U.S. Department of Energy
Office of Inspector General
Office of Audit Services

Audit Report

The Department's Management of Nuclear Materials Provided to Domestic Licensees

DOE/IG-0813 February 2009

Department of Energy

Washington, DC 20585

February 18, 2009

MEMORANDUM FOR THE SECRETARY

FROM: Gregory H. Friedman
Inspector General

SUBJECT: INFORMATION: Audit Report on "The Department's Management of Nuclear Materials Provided to Domestic Licensees"

BACKGROUND

Since the 1950's, the Department of Energy and its predecessor agencies have provided nuclear materials, including various forms of uranium and plutonium, to academic institutions, commercial facilities and other government agencies. The Atomic Energy Act of 1954 provided authority for these materials to be loaned or leased for research, educational or medical purposes, or for other projects consistent with the Department's mission. As of the end of September 2007, 101 domestic facilities had Department-owned nuclear materials in their possession.

The Department and the Nuclear Regulatory Commission (NRC) share responsibility for nuclear material provided to domestic licensees, including accounting for the material and tracking its location. Both organizations use the Department of Energy managed Nuclear Materials Management and Safeguards System (NMMSS), the U.S. Government's official central nuclear materials accounting system, to assist them in carrying out their respective responsibilities. In October 2001, we reported that the Department could not fully account for nuclear materials loaned or leased to domestic licensees, at least partly due to inaccurate and/or incomplete NMMSS record keeping. We made several recommendations designed to ensure that the Department confirmed nuclear material balances, enhanced its control over these materials, and improved its coordination with the NRC. The Department concurred with our recommendations and pledged to take a number of actions designed to improve accountability. We initiated this follow-up audit to determine whether the Department was adequately managing its nuclear materials provided to domestic licensees.

RESULTS OF AUDIT

Our review disclosed that the Department could not always accurately account for, and, had not adequately managed, significant quantities of nuclear material that had been provided to domestic licensees. For about 37 percent (15 of 40) of the domestic facilities we reviewed, the Department could not accurately account for the quantities and locations of certain nuclear materials. In a number of cases, the Department had also agreed to write-off large quantities without fully understanding the ultimate disposition of these materials. In particular:

- Waste processing facilities we visited were unable to verify that 6,711 grams of special nuclear material and 35,269 kilograms of depleted and/or normal uranium, recorded in NMMSS as being in their custody, were either still under their control or had been treated and disposed of as waste;

- During 2004, a number of domestic licensees reported that their actual holdings of Department-owned nuclear materials were less than the quantities recorded in NMMSS. Based on that information, the Department agreed to write off over 20,000 grams of special nuclear material and over 194,000 kilograms of depleted and/or normal uranium without investigating the whereabouts or actual disposition of the material; and,

- A 32 gram plutonium-beryllium source on loan to a college and subsequently transferred to another academic institution was not accounted for in NMMSS.

Except for a few instances, the Department had also not regularly contacted domestic licensees to determine whether they had a continuing need for or wished to return nuclear materials in their possession. For example, three licensees with Department-owned nuclear materials told us that they no longer needed and wanted to return materials, but had not been contacted by the Department. Additionally, two of these licensees were confused about how to execute such a return.

The Department's management of its nuclear materials held by domestic licensees was less than fully effective because of deficiencies in monitoring and control practices. We found that certain corrective actions had been taken in response to our October 2001 report, such as the one-time confirmation of inventory balances in 2004. While these actions resulted in some programmatic improvements, a few key commitments made by the Department were not completed nearly eight years after our earlier audit. In particular, although the Department established requirements for periodic confirmations of these nuclear materials inventories after the 2004 exercise, additional confirmations had not actually occurred. Additionally, the Department's guidance to licensees on preparing and reporting inventory transactions was insufficient, leading to inventory recordkeeping concerns. These and other weaknesses affected the Department's ability to accurately account for its nuclear materials inventories that had been provided to others.

We recognize the difficulty the Department faced during 2004 when attempting to reconcile balances and resolve accounting and tracking errors that accumulated over a number of years. These difficulties were, however, a direct result of long-standing material monitoring, control and tracking concerns. Without improvement, the Department cannot properly account for and effectively manage its nuclear materials maintained by domestic licensees and may be unable to detect lost or stolen material. Accordingly, we made several recommendations designed to improve the Department's management of nuclear materials provided to domestic licensees.

