
TEMPORARY INSTRUCTION 2515/179

VERIFICATION OF LICENSEE RESPONSES TO NRC REQUIREMENT FOR INVENTORIES OF MATERIALS TRACKED IN THE NATIONAL SOURCE TRACKING SYSTEM PURSUANT TO TITLE 10, CODE OF FEDERAL REGULATIONS, PART 20.2207 (10 CFR 20.2207)

APPLICABILITY: 2515; All U.S. Nuclear Regulatory Commission (NRC) Part 50 licensees who have in their possession nationally-tracked sources, as defined in 10 CFR 20.2207.

2515/179-01 OBJECTIVES

01.01 To physically confirm that the inventories of materials possessed by NRC licensees were appropriately reported and documented in the National Source Tracking System (NSTS) in accordance with 10 CFR 20.2207.

01.02 To obtain other administrative and technical information concerning the licensee's possession of materials required to be documented in the NSTS. This objective supports NRC oversight of the operation of NSTS.

2515/179-02 BACKGROUND

The NSTS is operated by a contractor on behalf of the NRC. NSTS serves as the U.S. Government's information system for current and historical data on the manufacture, receipt, shipment, and endpoints of nationally tracked sources. For the purposes of this TI, the term "nationally tracked source(s)" is defined as material possessed pursuant to a license from NRC that is subject to NSTS tracking and/or reporting requirements (i.e., category 1 and 2 sealed sources).

NRC licensees were required by 10 CFR Part 20, to submit to the NSTS the initial inventory by January 31, 2009, and to thereafter submit reports to NSTS if they manufacture, ship, receive, disassemble, or dispose of, sealed sources that contain materials that are equal to or greater than the quantities shown in the following table:

Appendix E to Part 20--Nationally Tracked Source Thresholds

The Terabecquerel (TBq) values are the regulatory standard. The curie (Ci) values specified are obtained by converting from the TBq value. The curie values are provided for practical usefulness only and are rounded after conversion.

Radioactive material	Category 1 (TBq)	Category 1 (Ci)	Category 2 (TBq)	Category 2 (Ci)
Actinium-227	20	540	0.2	5.4
Americium-241	60	1,600	0.6	16
Americium-241/Be	60	1,600	0.6	16
Californium-252	20	540	0.2	5.4
Cobalt-60	30	810	0.3	8.1
Curium-244	50	1,400	0.5	14
Cesium-137	100	2,700	1	27
Gadolinium-153	1,000	27,000	10	270
Iridium-192	80	2,200	0.8	22
Plutonium-238	60	1,600	0.6	16
Plutonium-239/Be	60	1,600	0.6	16
Polonium-210	60	1,600	0.6	16
Promethium-147	40,000	1,100,000	400	11,000
Radium-226	40	1,100	0.4	11
Selenium-75	200	5,400	2	54
Strontium-90	1,000	27,000	10	270
Thorium-228	20	540	0.2	5.4
Thorium-229	20	540	0.2	5.4
Thulium-170	20,000	540,000	200	5,400
Ytterbium-169	300	8,100	3	81

[71 FR 65686, November 8, 2006]

In addition, the NRC licensees, starting in 2010, are required to reconcile their inventories of nationally tracked sources each year during the month of January with the database records.

The events of September 11, 2001, heightened the Nation's concerns about the possible use of radioactive material for malevolent acts. In May 2003, the U.S. Department of Energy (DOE)/NRC Working Group (WG), convened to study these concerns, issued its report. The WG generated a list of radionuclides and thresholds above which tracking of the sources was recommended. A similar study, undertaken by the International Atomic Energy Agency (IAEA), created a list of radionuclides and thresholds very similar to the DOE/NRC list. The IAEA defined a source categorization

scheme that is incorporated in the *Code of Conduct for the Safety and Security of Radioactive Sources* (January 2004). This document is available at: http://www-pub.iaea.org/MTCD/publications/PDF/Code-2004_web.pdf.

The NRC adopted this recommendation in its directive to the staff, SRMCOMSECY-03-0010, updated most recently in SRM-M040309A, dated March 12, 2004. The NRC began activities needed to develop and implement sealed source tracking regulations and the NSTS in late 2003. The Energy Policy Act of 2005 codified the requirement for a National Source Tracking System.

The final rule for NSTS, 10 CFR 20.2207, was issued on Nov. 8, 2006. The rule was amended on October 19, 2007, to revise the compliance date to January 31, 2009.

