

Example\*

United States Government

Department of Energy

**memorandum**

DATE: Month xx, 20xx

REPLY TO  
ATTN OF: XX:xxxxSUBJECT: **END-OF-FISCAL YEAR 20xx NUCLEAR MATERIAL INVENTORY ASSESSMENT**

TO: DOE Headquarters Nuclear Materials Manager

Reference is made to your memorandum of Month xx, 20xx, *Guidance for the Nuclear Material Inventory Assessment for September 30, 20xx, Inventories*.

As requested in the referenced memorandum, the Department of Energy, \_\_\_\_\_ Office has completed its end-of-fiscal year (EFY) 20xx Nuclear Material Inventory Assessment (NMIA).

As discussed with your staff, we are submitting our NMIA as five separate files on the attached CD. Some of the files contain classified data as follows:

\_\_\_\_\_

If you have any questions concerning this subject, please contact \_\_\_\_\_ at (\_\_\_\_) \_\_\_\_-\_\_\_\_.

Name  
Title

Attachment: EFY 20xx NMIA for \_\_\_\_\_ (U)

**\*Note:** Other methods of transmitting the NMIA data to Headquarters (e.g., e-mail) are acceptable as long as the data is properly protected according to its classification level.



# **Nuclear Materials Inventory Assessment (NMIA) Guidance for End-Of-Fiscal-Year (EFY) 2006**

Prepared by:  
Department of Energy  
National Nuclear Security Administration  
Defense Programs  
Office of Stockpile Technology (NA-123)

September 30, 2006



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**ACRONYMS**

ANSI	American National Standards Institute
B&R	budget and reporting
COEI	composition of ending inventory
CREM	Classified Removable Electronic Media
DOD	Department of Defense
DOE	Department of Energy
DP	Office of Defense Programs (NA-10)
DRIS	disposition reporting identification symbol
EFY	End of Fiscal Year
EM	Office of Environmental Management
FY	Fiscal Year
HEU	highly enriched uranium
IDES	item description
LRIS	location reporting identification symbol
MD	Office of Materials Disposition (NA-20)
MTC	material type code
NE	Office of Nuclear Energy, Science, and Technology
NA-123	Office of Stockpile Technology
NA-124	Office of Operations and Construction Management
NMC&A	nuclear materials control and accountability
NMDCCC	Nuclear Materials Disposition and Consolidation Coordination Committee
NMIA	Nuclear Materials Inventory Assessment
NMMSS	Nuclear Materials Management and Safeguards System
NNSA	National Nuclear Security Administration (NA-1)
NRC	Nuclear Regulatory Commission
NWC	Nuclear Weapons Council
PRIS	programmatic reporting identification symbol
RETR	Reduced Enrichment Test Reactor
RU	restricted use
SFMB	Surplus Fissile Material Baseline
SC	Office of Science
SRS	Savannah River Site
WIPP	Waste Isolation Pilot Program

*Note: Data attributes are defined in appropriate tables.*



## REVISIONS

### September 30, 2006 – Update from EFY 2005 to EFY 2006

- Updated HQ organization from NA-124 to NA-123 (Office of Stockpile Technology)
- Updated SecureNet mailing addresses for submitting NMIA data.
- Added the data requested in last year's NMDCCC data call to this year's NMIA submittal.
- Changed packaging information from required to optional.

### September 30, 2005 – Update from EFY 2004 to EFY 2005

- Added this Revisions section
- Added SecureNet and SIPRNET and mailing addresses for submitting NMIA data.
- Added new IDES codes
- Added packaging information including Attachment 4
- Moved NS, SFMB, RU, USE, and USER\_PROG fields from the PROJECTS table to the INVENTORIES table. Explained only fields that align with projects can go in the PROJECTS table.
- Moved USER\_PROG table to Attachment 1



## 1.0 NUCLEAR MATERIALS INVENTORY ASSESSMENT OVERVIEW

Each year, Department of Energy (DOE) and National Nuclear Security Administration (NNSA) field sites assess their nuclear material inventory to determine whether inventory levels are reasonable relative to programmatic objectives. Sites submit these assessments, referred to as Nuclear Materials Inventory Assessments (NMIA), to the Office of Stockpile Technology (NA-123). NA-123 consolidates all NMIA submittals into an annual NMIA database that it uses to support various analysis and reporting activities. *Annual NMIA Guidance* issued by NA-123 gives requirements and recommendations for the upcoming NMIA submittals. This document supersedes previous NMIA guidance.