MANAGEMENT REACTION

Management generally agreed with the recommendations in the report and agreed that the Department, through its program offices, needs to further enhance its oversight and

management of nuclear materials provided to domestic licensees. Management's planned corrective actions are generally responsive to our recommendations. Management's comments and our responses are summarized in the body of the report and are attached as Appendix 3.

Attachment

cc: Office of the Deputy Secretary
Office of the Under Secretary
Office of the Under Secretary for Science
Administrator, National Nuclear Security Administration
Chief of Staff
Director, Policy and Internal Controls Management, NA-66
Team Leader, Audit Liaison Team, CF-1.2

REPORT ON THE DEPARTMENT'S MANAGEMENT OF NUCLEAR MATERIALS PROVIDED TO DOMESTIC LICENSEES

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MANAGEMENT OF DEPARTMENT-OWNED NUCLEAR MATERIALS

Nuclear Material Control and Accountability

Department of Energy (Department) could not always accurately account for and had not adequately managed significant quantities of nuclear material that had been provided to domestic licensees. For 15 of the 40 (about 37 percent) non-Departmental domestic facilities we reviewed, the Department: (1) did not have an accurate accounting of its nuclear materials held by or removed from a licensee's site; or, (2) agreed to write off large quantities of nuclear materials from its tracking system without sufficient knowledge of the ultimate disposition of the materials. We also found that a few domestic licensees had nuclear materials on site but had no regular contact with Department officials and were unaware of procedures to return unneeded Department-owned materials. While the specific issues varied from facility to facility, each illustrates problems the Department has with control of its nuclear materials held by domestic licensees.

Accountability over Department-owned Nuclear Materials

The Department had not maintained accountability over its nuclear materials at some domestic licensees. While the tracking system utilized by the Department, the Nuclear Materials Management and Safeguards System (NMMSS), showed quantities of nuclear materials in domestic licensees' inventories, some of these materials were no longer maintained by the licensee and/or their ultimate disposition was uncertain. Specifically, the waste processing facilities we visited were unable to verify that the 6,711 grams of special nuclear material or the 35,269 kilograms of depleted and/or normal uranium (source material[1]), currently being tracked in the NMMSS, were either still on site or had been treated and disposed of as waste. As an example, one facility's NMMSS inventory included 6,000 kilograms of depleted uranium that was transferred to the site nearly ten years ago. Licensee officials indicated that the material would not still be at their facility because they were in the business of processing waste. However, those same officials could not verify the ultimate disposition of the materials. Similarly, the Departmental program element with original responsibility for the material was also not aware of the actual disposition, nor did the program know why the material was transferred to the licensee in the first place. In

[1] Includes depleted uranium, normal uranium, thorium, or any other nuclear material determined to be source material.

another instance, a manufacturing company we visited acknowledged possessing only a small portion (13 kilograms) of the 533 kilograms of Department-owned depleted uranium reported in its NMMSS balance. The company indicated that the rest of the depleted uranium in its custody was privately-owned and was being treated as such for reporting requirements.

Materials Written Off From NMMSS Inventories

The Department also agreed to write off large quantities of nuclear materials at domestic licensees without confirming the disposition of those materials. In response to our October 2001 report, the Nuclear Regulatory Commission (NRC), in coordination with the Department, undertook a one-time comprehensive confirmation of NMMSS inventory balances in 2004. This effort was used to rebaseline all of the NMMSS information related to the Department's nuclear materials at domestic licensees. To rebaseline the inventory levels in the NMMSS, the Department agreed to write off significant amounts of nuclear materials based on the licensees' reported nuclear materials on-hand. The Departmental elements with original programmatic responsibility for the materials that had accumulated at the licensees over many years were not contacted for additional explanations, justifications, or approvals before the changes were made.

During this effort, the Department agreed to write off the following quantities of its nuclear materials from the NMMSS inventories of just the 40 facilities we reviewed:

- 20,580 grams of enriched uranium;
- 45 grams of plutonium;
- 5,001 kilograms of normal uranium; and,
- 189,139 kilograms of depleted uranium.

Considering the potential health risks associated with these materials and the potential for misuse should they fall into the wrong hands, the quantities written-off were significant. For example, even in small quantities normally held by individual domestic licensees, special nuclear materials such as enriched uranium and plutonium, if not properly handled, potentially pose serious health hazards. Normal and depleted uranium are also hazardous in that they are chemically toxic heavy metals that, if inhaled or ingested in high doses, can have adverse health effects.

