U.S. Department of Energy
Office of Inspector General
Office of Audits and Inspections

# Audit Report

## Department of Energy's Isotope Development and Production for Research and Applications Program's Fiscal Year 2009 Balance Sheet

OAS-FS-12-08

March 2012

# ISOTOPE DEVELOPMENT AND PRODUCTION FOR RESEARCH AND APPLICATIONS PROGRAM

# Fiscal Year 2009

# Annual Report and Balance Sheet

**September 30, 2009**

U.S. DEPARTMENT OF ENERGY | Office of Science

**UNITED STATES DEPARTMENT OF ENERGY**

**ISOTOPE DEVELOPMENT AND PRODUCTION FOR RESEARCH AND APPLICATIONS PROGRAM**

Fiscal Year 2009 Annual Report and Balance Sheet

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**UNITED STATES DEPARTMENT OF ENERGY**
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## Isotope Program Overview

The primary goal of the Isotope Development and Production for Research and Applications Program (Isotope Program) is to support research, development, and production of research and commercial isotopes that are of critical importance to the Nation and in short supply. To achieve this goal, the Isotope Program provides facilities and capabilities to produce research and commercial stable and radioactive isotopes, associated scientific and technical staff, and a supply of critical isotopes to address the needs of the Nation. A viable isotope production capability provides research and commercial isotopes that would have otherwise not been possible, reduced dependence on foreign supplies, new scientific applications for isotopes not currently supplied, the development of more effective isotope production and processing techniques, and the ability to meet both present and future research needs for isotopes. The Isotope Program emphasizes research and development (R&D) efforts associated with developing new and more cost-effective and efficient production and processing techniques and on the production of isotopes needed for research purposes.

In fiscal year (FY) 2009, this program was transferred to the Office of Science (SC), Office of Nuclear Physics (NP), Facilities and Project Management Division, from the Office of Nuclear Energy. With this transfer much effort has been expended on establishing a strengthened management structure, long-term strategies, priorities, peer review mechanisms, and effective lines of communication with isotope stakeholders.

The Nuclear Science Advisory Committee (NSAC) is a Federal advisory committee that provides official advice to the Department of Energy (DOE or the Department) and the National Science Foundation on the national program for basic nuclear science research. NSAC was charged in August 2008 by SC to develop a prioritized list of research topics using isotopes and to develop a long-range strategic plan for stable and radioactive isotope production. The first NSAC report, *Compelling Research Opportunities Using Isotopes*, released in April 2009 includes Federal, commercial, and community input and establishes priorities for the production of research isotopes. Following release of the NSAC report, NP issued a broad call to university, laboratory, and commercial facilities to submit proposals for producing these high priority research isotopes. The result was establishment of new production capabilities at other laboratory sites and university facilities to increase reliable sources of research isotopes at more affordable prices. The second NSAC report, *Isotopes for the Nation's Future—A Long Range Plan,* released in November 2009, provided recommendations for a long-range strategic plan which includes the construction and operation of an electromagnetic isotope separator facility for stable and long-lived radioactive isotopes and a variable-energy, high-current, multi-particle accelerator and supporting facilities that have the primary mission of isotope production.

Isotopes produced by the Isotope Program are utilized by the National Institutes of Health and their grantees, National Institute of Standards and Technology, Environmental Protection Agency, Department of Homeland Security, other DOE SC programs, and other Federal agencies. NP collaborates closely with other Federal agencies to develop strategic plans for isotope production.

The Department produces isotopes only where there is no United States (U.S.) private sector capability or other production capacity available to meet U.S. needs. The Department encourages private sector investment in new isotope production ventures. The Isotope Program adheres to the March 9, 1965, policy statement contained in the Federal Register regarding privatization. The Isotope Program has had several successful privatization initiatives and will continue to entertain divesting production activities if assumed by private producers.

The Isotope Program continues to produce, process, package, and deliver isotopes not produced commercially. In FY 2009, research isotopes were priced based on direct production costs. The Isotope Program worked on developing a new pricing policy for research isotopes to make them more affordable to the research community by basing prices on unit cost (e.g., millicurie). Commercial isotopes produced by the Isotope Program are priced to recover full cost.

Isotopes are made available by using the Department's unique facilities -- the Brookhaven Linear Accelerator Isotope Producer (BLIP) at the Brookhaven National Laboratory (BNL) and the Isotope Production Facility (IPF) at the Los Alamos National Laboratory (LANL), for which the Isotope Program has stewardship responsibilities. Hot cell facilities at BNL, LANL, and Oak Ridge National Laboratory (ORNL) are used and maintained by the Isotope Program for processing and handling irradiated materials and purified products. Facilities at other national laboratories are used as needed, such as the production of isotopes at the reactors at ORNL and Idaho National Laboratory (INL). Other byproduct material such as strontium-90 and actinium-227 is available at facilities such as the Pacific Northwest National Laboratory (PNNL).

All stable isotopes are processed at and distributed from ORNL with the exception of helium-3, which is recovered at the Savannah River Site (SRS), owned and operated by the National Nuclear Security Administration (NNSA). The Isotope Program pays a facility charge for space and services at these facilities, which are managed by other Department program offices.

As part of the Isotope Program, the National Isotope Development Center (NIDC) is a newly created management information center for all national laboratories as well as universities, government, and private isotope suppliers that are supported by the Isotope Program. The NIDC coordinates and integrates multi-laboratory isotope production schedules, maintains isotope inventory balances and transportation container inventory and certifications, and conducts various outreach and societal activities. The NIDC's

Isotope Business Office coordinates all customer data such as sales, accounts receivable, and Nuclear Regulatory Commission (NRC) licenses.

**Isotope Program Funding**

The Isotope Program operates under a revolving fund established by the 1990 Energy and Water Development Appropriations Act (Public Law 101-101), as modified by the 1995 Energy and Water Development Appropriations Act (Public Law 103-316), which allows prices charged for the Isotope Program's products and services to be based on production costs, market value, U.S. research needs, and other factors. Revenues from sales are placed in and distributed from the revolving fund. Additionally, the Isotope Program receives annual funding from SC's Nuclear Physics program. These funds are used to support the core group of scientists and engineers needed to implement the Isotope Program and to operate and maintain isotope facilities to assure reliable production. In addition, the funding provides support for R&D activities associated with development of new production and processing techniques for isotopes, operations support for the production of research isotopes, and support for training of new personnel in isotope production and development. Each site's production expenses for processing and distributing isotopes is offset by revenue generated from sales.

Of the total resources available annually in the revolving fund, about 75 percent is used for operations, maintenance, and isotope production, with roughly 25 percent available for process improvements, unanticipated changes in volume, and purchases of small capital equipment, such as assay equipment and shipping containers needed to ensure on-time deliveries. Because the Isotope Program is a user of the Department's facilities and operates similarly to the Department's Work-for-Others Program, facility decontamination and decommissioning costs, particularly legacy costs, are the responsibilities of the programs that operate the facilities. However, cleanup costs directly attributable to isotope processing are the responsibility of the Isotope Program.

American Recovery and Reinvestment Act of 2009 (Recovery Act) Investments

In FY 2009, Recovery Act funding of $15 million was designated for the Isotope Program. A Funding Opportunity Announcement was published in March 2009 for R&D initiatives on alternative isotope production techniques, dedicated to the development and production of stable and radioactive isotopes in short supply. In May 2009, a peer review for scientific merit was conducted and awards totaling $5 million were provided in September 2009. The successful research programs should lead to breakthroughs that will facilitate an increased supply of isotopes and complement the existing portfolio of isotopes produced and distributed by the Isotope Program. Funding of $10 million was also provided to the laboratories in May 2009 for enhanced utilization of isotope facilities. This Recovery Act project will enhance isotope production and processing capabilities at isotope facilities to enable the program to better meet the needs of the Nation for isotopes in short supply for industry and basic research.

