



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 2010 Balance
Sheet Audit

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

Fiscal Year 2010

Annual Report and Balance Sheet

September 30, 2010



U.S. DEPARTMENT OF
ENERGY

Office of
Science

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

Fiscal Year 2010 Annual Report and Balance Sheet

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

Management's Discussion and Analysis
(Unaudited)

September 30, 2010

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

Management's Discussion and Analysis
September 30, 2010

Isotope Program Overview

The Isotope Development and Production for Research and Applications Program (Isotope Program), under the direction of the Office of Nuclear Physics (NP) within the Office of Science (SC), supports the production, distribution, and development of production techniques for radioactive and stable isotopes that are in short supply and critical to the United States (U.S.). Isotopes are commodities of strategic importance for the Nation that are essential for energy exploration and innovation, medical applications, national security, and basic research. An important goal of the program is to make key isotopes more readily available to meet domestic U.S. needs. To achieve this goal, the Isotope Program provides facilities and capabilities for the production of research and commercial stable and radioactive isotopes, scientific and technical staff associated with general isotope research and production, and a supply of critical isotopes. The Isotope Program also supports 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 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 the 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 are critical national resources that are used to improve the accuracy and effectiveness of medical diagnoses and therapy, enhance national security, improve the efficiency of industrial processes, and provide precise measurement and investigative tools for materials, biomedical, environmental, archeological, and other research.

Stable and radioactive isotopes are vital to the mission of many Federal agencies including the National Institutes of Health, the National Institute of Standards and Technology, the Environmental Protection Agency, the Department of Agriculture, the Department of Homeland Security, the National Nuclear Security Administration (NNSA), and other Office of Science programs. NP continues to work in close collaboration with these Federal agencies to develop strategic plans for isotope production and to establish effective communication to better forecast isotope needs and leverage resources.

The Isotope Program produces isotopes only where there is no or insufficient U.S. private sector capability or other production capacity available to meet U.S. needs and 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 and 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. Research isotopes are priced based on direct production costs. Research isotopes are also priced by unit (e.g., millicurie), making the isotopes more affordable to the research community by not requiring the purchase of large amounts or an entire production batch. 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 Brookhaven National Laboratory (BNL) and the Isotope Production Facility (IPF) at 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). The Isotope Program is increasing productivity by broadening the suite of production facilities to include university accelerator and reactor facilities which can provide cost-effective and unique production capabilities; these include the Washington University, the University of California at Davis, and the Missouri University Research Reactor.

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 NNSA. The Isotope Program pays a facility charge for space and services at these facilities, which are managed by other Department program offices.

The National Isotope Development Center (NIDC) is a virtual center that interfaces with the user community and manages the coordination of isotope production across the

facilities and business operations involved in the production, sale, and distribution of isotopes. The NIDC includes the Isotope Business Office which is located at ORNL.

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 an annual appropriation from Congress. These funds are used to support research, development, and mission readiness of facilities and infrastructure needed for the production of research and commercial isotopes that are of critical importance to the Nation and in short supply. Each site's production expenses for processing and distributing isotopes are offset by revenue generated from sales.

Of the total resources in the revolving fund, about 75 percent is used for operations, maintenance, isotope production, and R&D for new isotope production techniques, 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 primarily 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 for 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 projects 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. In FY 2010, these Recovery Act projects continued and are expected to be completed by October 2013.

Isotope Program Performance

In FY 2010, the Department was in the process of updating its strategic plan. Under the new plan, a strategic goal of DOE is to maintain a vibrant U.S. effort in science and engineering as a cornerstone of our economic prosperity, with clear leadership in strategic areas. The Isotope Program contributes to this goal by providing stewardship of isotope production and technologies to advance important applications, research, and tools for the U.S. NP internally tracks performance focused on customer satisfaction. In FY 2010, over 98% of products and services provided met the terms of the contract/sales order.

Target	Target Met	Target Not Met
Ensure 98% of products/services provided to customers meet the terms (e.g., specific activity, enrichment, etc.) of the contract/sales order.	●	

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 2010.

FY 2010 Net Cost of Operations (Unaudited)

In FY 2010, exchange revenues were \$21.7 million and total costs were \$36.9 million resulting in the overall net cost of operations totaling \$15.2 million. An analysis of the net cost of operations in FY 2010 disclosed a small increase in exchange revenues over projections and a modest decrease in cost over initial estimates.

