalty oil and gas sold; and (5) measure the amount of time it takes to collect, report, audit, and reconcile RIK revenue collections. The consulting group intends that the benchmarks satisfy MMS's congressional mandates that RIK sales achieve fair market value and generate at least what would have been collected in cash royalty payments. The consulting group has developed a timetable for MMS to develop benchmarks for fair market value by March 2004 and benchmarks for administrative efficiency by March 2005.

While much of the data collection for developing benchmarks will remain a manual process, MMS anticipates that overall calculation of RIK Program performance will be facilitated by MMS's newly acquired RIK information systems. MMS stated that while data on RIK sales are available in less than 30 days after the sales month, RIK purchasers continue to submit data on quality adjustments and volume imbalances after these sales, and MMS must enter these data into its financial systems and audit the final figures. MMS believes that 120 days after an RIK sale, it will have completed these audits and has set this 120-day period as a formal objective. Within 180 days, MMS stated that it would be able to report on the results of these sales. However, many RIK sales only have a length of about 180 days or less, so obtaining performance results 180 days after a sale is not timely enough to use these results to modify the next sale. Recognizing this limitation, the consulting group recommended that performance be measured on a monthly or quarterly basis, and MMS believes this will be possible with its newly acquired RIK information systems.

Conclusions

RIK can be an important tool for managing the collection of royalty revenues from federal oil and gas leases. In light of the possibility of revenue collections from RIK sales approaching $1.5 billion to $2.5 billion by 2008, it is important that MMS measure and document the revenue impact and costs of administering RIK relative to cash royalty payments, to ensure itself and the public that royalties are collected in the most efficient manner. In doing so, MMS may be able to conclusively show that it has reduced overall administrative costs or collected more than traditional cash royalty payments. MMS has made some progress in analyzing the revenue impacts of some of its sales, but many sales remain unanalyzed, and MMS has yet to implement a more systematic and timely approach to analyzing these sales. Also, completely quantifying the administrative efficiency of these RIK sales continues to be a challenge. While key data from MMS's new activity-based cost management system have shed some light on the difference in costs to administer RIK and cash royalties, MMS has been unable to quantify any overall benefit that may arise from shifting resources to auditing more cash royalty payments and from changes in litigation due to RIK. Unless steps are taken to quantify the impacts of these changes, MMS and the Congress will be unable to determine the efficiency of RIK. Because MMS has not systematically assessed and documented the overall administrative cost and revenue impacts of many RIK sales, knowledge of MMS's RIK Program is insufficient to determine whether MMS should expand or contract the use of RIK.

Matters for Congressional Consideration

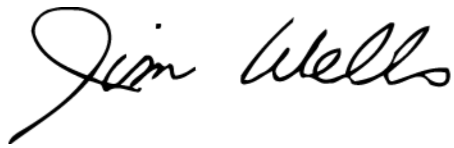
Should the Congress seek a more systematic and timely evaluation of RIK efforts, the Congress may want to consider directing MMS to implement a systematic process for evaluating all future RIK sales in a timely manner and to quantify any changes in the administrative cost and revenue impact on royalty collections as a result of RIK.

Agency Comments and Our Evaluation

We provided the Department of the Interior with a draft of this report for review and comment. Interior generally agreed with our observations and emphasized the steps that they are taking to improve their measurement of RIK sales performance. Interior said that the insights and conclusions contained in the report are timely and will be valuable in their efforts to improve the RIK Program. Their comments and our response to these comments are reproduced in appendix II.

As agreed with your offices, and unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of this letter. At that time, we will send copies of this report to the Secretary of the Interior; the Director of the Office of Management and Budget; and other interested parties. We will also make copies available to others upon request. This report will be available at no charge on GAO's Web site at http://www.gao.gov.

If you have any questions about this report, please call Mark Gaffigan or me at (202) 512-3841. Key contributors to this report are listed in appendix III.