During physical verification of inventory, we also discovered that an academic institution (College A) held a Department-owned 32 gram plutonium-beryllium source that was not being tracked in NMMSS. This source had been transferred to College A from a different institution (College B) in 1986 without the appropriate transaction reported to the NMMSS. Despite the actual physical transfer, this source remained in College B's NMMSS inventory until 2004. A College B official was questioned about this source in 2001, and a NMMSS official confirmed with College B that, in 1986, the source had been transferred to College A. Based on the information provided by College B, a miscellaneous shipment transaction was prepared by the Department's NMMSS contractor to write off the source from College B's inventory balance. However, due to a reporting error in this transaction, the source was not actually written off College B's NMMSS inventory until 2004. More importantly, no transaction was made to record the receipt of the source at College A. We physically verified that the unaccounted for plutonium-beryllium source existed in a storage area at College A during our site visit. This Department-owned source had been at College A for over 20 years without any Departmental monitoring or control. According to the Office of Health, Safety and Security (HSS), plutonium-beryllium neutron sources can have high neutron dose rates, and if one of these sources was removed from its shielding and placed in close proximity to individuals for an extended period of time, there could be adverse health effects.

Excess Nuclear Materials at Domestic Licensees

We also identified several domestic licensees that had custody of loaned nuclear materials but had no regular contact with Department officials and were unaware of procedures to return materials they no longer needed. According to the original loan agreements, the material remains the property of the Department and must be returned once the agreement is terminated. The facility is responsible for costs associated with the return of the materials. The materials these licensees wished to return to the Department, which in one case has been in storage at a facility and never used for over 30 years, included quantities of enriched and depleted uranium. These facilities had not been contacted by the Department for

periodic confirmation of balances or inquiries as to whether they still had a need for the materials in their custody. As such, current licensees told us that they were confused about their return options. The names of these facilities have been provided to the Department so that they can decide which organization needs to coordinate the return or disposition of these materials.

Monitoring and Control

Management of the Department's nuclear materials at domestic licensees had not been fully effective because of deficiencies in its monitoring and control. Corrective actions taken in response to our October 2001 report resulted in some improvements. For example, a process was established to manually identify and address negative balances on a monthly basis. Action was also taken to improve coordination between the Department and the NRC, which included a one-time effort in 2004 to confirm the NMMSS inventory data. A few key steps, however, were never implemented.

Specifically, the Department had not performed or scheduled periodic confirmations of its nuclear materials held by domestic licensees as we recommended in our 2001 report. These confirmations have not been performed even though the Department formally made them a requirement in August 2006. Without periodic updates, inventory information can become outdated due to the changing nature of these nuclear materials inventories. While a one-time, comprehensive confirmation of the NMMSS inventory data was performed in late 2004, it did not identify the differences that existed prior to this confirmation, which we noted during 2 of our 13 site visits. On the date we performed our site review, these differences had not been resolved. Notably, the unreported plutonium-beryllium source identified at an academic institution was still not being tracked in NMMSS as of July 2008. We also found additional differences at other sites that we visited. However, with one exception, we could not specifically determine whether they originated before or after the 2004 confirmation.

We also found that inconsistencies existed in the NMMSS information because the Department's guidance to licensees on preparing and reporting inventory transactions was insufficient. A number of licensee officials at facilities we reviewed stated that they needed such guidance because of the complexity of the process. One such circumstance that

exemplifies this issue is the reporting of nuclear materials at waste processing facilities. In most cases, transactions from the Department were reported to the NMMSS to send the nuclear materials to these facilities, but transactions to record their ultimate disposition have not been consistently reported. Additionally, in the case of the manufacturing company previously mentioned, further guidance is necessary to clarify whether the depleted uranium in its possession should be treated as Department-owned, as reported in the NMMSS, or privately-owned, as it is currently considered by the company.