Generally, Isotope Program sales projections are dynamic and require frequent modification. Early projections showed revenue of \$18.6 million in FY 2010. Actual sales, however, were \$21.7 million. In terms of revenue, radioisotopes outsold stable isotopes by a 15 to 1 ratio in FY 2010. Accelerator-produced isotopes outsold reactor-produced isotopes by a 1.2 to 1 ratio in FY 2010. The high ratio of radioisotopes over stable isotopes is primarily due to the re-establishment of californium-252 production and increased sales of strontium-82 and germanium-68.

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 2010 Balance Sheet

The balance sheet presents the Isotope Program's assets, liabilities and net position as of September 30, 2010. Changes from FY 2009 to FY 2010 include an increase in inventory and a decrease in customer advances. The increase in inventory is due to reestablished production of californium-252 and the addition of purchased Russian material to stable isotope inventory. The decrease in customer advances is primarily due to partial relief of the advance payment received in FY 2009 for californium-252 sales. The increase in accounts receivable is mostly due to the growth in sales of strontium-82. The increase in property, plant, and equipment is mainly the result of the helium-3 refurbishment project at the Savannah River Site.

Management Challenges and Significant Issues

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 costs which encourage its use, and on schedule. Starting in FY 2010, the Isotope Program has been working on increasing the suite of isotope production facilities to include other capabilities at national laboratories and university accelerator and reactor facilities which can provide cost-effective and unique capabilities. Partnerships with industrial counterparts are being pursued to leverage resources.

Balance Sheet Limitations

The accompanying balance sheets report the financial position of the Isotope Program as of September 30, 2010 and 2009. They were 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 these balance sheets are 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 the Isotope Program is 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 2010 and 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 2010 and 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 2010 and FY 2009.

Independent Auditors' Report



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 sheets 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, 2010 and 2009. The objective of our audits was to express an opinion on the fair presentation of the balance sheets. In connection with our fiscal year 2010 audit, we also considered the Program's internal control 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 sheets, we concluded that the Program's balance sheet as of September 30, 2010 is presented fairly, in all material respects, in conformity with U.S. generally accepted accounting principles. Regarding our opinion on the balance sheet as of September 30, 2009, 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 support the Program's undelivered orders as presented in 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 Accounting
2. Improvements Needed in the Preparation and Review of Manual Journal Entries

Significant Deficiencies

3. Unclassified Network and Information Systems Security

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 under *Government Auditing Standards*, issued by the Comptroller General of the United States, and

Independent Auditors' Report, continued



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 balance sheets; our consideration of the Program's internal control 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 SHEETS

We have audited the accompanying balance sheets of the United States Department of Energy's Isotope Development and Production for Research and Applications Program as of September 30, 2010 and 2009.

The Program was unable to support its undelivered orders as presented in the classifications of fund balance with Treasury in Note 2 as of September 30, 2009. This result does not impact the balance sheet itself.

In our report dated January 30, 2012, we expressed a qualified opinion on the Program's balance sheet as of September 30, 2009, because the Program was unable to provide sufficient audit evidence to support the completeness, existence, accuracy, and ownership of inventories held for sale. The recorded balance of inventory was \$6.84 million as of September 30, 2009. Subsequently, the Program provided sufficient evidential matter to substantiate the fair presentation of inventory as of September 30, 2009, and we performed additional audit procedures to test that account balance. Accordingly, our present opinion on the balance sheet as of September 30, 2009, as presented herein, is different from that expressed in our previous report with respect to inventory.

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 support the Program's undelivered orders as presented in the classifications of fund balance with Treasury in Note 2, as discussed above, the balance sheets referred to above present fairly, in all material respects, the financial position of the Program as of September 30, 2010 and 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 sheets, 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 internal control over financial reporting that might be significant deficiencies or material weaknesses and therefore, there can be no assurance that all deficiencies, significant deficiencies, or material weaknesses have been identified. However, in our fiscal year 2010 audit, we identified certain deficiencies in internal control over financial reporting that we consider to be material weaknesses and other deficiencies that we consider to be a significant deficiency.



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 material weakness is a deficiency, or combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. We consider the deficiencies described in Exhibit I to be material weaknesses.

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. We consider the deficiencies described in Exhibit II to be a significant deficiency.