The Temporary Instruction (TI) is to confirm that licensees have reported their initial inventories of sealed sources pursuant to 10 CFR 20.2207 and to verify that the NSTS database correctly reflects the category 1 and 2 sealed sources in custody of the licensees. In addition, inspections conducted in accordance with this TI will verify that certain administrative information in NSTS is accurate.

2515/179-03 INSPECTION REQUIREMENTS

03.01 Initial Meeting with Licensee. Licensees who are to be inspected under this TI will be those who possess nationally tracked source(s). Facilities inspected under this TI will be NRC licensed facilities that hold an NSTS account. Licensee contacts and entrance/exit meetings will be held consistent with ROP inspection practices.

03.02 Inventory Verification. NSTS tracks quantities of nationally tracked source(s) by the radionuclide, make, model number, and serial number of each source. In preparing for each inspection, the inspector(s) should obtain a copy of the licensee's NSTS inventory from the licensee's NSTS account, for comparison with the licensee's own inventory records, and for comparison to a physical inventory where practicable. NRC inspector(s) shall obtain the licensee's NSTS inventory by either requesting a copy from the licensee or contacting Regional staff with NSTS access. During the inspection, the inspector(s) should obtain a copy of the licensee's inventory, and be prepared to perform a physical inventory, if practicable, of items to validate the NSTS inventory during the inspection. The inspector(s) may announce any inspection conducted under this TI to ensure that cognizant licensee personnel are available.

- a. Verify the information listed on the licensee's inventory record by performing a physical inventory, if practical, at the licensee's facility and (if practical) visually identifying each item listed on the licensee's inventory. If the licensee possesses a large number of sources and/or devices, a suitable fraction of these items should be selected at random for physical verification. If the licensee possesses 20 or fewer items, all items should be selected.
- b. If appropriate, verify the presence of the nationally tracked source(s) with an appropriate radiation survey instrument. The intent of the measurement is to

verify the presence of radioactive material rather than to determine the quantity of material present. The inspector(s) should not ask licensee personnel to open any container or otherwise change the container's shielding to facilitate this survey.

- c. During the physical inventory, examine the physical condition of devices and/or containers containing nationally tracked source(s); evaluate the effectiveness of the licensee's procedures for secure storage and handling of nationally tracked source(s); discuss the licensee maintenance of devices containing nationally tracked source(s), including leak tests, and verify that the licensee is performing maintenance as required; and determine if the posting and labeling of nationally tracked source(s) are adequate.
- d. Review licensee records documenting transactions of subject sources, and compare these records with the data from the licensee's NSTS inventory. The inspector(s) should evaluate the effectiveness of licensee procedures for updating inventory records as the result of these types of transactions and document any apparent discrepancies.

NRC staff, consistent with the guidance in Inspection Manual Chapter (IMC) 2515, "Light Water Operating Reactor Inspection Program" should discuss any observed NSTS discrepancies with licensee personnel and document any potential violations appropriately. If discrepancies exist between the licensee's inventory records and the NSTS-generated inventory, licensee personnel should be reminded that 10 CFR 20.2207(g) requires, in part, that any errors or missed transactions be corrected within 5 business days of their discovery. The inspector(s) should review the NSTS following the inspection to ensure that required corrections are made.

NOTE: The inspector(s) must be cautious with regard to handling licensee information that may be classified, sensitive, or proprietary.

NOTE: The performance goal associated with the inspection is public health and safety for the nationally tracked source(s). However, if health and safety or security findings involving other NRC-licensed materials are identified, the inspector(s) should follow the normal inspection procedures for following up on such items.

03.03 Determine the Location of Unaccounted-for Nationally tracked source(s). The licensee is responsible for ensuring adequate security and accountability for nationally tracked source(s). If the licensee cannot immediately locate or account for nationally tracked source(s) during the inspection, the inspector(s) should discuss what actions the licensee may take to search for the material. For the purposes of this TI, unaccounted-for material involves only nationally tracked source(s) that the licensee believed to be on the site.

- a. Review a sample of available history (e.g., leak tests, inventory records, utilization logs, etc.) to help determine the areas where nationally tracked source(s) may have been used or stored. Interviews with licensee personnel

who may remember using or storing nationally tracked source(s) could provide valuable information. The inspector(s) should examine a sample of these areas to determine if the licensee does, in fact, still possess the unaccounted-for material. The inspector(s) may determine the need to use appropriate radiation survey instruments when examining these areas.