Jim Wells
Director, Natural Resources
and Environment

Objectives, Scope, and Methodology

To determine the administrative cost savings associated with RIK, we first examined MMS's two draft studies on RIK sales—*Wyoming Oil Royalty In Kind Pilot, Evaluation Report* (June 1, 2002) and *Texas General Land Office/Minerals Management Service 8(g) Gas Royalty In-Kind Pilot, A Report* (March 27, 2002). We reviewed MMS's logic and assumptions in these reports concerning the quantification of administrative savings and benefits attributable to RIK. We used the data in these reports, MMS's budgetary data, and testimonial evidence from MMS officials to identify which aspects of administrative savings and benefits to investigate. We then obtained data from the activity-based cost (ABC) management system for the entire fiscal year 2003 and solicited MMS's assistance in understanding the individual activities and in identifying which direct costs were attributable to RIK sales and which were attributable to cash royalty collections. We also obtained one-time expenditures for MMS's new information systems from MMS officials and supporting documentation since not all of these costs were reflected in the fiscal year 2003 ABC data. To calculate costs for auditing cash royalty payments and RIK sales revenue on a per-lease basis, we used ABC data, together with the numbers of the different types of leases that MMS audited in fiscal year 2003, as supplied by MMS. We obtained data on additional royalty revenue obtained through auditing and compliance activities from MMS's report entitled *Report of Royalty Management and Delinquent Account Collection Activities, Fiscal Year 2000*. We interviewed MMS personnel on the costs of appeals, and we interviewed attorneys in the Department of the Interior's Solicitor's Office to obtain information on the impact of RIK sales on litigation. Finally, we audited revenue from all RIK sales during fiscal year 2002 to determine the benefit of early collections.

To evaluate all of MMS's RIK pilot sales, we planned to compare RIK sales revenues with cash royalties from comparable federal leases. We started with sales in the Gulf of Mexico by attempting to identify comparable leases through the electronic matching of attributes, such as type of oil, sulfur content, market center, well location, pipeline available for shipment, and distance to the nearest market center. To do so necessitated combining data on these attributes in MMS's offshore geographic information system with data on sales values, sales volumes, royalty values, royalty volumes, transportation deductions, and quality bank adjustments in MMS's financial system. We examined data from January 1997 through July 2003, but we did not independently verify the integrity of MMS's financial database. Unfortunately, we could not perform the intended analysis because of two reasons: (1) we were unable to link the data in the financial system with data in the offshore geographic information system, and (2) we identified many data anomalies in MMS's financial database. We were unable to link the financial data with data in the offshore geographic information system because the common link—the lease number—had been compromised during some RIK gas sales. Specifically, MMS personnel who entered these data had combined RIK sales revenue from multiple leases and entered these data under a new lease number referred to as a "dummy lease number." We also found that some data that would be helpful in identifying comparable oil leases, such as the quality of oil and the sulfur content, were not present in MMS's geographic information system. Upon examination of the financial data, we discovered many data anomalies that prevented us from reliably and easily aggregating the monthly transactions to the same lease and payor. Within the data aggregated to the month-lease-payor level, anomalies included negative sales volumes, missing sales values, negative sales values, and missing quality measures for gas prior to fiscal year 2002. Some of these anomalies were obvious errors, but many more appeared to be correct and legitimate data entries. With no explanations in the financial data documentation to indicate which anomalies were accurate and which were not, resolving the anomalies required line-by-line inspection of the data and, in some cases, manual checks with other documentation. As a result of the large number of data anomalies and the time-consuming process required to correct and verify the royalty data, we undertook case studies of MMS's RIK pilots in three sales areas: (1) RIK oil sales in Wyoming, (2) RIK oil sales in the Gulf of Mexico, and (3) RIK gas sales on two pipelines in the Gulf of Mexico.