Exhibit III presents the status of prior year material weaknesses and significant deficiencies.

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

COMPLIANCE AND OTHER MATTERS

The results of certain of our tests of compliance as 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 sheets; 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 fiscal year 2010 and 2009 balance sheets of the Program based on our audits. Except as discussed in the second and third paragraphs of the Opinion on the Balance Sheets section above, we conducted our audits 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 audits to obtain reasonable assurance about whether the balance sheets are 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.

Independent Auditors' Report, continued



An audit also includes:

- Examining, on a test basis, evidence supporting the amounts and disclosures in the balance sheets;
- Assessing the accounting principles used and significant estimates made by management; and
- Evaluating the overall balance sheet presentation.

We believe that our audits provide a reasonable basis for our opinion.

In planning and performing our fiscal year 2010 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, but not for the purpose of expressing 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. We did not test all controls relevant to operating objectives as broadly defined by the *Federal Managers' Financial Integrity Act of 1982*.

As part of obtaining reasonable assurance about whether the Program's fiscal year 2010 balance sheet 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.

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

December 21, 2012

Independent Auditors' Report

Exhibit I – Material Weaknesses

1. Controls over Inventory Accounting (Findings 10-ISO-INV-02 and 10-ISO-INV-01)

During our fiscal year 2010 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 inventory accounting at Los Alamos National Laboratory (LANL) and Program Headquarters (HQ).

LANL did not properly allocate approximately \$2.9 million of direct production costs at its Isotope Production Facility (IPF) during fiscal year 2010 between inventory, cost of goods sold, and other related expenses. The portion of costs not allocated to and recorded as Inventory Available for Sale resulted in an immaterial understatement of inventory at September 30, 2010. LANL overlooked these direct production costs when monthly inventory capitalization manual journal entries were prepared and approved. The error was not detected because LANL did not have an adequate control in place whereby all inventory costs on prepared inventory schedules are reviewed to determine whether they should be expensed or capitalized.

Program HQ did not provide its field sites, particularly LANL and Brookhaven National Laboratory (BNL), with guidance specifically instructing them to capitalize inventory costs in accordance with Statement of Federal Financial Accounting Standard (SFFAS) Number (No.) 3 and SFFAS No. 4 as noted in the U.S. Department of Energy's Accounting Handbook. Based on the cost allocation methodology currently applied by the Program, almost all costs incurred at LANL and BNL during times of no production are expensed as excess capacity costs, per the Program's understanding of guidance in the Department's Accounting Handbook, Chapter 15, Section 3.c. related to Excess Capacity. As a result, a significant portion of indirect costs associated with isotope inventory at these two field sites was not subjected to allocation of costs to inventory in fiscal year (FY) 2010 resulting in an immaterial understatement of inventory at September 30, 2010.

We determined the cost allocation methodology described above did not result in a significant misstatement of the balance sheet as of September 30, 2010. However, it does have the potential of affecting the balance sheet in a material way in the future depending on the different isotopes to be produced and the timing of the isotope production schedule.

Recommendations:

We recommend that:

- 1) The National Nuclear Security Administration's (NNSA) Field Chief Financial Officer, in conjunction with the Manager, Los Alamos Site Office, direct LANL to strengthen its controls in the isotope inventory process area to ensure that inventory costs related to isotope production are correctly expensed or capitalized.
- 2) The Director, Facilities and Project Management Division (FPMD), Office of Nuclear Physics, work with the Office of the Chief Financial Officer at DOE Headquarters to review and document its policies and procedures related to accounting for costs to produce inventory and determine whether they follow the requirements of SFFAS No. 3

Independent Auditors' Report

Exhibit I – Material Weaknesses, continued

and SFFAS No. 4 as stated in the Department's Accounting Handbook. We further recommend FPMD ensure the annual distribution to all sites of current and updated Isotope Program-wide guidance related to inventory accounting.

