

POLICY ISSUE INFORMATION

January 8, 2008

SECY-08-0005

FOR: The Commissioners

FROM: Luis A. Reyes
Executive Director for Operations

SUBJECT: RESULTS OF MATERIAL CONTROL AND ACCOUNTING BASELINE
INSPECTIONS CONDUCTED AT NUCLEAR POWER REACTORS AND
WET STORAGE SITES

PURPOSE:

The purpose of this paper is to provide the results of the baseline inspections conducted under Phase III of Temporary Instruction (TI) 2515/154, "Material Control and Accounting at Nuclear Power Plants and Wet Storage Sites." This paper does not address any new commitments or resource implications.

BACKGROUND:

TI 2515/154 was developed by the staff in November 2003 in response to material control and accounting (MC&A) issues identified at the Millstone Unit 1 nuclear power plant, where failure to maintain control and accountability of nuclear material as required by regulation led to loss of control of two irradiated fuel rods. The TI called for review of licensees' MC&A programs in three phases. The purpose of the TI was to perform reviews of licensees' MC&A programs to determine the extent to which problems identified at Millstone existed at other facilities. Phases I and II were conducted at each site by the Regions (generally by Resident Inspectors) and

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were designed to gather general information concerning the licensee's MC&A program. Phase III was designed to provide an in-depth review of MC&A programs at a minimum of 12 licensee sites. Control and accounting problems identified during Phase III inspections at 12 operating power reactor sites and 1 decommissioning site led staff to commit (SECY-06-0079, "Results of Material Control and Accounting (MC&A) Inspections Conducted at Power Reactors," dated April 4, 2006, ML060410096) to expand Phase III to cover all remaining operating power reactors, decommissioning reactors storing fuel in a spent fuel pool, and other facilities with wet storage of spent or irradiated fuel. Initial plans called for completing the remaining inspections (53 power reactor sites, 2 decommissioning sites, 4 wet storage facilities) within three years. Identification of more control and accounting issues as sites were inspected, led staff to accelerate the inspection schedule to ensure that all remaining inspections could be completed by the end of September 2007. Prior to accelerating the inspection schedule, Office of Nuclear Security and Incident Response (NSIR) staff conducted an industry workshop to discuss with power reactor licensees the lessons learned from the previous MC&A inspections.

DISCUSSION:

All TI 2515/154 Phase III onsite inspection activities were completed on July 18, 2007, and the last two inspection reports were issued on September 25, 2007. The initial 21 inspections under the TI were conducted by experienced NSIR MC&A inspectors. Inspections under the accelerated schedule were conducted by NSIR MC&A inspectors with the assistance of re-hired annuitants (most of whom were retired NRC Resident Inspectors) and Regional Inspectors, who received extensive training conducted by the NSIR MC&A Inspection Team in order to cross-qualify them for MC&A inspection activities.

In total, Phase III inspections were conducted at 65 operating power reactor sites, 3 decommissioning reactor sites with fuel remaining in their spent fuel pools, and 4 other sites storing spent or irradiated fuel. The Millstone Unit 1 inspection, which was conducted prior to TI 2515/154, brings the total number of MC&A inspections conducted to 73. Because no Significance Determination Process (SDP) existed for the MC&A area, any violations of the MC&A regulations (Title 10 of the *Code of Federal Regulations* Part 74, "Material Control and Accounting of Special Nuclear Material") applicable to power reactors and wet storage sites were assigned severity levels (SL) in accordance with the NRC Enforcement Policy using traditional enforcement as approved in the Staff Requirements Memorandum (SRM) to SECY-05-0080, "Proposed Use of Traditional Enforcement for Vermont Yankee's Spent Fuel Pool Issues" (ML051190486). Information concerning the findings is presented in detail in the Enclosure and its Attachments. Numbers of sites inspected (inspection reports) and the SL of inspection findings are summarized in the following table:

| | | |
|--------------------------------|----|--|
| Operating Power Reactors | 15 | No Findings |
| | 31 | One SL IV Violation |
| | 14 | Two SL IV Violations |
| | 1 | Three SL IV Violations |
| | 2 | SL III Violation without Civil Penalty |
| | 1 | SL III Violation with Civil Penalty |
| | 1 | SL II Violation with Civil Penalty |
| Decommissioning Power Reactors | 2 | SL IV Violation |
| | 2 | SL II Violation with Civil Penalty |
| Other Wet Storage | 2 | No Findings |
| | 2 | SL IV Violation |

In April 2007, MC&A was incorporated into the security cornerstone inspection program of the Reactor Oversight Process (ROP). As a result of the lessons learned from the TI Phase III activities, the staff is revising the inspection procedure for MC&A at power reactors. The Regions will perform future MC&A inspections as part of the security and safeguards baseline inspection program. The staff will also revise the regulatory guidance for MC&A at power reactors (Regulatory Guide (RG) 5.29, "Nuclear Material Control Systems for Nuclear Power Plants," and RG 5.49, "Internal Transfers of Special Nuclear Material") to clarify that the regulations apply to all items containing special nuclear material (SNM). This is consistent with the commitments made by the NRC in response to the U.S. Government Accountability Office (GAO) report GAO-05-339, "NRC Needs to Do More to Ensure that Power Plants Are Effectively Controlling Spent Nuclear Fuel."

The staff is also developing an SDP for MC&A inspection findings to fully integrate MC&A into the ROP. This is consistent with the Commission direction in SRM-SECY-05-0082, "Revised Assessment Process for Security Cornerstone of the Reactor Oversight Process" (ML052280031). This activity will be conducted with public participation to the degree possible given the subject matter.

Finally, a working group comprised of NRC, Department of Energy, and industry representatives that assumed responsibility for revising the national standard American National Standards Institute (ANSI) N15.8, "Nuclear Material Control Systems for Nuclear Power Plants," held its final meeting on October 2, 2007. A final draft of the standard was submitted to the ANSI N15 Standards Committee on October 23, 2007. The staff plans to endorse the revised ANSI N15.8 in RG 5.29. This standard provides a foundation for developing licensees' MC&A programs in that it establishes guidelines for controlling and accounting for SNM at nuclear power plants.

CONCLUSION:

The inspection results support the decision in SECY-05-0082 to continue implementation of periodic inspections of 10 CFR Part 50 licensees' MC&A programs as part of the ROP.

The Commissioners

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COORDINATION:

The Office of the General Counsel reviewed this package and has no legal objection.

/RA/

Luis A. Reyes
Executive Director
for Operations

Enclosure:
Results of TI 2515/154 MC&A Inspections
Conducted at Nuclear Power Plants and
Wet Storage Sites

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COORDINATION:

The Office of the General Counsel reviewed this package and has no legal objection.

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Enclosure:

Results of TI 2515/154 MC&A Inspections
Conducted at Nuclear Power Plants and
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|--------|------------|--------------|-----------------------------|----------|----------|
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