

**Report of the Task Team Review of Changes to
DOE NMMSS Requirements
To Achieve More Unified DOE/NRC NMMSS
Reporting Instructions**

November 2005

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1. Executive Summary

A task team has conducted a review of DOE NMMSS reporting requirements in pursuit of the objective of reducing DOE and NRC NMMSS reporting differences and to update the NMMSS to reflect the DOE's current material accounting information needs. The review has led to either the elimination or change in certain reporting requirements and has identified other requirements that could lead to further changes in facility reporting. Some changes have already been made as the result of this review and are contained in DOE M 470.4-6, Nuclear Material Control and Accountability, approved August 26, 2005. Other changes will be proposed, and when approved issued as page changes or included in future revisions to the directive.

2. Introduction

A task was initiated in March 2005 by DOE SP-70, previously SO-20.3, to identify and evaluate the reporting requirements that exist in the DOE and NRC NMMSS instructions and to pursue eliminating to the maximum practical degree the differences that exist in order to develop a more unified set of instructions. A task team was named and charged with the responsibility of conducting the analysis and reporting back to the system sponsors in the DOE and the NRC.¹ In addition to seeking to unify the reporting instructions the team was also charged with identifying other changes that could be made in the DOE NMMSS instructions to eliminate legacy reporting requirements that are not consistent with today's needs.

¹ Refer to Appendix .

3. Scope

The task covered reporting to the NMMSS by U.S. facilities that possess nuclear material. It covered all nuclear material located at DOE facilities regardless of ownership. It also covered DOE owned nuclear material located at licensee facilities.

4. Process Steps

The first step in the process was to review the current DOE and NRC instructions to identify any significant differences. Where differences were identified, the task team evaluated the reasons for the differences and where appropriate proposed changes to requirements, including deleting instructions where the need no longer existed. For instances where the needs of DOE and NRC are clearly different and no single approach was identified to meet the needs of both organizations, the task team recommended maintaining different instructions. Understandably, the DOE has valid requirements that do not exist at licensee sites. As an example, the DOE has weapons stockpile information and the NRC does not.

The review also included a study of the history of NMMSS development and changes made since it was put into effect in the late 1960s. As an example, the addition of material types in 1974 was reviewed to examine the rationale for the additions and a determination as to whether the need for the data exists today and whether a continuing need is anticipated. The history of the NMMSS development and subsequent expansions mirrored the growth of the AEC/ERDA/DOE programs in high enriched uranium and plutonium of the 1970s and 1980s. It follows that the NMMSS must be shaped by the changes that have taken place since that time and that are continuing to occur.

Other review steps included progress briefings and receipt of feedback from various NMMSS reporting and user entities and revising decisions as appropriate. The following meetings were held at which the unified reporting task was on the agenda:

- MC&A Quality Panel meeting, April 5-7, 2005
- NMMSS Users Meeting, May 24-26, 2005
- Meeting at USEC Headquarters, August 9, 2005
- Meeting in Pittsburgh with software developers, Standish Technologies and Westinghouse Nuclear Fuel, August 11, 2005
- NMMSS developers meeting in Columbia, SC, September 26-29, 2005

In addition, three meetings were held in Atlanta in which the unification task was the exclusive topic.

These meetings helped refine the proposed NMMSS changes, identified new proposed changes and facilitated consensus building among the members of the NMMSS community.

Inasmuch as the DOE Office of Security Policy, SP-61, previously SO-10.1, was in the final stages of preparing a revision to the DOE Nuclear Material Control and Accountability manual containing NMMSS reporting instructions, every effort

was made to incorporate changes in that revision before the directive was issued. The changes made were called “low impact” changes, meaning that there was low to zero impact on the reporting facilities as a consequence of the changes. No additional concurrences were needed in the opinion of the policy office. That directive is DOE M 470.4-6, Nuclear Material Control and Accountability, approved August 26, 2005. Changes incorporated in that revision are described in Section 6, below.