Management's Response:

- 1) LANL – “The current process to review the capitalization and cost of goods sold vouchers does not include a process to review all Isotopes project codes to make sure all parties understand the activity being charged to each one. Starting in FY 2013, before the end of the second period of each fiscal year, the Property Accounting Team Leader, Isotope Program Manager and Isotope Program Accountant will review all Isotope program related project and task codes to determine the type of activity being performed within each code in order to ensure appropriate treatment of all costs. Any new project and task codes set up during the year will also go through the same review at the time it is set up. The Isotope Program Accountant will continue to review costs recorded in each project code on a monthly basis and submit vouchers to appropriately record capitalization, cost of goods sold and other related expenses. The Property Accounting Team Leader or a Senior Accountant other than the Isotope Program Accountant will review and validate that monthly capitalization and cost of goods sold vouchers are complete and in accordance with the project and task code review.”
- 2) Program Headquarters – “Concur. The Director, Facilities and Project Management Division (FPMD), Office of Nuclear Physics, is working with the Office of the Chief Financial Officer at DOE Headquarters to review and document its policies and procedures related to accounting for costs to produce inventory and determine whether they follow the requirements of SFFAS No. 3 and SFFAS No. 4 as stated in the Department's Accounting Handbook. In addition, current and updated Isotope Program-wide guidance related to inventory accounting will be distributed to the sites.”

2. Improvements Needed in the Preparation and Review of Manual Journal Entries (Findings 09-ISO-FINREP-01, 09-ISO-FINREP-02, and 10-ISO-FINREP-01)

During our fiscal year (FY) 2010 audit, we identified deficiencies in the internal controls surrounding the manual journal entry process at three Program locations. At ORNL, (1) a single employee was able to and did both create/prepare and post the entries to the general ledger and (2) independent review and approval of each individual manual journal entry were 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.

Similarly, we selected a sample of 10 manual journal entries recorded to the Program's books in Fiscal Year (FY) 2010 at Headquarters. For five of the 10 manual journal entries tested, supporting documentation demonstrated that the manual journal entries were neither independently reviewed prior to being posted to the Department's general ledger for the Program nor posted by someone other than the preparer of the entry. The Department's Office of

Independent Auditors' Report

Exhibit I – Material Weaknesses, continued

Financial Control and Reporting (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.

The manual journal entry control deficiencies at ORNL and Headquarters were first reported in FY 2009. Both ORNL management and OFCR asserted that corrective action was taken during FY 2011 based on the recommendations of the prior year findings. However, corrective actions were not effective during the FY 2010 time period which was the scope of our audit. Therefore, the control deficiencies remain until the corrective actions can be verified during the FY 2011 audit.

Lastly, our test work over manual journal entries at LANL identified two sample items, documented as having been reviewed by management, that were not subjected to a sufficiently detailed management review. We found for one sample item the previous month's support had been attached to the journal voucher inadvertently; however, the journal voucher amounts recorded were correct. In the other sample item we found the support was correct; however, the dollar values in the voucher as recorded were repeated from the previous month's voucher. This resulted in an immaterial misstatement.

As a result of these deficiencies, 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 developing and maintaining effective internal control. Effective internal control provides assurance that significant weaknesses in the design or operation of internal control, that could adversely affect the agency's ability to meet its objectives, would be prevented or detected in a timely manner."

Per the Government Accountability Office's *Standards for Internal Control in the Federal Government*:

Control activities occur at all levels and functions of the entity. They include a wide range of diverse activities such as approvals, authorizations, verifications, reconciliations, performance reviews, maintenance of security, and the creation and maintenance of related records which provide evidence of execution of these activities as well as appropriate documentation." Furthermore, "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.

Independent Auditors' Report

Exhibit I – Material Weaknesses, continued

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. OFCR asserted to us that these corrective actions were implemented subsequent to fiscal year 2010;
- (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. ORNL management asserted to us that these corrective actions were implemented subsequent to fiscal year 2010; and
- (3) We recommend that the National Nuclear Security Administration's (NNSA) Field Chief Financial Officer, in conjunction with the Manager, Los Alamos Site Office, direct LANL to strengthen and monitor policies and procedures to ensure that proper segregation of duties exist and that independent reviews and approvals at a sufficiently low level of monetary precision are documented for each individual manual journal entry posted to the LANL general ledger for the Program.

Management's Response:

- (1) OFCR – “Management concurs with the recommendations.”
- (2) ORNL – “ORNL management developed and implemented corrective action steps on a going-forward basis in FY 2011 to address the recommendations as set forth by KPMG in the prior year finding. This finding remains open because the corrective action took place in FY 2011, subsequent to the scope of the FY 2010 Balance Sheet Audit. As a result, KPMG does not have any recommendations for this finding, and ORNL management does not need to take any additional action to address this finding. Closure of this finding will be re-visited during the subsequent financial statement audit.”
- (3) LANL – “LANL will review and strengthen the manual journal voucher procedures by clearly defining the roles of preparer, reviewer and approver. Additionally, guidance will be developed and communicated as to what is adequate documentation, what is a thorough review, and the process for obtaining and documenting independent approval.”