**Isotope Program Performance**

The Isotope Program reports to the SC Director and is a component of NP and contributes to the Government Performance and Results Act (GPRA) Unit Program Goal: *Explore Nuclear Matter—from Quarks to Stars—Understand the evolution and structure of nuclear matter, from the smallest building blocks, quarks and gluons, to the stable elements in the Universe created by stars; to unique isotopes created in the laboratory that exist at the limits of stability and possess radically different properties from known matter.*

The Isotope Program contributes to this goal by supporting the research and development and production of radioisotopes and making them more readily available for domestic U.S. needs. In the near future, the Isotope Program will evaluate its current performance targets to determine revisions required to better align with the new structure and R&D focus of the Isotope Program.

Performance Summary

The annual targets focus on essential production capabilities and associated activities that represent key indicators critical to maintaining mission readiness. Successful achievement of these targets represents an assurance that the Department's unique nuclear isotope infrastructure, required for a reliable supply of isotope products, services, and related technology, is available to support national priorities. The FY 2009 targets are summarized below. The target not met will be closely tracked to identify and curtail any significant issues.

| **Target** | **Target Met** | **Target Not Met** |
|---|---|---|
| Meet production schedules within 10% variance (number of batches). | ● | |
| Maintain on-time maintenance schedule with no more than 15% slip and revise annually. | ● | |
| Achieve cumulative variance of less than 10 percent from maintenance cost baseline for facility infrastructure.***** | | ● |
| Maintain an average on-time delivery rate of 97% for stable isotopes and 95% for radioisotopes (95% overall). | ● | |
| Ensure 98% of products/services provided to customers meet the terms (e.g., specific activity, enrichment, etc.) of the contract/sales order. | ● | |
| Meet facility availability schedules within 10% variance. | ● | |
| Maintain an average of 90% completion for all research isotope orders against scheduled production for the fiscal year. | ● | |

*****Overall cumulative year-end cost variances exceeded the baseline target value. Maintenance costs were 15.8 percent below baseline in FY 2009. Actual costs were

considerably lower than estimated due to unanticipated increases in isotope sales and production. Routine maintenance was deferred because of longer production runs. The Isotope Program continues to plan for efficient and cost-effective facility and production capability use through its facility planning process.

Additional performance information can be obtained by contacting the Isotope Program directly.

**Financial Performance**

The Isotope Program is audited consistent with the Chief Financial Officers Act of 1990 and the Government Performance and Results Act of 1993. This year's audit was of the balance sheet for FY 2009.

FY 2009 Net Cost of Operations (Unaudited)

The major elements of the Isotope Program's net cost of operations include exchange revenues, cost of goods sold, and operating expense. In FY 2009, exchange revenues were $19.6 million, cost of goods sold was $21.9 million, and operating expense was $6.7 million. The overall net cost of operations in FY 2009 totaled $9.0 million. An analysis of the net cost of operations in FY 2009 disclosed an increase in exchange revenues over projections and a modest decrease in operating expense over initial estimates.

Generally, Isotope Program sales projections are dynamic and require frequent modification. Early projections showed revenue of $12 million in FY 2009. Actual sales, however, were $19.6 million. Contracts for accelerator-produced strontium-82 and germanium-68 were due to expire at the end of FY 2008, but were extended by the customer due to continued demand. In terms of revenue, radioisotopes outsold stable isotopes by a 3.42 to 1 ratio in FY 2009. Accelerator-produced isotopes outsold reactor-produced isotopes by a 2.24 to 1 ratio in FY 2009.

To increase sales and reduce unit production costs, the Isotope Program will continue seeking high volume, multi-year contracts with customers. In addition, the Isotope Program will seek economies of scale such as increasing target yields which will result in lower unit cost.

Fiscal Year 2009 Balance Sheet

The balance sheet presents the Isotope Program's assets, liabilities and net position. Significant changes from FY 2008 (unaudited) to FY 2009 include an increase in fund balance with Treasury due to growth in sales of strontium-82, germanium-68, helium-3, and californium-252, plus a larger Federal contribution. The larger Federal contribution is due to the FY 2009 Recovery Act funding of $15 million. In addition, the significant increase in customer advances is attributable to moderate increases in advance payments

received for strontium-82, germanium-68 and helium-3, and a large advance payment received for californium-252 production.

**Management Challenges and Significant Issues**

With the transfer of the Isotope Program to SC in FY 2009, numerous actions to improve Program effectiveness began and are planned. The more important management challenges and significant issues are discussed below.

Federal Program Management

During the past several years, the Federal staff for the Isotope Program was reduced from seven to two people. With the transfer of the Isotope Program to NP, a stronger Headquarters function is being reestablished to manage and oversee the Isotope Program. Beginning in FY 2009, NP has been addressing several issues associated with the Isotope Program reorganization and expansion. The NP program has restructured the organization of the Isotope Program to include two new program managers to manage and oversee isotope facilities and isotope research. NP continues to develop implementation strategies and provide leadership for the overall management of the Isotope Program.

DOE isotope production depends primarily on parasitic use of reactors, accelerators, and hot cells operated by the Department for other missions. The Isotope Program's principal goal is to provide a reliable year-round supply of a wide range of radioisotopes, primarily in small quantities, at reasonable costs and on schedule. This challenge is difficult when the Isotope Program does not control the production facilities upon which it relies.

National Laboratory Succession Planning

Isotope Program senior staff and leaders at some of the national laboratories are reaching or have reached retirement age and could leave the Isotope Program at any time. A strategy for attracting and training mid-career professionals with desirable credentials needs to be developed and implemented. Such a strategy may include the need for additional positions at the laboratories to allow overlapping assignments for training purposes.

**Balance Sheet Limitations**

The accompanying balance sheet reports the financial position of the Isotope Program. It was prepared using the Isotope Program's accounting books and records in accordance with U.S. generally accepted accounting principles and the formats prescribed by the Office of Management and Budget (OMB). Although this balance sheet is prepared from the same books and records, it is different from the financial reports used to monitor and control budgetary resources.

The balance sheet should be read with the realization that it is for a component of the U.S. Government, a sovereign entity.

**Systems, Controls and Legal Compliance**

The Isotope Program is not required to report on compliance with the Federal Financial Management Improvement Act (FFMIA). However, because the Isotope Program is a user of Departmental systems, we noted that the Department has determined it was substantially compliant with FFMIA in FY 2009. In response to Federal Managers' Financial Integrity Act (FMFIA) reporting, no material weaknesses in financial system internal controls were identified by the Department in FY 2009.

The Isotope Program has no instances of non-compliance with any other laws, regulations, and contracts that had a direct and material effect on the determination of balance sheet amounts in FY 2009.

**UNITED STATES DEPARTMENT OF ENERGY**

**ISOTOPE DEVELOPMENT AND PRODUCTION FOR RESEARCH AND APPLICATIONS PROGRAM**

Independent Auditors' Report

September 30, 2009

**KPMG LLP**
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## Independent Auditors' Report

The Isotope Development and Production for Research and Applications Program and
The Inspector General, United States Department of Energy:

We have audited the accompanying balance sheet of the United States (U.S.) Department of Energy's (Department) Isotope Development and Production for Research and Applications Program (the Program) (a component of the Department) as of September 30, 2009. The objective of our audit was to express an opinion on the fair presentation of the balance sheet. In connection with our fiscal year 2009 audit, we also considered the Program's internal controls over financial reporting and tested the Program's compliance with certain provisions of applicable laws, regulations, and contracts that could have a direct and material effect on the balance sheet.

## SUMMARY

As stated in our opinion on the balance sheet, we concluded that except for the effects on the balance sheet of such adjustments, if any, as might have been determined to be necessary had we been able to apply sufficient procedures to the Program's inventories held for sale and the classifications of fund balance with Treasury in Note 2, the Program's balance sheet as of September 30, 2009, is presented fairly, in all material respects, in conformity with U.S. generally accepted accounting principles.