Sites also need to be made aware of the Department's reporting requirements, which differ from NRC requirements for some of the Department-owned nuclear materials held by licensees. For example, the Department requires all of its reportable depleted uranium to be tracked in the NMMSS through the regular transaction reporting process whereas NRC does not. The inconsistent application of NMMSS transaction reporting has caused large quantities of nuclear materials to accumulate in NMMSS inventories, when it is possible that the materials have been disposed of, transferred to another company, or even returned to the Department. Additionally, many of the licensees with smaller inventories of nuclear materials had not updated the NMMSS for several years or even decades, because the materials they possessed did not meet NRC's minimum reporting thresholds. Without accurate transaction recording, the Department will not be able to properly track these nuclear materials inventories. While it is possible that changes in NRC reporting requirements that took effect in January 2009 could reduce some of the inconsistencies, the effect of these changes are not yet determinable.

Additionally, while the 2004 confirmation appeared to eliminate most of the questionable data in the NMMSS, there were quantities of nuclear materials that were removed from NMMSS inventories without justification and approval by the responsible program element. This occurred because, according to Departmental officials responsible for tracking the material, programmatic responsibility for many of the nuclear materials was not maintained over the years due to numerous programmatic reorganizations and changes in the program/project identifiers in the Department's accounting system. However, as noted in Departmental regulations,

responsibility for verifying NMMSS inventory balances is vested in either the Departmental program office responsible for the materials or the Departmental element responsible for NMMSS when no programmatic owner has been assigned. Thus, although the element responsible for NMMSS should have taken steps to justify the write off of material, program offices were not contacted to provide justifications for the changes or explanations of the differences. Therefore, it is not possible to determine what the differences represented or what ultimately became of the materials. Much of the materials that were written off were those that had been provided to the previously discussed waste processing facilities for disposal. In responding to our draft report, HSS asserted that materials at disposal facilities were appropriately dispositioned within NMMSS during the 2004 confirmation. However, while we agree that the transaction entries effectively eliminated the materials from NMMSS inventories, we disagree that they should have been eliminated without explanations of the differences and Department knowledge of the ultimate disposition of the materials.

We recognize the difficulty the Department faced during 2004 when attempting to reconcile balances and resolve accounting and tracking errors that may have accumulated over a number of years. Indeed, HSS officials told us that they believed the NMMSS accounting inaccuracies were most likely the result of the non-Department facilities' issues with changes in the reporting requirements, lost or inaccessible records, inaccurate reporting or reporting omissions. These difficulties were, however, exacerbated by long-standing issues with monitoring, control and tracking of materials. HSS officials indicated, in their comments to the draft report, that one way to address these issues would be to add language in future Departmental contracts to spell out inventory and transaction reporting requirements for government-owned nuclear materials, since the Department had no authority to conduct on-site confirmations of physical inventories. Adding this language to future contracts should help the Department monitor their materials at facilities that enter into future agreements with the Department. However, as the owner of the nuclear materials in question, the Department is responsible for their control, accountability, and final disposition, and under regulation, is required to annually

obtain written verifications from existing licensees that they continue to possess the materials and that the NMMSS records are correct.

Finally, we noted during most of our reviews of academic institutions and other non-Departmental facilities that the Department had not contacted them at regular intervals to inquire as to the status of these materials or whether they were still needed and/or wanted. While some Departmental elements made an effort to contact domestic licensees, officials from several of the licensees we reviewed indicated that, with the exception of the 2004 NMMSS confirmation, they were not regularly contacted to verify the status of the nuclear materials. In responding to our draft report, HSS questioned why some of the excess materials discussed earlier in this report were not brought to their attention by the sites during the 2004 NMMSS confirmation, but agreed that regardless of this, the Department needed to continue to improve in this area.

Control over Nuclear Material

Without adequate control and accountability, the Department cannot effectively manage its nuclear materials at domestic licensees. The Department's nuclear material accountability programs must ensure that nuclear materials are accounted for and that unauthorized acts are detected. Insufficient accountability over nuclear material inventories results in a reduced ability to detect lost or stolen material and may adversely affect the Department's ability to manage the disposal of these nuclear materials. Due to the inconsistencies documented in our report, it would be extremely difficult, if not impossible, for the Department to accurately identify the type and quantity of its nuclear materials affected if an incident occurred at one of the sites whose NMMSS inventory we could not verify. Because of the potential health risks and negative public perception associated with nuclear materials management, the Department should give this area increased priority.

In addition to the security aspects of this issue, these inventories are essentially a liability that the Department must eventually address. Unreliable records limit the Department's ability to ensure that materials held by non-Departmental sites are ultimately disposed of or reused safely and effectively. At some point in the future, this material should be returned to the Department and either disposed of as waste or, if possible, reutilized in support of Departmental missions. Unless the associated NMMSS

records are complete and accurate as to material quantities and locations, the complexity and cost of the Department's disposal or reutilization tasks could be difficult to estimate.