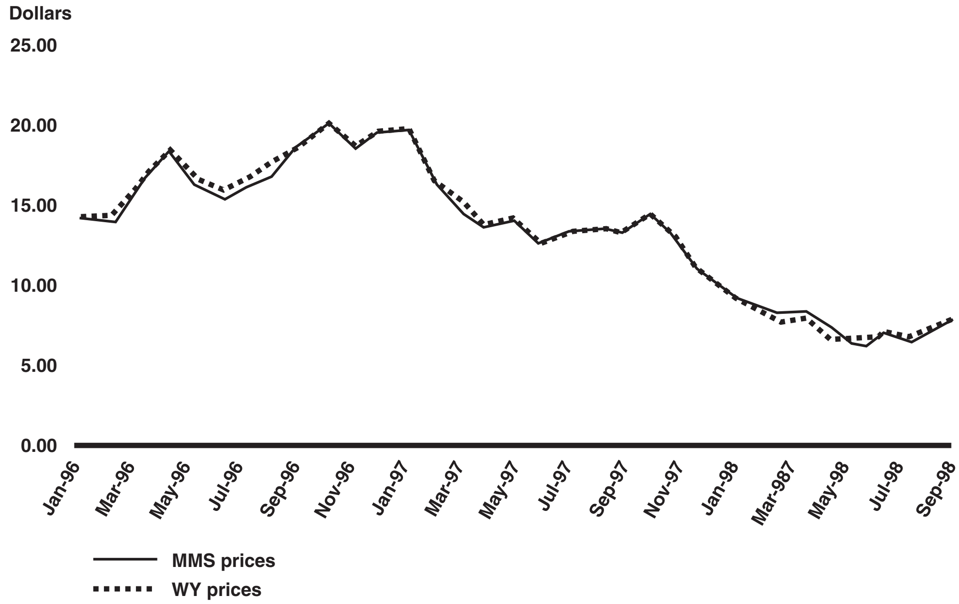
Wyoming Oil

In analyzing the integrity and reliability of MMS's financial data that we used to evaluate RIK oil sales in Wyoming, we selected nine properties that provided about 47 percent of the oil sold during the RIK sales we analyzed. We selected properties that produced the three different types of crude oil that MMS sold in its RIK sales—asphaltic, general sour, and Wyoming sweet oils. We obtained MMS's financial data for all nine properties from January 1996 through March 2002 and aggregated these 32,823 financial transactions to the property-month level rather than the lease level because we anticipated that the financial impact of the smaller leases would not be as significant. We found that 3.3 percent of property months contained erroneous or missing data, but we were able to correct or obtain these data.

To estimate the revenue impact of Wyoming RIK oil sales, we attempted to determine if Wyoming severance tax[1] prices were a good proxy for what MMS would have received in cash royalty payments. We first obtained the state of Wyoming's severance tax data for the same nine properties. We then proceeded to examine the average sales price per barrel and the number of barrels produced from each property during each of the 33 months immediately preceding the first RIK sale. The Bureau of Land Management, which leased the nine federal properties in Wyoming, grouped federal leases into these properties based on the geological boundaries of the oil fields. Personnel with the state of Wyoming, however, group producing leases into clusters for tax purposes. At our request, a Wyoming state official attempted to match these clusters as closely as possible to the federal properties. However, some clusters included additional state or private leases that they could not segregate, and in some instances, the state official could not precisely match the properties. We then graphed the volumes reported to the state of Wyoming for severance taxes and the volumes reported to MMS for cash sales for each of the nine properties. The graphs suggested that seven state properties contained many of the same federal leases. We then graphed the state severance tax prices and MMS's cash royalty prices for each property. We determined that the severance tax prices and MMS's cash royalty prices are essentially the same for eight properties. The severance tax prices for the ninth property were on average about 50 cents higher than MMS's cash royalty prices. See figures 1, 2, and 3 for graphs of these prices that aggregate properties according to type of oil.

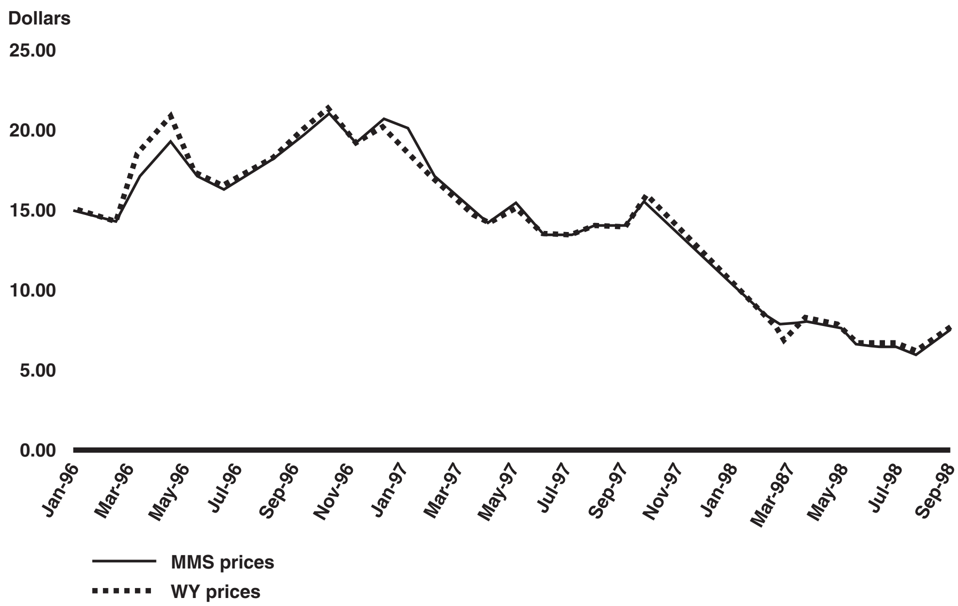
[1]Severance taxes are levied by the state as a percentage of the value of the oil or gas that is produced, regardless of whether the lease is for federal, state, or private lands.