Our consideration of internal control over financial reporting resulted in identifying certain deficiencies that we consider to be material weaknesses and other deficiencies that we consider to be significant deficiencies, as defined in the Internal Control over Financial Reporting section of this report, as follows:

*Material Weaknesses*

1. Controls over Inventory-related Documentation

2. Improvements Needed in the Preparation and Review of Manual Journal Entries

*Significant Deficiencies*

3. Unclassified Network and Information Systems Security

4. Accounting for Property, Plant, and Equipment

The results of our tests of compliance with certain provisions of laws, regulations, and contracts disclosed no instances of noncompliance or other matters that are required to be reported herein under *Government Auditing Standards*, issued by the Comptroller General of the United States, and Office of Management and Budget (OMB) Bulletin Number (No.) 07-04, *Audit Requirements for Federal Financial Statements*, as amended.

The following sections discuss our opinion on the Program's fiscal year 2009 balance sheet; our consideration of the Program's internal controls over financial reporting; our tests of the Program's compliance with certain provisions of applicable laws, regulations, and contracts; and management's and our responsibilities.

## OPINION ON THE BALANCE SHEET

We have audited the accompanying balance sheet of the United States Department of Energy's Isotope Development and Production for Research and Applications Program as of September 30, 2009.

The Program was unable to provide sufficient audit evidence to support the completeness, existence, accuracy, and ownership of inventories held for sale. It was not practicable to extend our auditing procedures sufficiently to satisfy ourselves as to the completeness, existence, accuracy, and ownership of inventories held for sale, stated at $6,835,333 in the accompanying balance sheet as of September 30, 2009. This amount enters into the determination of net position.

The Program was unable to provide sufficient audit evidence to support undelivered orders as of September 30, 2009. Although this result does not impact the balance sheet, this result does impact the classifications of fund balance with Treasury in Note 2.

In our opinion, except for the effects on the balance sheet as of September 30, 2009, of such adjustments, if any, as might have been determined to be necessary had we been able to apply sufficient procedures to inventories held for sale and the classifications of fund balance with Treasury in Note 2, as discussed in the preceding paragraphs, the balance sheet referred to above presents fairly, in all material respects, the financial position of the Program as of September 30, 2009, in conformity with U.S. generally accepted accounting principles.

The information in the Management's Discussion and Analysis and Required Supplementary Stewardship Information sections is not a required part of the balance sheet, but is supplementary information required by U.S. generally accepted accounting principles. We have applied certain limited procedures, which consisted principally of inquiries of management regarding the methods of measurement and presentation of this information. However, we did not audit this information and, accordingly, we express no opinion on it.

## INTERNAL CONTROL OVER FINANCIAL REPORTING

Our consideration of the internal control over financial reporting was for the limited purpose described in the Responsibilities section of this report and was not designed to identify all deficiencies in the internal control over financial reporting that might be deficiencies, significant deficiencies, or material weaknesses.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct misstatements on a timely basis. A significant deficiency is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance. A material weakness is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the Program's financial statements will not be prevented, or detected and corrected on a timely basis.

In our fiscal year 2009 audit, we identified certain deficiencies in internal control over financial reporting that we consider to be material weaknesses, described in Exhibit I, and other deficiencies that we consider to be significant deficiencies, described in Exhibit II. Exhibit III presents the status of prior year material weaknesses and significant deficiencies.

We noted certain additional matters that we will report to management in a separate letter.

## COMPLIANCE AND OTHER MATTERS

The results of our tests of compliance described in the Responsibilities section of this report, exclusive of those referred to in the *Federal Financial Management Improvement Act of 1996* (FFMIA), disclosed no instances of noncompliance or other matters that are required to be reported herein under *Government Auditing Standards* or OMB Bulletin No. 07-04, as amended.

The results of our tests of FFMIA disclosed no instances in which the Program's financial management systems did not substantially comply with the (1) Federal financial management systems requirements, (2) applicable Federal accounting standards, and (3) the United States Government Standard General Ledger at the transaction level.

* * * * *

## RESPONSIBILITIES

**Management's Responsibilities.** Management is responsible for the balance sheet; establishing and maintaining effective internal control; and complying with laws, regulations, and contracts applicable to the Program.

**Auditors' Responsibilities**. Our responsibility is to express an opinion on the balance sheet of the Program as of September 30, 2009, based on our audit. Except as discussed in the second and third paragraphs in the Opinion on the Balance Sheet section above, we conducted our audit in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and OMB Bulletin No. 07-04, as amended. Those standards and OMB Bulletin No. 07-04, as amended, require that we plan and perform the audit to obtain reasonable assurance about whether the balance sheet is free of material misstatement. An audit includes consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Program's internal control over financial reporting. Accordingly, we express no such opinion.

An audit also includes:

- Examining, on a test basis, evidence supporting the amounts and disclosures in the balance sheet;

- Assessing the accounting principles used and significant estimates made by management; and

- Evaluating the overall balance sheet presentation.

We believe that our audit provides a reasonable basis for our opinion.

In planning and performing our fiscal year 2009 audit, we considered the Program's internal control over financial reporting by obtaining an understanding of the Program's internal control, determining whether internal controls had been placed in operation, assessing control risk, and performing tests of controls as a basis for designing our auditing procedures for the purpose of expressing our opinion on the balance sheet. We did not test all controls relevant to operating objectives as broadly defined by the *Federal Managers' Financial Integrity Act of 1982*. The objective of our audit was not to express an opinion on the effectiveness of the Program's internal control over financial reporting. Accordingly, we do not express an opinion on the effectiveness of the Program's internal control over financial reporting.

As part of obtaining reasonable assurance about whether the Program's balance sheet as of September 30, 2009, is free of material misstatement, we performed tests of the Program's compliance with certain provisions of laws, regulations, and contracts, noncompliance with which could have a direct and material effect on the determination of the balance sheet amounts, and certain provisions of other laws and regulations specified in OMB Bulletin No. 07-04, as amended, including the provisions referred to in Section 803(a) of FFMIA. We limited our tests of compliance to the provisions described in the preceding sentence, and we did not test compliance with all laws, regulations, and contracts applicable to the Program. However, providing an opinion on compliance with laws, regulations, and contracts was not an objective of our audit and, accordingly, we do not express such an opinion.

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The Program's responses to the findings identified in our audit are presented in Exhibits I and II. We did not audit the Program's responses and, accordingly, we express no opinion on them.

This report is intended solely for the information and use of the Program's management, the Department of Energy's Office of Inspector General, OMB, the U.S. Government Accountability Office, and the U.S. Congress and is not intended to be and should not be used by anyone other than these specified parties.

KPMG LLP

January 30, 2012

## 1. Controls over Inventory-related Documentation

During our fiscal year (FY) 2009 audit, we identified deficiencies in the United States Department of Energy's (Department) Isotope Development and Production for Research and Applications Program's (the Program) internal controls over the maintenance of documentation related to inventory additions at Brookhaven National Laboratory (BNL), Oak Ridge National Laboratory (ORNL), and Los Alamos National Laboratory (LANL). We selected a sample of inventory additions from October 1, 2008, through September 30, 2009. While attempting to perform this test work, we noted that these Program sites did not provide adequate supporting documentation to allow us to complete test work. Specifically, for 44 of the 66 sample items selected, adequate supporting documentation was not provided or documentation that was provided was unclear and not satisfactorily explained. We were unable to ascertain the reason for the submission of inadequate supporting documentation and explanations for the inventory additions sample test work.

As a result, we were unable to conclude that the inventories held for sale balance as of September 30, 2009, is fairly stated in all material respects. In addition, because disbursements reduce obligations to arrive at the balance of undelivered orders, we were unable to conclude that the classification of fund balance with Treasury in Note 2 as of September 30, 2009, is fairly stated in all material respects.

The Government Accountability Office's *Standards for Internal Control in the Federal Government* (the Standards) states, "Internal control and all transactions and other significant events need to be clearly documented, and the documentation should be readily available for examination. The documentation should appear in management directives, administrative policies, or operating manuals and may be in paper or electronic form. All documentation and records should be properly managed and maintained."

The Standards also states, "Internal control should provide reasonable assurance that the objectives of the agency are being achieved in the following categories…Reliability of financial reporting, including reports on budget execution, financial statements, and other reports for internal and external use."