RECOMMENDATIONS

To address the nuclear material accountability issues discussed in our report, we recommend that the Chief Health, Safety and Security Officer, in coordination with the responsible Department program officials:

1. Conduct a confirmation of balances of Department-owned nuclear materials held by domestic licensees and establish a schedule for future periodic confirmations. The resulting information should be reconciled with NMMSS data and necessary correcting entries made, in conjunction with the justification and approval of either the responsible Departmental program office or the Departmental element responsible for NMMSS.

2. Develop and implement enhanced procedures for the accounting of Department-owned nuclear materials. Including, but not limited to, establishing processes to:

    a. periodically confirm the continuing need for Department-owned nuclear material at domestic licensees; and,

    b. incorporate this information into Departmental material disposition and reutilization plans.

3. Clarify, as necessary, inventory transaction recording and reporting requirements and enhance the effectiveness and participation of the training offered to domestic licensees. Potential actions include, but are not limited to, developing and implementing additional guidance, and establishing web-based training opportunities.

MANAGEMENT REACTION

The Office of Health, Safety and Security (HSS) indicated that it generally agreed with our recommendations for increased oversight and management of nuclear materials provided to domestic licensees and additional coordination efforts with the responsible program offices and field entities. HSS noted that, shortly after we initiated our audit, the Office of Security Evaluations began using

Nuclear Materials Management and Safeguards System (NMMSS) generated information to routinely question the Departmental Material Control and Accountability program officials about the government-owned materials transferred from their facilities to domestic licensee facilities. HSS's intent was to ensure that the facilities and programs at the facilities take ownership and management responsibilities for licensees' continued use and disposition planning of these materials.

With respect to our specific recommendations, HSS believed that ongoing and planned activities including the new January 2009 NRC reporting requirements would satisfy recommendations 1 and 2a. HSS also recognized the need for additional coordination efforts with the responsible Headquarters program offices and field entities to ensure the implementation of recommendation 2b. HSS's response to an earlier version of recommendation 3 indicated that the recommendation should focus on ensuring licensee facilities with government-owned materials are made aware of available training and support for implementation of the existing guidance rather than developing and issuing additional guidance.

Management's verbatim comments are included in Appendix 3.

AUDITOR COMMENTS

Management concurred with our recommendations and recognized that improvements and continued vigilance are needed to enhance the oversight and management of nuclear materials provided to domestic licensees. Management's comments are considered generally responsive to the recommendations. The recent efforts by the Office of Security Evaluations were not confirmed during our review and do not appear to have been added to its Material Control and Accountability Inspector's Guide, but should lead to increased communications related to the materials at non-Departmental sites.

Regarding our specific recommendations, management asserted that ongoing and planned activities, including changes to the NRC reporting requirements, will satisfy recommendations 1 and 2a. These new reporting requirements should provide the Department with better information on the nuclear material inventory balances at domestic licensees. The Department will need, however, to evaluate the new NRC reporting requirements and

supplement them as necessary to ensure that there is sufficient information available to explain any inventory differences and determine the ultimate disposition of nuclear materials transferred from licensee facilities.

We also revised our third recommendation because we continue to believe that the current guidance is confusing and that the Department should review the existing guidance and consider changes to clarify the requirements. The existing training opportunities and offers of support have been available to NMMSS users, but those items alone have not been effective. We agree that ensuring all licensees are aware of the training and support opportunities that are made available to them is a positive step. We also feel, however, that the establishment of supplemental guidance and web-based training programs, to be available as needed, could increase the effectiveness and participation rate in NMMSS training among the licensees.

HSS also provided a more detailed management analysis and response to the draft report in an attachment to its official comments and these have been reviewed and incorporated into the final report as appropriate.

Appendix 1

OBJECTIVE

To determine whether the Department of Energy (Department) was adequately managing its nuclear materials provided to domestic licenesees.

SCOPE

The audit was performed from February 2007 to September 2008 at Department Headquarters in Washington, DC, and Germantown, MD; the Oak Ridge Office and the Oak Ridge National Laboratory in Oak Ridge, TN. In addition, we visited or obtained data from 40 different non-Departmental facilities in various states.

