October 17, 1997

MEMORANDUM FOR THE SECRETARY

FROM: John C. Layton
Inspector General

SUBJECT: INFORMATION: "Audit of Funding for Advanced Radioisotope Power Systems"

BACKGROUND:

The Department of Energy's (Department) Advanced Radioisotope Power Systems Program maintains the sole national capability and facilities to produce radioisotope power systems for the National Aeronautics and Space Administration (NASA), the Department of Defense, and other Federal agencies. For the past seven years the program emphasis has been on providing power systems for NASA's Cassini mission to Saturn, which was launched earlier this month. We initiated this audit to determine whether the Department received proper reimbursement from NASA for the radioisotope power systems produced.

DISCUSSION:

Although the Department's policy is to receive reimbursement for fuel used in NASA's radioisotope power systems, the Department has not recovered any fuel costs for the Cassini mission. This occurred because the Department's Office of Nuclear Energy, Science and Technology did not establish an interagency agreement with NASA for recovery of fuel costs. As a result, the Department has not collected about $46.3 million from NASA for fuel used in Cassini radioisotope power systems. We recommended that the Department establish an interagency agreement with NASA and recover the total cost of fuel provided for the Cassini systems.

Attachment

cc: Deputy Secretary
Under Secretary

U.S. DEPARTMENT OF ENERGY
OFFICE OF INSPECTOR GENERAL

AUDIT OF FUNDING FOR

ADVANCED RADIOISOTOPE POWER SYSTEMS

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This report can be obtained from the
U.S. Department of Energy
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P.O. Box 62
Oak Ridge, Tennessee 37831

Report Number: DOE/IG-0413
Date of Issue: October 17, 1997

Eastern Regional Audit Office
Oak Ridge, TN 37830

AUDIT OF FUNDING FOR
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U.S. DEPARTMENT OF ENERGY
OFFICE OF INSPECTOR GENERAL
OFFICE OF AUDIT SERVICES

AUDIT OF FUNDING FOR ADVANCED RADIOISOTOPE POWER SYSTEMS

Audit Report: DOE/IG-0413

SUMMARY

The U.S. Department of Energy's (Department) Advanced Radioisotope Power Systems Program maintains the sole national capability and facilities to produce radioisotope power systems for the National Aeronautics and Space Administration (NASA), the Department of Defense, and other Federal agencies. Projects are conducted with these agencies in accordance with written agreements and are dependent on cost sharing by the user agencies. For the past seven years the program emphasis has been on providing power systems for NASA's Cassini mission to Saturn, which was launched earlier this month. We initiated this audit to determine whether the Department received proper reimbursement from NASA for the radioisotope power systems produced.

Although the Department's policy is to receive reimbursement for fuel used in NASA's radioisotope power systems, the Department has not recovered any fuel costs for the Cassini mission. This occurred because the Department's Office of Nuclear Energy, Science and Technology did not establish an interagency agreement with NASA for recovery of fuel costs. As a result, the Department has not collected about $46.3 million from NASA for fuel used in Cassini radioisotope power systems. We recommended that the Director, Office of Nuclear Energy, establish an interagency agreement with NASA and recover the total cost of fuel provided for the Cassini systems.

Management concurred with the findings and recommendations, stating that negotiations with NASA will be revitalized after the launch of the Cassini mission.

Signed
Office of Inspector General

PART I

APPROACH AND OVERVIEW

INTRODUCTION

The Atomic Energy Act of 1954, as amended, established the charter under which the U.S. Department of Energy (Department) has provided radioisotope power systems for the National Aeronautics and Space Administration (NASA), the Department of Defense, and other Federal agencies over the past 30 years. Specifically, the Department provides radioisotope power systems development, demonstration, testing, and delivery. Funding for these power systems is provided jointly by the Department and customer agencies. The purpose of the audit was to determine whether the Department was properly reimbursed for radioisotope power systems produced for NASA.

SCOPE AND METHODOLOGY

The audit was performed at the Office of Nuclear Energy, Science and Technology (Office of Nuclear Energy) in Germantown, Maryland, from May 19, 1997, through July 7, 1997. To accomplish the audit objective, we:

- Reviewed Federal laws and regulations governing reimbursement for materials and services provided to other Federal agencies;
- Evaluated Departmental interagency funding agreements with NASA for radioisotope power systems;
- Analyzed budget requests and appropriations for the Department's Advanced Radioisotope Power Systems Program; and
- Held discussions with personnel from the Department's Office of Nuclear Energy regarding the Advanced Radioisotope Power Systems Program.

The audit was performed in accordance with generally accepted Government auditing standards for performance audits and included tests of internal controls and compliance with laws and regulations to the extent necessary to satisfy the audit objective. Accordingly, we assessed Departmental controls over funding for the radioisotope power systems for NASA. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our audit. We did not conduct a reliability assessment of computer-processed data because only a very limited amount of computer-processed data was used during the audit.

We held an exit conference with the Acting Associate Director, Office of Engineering and Technology Development in the Office of Nuclear Energy, Science and Technology.