Independent Auditors' Report

Exhibit II – Significant Deficiencies

3. Unclassified Network and Information Systems Security

The 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 many of the identified weaknesses at the sites whose security controls we, and the Department's Office of Health, Safety and Security, reviewed in prior years. However, we continued to identify similar weaknesses in security controls at the sites we reviewed in fiscal year 2010. The Department recognizes the need to enhance its unclassified cyber security program and has categorized unclassified cyber security as a leadership challenge in its Federal Managers' Financial Integrity Act assurance statement for fiscal year 2010. Improvements are still needed in the areas of system and application access and related access privileges, password management, configuration management, and restriction of network services.

Our fiscal year 2010 audit disclosed information system security deficiencies consistent with our findings in prior years. Specifically, we noted weaknesses within layered security controls for network servers, desktop systems, and business applications. We identified multiple instances of blank or easily guessed administrator or user passwords on network systems that could permit unauthorized access to those systems and their data. We also found weak access controls for shared directories and files, in which unauthorized users could potentially gain access to sensitive data, including personally identifiable information, or modify configuration settings.

In the area of configuration and vulnerability management, we identified deficiencies in the patch management process for timely and secure installation of critical software patches, with numerous instances in which security patches had not been applied to correct known vulnerabilities more than three months after the patches became available. We also identified instances where sites had not correctly configured their vulnerability scanning software to ensure known vulnerabilities were identified and remediated in a timely manner, or had not fully implemented an effective vulnerability and patch management program as a result of having insufficient vulnerability scanning licenses to scan all systems.

While many of these cyber security deficiencies were corrected immediately after we identified and reported them to site management, weaknesses in the process for identifying, monitoring, and remediating such deficiencies have continued from prior years. In several instances, the sites had not fully implemented procedures designed to ensure that minimum cyber security requirements were met. Furthermore, even when policies and procedures were established, implementation of those policies and procedures were sometimes inconsistent and sites had not always validated, through testing or other means, that the procedures were operating effectively.

The Department's Office of Inspector General (OIG) reported on these deficiencies in its evaluation report on *The Department's Unclassified Cyber Security Program - 2010*, dated October 2010. The OIG noted that identified weaknesses occurred, in part, because Departmental elements had not always ensured that cyber security requirements were effectively implemented. Consistent with prior year findings, the OIG reported that the National Nuclear Security Administration (NNSA) had begun, but not fully implemented, a program for management

Independent Auditors' Report

Exhibit II – Significant Deficiencies, continued

oversight and periodic evaluation of the cyber security practices of its Federal sites offices and associated field sites. The OIG also identified deficiencies in configuration management processes at several sites in which, contrary to the Department's policies and procedures, systems were placed into operation prior to completing required system security plans or following incomplete testing of security controls.

The identified vulnerabilities and control weaknesses in unclassified network and information systems increase the possibility 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, confidentiality and availability of data in the Department's financial applications.

During fiscal year 2010, the Department has taken positive steps to enhance its unclassified cyber security program, including establishing a Computer Security Governance Council at the Under Secretary level to oversee its cyber security reform efforts, refining cyber security policies and procedures, and initiating the implementation of an automated tool to aid in cyber security and performance reporting.

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 Office of Chief Information Officer (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, 2010, that NNSA and program officials, in conjunction with the Chief Information Officer, fully implement policies and procedures to ensure that the Federal cyber security standards are met, that networks and information systems are adequately protected against unauthorized access, and that an adequate performance monitoring program is implemented, such as the use of periodic evaluations by Headquarters management, to ensure the effectiveness of sites' cyber security program implementation.

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

Management's Response:

Program Headquarters – 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.