**Recommendation:**

We recommend that the Managers of the contractor site offices direct the Program sites to strengthen processes to ensure that supporting documentation for disbursement transactions clearly substantiates the nature and amount of the transaction, is properly managed, and is readily available.

**Management's Response:**

(1) BNL management concurs with the recommendation, specifically providing:

"The Brookhaven Site Office concurs with the recommendations in principle, and recognizes the importance of supporting documentation for disbursement transactions and accurate year-end inventory reporting. During the factual accuracy review, BSA, the managing and operating contractor at BNL, provided comments that disagreed with some of the conditions noted above. Specifically, BSA stated that they provided the necessary supporting documentation and confirmed that year-end inventory calculations were correct. In addition, in FY 2011, the administrative responsibilities of the Isotope program moved from one department to another with BNL. Based on this information, BHSO will direct BSA to perform a self-assessment and take corrective actions, as appropriate, to ensure that supporting documentation for disbursement transactions clearly substantiates the nature and amount of the transaction, is properly managed, and is readily available."

(2) ORNL management does not concur with the recommendation, specifically providing:

"Nonconcur. Oak Ridge contends that appropriate supporting documentation clearly substantiating each transaction is currently readily available. This adequate supporting documentation was provided to KPMG upon request throughout the course of the audit test work phase….Oak Ridge does not agree with the facts as presented [in the finding's "Condition" section] because [the condition does] not reflect the…information which was provided to KPMG during the audit, nor [does it] reflect numerous explanations provided to KPMG relating to the specific nature of the ORNL transactions in question. Oak Ridge does not agree with the resulting effect of [this condition] on KPMG's ability to properly perform test work of ORNL's isotope inventory accounting".

(3) LANL management does not concur with the recommendation, specifically providing:

"The NNSA Field Chief Financial Officer has some concerns surrounding this finding. The first concern is its timing. Issuance two years subsequent to the conduct of the fieldwork hardly seems relevant, especially since no follow-up work was performed to determine if the condition still exists. Secondly, in the current year (FY11) and previous years, documentation has always been provided by the auditee, suggesting that records have been readily available. The recommendation, considered separately from the finding, is appropriate in any circumstance. Accordingly, based on information available at this time, we non-concur with the finding presented, and to our knowledge, the recommendation has already been addressed."

**Auditors' Response:**

Based on the documentation and communications received during our inventory audit work, which extended over the course of many months as a result of unanticipated delays in receiving such information, we believe that our conclusions regarding the insufficiency of documentation or explanations thereof for the sample in questions are appropriate.

## 2. Improvements Needed in the Preparation and Review of Manual Journal Entries

During the FY 2009 audit, we identified deficiencies in the internal controls surrounding the manual journal entry process at two Program locations. At ORNL, we selected a sample of journal entries recorded in the site's general ledger for the Program in FY 2009. During our testing of these sample items, we learned that (1) a single employee is able to and does both create/prepare and post the entries to the general ledger, and (2) independent review and approval of each individual manual journal entry is not conducted. ORNL did not have adequate policies and procedures in place over the manual journal entry process, and ORNL personnel considered periodic reconciliations of certain general ledger accounts (in total, not by individual manual journal entries) to supporting documentation to be an adequate control.

During our testing of a sample of 12 FY 2009 manual journal entries recorded for the Program by the Department's Office of Financial Control & Reporting (OFCR), OFCR staff was unable to provide adequate supporting documentation beyond current (not historically maintained) written explanations, screen prints, and certain pivot tables to support the validity and accuracy of 11 of the manual journal entries selected in our sample. In addition, no independent review was performed over 4 of the 12 sample items prior to posting them to the general ledger. OFCR did not have adequate policies and procedures in place to ensure that sufficient supporting documentation relating to manual journal entries was retained and readily available and that appropriate independent review and approval occurred prior to the posting of manual journal entries to the general ledger.

As a result, the Program is exposed to an increased level of risk due to human error or fraud. The potential exists for erroneous and/or fraudulent entries to be made to the Program's financial records without those errors being prevented or detected and corrected timely.

Per Office of Management and Budget Circular Number (No.) A-123, *Management's Responsibility for Internal Control*, "Management is responsible for establishing and maintaining internal control to achieve the objectives of effective and efficient operations, reliable financial reporting, and compliance with applicable laws and regulations. The documentation for internal control, all transactions, and other significant events should be readily available for examination."

Per the Standards, "Key duties and responsibilities need to be divided or segregated among different people to reduce the risk of error or fraud. This should include separating the responsibilities for authorizing transactions, processing and recording them, reviewing the transactions, and handling any related assets. No one individual should control all key aspects of a transaction or event."

**Recommendations:**

We recommend that:

(1) The Department's OFCR monitor policies and procedures to ensure that adequate documentation is maintained and readily available to support (a) all manual journal entries posted to the Department's general ledger for the Program and (b) the independent review and approval of all manual journal entries prior to posting; and

(2) The Manager of the ORNL Site Office direct ORNL to establish, implement, and monitor policies and procedures to ensure that proper segregation of duties exist and sufficiently precise independent reviews and approvals are documented for each individual manual journal entry prior to posting to the ORNL general ledger for the Program.

**Management's Response:**

(1) OFCR management concurs with the recommendation, specifically providing:

"Concur. Actions have been taken to improve the controls and minimize the risks of unauthorized and erroneous entries. These actions include recent implementation of an automated alert generated from STARS whenever an individual both enters and post his or her own journal and a review of those journals at high risk as a result of the same individual both entering and posting the same transactions. Furthermore, the OFCR will improve monitoring that supporting documentation is attached to STARS manual direct GL entries (or readily available and maintained for historical purposes where applicable). Beginning in late fiscal year 2011, the new Isotopes HQ accountant is attaching supporting documentation directly to all STARS manual direct GL entries. In addition, periodic management review of these entries for supporting documentation and accuracy will be performed if needed."

(2) ORNL management does not concur with the recommendation, specifically providing:

"Nonconcur. ORNL has established and implemented sufficient policies and procedures to provide assurance that proper segregation of duties exist and sufficient independent reviews and approvals are documented for manual journal entries posted to the ORNL general ledger for the Isotope Production and Applications Program. These policies and procedures were developed by carefully considering the appropriate balance between

controls and risk in the programs and operations. Oak Ridge's nonconcurrence is based on ORNL's implementation of the following:

- In alignment with OMB A-123 guidance, management established efficient and effective operations that provide reliable financial reporting through granting proper authority to one person to create and post a manual journal entry instead of requiring two or more employees to perform the job of one. ORNL has instituted a process to review and approve Isotope manual journal entries. The independent review is conducted shortly after the entries are made. Conducting the review after the entries are made is more efficient since we can compare the actual entry made to the documentation versus comparing what is supposed to be entered to the documentation. A review prior to entry would require the entries be reviewed twice for accuracy and would not be efficient or effective in executing the timely submission of financial information due to accelerated reporting requirements imposed by OMB upon the agency. Additionally, ORNL has policies in place controlling the input of journal entry transactions which do not occur as a part of normal operations or contain significant estimates or judgments. These require management review and approval. ORNL does consider the (1) monthly reconciliations, (2) controls over non-routine journal entries, (3) SAP General and Application Information System controls, and (4) the DOE STARS reporting requirements to be adequate controls that mitigate the risks involved in the recording and reporting of journal entries.

- There is minimal time in the current closeout schedule to allow for independent review and approval of all manual journal entries. The risk associated with manual journal entries in the government is negligible compared to public companies since the motivation is not there to misreport earnings, influence stock prices, or defraud shareholders/investors. Therefore, given the above mentioned controls in place for the manual journal entries at ORNL, the ORNL Site Office considers that these are adequate to prevent or detect errors or fraud and correct in a timely manner. The current controls have been in place since 1998 and are audited every fiscal year with no issues noted. These internal controls provide reasonable assurance of mitigating the risks involved in the recording of journal entries while providing the appropriate balance between the strength of controls and the relative risk associated with operations."