METHODOLOGY

To accomplish the audit objective, we:

- Reviewed Departmental and Nuclear Regulatory Commission (NRC) requirements for the control and accountability of nuclear materials;
- Analyzed a Nuclear Materials Management and Safeguards System (NMMSS) report with ending inventory balances for Department-owned nuclear materials dated September 30, 2007, to determine the amount and types of nuclear materials located at non-Department domestic facilities;
- Held discussions with Department and NRC personnel that used NMMSS information to determine their roles and responsibilities related to the control and accountability over nuclear materials;
- Selected a judgmental sample of 40 non-Department domestic facilities;
- Met with licensee officials and sent confirmations to determine whether their actual inventories of Department-owned nuclear materials were consistent with inventories reported in the NMMSS; and,
- Analyzed historical information related to the 2004 NMMSS inventory rebaselining initiative to determine the quantity of Department-owned nuclear materials that were written off from the domestic licensees' inventory balances.

This performance audit was conducted in accordance with generally accepted Government auditing standards. Those

standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. The audit included tests of controls and compliance with laws and regulations related to managing the Department-owned nuclear materials provided to non-Departmental domestic licensees. Because our review was limited it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our audit. We examined the establishment of performance measures in accordance with Government Performance and Results Act of 1993, as they related to the audit objective. We found that the Department had established performance measures related to removing or disposing of nuclear materials and radiological sources around the world. We utilized computer generated data during our audit and performed procedures to validate the reliability of the information as necessary to satisfy our audit objective. As noted in the report, we questioned the reliability of the NMMSS data.

Management waived an exit conference.

Appendix 2

PRIOR REPORT

Office of Inspector General Report

- *Accounting for Government-Owned Nuclear Materials Provided to Non-Department Domestic Facilities* (DOE/IG-0529, October 2001). This audit found that the Department of Energy could not fully account for nuclear materials loaned or leased to domestic licensees. The audit identified substantial amounts of nuclear materials that were reported to be at two licensed facilities that no longer existed, several licensee facilities that carried balances that were not logical and that could not be adequately explained or reconciled, and records that were incomplete in that they did not contain information on all Government-owned nuclear materials provided to licensees.

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Department of Energy
Washington, DC 20585

December 31, 2008

MEMORANDUM FOR GREGORY H. FRIEDMAN
INSPECTOR GENERAL

FROM: GLENN S. PODONSKY
CHIEF HEALTH, SAFETY AND SECURITY OFFICER
OFFICE OF HEALTH, SAFETY AND SECURITY

SUBJECT: COMMENTS FOR IG DRAFT AUDIT REPORT: "The Department's Management of Nuclear Materials Provided to Domestic Licensees" (Project Number A07PT022)

The Office of Health, Safety and Security (HSS) appreciates the opportunity to review the subject draft audit report provided by the Inspector General's (IG) Office on December 4, 2008. HSS agrees with the recommendations that the Department of Energy (DOE0, through its program offices, needs to further enhance its oversight and management of nuclear materials provided to domestic licensees. HSS also strongly concurs with the recommendation for additional oversight and confirmation of the Nuclear Materials Management and Safeguards System (NMMSS) material inventories on an annual basis.

HSS has been working with the DOE program offices, the Nuclear Regulatory Commission (NRC), and NRC licensees to ensure timely and accurate reporting of data to the NMMSS database. Additionally, HSS, through the NMMSS program, provides NMMSS user training annually and on request from the user sites. Below is the summary response to the findings and recommendations of the Draft report addressed to HSS.

The IG noted: *The Department did not have an accurate accounting of its nuclear materials held by or removed from a licensee's site.*

Since NMMSS is the U.S. national database used by DOE and the NRC for tracking certain nuclear materials, common reporting forms and formats are used to minimize the reporting burden on NRC licensees and DOE contractors. The NMMSS program has documented reporting requirements which are explicit about how change of ownership is reported and under what circumstance government-owned materials are removed from inventory and how to report these removals, two areas of difficulty highlighted in the draft report. These reporting requirements are promulgated through DOE policy for DOE program offices and contractors and NRC regulations for NRC licensees. The NMMSS relies upon the fact that facilities are required to submit complete and accurate records in accordance with policies, regulations, and contractual obligations. If non-Department domestic facilities do not report as required, or report inaccurate data, the NMMSS accounting will not agree with the facilities accounting. The NMMSS program has no authority to schedule or perform onsite confirmations of physical inventories or government-owned materials at licensee facilities. Material

Control and Accountability (MC&A) oversight activities at domestic licensees are the responsibility of the NRC and any DOE responsibilities would be enumerated in the contracts that DOE has with these licensees.

