

## SUMMARY

Royalty, rental, and bonus payments from oil and gas and other fuel and non-fuel mineral leases on public lands are a major source of income for the Federal government, States, and Indian Tribes. In 1989, Federal mineral revenue collections totalled over \$3.9 billion, including over \$2.9 billion from offshore bonuses, rentals, and *royalties*; and almost \$1.0 billion from onshore and mineral leases and those on Indian lands. These receipts were disbursed to States, Indian Tribes and individual Indian allottees, the U.S. Treasury general fund, and designated Federal accounts.

Royalty management is very complicated due to the number, size, type, and interrelationships of leases, and the sales arrangements involved. Due to the large sums involved, the stewardship responsibilities for the States and Tribes, and the complexity of the task, the royalty management program has been watched closely by Federal auditors, disbursers, the minerals *industry*, public interest groups, and the press. For much of the program's history, that surveillance has led to reports of problems--including *mismanagement*, *Undercollection*, fraud, and theft.

In 1982, the Commission on Fiscal Accountability of the Nation's Energy Resources (the Linowes Commission) found that: 1) the U.S. Geological Survey (USGS-- then in charge of the program) did not verify data reported by companies, 2) the lease account records were so unreliable that the agency often did not know which companies had paid the royalties owed and which had not, 3) late payments were common, 4) lessee's records were seldom audited or

critically reviewed, and 5) the royalty management system lacked the basic internal controls needed to assure that oil and gas royalties were paid in full and on time.\*

As a result of these and other findings, the Department of the Interior (DOI) transferred royalty management to the newly-created Minerals Management Service (MMS) and initiated a long-range automation effort. At the same time, Congress enacted the Federal Oil and Gas Royalty Management Act of 1982 (FOGRMA).<sup>1</sup> The Act required DOI to establish a comprehensive auditing, inspection, collection, enforcement, and fiscal and production accounting system for oil and gas leasing.

In 1983, however, the sorry state of royalties management again received a lot of publicity. Critics argued that the new program had been centralized and implemented much too rapidly. The principal target of criticism was MMS' Auditing and Financial System (AFS)--the primary system used to ensure accurate royalty reporting and payment on Federal and Indian leases. It was first automated in 1983 (after three years of development and testing) on three networked VAX minicomputers. It soon became apparent, however, that the volume and complexity of the workload would exceed the capability of the processing environment, and both the hardware and operating system were disasters. As a result, MMS sought and obtained funding to convert AFS from the minicomputers to an IBM 3081 mainframe computer. The contract for this conversion was awarded in 1985, and the system became operational in September 1987. It currently accounts for around 22,000 Federal and 4,000 Indian producing leases--mostly oil and gas.

---

<sup>1</sup>P.L.97-451.

•Internal controls are a system of checks and balances that protect an organization's assets. Effective internal controls give reasonable assurance to management that no misstatement of accounts, either accidental or deliberate, is occurring.

Several startup problems had to be resolved in order for AFS to accomplish its tasks. First, many of the elements in the old royalty database were out of date or incorrect, and it had to be cleaned up and validated against the other lease and payor databases. An automated system was set up to compare the databases periodically. Second, the quality of monthly reporting also was poor. Initially, over 40 percent of the report lines submitted by payors were rejected by the system because they contained fatal errors or did not match reference data in the system. This required a new payor training program.

Although these and other initiatives resulted in dropping the input error rate to below 4 percent, in 1988 Congress and the DOI Office of the Inspector General (OIG) still considered inadequate accounting, collection, and disbursement of royalty payments to be a problem. A primary concern was that, although FOGRMA had established a comprehensive Federal system for royalty management in 1982, MMS had taken seven years to establish such a system. Moreover, there were lingering concerns about the adequacy of the AFS hardware and operating system. The Senate Committee on Energy and Natural Resources asked the Office of Technology Assessment (OTA) to examine these concerns.

OTA found that the current AFS hardware (IBM 3081 mainframe) and operating system remedy most of the problems that arose with the previous VAX mini-computer system. For the most part, the AFS operating environment is adequate for the size and complexity of the workload.

The principal remaining problems are data and software-related, primarily due to multiple data sets and data inconsistencies. While internal validation of the database, payor training, and other efforts have reduced the input error rate to 4 percent, the different databases and update files significantly reduce MMS' ability to ensure accurate royalty reporting and

disbursement. The various data integrity problems also increase the difficulty of reconciling data from its different sources, and the large amounts of redundant data mean high operating costs and slow processing.

In 1986, MMS began a system improvement effort plan which includes projects that will remedy these problems. They plan to eliminate three of the database updates currently in the system, aggregate the lease/agreement data for royalty management systems, and reduce redundant data storage. Not only would the planned improvements eliminate data integrity problems with system cross-checks, they would improve the audit and appeals processes. Over the long term, database integration also would provide a management information system for easier information retrieval and reporting.

A remaining concern about MMS' long-term plans is that the capacity of the IBM 3081 mainframe is expected to be exceeded around 1991. This coincides with the target date for completion of the system improvement plan. With the rapid advance in computing and operating system technology, it is possible that MMS could once again find itself having to convert to an entire new system, with the attendant delays in coming online and the resulting possibility that there would be yet another gap in accurate and timely royalty processing. Care should be exercised in the improvement of the operating system and in the choice of a larger computer to ensure that the system can be converted to the new technology without a loss in processing capability.

MMS recognizes these potential problems. Their current acquisition plans call for IBM compatible equipment and operating systems that can run existing software without modification.