**Auditors' Response:**

Based on the documentation and communications received during our journal entries audit work, we believe that appropriate preventative controls should be established and documented over the Program's journal entries.

## 3. Unclassified Network and Information Systems Security

The United States Department of Energy (Department) uses a series of interconnected unclassified networks and information systems. Federal and Departmental directives require the establishment and maintenance of security over unclassified information systems, including financial management systems. Past audits identified significant weaknesses in selected systems and devices attached to the computer networks at some Department sites. The Department has implemented corrective actions to address identified weaknesses at the sites whose controls we, and the Department's Office of Health, Safety and Security (HSS), reviewed in prior years. Although the frequency of network security weaknesses continues to decline when compared with prior years, we and the HSS continued to identify similar weaknesses at sites reviewed in fiscal year (FY) 2009, and the characteristics and severity of those weaknesses remained consistent with our prior year findings. The Department recognizes these weaknesses and has categorized unclassified cyber security as a leadership challenge issue in its Federal Managers' Financial Integrity Act assurance statement for FY 2009. Improvements are still needed in the areas of password management, configuration management, and restriction of network services. Continuing weakness in these areas may be indicative of systemic problems.

Our FY 2009 audit also disclosed other information system security weaknesses, similar to our prior year findings. Specifically, we noted weaknesses in the areas of user access controls, password management, network protocols and services, system change management and authorization, and use of versions of application and operating system software that were outdated or not appropriately patched to correct known vulnerabilities.

We also noted that the National Nuclear Security Administration (NNSA) had begun, but not fully implemented, a program for management oversight and periodic evaluation of the cyber security practices of subordinate organizations and field sites. The Department's Office of Inspector General (OIG) similarly noted that NNSA had not fully implemented a performance monitoring program to ensure the effectiveness of field sites in carrying out their responsibilities for proper implementation of Federal cyber security requirements. Lack of effective review for compliance with mandatory cyber security policies and directives has resulted in varying degrees of compliance and contributed to the extent of weaknesses that we found in cyber security controls at certain NNSA sites. Further, the OIG has reported deficiencies in the Department's systems inventory, security planning, testing of security controls, access controls, and configuration management, including the implementation of standard security configurations for cyber security controls, in its evaluation report on The Department's *Unclassified Cyber Security Program - 2009*, dated October 2009. Matters discussed in that report included an examination of non-financial systems.

The Department has acknowledged the need to improve its information systems security and technology controls, and made progress in addressing previously identified cyber security weaknesses by enhancing its management of the unclassified cyber security program. At the Headquarters level, the Office of Chief Information Officer (OCIO),

working in collaboration with senior Departmental management, has continued to make adjustments designed to enhance the cyber security governance structure. The Department also established a centralized incident response organization designed to eliminate duplicative efforts throughout the Department. Additional improvements in the cyber security program were made in the areas of security planning and control testing and remediation of known vulnerabilities.

The identified weaknesses in unclassified network and information systems security increase the risk that malicious destruction or alteration of data or unauthorized processing could occur. Because of our concerns, we performed supplemental procedures and identified compensating controls that mitigate the potential effect of these security weaknesses on the integrity of the Department's financial systems.

**Recommendation:**

Because the Isotope Development and Production for Research and Applications Program (the Program) does not have the ability to affect changes to the Department's network security, no further action is needed by the Program other than to monitor the progress of the OCIO. While progress has been achieved by the Department, continued focus is needed to strengthen the management review process to include better monitoring of field sites to ensure the adequacy of cyber security program performance and improve the use of government-wide security configuration standards in the resolution of the vulnerabilities and control weaknesses described above. Therefore, we recommended in the Department's Independent Auditors' Report dated November 12 2009, that NNSA and program officials, in conjunction with the Chief Information Officer, fully implement policies and procedures to ensure that the Federal information security standards are met, that networks and information systems are adequately protected against unauthorized access, and that field site performance is reviewed.

Detailed recommendations to address the issues discussed above have been separately reported to the Department's program offices and the OCIO.

**Management's Response:**

Management concurs with the recommendation as presented, with the recognition that the Department's CIO is the lead office in affecting change to the Department's information systems.

**4. Accounting for Property, Plant, and Equipment**

During the FY 2009 audit, we noted deficiencies in the Program's internal controls in accounting for property, plant, and equipment (PP&E) at Los Alamos National Laboratory (LANL), Sandia National Laboratory (Sandia), and Brookhaven National Laboratory (BNL), specifically related to accounting for depreciation expense and the use of incorrect program codes.

Depreciation Expense

While recalculating the Program's FY 2008 and FY 2009 depreciation at LANL, we noted that the depreciation expense recorded for the System Beam Ion was overstated. Specifically, the depreciation expense recorded by LANL for FY 2008 and FY 2009 was approximately $408,000 and $412,000, respectively, while our recalculation showed a yearly depreciation expense of approximately $359,000, resulting in an overstatement of accumulated depreciation as of September 30, 2009. We posted a proposed adjustment to the Summary of Audit Differences, which was attached to the FY 2009 management representation letter.

LANL was not recording depreciation for the System Beam Ion using the correct service life according to the Department's *Accounting Handbook*. The System Beam Ion falls under the 10-year life category.

While testing depreciation expense at Sandia, we identified that the site recorded accumulated depreciation and depreciation expense of approximately $90,000 on assets that were no longer the property of the Program at any point during FY 2009. As a result, we posted a proposed adjustment to the Summary of Audit Differences, which was attached to the FY 2009 management representation letter. When Sandia capitalizes an asset, it records two separate program codes – one for asset ownership and one for depreciation. During FY 2009, Sandia recorded the asset ownership for two assets to the correct program code; however, it incorrectly recorded the depreciation code to the Program's asset code, resulting in the $90,000 overstatements noted above.

The Department's *Accounting Handbook*, Chapter 10, paragraph 7d(1) states, "The list in Attachment 10-1 shall be used to determine depreciation rates for all items of completed Plant and Capital Equipment (P&CE) except for those items having service lives that are materially different from normal averages because of the peculiarity of their use or other special conditions."

The Department's *Accounting Handbook*, Chapter 10, paragraph 7e(1) states, " Depreciation on PP&E in service should be charged to the appropriate program values (for example, production cost, development, research, or program directions) in which the items are used."

Use of Incorrect Program Codes

During our FY 2009 audit procedures over PP&E additions at Sandia, we identified that the site had incorrect offsetting balances of approximately $18,000 recorded to its Equipment and Construction Work in Progress (CWIP) accounts at September 30, 2009. As a result, we posted a proposed adjustment to the Summary of Audit Differences, which was attached to the FY 2009 management representation letter. Sandia records all equipment costs in its CWIP account prior to transferring them to its equipment account. During FY 2009, Sandia properly recorded another program's asset purchase in CWIP for approximately $18,000. However, when Sandia transferred the asset from CWIP to

equipment, it erroneously used the Program's asset code, causing an understatement in the Program's CWIP account and an overstatement in the Program's equipment account.

While performing audit procedures over PP&E additions at BNL during FY 2009, we noted manual journal adjustments that were erroneously recorded to the Program's Equipment and CWIP general ledger accounts in FY 2009 to correct imbalances between BNL's Asset Management System and general ledger originating in FY 2005. As a result, the Program's Equipment and CWIP accounts were overstated by approximately $30,000 and $28,000, respectively, and we posted a proposed adjustment to the Summary of Audit Differences, which was attached to the FY 2009 management representation letter.

The Department's *Accounting Handbook*, Chapter 10, paragraph 1d(2a) states, "Generally, costs should be recorded net of purchase discounts taken. Purchase discounts lost and late-payment penalties should not be included as costs of assets, but should be written off as an operating expense. Capitalized cost includes all costs to convert or to make the facilities or equipment ready for use, for example, invoice price, transportation, and installation costs. As a general rule, indirect costs associated with the purchase of the item are not capitalized."