The IG also noted: *"...(2) the Department... agreed to write off large quantities of nuclear materials from its tracking system without sufficient knowledge of the ultimate disposition of the materials."*

As noted in the draft report, the NRC, in coordination with the DOE, undertook a one-time comprehensive confirmation of NMMSS inventory balances in 2004. Material Balance Reports were prepared by the licensee facilities to reflect the actual inventories of government-owned and private owned materials. These reported inventories were compared to the NMMSS generated inventories and all site-submitted correcting transactions were certified (confirmed) by signature of authorized officials subject to civil and/or criminal penalties. These correcting entries for government-owned materials predominantly involved government-owned leased or loaned special nuclear materials (SNM) at medical, universities and research facilities and source materials (normal and depleted uranium) awaiting final disposition at commercial waste processing facilities. Since August 2001, HSS has had broad responsibilities for loan/lease materials and therefore is the DOE program for approving those correcting transactions. Based on the work performed by the NMMSS program manager and information provided by the DOE program offices and the domestic licensees, the material at disposal facilities was appropriately dispositioned within NMMSS. Current NMMSS reporting instructions do not require either the DOE NMMSS program manager or the NRC program manager to re-approve facility approved and reported transactions and inventory data.

IG Recommendations:

To address the nuclear material accountability issues discussed in our report, we recommend that the Chief HSS Officer, in coordination with the responsible Department program officials:

Recommendation 1:

Conduct a confirmation of balances of Department-owned nuclear materials held by domestic licensees and establish a schedule for future periodic confirmations. The resulting information should be reconciled with NMMSS data and necessary correcting entries made, in conjunction with the justification and approval of either the responsible Departmental program office or the Department element responsible for NMMSS.

Recommendation 2:

Develop and implement enhanced procedures for the accounting of Department-owned nuclear materials. Including, but not limited to, establishing processes to:

a. *periodically confirm the continuing need for Department-owned nuclear material at domestic licensees; and*
b. *incorporate this information into Departmental material disposition and reutilization plans.*

Recommendation 3:

Develop and make available additional guidance on recording and reporting inventory transactions to all facilities that are in possession of Department-owned nuclear materials.

Response to Recommendations:

HSS agrees with recommendations 1 and 2 and believe the ongoing and planned activities will satisfy recommendations 1 and 2a. In addition to the corrective actions noted in the draft report, for the past twenty months, the HSS Office of Security Evaluations has used NMMSS generated information to routinely question the DOE facilities' MC&A program officials about the quantity and location of government-owned materials transferred from their respective facilities to licensee facilities. The intent is to ensure the facilities and programs at the facilities take ownership and management responsibilities for licensee continued use and disposition planning of these materials. This ongoing HSS action will complement and supplement the upcoming January 2009 NRC reporting changes by assuring the required DOE program interaction with the licensee facilities. We also recognize the need for the additional coordination efforts with the responsible Headquarters program offices and field entities to assure processes to ensure recommendation 2b is implemented.

HSS believes that recommendation 3 should focus on ensuring licensee facilities with government-owned materials are made aware of the available training and support for implementation of the existing guidance rather than developing and issuing additional guidance on recording and reporting inventory transactions. HSS agrees that DOE and NRC requirements for reporting source materials are confusing. Since DOE has no direct regulatory authority over these licensee facilities, the DOE program offices must ensure that future contracts with licensee facilities include provisions for explicitly stating inventory and transaction reporting requirements and other oversight functions for control of these government-owned materials.

The attachment to this memorandum contains a more detailed management analysis and response to this IG report. HSS believes that the implementation of the recommendations from the IG by DOE and the continued oversight provided by the HSS Office of Security Evaluations and the IG will continue to improve the Department's management of its nuclear materials.

If you have any questions regarding this response please do not hesitate to contact me at (301) 903-3777, or your staff may contact Mr. Ray Holmer, Director of Information Management at (301) 903-7325.

Attachment

cc: Rickey R. Hass, IG-30
Lesley A. Gasperow, HS-1.2

IG Report No. DOE/IG-0813__

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