5. Schedule

The following schedule of milestones was developed for the task:²

- Task team established in March 2005
- Make low impact changes in the current draft, July 2005
- Task team recommends other changes by September 2005 to be implemented in the next revision of DOE M 470.4-6.³
- SP-70 issues recommended changes to DOE Headquarters program managers by December 2005
- Recommendations are finalized by SP-61 in January 2006
- Changes are implemented in April 2008

² The schedule is sufficiently flexible to permit slippage and still meet the April 2008 implementation date for the more significant changes.

³ To the extent possible, fast track changes will be made as page revisions as changes are approved.

6. Changes Identified and Implemented in Fiscal Year 2005

In June 2005 it was concluded that a number of low impact, non-controversial changes could be made immediately in the reporting instructions. It was further believed that these changes could be processed without delay by SP-61 for inclusion in the revision to the NMMSS reporting instructions that had just received DOE concurrence. SP-61 staff agreed with this approach and inserted the desired changes in the revision. The changes made are described below and are contained in the August 26, 2005 issuance.

a. Delete the special meaning of the three-character RIS letters

Justification: Each of the characters of a RIS were intended to have a special meaning. The first character was to identify the responsible field element. Reorganizations in the Department have changed the assignment of facilities to different field elements over time. In addition, there are alphabet limitations (A through P) that preclude identifying DOE field elements with the first letter and maintaining the identification over time. The second and third letter meanings, representing cost center identity and CFR exemption, respectively, are no longer important to the DOE. The current DOE M 470.4-6 no longer contains special meaning for the individual RIS letters. Rather, the RIS letters merely represent an account number for the facility.

It is important to note that the NRC has not assigned special meaning to the licensee RISs, letters X-Z.

b. Discontinue Berkelium reporting in NMMSS

Justification: DOE programs no longer desire periodic data reports and the material is not required by the NRC to be tracked in NMMSS by licensees if the material is privately owned.⁴

Berkelium was added to the NMMSS as an accountable material in 1974 at a time when tracking the material was considered important. The use of the material never rose to the level of expectations that would warrant tracking in the NMMSS.

⁴ Other materials under consideration for deletion have been studied and the status of each is contained in Section 7, below.

c. Discontinue the requirement to report inventory difference (ID) explanation data to NMMSS

Justification: It is the general consensus of DOE MC&A organizations that ID explanations at the RIS level are not meaningful for many RISs. Most analyses of inventory differences can best be conducted at the material balance area (MBA) level. Therefore, ID explanations required in the past have not been useful. Currently, the NMMSS does not contain MBA level inventory data.

It should be noted that the NRC does not require inventory difference explanation data to be reported to the NMMSS.

d. Change the requirement for submission of receipt transactions on imports from 3 days to 10 days

Justification: This change makes the DOE requirement the same as that of the NRC.

e. Delete the requirement to report variable tails assay option code

Justification: The variable tails assay option code has been used by the uranium enrichment plants and was required reporting when the uranium enrichment function was owned and managed by the DOE. Since the function is now privately owned and operated and since the DOE does not require the data to be collected by the NMMSS, the requirement in NMMSS may be deleted.

The NRC does not require reporting of the code.

f. Unless required more frequently by the oversight office, require annual submission of inventory data each September 30 with a due date no later than October 15; and annual reconciliation of the September 30 inventory

Justification: Prior to the change, sites were required to submit inventory quarterly and to reconcile as of September 30 and March 31. It has been determined by DOE program managers that less frequent data reporting would meet their needs. Facilities may continue to submit more frequent inventory reports if they desire.

NRC licensee reporting is generally once per year.

g. Reduce the requirement for reporting radioactive decay to a frequency no less than annually with the inventory submission

Justification: It has been determined by DOE program managers that less frequent reporting would meet their needs. Facilities may continue to submit more frequent decay data if they desire.

NRC licensee reporting is generally once per year.

7. Other Changes Being Considered by DOE

The task team identified a number of other desired changes that required more study or needed concurrences from organizations most affected by the changes before the changes would be ready to implement. It is believed that some of the changes will have to await the next general revision of the MC&A Manual. However, there are other changes that can be made sooner as page changes. The decision as to how best to process the desired changes will be made by SP-61.

Information on each of the desired changes is presented below.

a. Discontinue reporting Government Owned Curium and Californium

Justification: The NRC does not require reporting data on these materials at licensee sites if the material is privately owned.