The Department's *Accounting Handbook*, Chapter 10, paragraph 1h(1) states, "The Construction Work in Progress account includes costs of additions and retirements of PP&E that is in progress and is being accumulated during the acquisition or construction period. "

**Recommendations:**

Depreciation Expense

We recommend that:

(1) NNSA's Field Chief Financial Officer, in conjunction with the Manager, Los Alamos Site Office, direct LANL to correct the monthly depreciation expense charged for the System Beam Ion to be consistent with Department of Energy accounting requirements (i.e., the Department's *Accounting Handbook*) and to correct its useful life for future depreciation expense calculations.

(2) NNSA's Field Chief Financial Officer, in conjunction with the Manager, Sandia Site Office, direct Sandia to:

   a) Correct the overstatement in the Program's accumulated depreciation account, and

   b) Develop and implement controls to ensure that depreciation entries are recorded to the correct program code.

Use of Incorrect Program Codes

We recommend that:

(3) NNSA's Field Chief Financial Officer, in conjunction with the Manager, Sandia Site Office, direct Sandia to:

a) Record an adjustment to remove the incorrect balances in the Program's equipment and CWIP accounts; and

b) Develop and implement controls to ensure that PP&E and depreciation entries are recorded to the correct program code.

(4) The Manager of the Brookhaven Site Office direct Brookhaven to:

a) Record an adjustment to correct the overstatement of the Program's PP&E accounts; and

b) Develop and implement controls to ensure that manual adjustments are recorded to the correct program code.

**Management's Response:**

Depreciation Expense

(1) LANL management concurs with the recommendation, specifically providing:

"LANL's response to the System Beam Ion was to change the acquisition date from 10/26/2000 to 9/24/2003 based on the memo from LANL to LASO that indicates the system was officially accepted by LANSCE division on 9/24/2003. LANL changed the acquisition date in Sunflower to 9/24/2003 on 2/27/2007; however, adjustments to depreciation could not be made at that time. LANL modified Sunflower to allow for adjustments to depreciation when the acquisition date is changed. The modification to Sunflower was completed on 9/13/2010 and a procedure was put in place to monitor those changes….LANL maintains a spreadsheet by fiscal year of all adjustments that are made to an acquisition date in Sunflower that required an adjustment to the accumulated depreciation. The Property Accounting Team Leader and General Accounting Group Leader will review the materiality of each adjustment to the financials."

(2) Sandia management concurs with the recommendations, specifically providing:

"The Fixed asset system was checked July 12, 2011 to make sure that the correction out of the Isotope Program had been made for both the capitalized asset and the depreciation. The correction was made (some years ago) and the Isotope account does not show depreciation related to this item. The mistakes relating to the partial allocation of the

asset to different fund types resulted from an inexperienced Fixed Asset Team Lead. The Team Lead has since been replaced with a higher level staff member.

Sandia accounting personnel moved the portion of the asset in VE to TC and instituted controls to strengthen communication between programmatic and accounting personnel."

Use of Incorrect Program Codes

(3) Sandia management concurs with the recommendations. See Sandia's management response in (2) above.

(4) Brookhaven Site Office management concurs with the recommendations, specifically providing:

"The Brookhaven Site Office concurs with the recommendations and will request BSA, the managing and operating contractor of Brookhaven to (a) record an adjustment to correct the overstatement of the Program's PP&E accounts; and (b) develop and implement controls to ensure that manual adjustments are recorded to the correct program code."

| **Prior Year Material Weakness/Significant Deficiency**<br><br>**(with parenthetical disclosure of year first reported)** | **Status at September 30, 2009** |
|---|---|
| 1. Controls over Accounting for Inventory at Brookhaven National Laboratory – considered a Material Weakness (2006) | Not fully implemented – Brookhaven National Laboratory inventory accounting issues continue to be reported as a Material Weakness in Exhibit I |
| 2. Improvements Needed in Financial Reporting – considered a Material Weakness (2006) | Not fully implemented – issues with manual journal entries continue to be reported as a Material Weakness in Exhibit I |
| 3. Unclassified Network and Information Systems Security – considered a Significant Deficiency (1999) | Not fully implemented – unclassified network and information systems security issues continue to be reported as a Significant Deficiency in Exhibit II |
| 4. Accounting for Property, Plant, and Equipment (2007) | Not fully implemented – issues with Property, Plant, and Equipment continue to be reported as a Significant Deficiency in Exhibit II |
| 5. Accounting for Accounts Receivable at Oak Ridge National Laboratory (2007) | Matter considered closed |

**UNITED STATES DEPARTMENT OF ENERGY**
**ISOTOPE DEVELOPMENT AND PRODUCTION FOR RESEARCH AND APPLICATIONS PROGRAM**

Balance Sheet

September 30, 2009

**UNITED STATES DEPARTMENT OF ENERGY**
**ISOTOPE DEVELOPMENT AND PRODUCTION FOR RESEARCH AND APPLICATIONS PROGRAM**
Balance Sheet
September 30, 2009

| **Assets** | | **2009** |
|---|---|---|
| Intragovernmental: | | |
| Fund balance with Treasury (note 2) | $ | 60,948,494 |
| Accounts receivable (note 3) | | 143,305 |
| Total intragovernmental assets | | 61,091,800 |
| Accounts receivable, net (note 3) | | 999,134 |
| Inventories held for sale, net (note 4): | | |
| Radioactive isotopes | | 7,117,040 |
| Stable isotopes | | 3,676,962 |
| Allowance - isotope inventories | | (3,958,669) |
| Total inventories held for sale, net | | 6,835,333 |
| Equipment, net (note 5) | | 16,596,870 |
| Total assets | $ | 85,523,137 |
| **Liabilities and Net Position** | | |
| Non-Intragovernmental liabilities covered by budgetary resources: | | |
| Accounts payable/accrued expenses | $ | 98,153 |
| Customer advances | | 6,543,469 |
| Total liabilities | | 6,641,622 |
| Commitments and contingencies (notes 6 and 7) | | |
| Net Position: | | |
| Cumulative results of operations - earmarked funds | | 78,881,515 |
| Total liabilities and net position | $ | 85,523,137 |

See Accompanying Notes to Balance Sheet

**UNITED STATES DEPARTMENT OF ENERGY**
**ISOTOPE DEVELOPMENT AND PRODUCTION FOR RESEARCH AND APPLICATIONS PROGRAM**

Notes to the Balance Sheet

September 30, 2009

# UNITED STATES DEPARTMENT OF ENERGY
# ISOTOPE DEVELOPMENT AND PRODUCTION FOR RESEARCH AND APPLICATIONS PROGRAM
Notes to Balance Sheet
September 30, 2009

## 1) Description of Reporting Entity, Basis of Presentation and Accounting, and Summary of Significant Accounting Policies

### *(a) Reporting Entity*

The United States Department of Energy's (the Department) Isotope Development and Production for Research and Applications Program's (Isotope Program) primary goal is to support research, development, and production of research and commercial isotopes that are of critical importance to the Nation and in short supply. The Isotope Program also emphasizes research and development (R&D) efforts associated with developing new and more cost-effective and efficient production and processing techniques and on the production of isotopes needed for research purposes. The Isotope Program is a user of Departmental facilities and provides funding through the Department's field offices to management and operating (M&O) contractors for the production and distribution of isotopes and related services. Since the Isotope Program uses only a small portion of the capacity of each facility, management of the facilities producing isotopes and related services is the responsibility of other programs within the Department. The Isotope Program provides program direction and oversight for the production and sale of its products and services. Except as indicated in note 7, the full cost of the products and services utilized by the Isotope Program at Departmental facilities, including such items as labor, benefits and packaging, is reflected in the Balance Sheet.

Isotope production and research and development activities are performed at the following sites: Brookhaven National Laboratory, Upton, New York; Los Alamos National Laboratory, Los Alamos, New Mexico; Oak Ridge National Laboratory (ORNL), Oak Ridge, Tennessee; and Idaho National Laboratory, Idaho Falls, Idaho. Strontium-90 is stored at Pacific Northwest National Laboratory, Richland, Washington. The Isotope Program also funds the operation of the National Nuclear Security Administration owned helium-3 processing facility, Building 236H, at Savannah River Site, Aiken, South Carolina.