Figure 1: Comparison of Weighted Average Monthly Sales Prices Obtained from Wyoming Severance Tax Database and MMS's Financial System for Selected Asphaltic Properties Subsequently Included in RIK Sales



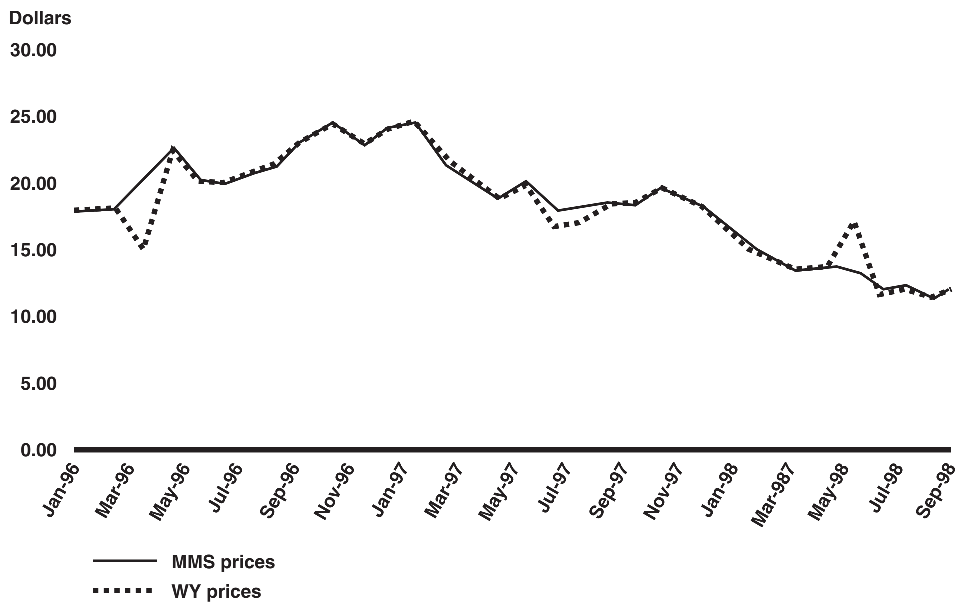
Source: GAO analysis of MMS and state of Wyoming data.

Figure 2: Comparison of Weighted Average Monthly Sales Prices Obtained from Wyoming Severance Tax Database and MMS's Financial System for Selected General Sour Properties Subsequently Included in RIK Sales



Source: GAO analysis of MMS and state of Wyoming data.

Figure 3: Comparison of Weighted Average Monthly Sales Prices Obtained from Wyoming Severance Tax Database and MMS's Financial System for Selected Sweet Properties Subsequently Included in RIK Sales



Source: GAO analysis of MMS and state of Wyoming data.

Gulf of Mexico Oil

To evaluate the integrity and reliability of MMS's financial data that we used to evaluate the second RIK oil sale in the Gulf of Mexico, we examined MMS's financial data from January 1997 through March 2002 for 16 of the 26 leases in the sale. We removed all transactions involving the SPR and small refiners so that we could compare sales from the second RIK sale to cash royalty payments only. We found this initial task difficult because MMS inconsistently used transaction codes for sales to small refiners and for transfers to the SPR during the time frame of our study. We aggregated 7,725 transactions to the payor-lease-month level and found that 1.9 percent of the payor-lease-months contained erroneous or missing data, and about 9 percent of the aggregated data was compromised by payors using multiple payor codes. Payors also inconsistently reported or did not report royalty volumes when reporting transportation deductions prior to October 2001 and inconsistently reported or did not report sales values when reporting quality bank adjustments. We subsequently reduced the period of our analysis to June 2000 through March 2002, reduced our leases to the 13 that accounted for about 89 percent of the oil sold during the sale, and corrected the single significant error that we found in this data set.