Independent Auditors' Report

Exhibit III – Status of Prior Year Material Weaknesses and Significant Deficiencies

Prior Year Material Weakness/Significant Deficiency

Status at September 30, 2010

(with parenthetical disclosure
of year first reported)

- | | |
|---|--|
| 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 – considered a Significant Deficiency (2007) | Matter considered closed |

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

Balance Sheets

September 30, 2010 and 2009

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

Balance Sheets

As of September 30, 2010 and 2009

Assets	<u>FY 2010</u>	<u>FY 2009</u>
Intragovernmental:		
Fund balance with Treasury (note 2)	\$ 57,379,451	\$ 60,948,495
Accounts receivable (note 3)	<u>62,252</u>	<u>143,305</u>
Total intragovernmental assets	57,441,703	61,091,800
Accounts receivable, net (note 3)	2,592,639	999,134
Inventory held for sale, net (note 4):		
Radioactive isotopes	8,848,744	7,117,040
Stable isotopes	4,557,938	3,676,962
Allowance - isotope inventories	<u>(3,944,213)</u>	<u>(3,958,669)</u>
Total inventories held for sale, net	9,462,469	6,835,333
Property, plant, and equipment, net (note 5)	<u>18,462,882</u>	<u>16,596,870</u>
Total assets	<u>\$ 87,959,693</u>	<u>\$ 85,523,137</u>
Liabilities and Net Position		
Non-Intragovernmental liabilities covered by budgetary resources:		
Accounts payable/accrued expenses	\$ 103,908	\$ 98,153
Customer advances (note 1k)	<u>5,036,134</u>	<u>6,543,469</u>
Total liabilities	5,140,042	6,641,622
Commitments and contingencies (note 6)		
Net Position:		
Cumulative results of operations - earmarked funds	<u>82,819,651</u>	<u>78,881,515</u>
Total liabilities and net position	<u>\$ 87,959,693</u>	<u>\$ 85,523,137</u>

See Accompanying Notes to the Balance Sheets

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

Notes to the Balance Sheets

September 30, 2010 and 2009

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

Notes to the Balance Sheets
As of September 30, 2010 and 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 (Isotope Program) is primarily 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. With the exception of Brookhaven National Laboratory's (BNL) Brookhaven Linear Isotope Producer (BLIP) and Los Alamos National Laboratory's (LANL) Isotope Production Facility (IPF), 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 6, 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 Sheets.

Isotope production and research and development activities are performed at the following sites: BNL, Upton, New York; LANL, 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:

Operations

Operations activities 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 sheets have 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 sheets are 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 sheets are 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. However, any isotopes with a half-life of 75 days or less are normally capitalized to inventory, then expensed to cost of goods sold in the month they are produced, consistent with the Isotope Program's inventory valuation policy. For fiscal year end reporting only, any short-lived isotope with a half life of 75 days or less and a remaining inventory value greater than \$35,000 is reported as inventory and not expensed to cost of goods sold or decay until the following fiscal year. Periodic entries are recorded to reflect decay losses for all isotopes, regardless of the half-life. 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) *Property, Plant, and Equipment*

The Isotope Program is primarily dependent on a number 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. Property, plant, and 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, 2010, the Isotopes Program balance for customer advances was \$5,036,134, of which \$2,819,133 is current and \$2,217,001 is non-

current. 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 (unaudited)

A substantial amount of the Isotope Program's revenue is derived from a small percentage of commercial customers (about 90 percent of the Isotope Program's combined revenues were provided by ten customers in fiscal year 2010). 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 the Isotope Program to support research, development, and production of research and commercial isotopes that are of critical importance 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.

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 sheets 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 sheets. 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 sheets.

(2) **Fund Balance with Treasury**

Revolving fund balance consists of the following at September 30, 2010 and 2009:

	<u>2010</u>	<u>2009</u>
Unobligated budgetary resources:		
Available	\$ 16,844,404	\$ 17,501,095
Other unobligated balances not available	-	6,733,760
Obligations balance not yet disbursed	<u>40,535,047</u>	<u>36,713,640</u>
Total Fund Balance with Treasury	<u>\$ 57,379,451</u>	<u>\$ 60,948,495</u>

(3) **Accounts Receivable**

Accounts receivable consists of the following at September 30, 2010 and 2009:

	<u>2010</u>	<u>2009</u>
Accounts receivable from the Public	\$ 2,618,629	\$ 1,025,124
Less allowance for uncollectible accounts	<u>(25,990)</u>	<u>(25,990)</u>
Total accounts receivable from the Public, net	<u>\$ 2,592,639</u>	<u>\$ 999,134</u>
Intragovernmental accounts receivable	<u>\$ 62,252</u>	<u>\$ 143,305</u>