- b. If the licensee shipped unaccounted-for nationally tracked source(s) without proper documentation, discuss what actions the licensee plans to take to determine the location of the material and, if possible and appropriate, to retrieve the material. The ability to retrieve the material will depend on the date of the transfer, the purpose of the transfer (sale, transfer of surplus, disposal), the business of the transferee, and the availability of information.
- c. If the licensee transferred nationally tracked source(s) to a person not authorized to possess or use the material, obtain as much information as possible regarding the name and location of the transferee, as well as contact information for any individuals (e.g., licensee personnel, transport personnel) who would have knowledge of the transferred nationally tracked source(s).

In any case involving lost or stolen nationally tracked source(s), the inspector(s) should immediately contact responsible NRC Regional management. Concurrently, the inspector(s) should inform licensee management and remind them of the licensee's responsibility to immediately notify the NRC of lost or stolen nuclear material in accordance with 10 CFR 20.2201. The inspector(s) should collect sufficient information to support potential short-term NRC regulatory actions, such as the preparation of a confirmatory action letter or an Order, and potential long-term escalated enforcement actions.

03.04 Review of Other Administrative Information. Since inspections and other face-to-face meetings with many licensees may be infrequent:

Review administrative information listed in the NSTS inventory with licensee personnel to ensure that the information is up to date. This information includes, but is not limited to:

- mailing address;
- physical or shipping address (for transmitting information via non-postal methods that cannot use a post office box);
- telephone number, FAX number, and e-mail address for primary technical point of contact;
- telephone number, fax number, and e-mail address for primary management point of contact;
- the license numbers of NRC licenses that authorize the possession of nationally tracked source(s).

NOTE: The inspector(s) should note any corrections or revisions that are needed. Only NRC personnel with a NSTS account can change administrative information in the NSTS; the licensee cannot change administrative information.

Since the resident inspectors will not have NSTS accounts, any corrections or revisions that are needed should be communicated to regional staff with NSTS account access.

2515/179-04 INSPECTION GUIDANCE

All inspection guidance is located in the Inspection Requirements Section 03 of this TI.

2515/179-05 REPORTING REQUIREMENTS

Inspections conducted under this TI are to be documented in accordance with the guidance in IMC 0612 "Power Reactor Inspection Reports".

Since inspection findings and much of the data used in this inspection may be sensitive, or proprietary, inspector(s) must appropriately protect inspection documentation. NRC inspector(s) should ensure that inspection results placed in ADAMS will be appropriately categorized as "non-publically available" or "publically available" documents. For example, TI completion with no issues or no documented observations should be publicly available. Conversely, any inspection that results in issues or observations that would contain OUO-security related information should be non-publically available and documented in accordance with the guidance in IMC 0612 "Power Reactor Inspection Reports".

2515/179-06 COMPLETION SCHEDULE

Complete all applicable inspection requirements by 06/30/2011. It is recommended that Divisional management within the Regions decide which staff should perform this TI (e.g., resident inspectors, region based inspectors).

2515/179-07 EXPIRATION

This TI will remain in effect until 12/31/2011.

2515/179-08 CONTACTS

Please contact one of the following individuals regarding any questions you may have concerning this TI.

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Source Management and Protection Branch

Division of Materials Safety and State Agreements
Office of Federal and State Materials and Environmental Management Programs
Mail stop: T-8E24

2515/179-09 STATISTICAL DATA REPORTING

Direct inspection effort (DIE) in implementing this TI should be charged to TI 2515-179. An IPE code of TI should be used for all DIE and an IPE code of TIP and TID for any indirect inspection effort (IIE) for preparation and documentation respectively.

2515/179-10 ORIGINATING ORGANIZATION INFORMATION

10.01 Organizational Responsibility. The development of this TI was coordinated with the Source Management and Protection Branch, Division of Materials Safety and State Agreements, Office of Federal and State Materials and Environmental Management Programs. Assistance in developing this TI was provided by the Materials Security and Industrial Branch, and the Commercial and R&D Branch, both in the Division of Nuclear Materials Safety, Region I.

10.02 Resource Estimate. The average direct inspection effort (DIE) per site is expected to be approximately 5 hours. Inspections at specific sites may require substantially more or less time, depending on the circumstances and/or the scope of the licensee's program.

10.03 Other. None.

10.04 Training. This TI should be completed by Inspector(s) qualified under IMC 1245 or IMC 1246.

END

Revision History for
Temporary Instruction 2515/179

Commitment Tracking Number	Issue Date	Description of Change	Training Needed	Training Completion Date	Comment Resolution Accession Number
N/A	02/02/10 CN 10-004	To physically and administratively confirm that the inventories of materials possessed by NRC licensees were appropriately reported and documented in the National Source Tracking System (NSTS) in accordance with 10 CFR 20.2207.	No	N/A	ML092740530