The Isotope Program's activities are separated into the following segments:

**Isotope Production and Distribution**

Isotopes are atoms of an element that have the same atomic number, but different atomic masses. Isotopes may either be stable or radioactive.

***Stable Isotopes*** – Stable isotopes include those that do not decay or emit radiation, as well as naturally occurring radioactive isotopes (radioisotopes) that have very long half-lives and hence low radioactivity. Isotopes classified as stable isotopes in the accompanying balance sheet include those previously produced in calutrons and by other means, and are contained in inventory at ORNL. The Isotope Program is not currently producing new stable isotopes.

***Radioisotopes*** – Radioisotopes can be produced in reactors or accelerators. Isotopes classified as reactor-produced are radioisotopes produced through neutron capture or fission followed by radioactive decay. Some radioisotopes are extracted from the waste byproducts of the Department's weapons program activities. Isotopes classified as accelerator-produced are radioisotopes produced by bombarding materials with charged atomic particles followed by radioactive decay.

**Operations**

Operations activities basically consist of the work performed by core facility scientists and engineers to effectively operate the Isotope Program facilities, including maintenance and investments in new capabilities. Operations are categorized into three principal groups: national laboratories, universities, and National Isotope Development Center.

**Research**

Research identifies, designs, and optimizes production targets and separation methods. Examples include development of positron-emitting radionuclides to support the rapidly growing area of medical imaging using Positron Emission Tomography, isotopes that support medical research to be used to diagnose and treat diseases spread through acts of bioterrorism, production methods for alpha-emitting radionuclides that exhibit great potential in disease treatment, research isotopes for biomedical applications, and alternative isotope supplies for national security applications and advanced power sources. Research activities are supported at universities, national laboratories and industries.

***(b) Basis of Presentation***

The accompanying balance sheet has been prepared in accordance with United States (U.S.) generally accepted accounting principles to report only the Isotope Program's financial position, and not that of the Department taken as a whole.

The Department's headquarters, field offices, and the M&O contractors operating the facilities discussed in note 1(a) record Isotope Program activity in their accounting systems. The M&O contractors integrate their accounting systems with the Department through the use of reciprocal accounts. All M&O contractors are required under provisions of their respective contracts to maintain a separate set of accounts and records for recording and reporting Isotope Program financial transactions in accordance with Departmental accounting practices and procedures. The accompanying balance sheet is prepared by extracting and reclassifying Isotope Program-related data from the financial records of the Department and its M&O contractors.

Intragovernmental activities result from activity with other Federal agencies. All other accounts result from activity with parties outside the Federal government.

***(c) Basis of Accounting***

The Isotope Program's balance sheet is prepared using the accrual method of accounting. The accrual method of accounting requires recognition of the financial effects of transactions, events, and circumstances in the periods when those transactions, events, and circumstances occur, regardless of when cash is received or paid. The Isotope Program also uses budgetary accounting to facilitate compliance with legal constraints and to keep track of its budget authority at the various stages of execution, including allotment, obligation, and eventual outlay.

***(d) Fund Balance with Treasury***

Isotope Program cash receipts and disbursements are processed through the U.S. Department of the Treasury (the Treasury). Funds with the Treasury are available to the Isotope Program through use of a revolving fund to pay current liabilities and to finance authorized purchase commitments.

***(e) Accounts Receivable***

Accounts receivable are reduced to net realizable value by an allowance for uncollectible accounts. This allowance has been determined based on an analysis of outstanding balances, past experience, and present market conditions.

***(f) Inventories Held for Sale***

Isotope Program inventories include stable isotopes, reactor-produced radioisotopes, and accelerator-produced radioisotopes with half-lives in excess of 75 days. However, any isotope with a 75-day half-life or less and carrying a value greater than $35,000 is written back into inventory at fiscal year end. Periodic entries are recorded to reflect any decay losses. All inventories are valued based on average cost, reduced for quantities on hand in excess of sales over the previous five years, and are stated at the lower of cost or market value.

***(g) Equipment***

The Isotope Program is a user of Departmental production facilities and, as such, does not own or fully control the land, buildings and most other assets it uses, but rather is charged by other programs for the use of those assets.

The Isotope Program makes equipment purchases and constructs equipment as needed for Isotope Program operations, such as remote handling devices and shipping containers. Equipment costing more than $50,000 with an expected useful life of two or more years is capitalized and depreciated on a straight-line basis over the estimated useful life of the asset, ranging from 5 to 50 years.

***(h) Liabilities***

The Isotope Program's accounts payable and accrued expenses represent amounts of monies or other resources likely to be paid as a result of a transaction or event that has already occurred. See Note 1(k) for discussion of customer advances.

***(i) Annual, Sick, and Other Leave***

The Office of Science (SC) provides for the Isotope Program's annual, sick, and other leave. Annual leave is expensed as it is earned. Sick and other leave are expensed as taken.

***(j) Revolving Fund Structure***

The Fiscal Year 1990 Energy and Water Development Appropriations Act, Public Law 101-101 (1990 Act), established a revolving fund to be used to carry out the Isotope Program's production, distribution, and sale of isotopes and related services. The 1990 Act required that isotope fees be set to recover full cost. However, the Fiscal Year 1995 Energy and Water Development Appropriations Act, Public Law 103-316, modified predecessor acts to allow prices charged for the Isotope Program's products and services to be based on production costs, market value, U.S. research needs, and other factors. See Note 1(m) for additional discussion of Public Law 103-316.

***(k) Customer Advances and Pricing Policy***

As a revolving fund, the Isotope Program receives all revenues from sales of isotopes and related services. Certain customers may be required to make payment in advance of delivery. These advances are recorded as customer advances. Exchange revenues are recognized when goods have been delivered or services performed. On September 30, 2009, the Isotopes Program balance for customer advances was $6,543,469, of which $2,895,930 is current and $3,647,539 is non-current.

The Isotope Program prices isotopes sold for medical and industrial applications to recover full cost. Isotopes sold for research and development are priced to recover direct costs of production, not to exceed the established unit cost as determined by the Isotope Program. The Isotope Program sells products to various public customers such as colleges and universities, and research institutions, as well as to other Federal agencies. Higher prices for research and development isotopes based on full cost might reduce the quantity of isotopes demanded; therefore, the difference between revenue received and such higher prices does not necessarily provide an indication of revenue foregone.

***(l) Concentration of Risk***

A substantial amount of the Isotope Program's revenue is derived from a small percentage of commercial customers (approximately 86 percent of the Isotope Program's combined revenues were provided by ten customers in fiscal year 2009). Commercial customers are charged a fee which is held for unanticipated abnormal events such as spills, defective products, or equipment failures. If the sale of commercial isotopes drastically decreases, additional funding may be required to maintain isotope staff at current levels. This is not considered to be a significant risk for the next fiscal year.

***(m) Budgetary Financing Sources***

The Fiscal Year 1995 Energy and Water Appropriations Act, Public Law 103-316, established annual funding for the Isotope Program in the Department's energy supply, research, and development appropriations. The Office of Science's Nuclear Physics program funds payments to the Isotope Program to support research, development, and production of research and commercial isotopes that are of critical important to the Nation and in short supply.

***(n) Pensions and Other Retirement Benefits***

All permanent Departmental employees participate in either the Civil Service Retirement System (CSRS) or the Federal Employees Retirement System (FERS). Both are contributory pension plans and are not covered under the Employee Retirement Income Security Act of 1974. In fiscal year 2009, retirement benefit expense under CSRS is equivalent to 7.5% of eligible employee compensation and under FERS is variable based upon options chosen by the participant.

Actuarially determined data for CSRS and FERS regarding the present value of accumulated benefits, assets available for benefits, and unfunded pension liability, are maintained and reported by the Office of Personnel Management (OPM) and are not allocated to individual departments and agencies.

Statement of Federal Financial Accounting Standards (SFFAS) Number (No.) 5, *Accounting for Liabilities of the Federal Government*, requires Federal entities to recognize expense for employees' retirement plan benefits equal to the service costs for these employees for the year based on the plans' actuarial cost methods and assumptions. The difference between the retirement benefits expense and contributions made by the entity is recorded as an imputed financing source, as these costs will ultimately be funded by OPM.