Action: Initially there seemed to be little justification for the data, however, two organizations subsequently indicated a continuing need. A decision will be made by the DOE NMMSS sponsor as to whether the data will continue to be collected for the NMMSS.

b. Report enriched uranium inventories in the four assay ranges used by NRC; eliminate assay range reporting for other materials

Justification: DOE program managers no longer need reporting for so many assay ranges.

The change will align the DOE assay range reporting requirement with that of the NRC (i.e.: E1 greater than normal but <5%, E2 5% or more but <20%, E3 20% or more but <80%, E4 80% or more).

Action: The task team recommends this change be made as a page change in DOE M 470.4-6. No other actions are required.

c. Study the DOE and NRC policy for requiring limits of error on transfers of SNM and Tritium and pursue with the NRC the development of common requirements

Justification: Alignment with NRC requirements.

Action: The task team recommends the DOE requirements be made to agree with those of the NRC. This means discontinuing limits of error on Tritium and adopting the NRC language on SNM limits. No other actions are required.

The NRC language is shown below:

Limits of error are to be at the 95% confidence level, propagated by the uncertainties of the weight measurement, the chemical analysis, and the sampling method.

d. Eliminate the use of the fourth character of a disposition RISs ending A, G, I, or R

Justification: These disposition RIS codes (ending in A, G, I, or R) do not represent balances of waste material in a physical location but rather losses that cannot be retrieved. No data will be lost by making this change. The losses previously captured in these RISs will be captured as operating losses.

Action: The task team recommends the characters other than “H” and “L” be removed as disposition RIS options. The DOE sponsor may choose to have the NMMSS operator work with facilities to delete current balances in the codes that are to be discontinued.

e. Reporting transfers and inventories of source material: (a) Discontinue unless reporting is required by IAEA or Agreements for Cooperation (b) Discontinue if possession is <10 metric tons (c) No change if the facility is an enrichment, MOX, or HEU blending facility⁵

Justification: DOE headquarters use of inventory data on source material is very limited. However, recently staff of the NRC have indicated that there are internal discussions about possibly requiring the reporting of source material under certain circumstances.

Action: The task team recommends the DOE wait for NRC decision on source reporting requirements and adopt a similar position.

⁵ Other facilities may be added.

f. Discontinue INMTS procedures and cover needed international data requirements in the DOE NMMSS reporting instructions⁶

Justification: Existing instructions are not contained in the DOE NMMSS instructions but are in an unofficial 1995 document prepared by DOE/OR and are out of date. DOE/OR no longer has the responsibility for the INMTS procedures.

Action: NAC staff prepared a draft revision to the NMMSS instructions that would add the INMTS reporting instructions to the next revision of DOE M 470.4-6, Nuclear Material Control and Accountability.

g. Delete from reporting instructions the descriptions of 741 data distributions by NMMSS staff to secondary recipients (741 Secondary Distribution)

Justification: Distribution of periodic 741 data is an internal function of the NMMSS organization and is a requirement laid on that organization alone.

Action: The task team recommends the deletion of secondary report distribution provisions from the NMMSS instructions in DOE Manual 470.4-6.

h. Simplify project number design and project number transfers: study the system called “STARS” to determine its effects, if any, on project number design

Justification: Reduce the complexity and related error rate in project number reporting. Errors related to project number data submitted to the NMMSS are among the highest identified by edit programs.

Action: The task team will develop a new project number table and project number transfer procedure concurrent with the availability of information on “STARS.”

i. Replace the nine TI codes with a single code to indicate a change in ownership

⁶ INMTS is concerned with DOE exports made without an NRC export license.

Justification: The need for the level of detail provided by use of the nine codes no longer exists.⁷

Action: After review the task team recommends that this change not be made, users of the information have been identified.

j. Eliminate the requirement to use the “For” and “To” account data in 741 reporting

Justification: Align reporting to NRC reporting.

Action: The task team has determined that this information is still being used and recommends that they remain available.

k. Revise the DOE composition codes considering the IAEA Code 10 as a start; also eliminate ANSI scrap codes

Justification: Material characteristics reflected in the code table do not match current information needs and should be updated to match current needs.