To estimate the revenue impact of the October 2001 through March 2002 RIK oil sale in the Gulf of Mexico, we first chose a sample of leases included in the RIK sale and determined the relationship of their cash sales prices before the RIK sale to the prices as prescribed by MMS's royalty valuation regulations for sales to affiliated companies (also known as transactions not at arm's length). We analyzed only those leases that produced Mars and Eugene Island sweet oil because these two oil grades collectively accounted for 96 percent of the production. We then selected only the Mars and Eugene Island leases that had cash royalty sales during at least 8 of the 16 months between June 2000—the first month that the current oil valuation regulations became effective, and September 2001—the month immediately preceding the RIK sale. These selection criteria produced the 13 leases for our detailed analysis. Eleven of the 13 leases had cash royalty sales during all 16 months. For each of the 13 leases, we then calculated the average monthly cash sales price (net of any transportation allowances and quality bank adjustments) from data in MMS's financial database for each of the 16 months preceding the RIK sale. Next, we obtained the average monthly price from MMS for Mars and Eugene Island sweet oils as prescribed in MMS's oil valuation regulations for sales not at arm' length at the market center for the same time period. We then subtracted these monthly prices from the average monthly cash prices and multiplied this difference by the barrels of oil sold each month to yield monthly revenue for each lease relative to MMS's regulations. Next, we summed these monthly revenues and divided the sum by the total barrels of oil sold to obtain a weighted average difference per barrel for the entire 16-month period. This value, -$1.36, indicates that MMS received on average $1.36 less than the market center price for each barrel of royalty oil produced from these 13 leases from June 2000 through September 2001. We attribute most of this difference to the payors' costs of transporting the oil to market. Finally, for the 6-month term of the RIK sale, we calculated a weighted average difference per barrel between the RIK sales price and the price as prescribed by MMS's valuation regulations for transactions not at arm's length. This value, -$2.24, indicates that MMS received on average $2.24 less than the average market center price for each barrel of oil that MMS sold during its RIK sale from October 2001 through March 2002. We then assumed that if MMS had not conducted this RIK sale, it would have received cash royalty payments that on average would have been $1.36 less than the market center price as we previously computed. We subtracted $2.24 from $1.36 to estimate that MMS lost on average $0.88 on every barrel that MMS sold during this RIK sale. Since MMS sold 8.2 million barrels during this sale, MMS lost approximately $7.2 million.

Gulf of Mexico Gas

In analyzing MMS's financial data on gas sales in the Gulf of Mexico, we discussed with MMS officials the financial data limitations that they identified while conducting their analysis of RIK gas sales—limitations that prompted MMS personnel to use invoice prices rather than the sales data in MMS's financial database. We then obtained 19,211 financial transactions for all the cash and RIK sales on the Blessing and Matagorda Offshore Pipeline Systems (MOPS) from January 1997 through December 2001. Upon aggregating these data to the payor-lease-month level and researching anomalous data, we found that 6 percent of the RIK summary data remained anomalous. Consequently, we decided to use the RIK invoice data, adjusted for transportation costs, to compute net unit prices for the RIK transactions.

To estimate the revenue impacts of RIK gas sales in the Gulf of Mexico, we relied on financial data aggregated to the lease-month for all cash sales on the Blessing Pipeline System and on MOPS from January 1997 through December 2001.[2] On each of the pipeline systems, MMS determined that the leases from which it received cash royalty payments were comparable to the leases from which it collected RIK. For each lease connected to the Blessing Pipeline System, we calculated the average cash sales price net of all reported transportation costs per MMBtu for each month and subtracted it from the average RIK sales price net of all transportation costs per MMBtu for each month.[3] We then multiplied these figures by the quantity of royalty gas (in MMBtu) sold in kind each month to obtain the monthly revenue impacts, and we then summed the monthly revenue impacts to yield total revenue impacts of the RIK sales on the Blessing Pipeline System. To determine the revenue impacts of RIK sales on MOPS, we followed the same procedure as that on the Blessing Pipeline System, using data specific to sales on that pipeline. We then summed the revenue impacts from RIK sales on both systems to yield the total estimated revenue gain of about $4 million on sales of about $210 million.

[2]Unlike RIK transactions, data from cash sales could be manually reviewed and adjusted to achieve an anomalous financial data rate of less than 1 percent.

[3]MMBtu (one million British thermal units) is a measure of the heating quality of the gas equal to 1,000 cubic feet of gas at a Btu quality of 1,000.