The goal of the NMIA process is to collect information on end-of-fiscal-year (EFY) inventories to accommodate DOE and NNSA programmatic information requirements with minimal impact on site programs. If a site believes that strict compliance with the NMIA guidance will result in providing inadequate or misleading information, or cause an unreasonable burden, then the site's nuclear material manager should immediately contact NA-123 (Mr. Dale Dunsworth, 301-903-5156) and discuss the issues.

### 1.1 NMIA Submittals

NMIA submittals should be provided to NA-123 as soon as possible after the end of the fiscal year (September 30, 2006), but no later than January 31, 2007.

Sites wishing to submit using secure email should transmit their submittal to Mr. Jay Beams at one of the accounts listed below. Please note that SecureNet address has changed from last year, as Headquarters has transitioned to a new SecureNet system.

SECURENET: [beamsj@snet.nnsahq.gov](mailto:beamsj@snet.nnsahq.gov)  
SIPRNET: [jay.beams@doe.sgov.gov](mailto:jay.beams@doe.sgov.gov)

Alternatively, classified submittals can be mailed to:

Dale Dunsworth, NA-123  
U.S. Dept. of Energy  
P.O. Box A  
Germantown, MD 20875-0963

Or by Federal Express to:

U.S. Dept. of Energy  
Attn. Dale Dunsworth, NA-123  
19901 Germantown Road  
Germantown, MD 20874



Field sites should submit NMIA data as a Microsoft Access database with minimally three relational tables – an item-level **INVENTORIES** table, a **PROJECTS** table, and a **DISPOSITION** table. Table A1-1 in [Attachment 1](#) shows the structure of the INVENTORIES table, Table A2-1 of [Attachment 2](#) shows the structure of the PROJECTS table, and Table A5-1 in [Attachment 5](#) shows the structure of the Disposition table. INVENTORIES link to PROJECTS via the project code (PROJ) field. INVENTORIES link to DISPOSITION via the disposition group (DSP\_GROUP\_ID) field. This relational approach allows information that aligns with projects and disposition paths to be recorded once rather than repeated on each entry in the INVENTORIES table.

Site nuclear materials managers are responsible for assigning project codes to all nuclear material holdings. Project codes should allow programmatic ownership to be easily determined and programmatic objectives to be clearly documented. NNSA sites have adopted a protocol whereby “No Defined Use” material will be designated with an E-xx-xxxx-xxx project code. This allows sites to quickly identify materials at other sites that are available for use. Using project codes will enable DOE/NNSA to have a high level of confidence that inventory levels are justified and that these justifications are well documented.

Last year, in support of the Implementation Plan for Defense Nuclear Facility Safety Board (DNFSB) Recommendation 2005-1, *Nuclear Materials Packaging*, packaging fields were requested in the INVENTORIES table (as shown in [Table A1-1](#) and discussed in [Attachment 4](#)). Analysis of the EFY 2006 packaging information has not been completed, because of a shift in priorities with a focus on disposition path information (as discussed in [Attachment 5](#)). The packaging information is still considered valuable input, but will remain optional until further guidance can be developed. The sites are encouraged to provide packaging information, if they can do so without adding a significant burden to the reporting process.

## 1.2 NMIA Output Reports

Once validated, the consolidated NMIA database is used to support programmatic activities that require nuclear materials information. Output data and reports produced by NA-123 from the NMIA database fall into three general categories: standard reports, ad hoc reports, and information inquiries.

- Standard reports are produced annually from the NMIA database and include summary material reports, annual pit and canned subassembly (CSA) reports, and assets and liabilities reports.
- Ad hoc reports are produced in response to specific one-time requests. Examples of these reports include an IG request for all excess Pu-238, an EM study of Pu-242, etc. Ad hoc reports may become standard reports if the study or analysis lasts for multiple years.
- Information inquiries are simple question and answer sessions that involve querying the NMIA database to better understand inventories, but do not result in any formal reporting requirement.

Standard reports, ad hoc reports, and information inquiries are reviewed for appropriate classification and need-to-know. All three categories of output (standard reports, ad hoc reports, and information inquiries) are recorded in the "Catalog of Analyses." In addition, copies of all standard

and ad hoc reports are also maintained within a special NMIA-Delivered directory on the classified computer. Distribution of all reports or information is performed in accordance with classified material protection and handling procedures.

## 2.0 GENERAL GUIDANCE FOR ASSESSING AND SUBMITTING INVENTORIES

To the extent practical, DOE/NNSA sites should adhere to the standards defined for each required field. Deviations, if necessary, should be coordinated with NA-123.