(4) Inventories Held For Sale, Net

Inventories held for sale consist of the following at September 30, 2010 and 2009:

	2010		
	<u>Radioisotopes</u>	<u>Stable Isotopes</u>	<u>Total</u>
Cost	\$ 8,848,744	\$ 4,557,938	\$ 13,406,682
Less:			
Allowance for excessive inventory quantities	(348,010)	(3,584,628)	(3,932,638)
Allowance for lower of cost or market value	<u>(11,575)</u>	<u>-</u>	<u>(11,575)</u>
Total inventories, net	<u>\$ 8,489,159</u>	<u>\$ 973,310</u>	<u>\$ 9,462,469</u>

	2009		
	<u>Radioisotopes</u>	<u>Stable Isotopes</u>	<u>Total</u>
Cost	\$ 7,117,040	\$ 3,676,962	\$ 10,794,002
Less:			
Allowance for excessive inventory quantities	(367,303)	(3,579,791)	(3,947,094)
Allowance for lower of cost or market value	<u>(11,575)</u>	<u>-</u>	<u>(11,575)</u>
Total inventories, net	<u>\$ 6,738,162</u>	<u>\$ 97,171</u>	<u>\$ 6,835,333</u>

(5) Property, Plant, and Equipment, Net

Property, plant, and equipment consists of the following at September 30, 2010 and 2009:

	<u>2010</u>	<u>2009</u>
Improvements to land	\$ 11,780	\$ 11,780
Less accumulated depreciation	<u>(955)</u>	<u>(816)</u>
Improvements to land, net	10,825	10,964
Buildings, improvements, and renovations	14,314,681	14,403,566
Less accumulated depreciation	<u>(1,624,138)</u>	<u>(1,352,567)</u>
Buildings, improvements, and renovations, net	12,690,543	13,050,999
Equipment	8,304,053	8,001,114
Less accumulated depreciation	<u>(5,465,267)</u>	<u>(4,780,384)</u>
Equipment, net	2,838,786	3,220,730
Construction - work in progress	<u>2,922,728</u>	<u>314,177</u>
Total Property, plant, and equipment, net	<u>\$ 18,462,882</u>	<u>\$ 16,596,870</u>

(6) 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, 2010 and 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, 2010

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

Stewardship Investments - Research and Development

September 30, 2010

	<u>Process Development</u>	<u>Applied Research</u>	<u>Total Research and Development Expense</u>
Fiscal year ended September 30:			
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
2010	1,716,572	0	1,716,572
Total	<u>\$ 2,787,266</u>	<u>\$ 100,000</u>	<u>\$ 2,887,266</u>

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. The Isotope Program supports research for the development of alternative production and extraction techniques of stable and radioactive isotopes, and the production of research isotopes identified by Nuclear Science Advisory Committee as needed for high priority research opportunities across a broad range of scientific disciplines. The increase in fiscal year 2010 is also attributable to investments made with American Recovery and Reinvestment Act funds. Discussed below are some of the accomplishments and contributions by the Isotope Program.

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 2006 through fiscal year 2009, funding was provided for process improvement projects. 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. 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.

(2) Alpha emitting isotopes have shown strong potential in medical cancer therapy research. However, the current supply of alpha emitting isotopes is limited. Several R&D projects were

initiated in fiscal year 2010 to increase the supply. LANL scientists are exploring the accelerator production of actinium-225 from a thorium-232 target at LANL's IPF at 100 million electron volts (MeV) and BNL's BLIP at 200 MeV. ORNL scientists are studying the accelerator production of thorium-229, a long half-life radioisotope that can be used as a source of actinium-225, one of its radioactive decay products. Both ORNL and PNNL are recovering and purifying actinium-227 from surplus actinium-beryllium neutron sources. The actinium-227 can be used as a source for the decay production of very high purity thorium-227 and radium-223, another medically important alpha-emitting isotope.

(3) Researchers at ORNL completed the engineering design and began procurement of components for the fabrication of a state-of-the-art research-scale prototype electromagnetic separator for stable isotope enrichment. This separator will use modern ion source and collector technologies that could lead to production scale separators for efficient, cost effective production of a portfolio of essential enriched isotopes.

(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. 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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