Other Factors May Affect Revenue Analysis

Our case studies did not include other overall factors that may affect revenues from RIK sales. First, differences in the timing of royalty collections can affect total revenue collections because an earlier collection of these revenues allows the Treasury to earn interest on the funds collected. Revenues from the sale of royalty oil are due 10 days earlier than cash royalties, while revenues from the sale of gas are due 5 days earlier than cash royalties. We reviewed MMS's revenue collections from all RIK pilot sales during fiscal year 2002 and determined that 98 percent of the oil and 92 percent of the gas revenues were collected according to this early schedule. For fiscal year 2002, we calculated the combined benefit to be about $128,500, or about 0.03 percent on a total of $454 million collected in RIK pilot sales.[4] MMS may have also realized relatively small amounts of money from interest on those revenues that were late. Future benefits will depend upon the amount of oil and gas sold in kind, interest rates, and the sales prices of oil and gas. Secondly, during the time frame of our revenue analysis, data were not available on a lease-by-lease basis that would enable us to estimate how much additional revenue had accrued to MMS as the result of the audit process. Hence, we could not determine whether any additional funds collected as a result of auditing were included in MMS's financial data. For example, Wyoming state auditors who audit the federal leases in Wyoming that we included in our revenue analysis stated that they audited some of these leases for some of the time frame. While any additional audit collections would be expected to affect unit prices in both MMS's financial database and the state's severance tax database, additional collections were not necessarily recorded for every lease. We did not examine how any additional collections resulting from audits were recorded for oil and gas leases in the Gulf of Mexico because of the difficulty in accessing individual leases in the information system that tracks auditing efforts. In addition, some of the time frame that we included in our revenue analyses had not yet been audited by MMS when we initiated our work.

[4]To make this calculation, we used the federal funds rate, which is the rate that banks charge each other for short-term loans during the Federal Reserve Bank check clearing process.

Comments from the Department of the Interior

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

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APR - 5 2004

Mr. Jim Wells
Director, Natural Resources and Environment
U.S. General Accounting Office
441 G Street, N.W. – Room 2T23A
Washington, D.C. 20548

Dear Mr. Wells:

We appreciate the opportunity to review the U.S. General Accounting Office (GAO) Draft Audit Report, MINERAL REVENUES: "Cost and Revenue Information Needed to Compare Different Approaches for Collecting Federal Oil and Gas Royalties." Our general and specific comments are enclosed for you to consider for incorporation into the final report.

The insights and conclusions contained in the draft report are timely and will be valuable in our efforts to improve the Federal Royalty-In-Kind Program. We generally agree with your observations as more fully described in the enclosed response.

The Department of the Interior's Minerals Management Service (MMS) has been implementing an asset management approach for the collection and verification of the Nation's oil and gas mineral royalties. In this effort, MMS has implemented a strategic plan to make the royalty-in-kind (RIK) approach a permanent component of the asset management strategy to be used in tandem with the royalty-in-value (RIV) approach. We appreciate GAO's acknowledgment of the progress made in advancing the RIK approach in the March 2004 draft report.

Again, thank you for the opportunity to review and comment on this report. If you have any questions, please contact Ms. Denise Johnson, Minerals Management Service's Audit Liaison Officer, at (202) 208-3976.

Sincerely,

Patricia Morrison (ACTING)

Rebecca W. Watson
Assistant Secretary
Land and Minerals Management

Enclosure

Response to March 2004 General Accounting Office (GAO)
Draft Report Titled "Cost and Revenue Information Needed to Compare Different Approaches for Collecting Federal Oil and Gas Royalties"

Summary Comments

The March 2004 draft GAO report primarily addresses the administrative costs and revenues associated with the MMS royalty-in-kind (RIK) pilot projects. The report offers insights and conclusions on the importance of performance measures and information needed to comparatively evaluate the RIK and royalty-in-value (RIV) approaches. The MMS agrees with GAO and has already taken steps to improve RIK performance documentation and measurement. As discussed below, we have been implementing and will continue to refine implementation of new systems and procedures necessary to ensure effective RIK program operations and contemporaneous evaluation of program performance.

Since issuance of the January 2003 GAO report, MMS has successfully designed and implemented three RIK information systems. All three systems, a gas management system, liquids management system, and a Risk and Performance Management (RPM) System, were implemented on time and within budget. They are the operational backbone of the RIK program, housing all transactions and most of the data. As a result, the RIK management control process is now functioning on a par with commercial industry standards.

The draft report states that limitations in MMS's access to and analysis of revenue data prevented a comprehensive GAO assessment of RIK sales. The MMS's program experience, combined with initial results from new measurement tools, indicates that revenues are generally higher and that administrative costs are reduced under the RIK approach. The MMS has been awaiting completion of its new automated RIK support systems to more fully address the limitations observed by GAO. These systems are now implemented and MMS is able to better evaluate both revenues and costs to document RIK program performance.