PRIOR AUDIT REPORTS

We identified two prior audit reports that dealt specifically with the Department's Advanced Radioisotope Power Systems Program. In October 1993, the General Accounting Office issued Report GAO/RCED-94-6, NUCLEAR SCIENCE -- More Planning Needed to Support Future Needs for Electric Power in Space. The report recommended that the Department examine the alternatives for long-term supply of radioisotope power systems in view of the downsizing and closure of the Mound Plant. Additionally, the Office of Inspector General issued Report DOE/IG-0408, Audit of Shutdown and Transition of the Mound Plant, in June 1997. The report concluded that the Office of Nuclear Energy was continuing radioisotope power system operations at the Mound Plant without adequately considering the overall economic goals of the Department.

BACKGROUND

The Department has provided radioisotope power systems to user agencies for many years. One of the Department's primary customers for these systems is NASA. The systems have provided proven, reliable, maintenance free power for many NASA projects including the Apollo, Pioneer, Viking, Voyager, Galileo, and Ulysses missions. The most recent NASA mission supported by the Department was the Cassini mission to Saturn.

For the Cassini mission, the Department agreed to deliver 4 radioisotope thermoelectric generators and 157 light weight radioisotope heater units. The Department began production during FY 1990 and delivered the systems in May 1997. The total cost for Cassini's radioisotope power systems was estimated to be about $264 million, excluding fuel costs. Under the terms of the agreement, NASA will reimburse the Department $119 million between FY 1990 and FY 1998. Through FY 1996, NASA reimbursed $114 million to the Department in accordance with the terms of the agreement. Also, the Department is to provide support for the Cassini radioisotope power systems through mission launch.

The reimbursement from NASA for the Cassini mission was to be handled in accordance with two interagency agreements. The first agreement set up the reimbursement requirements for all Cassini radioisotope power systems costs except fuel costs. A second agreement was to be non-mission specific and would cover reimbursements for fuel costs for the Cassini mission and other future NASA missions. Although the Cassini mission agreement was completed and implemented, as described previously, the non-mission specific fuel agreement was never completed.

PART II

FINDING AND RECOMMENDATIONS

Fuel Costs Not Reimbursed

FINDING

The Department's policy is to receive full cost reimbursement for fuel used in NASA's radioisotope power systems. However, the Department has not received reimbursement for the fuel used for NASA's Cassini radioisotope power systems. This occurred because the Department's Office of Nuclear Energy did not establish an interagency agreement with NASA for recovery of fuel costs. As a result, the Department has not collected about $46.3 million from NASA for reimbursement of Cassini mission fuel.

RECOMMENDATIONS

We recommend that the Director, Office of Nuclear Energy, Science and Technology:

1. Establish an interagency agreement with NASA requiring full cost reimbursement for fuel used in radioisotope power systems; and

2. Recover from NASA the total cost of the fuel provided for the Cassini radioisotope power systems.

MANAGEMENT REACTION

Management concurred with the finding and recommendations and agreed to take corrective action. Part III of the report provides detailed management and auditor comments.

DETAILS OF FINDING

DEPARTMENTAL POLICY

The Department's policy is to receive full cost reimbursement for fuel used in NASA's radioisotope power systems. Departmental Order 2110.1A requires the Department to obtain full cost reimbursement less depreciation for materials or services provided to other Federal agencies. However, the Office of Nuclear Energy requested a waiver of this policy for fuel provided for NASA's space missions. The Office of Nuclear Energy proposed that instead of paying full cost, NASA should pay an annual amount estimated to be less than the full cost for fuel. The request was denied in September 1990, and the Department Controller stated in February 1991 that any agreement with NASA for fuel reimbursement should state that the final price will be the actual, fully-allocated cost determined at the time of production.

FUEL COSTS NOT RECOVERED

Despite the Controller's ruling, the Department did not recover the fuel costs from NASA for the Cassini radioisotope power systems. The Department began production on the Cassini mission during FY 1990 and delivered the radioisotope power systems during May 1997. The Department received reimbursements annually during this period for non-fuel costs in accordance with the Cassini agreement with NASA. However, the Department did not receive any reimbursements for fuel.

INTERAGENCY AGREEMENT NOT ESTABLISHED

This occurred because the Office of Nuclear Energy did not negotiate an agreement with NASA for full recovery of fuel costs after the Controller's ruling. As of July 7, 1997, the Department had not re-opened negotiations with NASA to recover the fuel costs for the Cassini radioisotope power systems. During the audit, the Office of Nuclear Energy officials stated that they had not aggressively pursued the fuel agreement with NASA, and that NASA should have reimbursed the Department for the cost of the fuel used on the Cassini systems.

ESTIMATE OF FUEL COSTS

We estimated that the Department should have recovered about $46.3 million from NASA for fuel used in the Cassini radioisotope power systems. To produce the Cassini systems, the Department used approximately 23,503 grams of fuel. In accordance with the Controller's ruling, the fuel used in NASA's radioisotope power systems should have been priced at the fully allocated cost of $1,968 per gram. Therefore, the Department should have received $46.3 million in reimbursements for fuel from NASA.

PART III

MANAGEMENT AND AUDITOR COMMENTS

Management concurred with the finding and recommendations and stated that negotiations with NASA will be revitalized after the launch of Cassini planned for October 1997. Management also stated that the issue of fuel cost reimbursement had no impact on the overall cost or schedule for completing the delivery of the radioisotope power systems for the Cassini mission.

We considered management's comments to be responsive to the finding and recommendations. Additionally, we found no evidence that the issue of fuel cost reimbursement had any impact on the overall cost or schedule for completing the

delivery of the radioisotope power systems for the Cassini mission.

IG Report No. DOE/IG-0413

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