***(o) Earmarked Funds***

SFFAS No. 27, *Identifying and Reporting Earmarked Funds*, requires separate identification of earmarked funds on the balance sheet. Earmarked funds are financed by specifically identified revenues, which remain available over time. The Isotope Program's only fund is an earmarked fund. The fund includes receipts generated from the sales of isotopes and services that are used for isotope production and distribution, and operations and research activities performed by the Isotope Program. These specifically identified revenues are received primarily from sources

external to the Federal Government, are required by statute to be used for designated activities, and must be accounted for separately from the Government's general revenue.

***(p) Use of Estimates***

The preparation of the balance sheet in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the balance sheet. Actual results could differ from those estimates.

***(q) Tax Status***

The Isotope Program, as a component of a Federal entity, is not subject to Federal, state, or local income taxes. Accordingly, no provision for income taxes is recorded in the accompanying balance sheet.

***(r) Comparative Data***

The Isotope Program's fiscal year 2008 annual audit was not completed. As a result, comparative data is not presented in this report.

**(2) Fund Balance with Treasury**

Revolving fund balance consists of the following at September 30, 2009:

| | | 2009 |
|---|---|---|
| Unobligated budgetary resources: | | |
| Available | $ | 17,501,095 |
| Other unobligated balances not available | | 6,733,760 |
| Obligations balance not yet disbursed | | 36,713,639 |
| Total Fund Balance with Treasury | $ | 60,948,494 |

Receipts from customers are recorded as budget authority and the portion of receipts collected in excess of the amount of anticipated reimbursements apportioned by OMB is not considered available in the current year. These receipts, totaling $6,733,760 at September 30, 2009, will become available for obligation as needed and apportioned in the future.

## (3) Accounts Receivable

Accounts receivable consists of the following at September 30, 2009:

| | | 2009 |
|---|---|---|
| Accounts receivable from the Public | $ | 1,025,124 |
| Less allowance for uncollectible accounts | | (25,990) |
| Total accounts receivable from the Public, net | $ | 999,134 |
| Intragovernmental accounts receivable | $ | 143,305 |

## (4) Inventories Held For Sale, Net

Inventories held for sale consist of the following at September 30, 2009:

| | | 2009 | | |
|---|---|---|---|---|
| | | Radioisotopes | Stable Isotopes | Total |
| Costs | $ | 7,117,040 | 3,676,962 | 10,794,002 |
| Less: | | | | |
| Allowance for excessive inventory quantities | | (378,878) | (3,568,216) | (3,947,094) |
| Allowance for lower of cost or market value | | — | (11,575) | (11,575) |
| Total inventories, net | $ | 6,738,162 | 97,171 | 6,835,333 |

## (5) Equipment, Net

Equipment consists of the following at September 30, 2009:

| | | 2009 |
|---|---|---|
| Production equipment | $ | 22,416,460 |
| Less accumulated depreciation | | (6,133,767) |
| Subtotal | | 16,282,693 |
| Construction - work in progress | | 314,177 |
| Total Equipment - net | $ | 16,596,870 |

**(6) Shutdown of Calutron Facility**

The Isotope Program has placed the Calutron facility used in the electromagnetic separation of stable isotopes in Oak Ridge, Tennessee into a standby, but operable, condition until it is no longer needed or replacement machines are available. The Calutron facility is owned by the Office of Nuclear Energy.

The Isotope Program continued to fund surveillance and maintenance activities necessary for maintaining the facility in a standby mode through fiscal year 2009. With the transfer of the Isotope Program in March 2009, the Office of Science did not accept responsibility for the continued surveillance and maintenance activities of the facility, nor for the facility in general. Funding is no longer provided after FY 2009 and its estimated decommissioning cost is no longer a contingency for the Isotope Program.

**(7) Potential Decontamination and Decommissioning (D&D) Costs**

The Isotope Program may be responsible for a portion of D&D for other facilities at which it conducts operations. As of September 30, 2009, the Department has not estimated D&D costs for such facilities, and the Isotope Program has not been assigned responsibility for D&D costs. Accordingly, no provision for D&D costs at other isotope facilities is included in the accompanying balance sheet.

# UNITED STATES DEPARTMENT OF ENERGY
# ISOTOPE DEVELOPMENT AND PRODUCTION FOR RESEARCH AND APPLICATIONS PROGRAM

Required Supplementary Stewardship Information
(Unaudited)

September 30, 2009

**UNITED STATES DEPARTMENT OF ENERGY**
**ISOTOPE DEVELOPMENT AND PRODUCTION FOR RESEARCH AND APPLICATIONS PROGRAM**
Stewardship Investments-Research and Development
September 30, 2009

| | Process Development | Applied Research | Total Research and Development Expense |
|---|---|---|---|
| Fiscal year ended September 30: | | | |
| 2005 | $ 171,945 | $ 6,219 | $ 178,164 |
| 2006 | 256,099 | 100,000 | 356,099 |
| 2007 | 437,002 | 0 | 437,002 |
| 2008 | 100,003 | 0 | 100,003 |
| 2009 | 277,590 | 0 | 277,590 |
| Total | $ 1,242,639 | $ 106,219 | $ 1,348,858 |

**Basis of Presentation**

The Isotope Development and Production for Research and Applications Program's (Isotope Program) process development and applied research include all costs for these activities that are intended to increase or maintain national economic productive capacity or yield other future benefits. These investments support the development of new or improved products and processes with the expectation of enhancing isotope production, services, and delivery application systems to meet future demand for research and medical isotopes. Discussed below are the accomplishments and contributions by the Isotope Program toward meeting the Government Performance and Results Act Unit Program Goal: *Explore Nuclear Matter—from Quarks to Stars.*

**Major Research and Development Projects**

***(a) Process Development***

(1) Process development is the translation of research findings or other knowledge into a plan or design for new isotopes or processes that lead to a significant improvement in existing isotope uses. In fiscal year 2005 through fiscal year 2008, funding was provided for process improvement projects. The Oak Ridge National Laboratory (ORNL) conducted the development of production for large quantities of high specific activity lutetium-177. Other improved production methods included processing irradiated rubidium metal targets at Brookhaven National Laboratory (BNL) for improved strontium-82 yields and determination of phosphorous-32/33 in rubidium chloride irradiations at Los Alamos National Laboratory (LANL) for strontium-82 production efficiency.

(2) In fiscal year 2009, researchers developed the production of yttrium-86 at BNL which resulted in high yields, but less purity than desired. Yttrium-86 is a short-lived isotope emitting positrons, which can be used for Positron Emission Tomography imaging prior to cancer immunotherapy with yttrium-90.

(3) Copper-67 is an attractive radioisotope for application in therapy of various cancers when attached to the appropriate carrier molecule, such as a monoclonal antibody. In an ongoing effort to improve the specific activity of copper-67, BNL investigated the use of a highly enriched zinc-68 target in place of natural zinc. A test irradiation with zinc-68 improved the specific activity three-fold over the best previous result. In order to improve the economics of this process, a method to recover and reuse the enriched material from the process waste was successfully developed.

(4) A Drug Master File for the tungsten-188/rhenium-188 generator system, used in cancer research, is now on file with the Food and Drug Administration. Coupled with the hot cells at ORNL now being approved for current Good Manufacturing Practices, the tungsten-188/rhenium-188 generator will be suitable for human clinical trials.

### *(b) Applied Research*

Applied research is planned research or critical investigation aimed at discovery of new knowledge with the hope that such knowledge will be useful in developing new isotope products, services, processes, or techniques that bring about a significant improvement in serving the needs of the United States' medical, industrial, and research communities. Carryover funding through fiscal year 2006 provided for continuation of prior year applied research projects, such as LANL's refurbishment activities.

Since fiscal year 2004, no new applied research projects were funded. However, the Isotope Program currently contributes to applied research coordination by producing commercial and research isotopes that are important for basic research and applications.

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