The GAO draft report correctly acknowledges implementation and use of an Activity-Based Cost (ABC) Management System to capture cost data and allocate to various minerals revenue management functions. The draft report also notes that the ABC system has identified substantial audit savings in FY 2003. These efficiencies have already freed-up resources to conduct additional audits and assist on RIK functions.

GAO's analyses of the revenue impacts of two of the three RIK pilot projects assessed in the draft report show revenue gains totaling some $5 million. These assessments are consistent with MMS's internal analyses of the same pilot projects. The MMS agrees with the GAO conclusion that the time period covered in their assessment of the Gulf of Mexico crude oil sale is too short for any meaningfully assessment of economic results.

The draft report emphasizes the importance of systems and processes for measuring both the administrative costs and revenue impacts of the RIK program. MMS fully recognizes this responsibility. MMS's monitoring and evaluation of the RIK pilot projects has always included in-depth pre-sale, concurrent, and post-sale analyses of RIK value received. These assessments

2

document and assure that the MMS RIK program is complying with the underlying statutory obligations authorizing the program.

The MMS agrees with the GAO conclusion that more systematic and timely measurement of program performance is needed for the future. The recently implemented information systems position MMS to contemporaneously and systematically assess the revenue impacts of the RIK program. In February 2004, MMS measured revenue impacts for the natural gas RIK program and the non-SPR crude oil program in the Gulf of Mexico for recent periods. Results are being evaluated and appear to be slightly revenue positive. We are now able to measure revenue performance of the RIK program in a systematic, timely, and continuing manner. The Administration supports the RIK language in the Energy Bill which would substantially address the GAO recommendation to institute systematic and timely measurement of the RIK program.

The MMS believes that a Federal RIK Program is essential to the effective management of the Nation's oil and gas royalty assets. In January 2003, MMS competitively awarded a contract to the Lukens Energy Group of Houston, Texas, to commercially assess the RIK program, recommend improvements (focusing in major part on performance measurement tools and metrics), and make recommendations relative to a five-year RIK strategic planning initiative. Based on recommendations of the Lukens Energy Group and GAO observations, MMS will publish a Five-Year RIK Business Plan in May 2004. The Plan will include strategic direction, clear goals and objectives linked to statutory authorities, and specific management action items to advance RIK business activity for 2004-2008.

Detailed Comments

GAO Highlights Page and Page 1

See comment 1.

The GAO states that MMS collected $4.7 billion in FY 2003. While this number is accurate as reflecting a 5-year average annual distribution of mineral royalties, the correct number for mineral royalty collections for FY 2003 is $5.6 billion.

Pages 2, 3, 4, 8, 23

The draft report states that neither GAO nor MMS could quantify revenue or cost impacts "conclusively," "completely," or "comprehensively." The MMS agrees with this assessment, and notes that, due to inherent uncertainties, comparisons of "actual" minerals revenue program results to "projected" results of mineral revenue programs, whether under the RIK or RIV approaches, are unlikely to ever conclusively, completely, or comprehensively quantify revenue or cost impacts. On the revenue side, estimates of what would have been received in RIV are just that – estimates. On the cost side, as GAO points out in the draft report, both the RIK and RIV programs are evolving and present moving targets for comparative analysis.

Page 3

See comment 2.

The draft report states that MMS would not have incurred an FY 2003 direct cost of $1.7 million by accepting cash royalty payments. This number incorrectly includes $496,000 for auditing and reconciling volumes, a function that MMS incurs whether in RIK or RIV status. Thus, the correct direct cost incurred by MMS in FY 2003 for RIK is $1.2 million.

3

Page 6
GAO reports on expenditures for RIK systems development and operation, but does not mention expenditure of significant funds for systems that support financial and compliance activities. We believe that a balanced treatment of comparative costs requires mention of system costs for both RIK and RIV or neither.

See comment 3.

Page 7
The GAO states that 572 FTE were maintained by MMS from FY 2002 through FY 2004. While this number is accurately sourced from MMS budget documents, actual employees on board decreased from 602 in FY 2000 to 558 in FY 2004. While there are several variables accounting for the decrease, the administrative ease of RIK is certainly one of the primary factors. We recommend that GAO include these numbers in the final report.

See comment 1.

Now on page 6.

Also, with regard to administrative savings, we recommend that GAO include data on the FTE trends in the compliance and asset management (CAM) workforce (primarily an RIV-dedicated activity). Specifically, the CAM offices have shown an FTE decrease of 44 from 2002 to 2004, with some of this decrease contributing to the RIK FTE increase of 27 for the same period.