Action: This is a complex task and the task team is deferring action at this time.

l. Adopt the NRC and IAEA coding of “From Other Materials” and “To Other Materials” using alpha codes in MBR lines 22 and 71 (used in blending and crossover reporting)

Justification: Using standard coding would lessen confusion in NMMSS reporting.

Action: Before the change can be made, it will be necessary to determine if a new alpha code for cascade uranium crossover reporting to the IAEA is required. Also, it will be necessary to determine what effect the use of alpha codes will have on DOE facilities (Pu blending). The task team recommends this item be placed on hold until these two events are resolved.

⁷ A-initiates loan/lease, B-Transfers loan/lease, C-Transfer of leased/loaned material with no change in loan/lease responsibility, D-Return of leased/loaned material to DOE/NNSA for credit, E-sale for DOE/NNSA, F-Pursuant to an enriching service agreement, G-Sale to DOE/NNSA, R-Transfer from DOE/NNSA to private inventory other than by sale or enriching service, S-Transfer from private to DOE/NNSA inventory other than by sale or enriching service agreement.

m. Eliminate the reporting of approved write-offs in 741 and MBR reporting

Justification: Align requirements with those of the NRC.

Action: The task team recommends the change be made in the next revision of DOE M 470.4-6.

n. Eliminate the requirement for facilities to establish with the NMMSS operator an inventory profile

Justification: Align requirements with those of the NRC.

Action: The task team recommends the change be made as a page change in the manual.

o. Evaluate the requirement to report transfers of depleted uranium waste between waste RISs unless an international reporting obligation is attached to the material

Justification: There is no domestic or international safeguards need for the data. (Note: EM strongly encourages the reporting to NMMSS all waste material transfers.)

Action: The task team did not reach a conclusion on this item and any actions have been deferred.

p. Require DOE sites to submit inventory data by item and by MBA

Justification: Detailed data submission is being discussed by DOE/NNSA program managers. Currently facilities may report summarized data.

Action: The testing of this item has been indefinitely delayed. The task team recommends waiting until the testing occurs and the results are evaluated before recommending changes be made in NMMSS reporting instructions.

q. Standardize definitions on terms used by DOE and NRC, e.g., inventory difference or material unaccounted for

Justification: Align requirements with those of the NRC.

Action: The task team has initiated development of a glossary of NMMSS terms.

r. Evaluate submission of data in a standardized reporting unit, e.g., gram for all uranium and possibly other materials

Justification: Uranium enriching, fuel fabrication and power reactor accounting rounding problems are aggravated by having to convert uranium values to kilograms from grams or grams to kilograms.

Action required by the task team: The task team recommends that NMMSS allow (not require) data for source material to be reported with more precision, up to 3 places to the right of the decimal. Due to current system limitations, this would be implemented for XML reporting with the NMMSS upgrade.

s. NMMSS should generate the foreign side of an export and close the transaction; and modify the open transaction report to suppress exports (decision on closing historic international open transactions still to be made)

Justification: Requiring facilities to submit both sides of an export transaction is redundant unless the shipper and receiver values differ significantly.

Action required by the task team: The task team recommends the NMMSS operator be tasked to modify the open transactions report to delete open export transactions. The task team further recommends the NMMSS operator be tasked by DOE and NRC to coordinate with facilities the submission of transaction data to close all historic open transactions involving exports and imports.

Appendix

Unification Task Team Sponsor Leadership

- Peter Dessaulles, DOE
- Timothy Beckham, DOE
- Brian Horn, NRC
- Larry Harris, NRC

Unification Task Team established March 2005

- Garland Proco, consultant, Team Leader
- Debarah Smith, DOE
- Dan Collier, Tina Barnett, Ron Bonifay representing the NMMSS operating contractor, NAC International
- Obed Cramer representing the NMMSS developer, Savannah River Site

Task Team additions after the NMMSS Users Meeting in May 2005

- Steve Battle and Tim Strickland of USEC
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- Barry Cooney, Westinghouse Nuclear Fuel
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- Carol Raeder, DOE/SP
- Robert Post, Entergy
- Giancarlo Delfini, Entergy