See comment 1.

Page 11
The GAO incorrectly describes the function of the Risk and Performance Management (RPM) System (referred to by GAO as the risk management information system) as the performance of credit monitoring. The RPM actually is the system that supports measurement of revenue performance of the RIK program. It was implemented in August 2003, and, in February 2004, was populated with data and utilized to begin measurement of RIK revenue results for the natural gas and small refiner RIK programs for periods during 2003. Credit monitoring is supported by MRM's gas and liquids management systems.

See comment 1.

Now on p. 10.

Page 21
The GAO incorrectly states that only one staff employee is assigned to assessments of RIK revenue performance. In reality, six MRM staff and one MRM senior manager, independent of the marketers, have spent major portions of their time in the past year dedicated to these assessments. In addition, the marketers located in the RIK Front Office have always routinely and continually assessed performance results. Further, substantial efforts from two contractors have been expended on performance assessments and methodology for the past several years:

- In the past year, Lukens Energy Group submitted three reports to MMS dedicated to this topic and another two deliverables addressing performance metrics. Two contractor staff and one senior manager spent the majority of their time on this effort, and
- For more than 2 years, MRM's systems contractor has been designing, developing, implementing, and refining a Risk and Performance Management System to measure the revenue performance of the RIK program.

See comment 4.

Now on p. 19.

The GAO has spent a considerable amount of effort in conducting a credible analysis of the revenue results of an MMS crude oil RIK sale occurring from October 2001 through March 2002. We appreciate the effort and believe that the results are parallel with our analysis. We have several technical comments on the GAO analysis which we will transmit to GAO field staff.

See comment 5.

The following are GAO's comments on the Department of the Interior's letter dated April 5, 2004.

GAO Comments

1. We clarified our report to reflect these comments.

2. We included the costs of $496,000 for auditing leases and reconciling volumes because MMS reported it as a direct cost of the RIK pilot sales, and because it is unknown how many of these leases would have been selected for auditing if they had not been in the RIK Program.

3. We acknowledge that there are considerable costs for systems that support financial and compliance activities. However, the financial system supports both the collection of cash royalty payments and RIK payments, so its costs are incurred regardless of whether royalties are collected in cash or in kind. We acknowledge MMS's observation that the compliance system has associated costs and that these costs are incurred predominantly with the collection of cash royalties. However, it was not our intent to compare systems costs under different methods of collecting royalties. We intended only to mention the incremental costs associated with collecting royalties in kind because MMS will continue to incur costs associated with collecting cash royalty payments.

4. We clarified the report by stating that there is only one staff independent of the RIK Program whose duties involve analyzing RIK sales results. We acknowledge that additional RIK Program staff and managers analyze sales results. However, we believe that proper management controls require that staff independent of the RIK Program should analyze sales results for MMS management. We also acknowledge and state in this report that an independent contractor has assisted with developing a strategy for analyzing sales. We believe that this is a significant step towards comprehensively and systematically analyzing RIK sales results.

5. MMS's technical comments on its Gulf oil sale related to two issues: (1) removing the effect of quality bank adjustments and (2) the validity of extending its analysis for an additional 12 months. Because of the variability of quality bank adjustments, MMS stated that it is necessary to remove these adjustments before conducting an analysis, and MMS believes that it has done so. We acknowledge the variability of quality bank adjustments and also note that transportation allowances

associated with the leases that we reviewed are also variable, albeit to a lesser degree. However, when we conducted our analysis, there was insufficient data on quality bank adjustments for the time period prior to the second RIK sale to effectively remove their effect from our analysis. To compensate for the variability of both quality bank adjustments and transportation allowances among the 13 leases we examined, we chose to establish our relationship between cash royalty payments and MMS's royalty valuation regulations for a relatively long time period prior to the 6-month RIK sale. We assumed that the effects of variability would be minimized over the 16-month period for which we established our relationship. Concerning the validity of extending the time period of analyzing the Gulf of Mexico oil sale, MMS restated its belief that analyzing the transfer of oil to the SPR during the subsequent 12 months is a valid technique. We already discussed the limitations of using this technique in the report.

GAO Contacts and Staff Acknowledgments

GAO Contacts

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Acknowledgments

In addition to those named above, Ron Belak, Robert Crystal, Art James, Lisa Knight, Jonathan McMurray, Franklin Rusco, Dawn Shorey, and Maria Vargas made key contributions to this report.

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