- [Attachment 1](#) gives guidance for preparing the INVENTORIES table of the NMIA submittal. Table A1-1: Required Fields for the INVENTORIES Table gives field names, descriptions, acceptable values, and formats for the fields submitted in the INVENTORIES table.
- [Attachment 2](#) gives guidance for preparing the PROJECTS table of the NMIA submittal. Table A2-1: Required Field for the PROJECTS Table gives field names, descriptions, acceptable values, and formats for the fields submitted in the PROJECTS table. It also identifies fields that may be moved from the INVENTORIES table to the PROJECTS table provided they align with project codes.
- [Attachment 3](#) provides guidance on using IDES codes for categorizing nuclear material inventories. Table A3-1: IDES Key lists the allowable values for each of the four attributes of the IDES code.
- [Attachment 4](#) gives guidance on providing packaging information. This information is optional this year.
- [Attachment 5](#) gives guidance on providing disposition path information in this year's NMIA submittal. Last year, this information was requested in a separate data call.

The contractors shall submit the end-of-fiscal-year (EFY) NMIA data in an agreed upon electronic format to their site office. The site office shall review the submittal, reconcile data discrepancies, and then submit the data to NA-123 by January 31, 2006. [Section 4.0](#) gives a flowchart (Figure 4-1) of this overall NMIA reporting process.

Sites shall ensure consistency and reconciliation between data submitted to the Nuclear Materials Management and Safeguards System (NMMSS) and to NA-123 in response to the NMIA Guidance. Reconciliation with NMMSS requires summarizing the NMIA item-level INVENTORIES table to the NMMSS P-112 report level. This is accomplished by summing element and isotope weights on four basic fields shared with NMMSS (LRIS, PROJ, COEI/ANSI, and MTC).

Sites shall ensure consistency and reconciliation between SFMB-marked data submitted to NA-123 in response to the NMIA Guidance and the Materials Disposition program. Because the NMIA and the Materials Disposition program both maintain data at the item level, reconciliation involves simply ensuring that records are flagged consistently from year to year.

While each site is responsible for reconciling their data prior to submittal to NA-123, it remains the responsibility of NA-123, working in conjunction with the sites, to provide final assurance that the data submitted complies with current guidance and further to assure that the overall NMIA database



reconciles with NMMSS, weapon component reports, the Surplus Fissile Material Baseline, and assets and liabilities declarations.

### 3.0 SPECIFIC INVENTORY GUIDELINES

1. To the extent possible, each DOE Operations/NNSA site office should use its respective Nuclear Materials Control and Accountability (NMC&A) database to prepare the NMIA.
2. Field sites should submit NMIA data in a Microsoft Access database. Minimally, this database should contain the INVENTORIES table as described in [Attachment 1](#) and a PROJECTS table as described in [Attachment 2](#).
3. Inventories located at DOE/NNSA sites should be assessed and submitted according to location (LRIS – Location Reporting Identification Symbol) rather than programmatic responsibility. Table 3-1 shows the assessment responsibilities for different material inventories based on location and programmatic responsibility. NMIA submittals for a site should address all of the nuclear materials at the site including all DOE-owned material, other government agencies-owned material, U.S. privately owned material, and foreign-owned material.

**Table 3-1: Assessment Responsibilities**

Ownership	Locations			
	DOE Sites [LRIS: A thru P]	DoD/Navy/91C [LRIS: AAA, PAA]	NRC Licensees [LRIS: X, Y, or Z]	Foreign Countries [LRIS: R]
DOE Inventory	LRIS	AAA by NA-123 PAA by PNRO	PRIS or NA-123	NA-123
DOE on Loan or Lease	N/A	N/A	PRIS or NA-123	NA-123
Other Government Agencies	LRIS	N/A	N/A	N/A
U.S. Private	LRIS	N/A	N/A	N/A
Foreign Countries	LRIS	N/A	N/A	N/A

4. Also as shown in Table 3-1, inventories located at Nuclear Regulatory Commission (NRC) licensees should be assessed according to programmatic responsibility (PRIS – Programmatic Reporting Identification Symbol). The PRIS attribute is associated with project codes and is reported in the PROJECTS table as shown in Table A2-1 of [Attachment 2](#).
5. The DOE nuclear material inventories as of September 30, 2006 should be assessed and their categorization as of that date should be reported. Table A1-3 in [Attachment 1](#) provides a list of materials that must be assessed.
6. Site nuclear materials managers are responsible for implementing project codes and ensuring appropriate quantities of nuclear materials are allocated to each. The use of a separate PROJECTS table is required in this submittal; however, only fields that align with project codes should be included in the PROJECTS table.

Project codes should be reviewed and updated throughout the year. For each project, the NMIA shall include in the PROJECTS table: the project code (as reported to NMMSS), project title (short description of the project), project description (full narrative description of the project), and other fields that align with the project code as discussed in [Attachment 2](#).

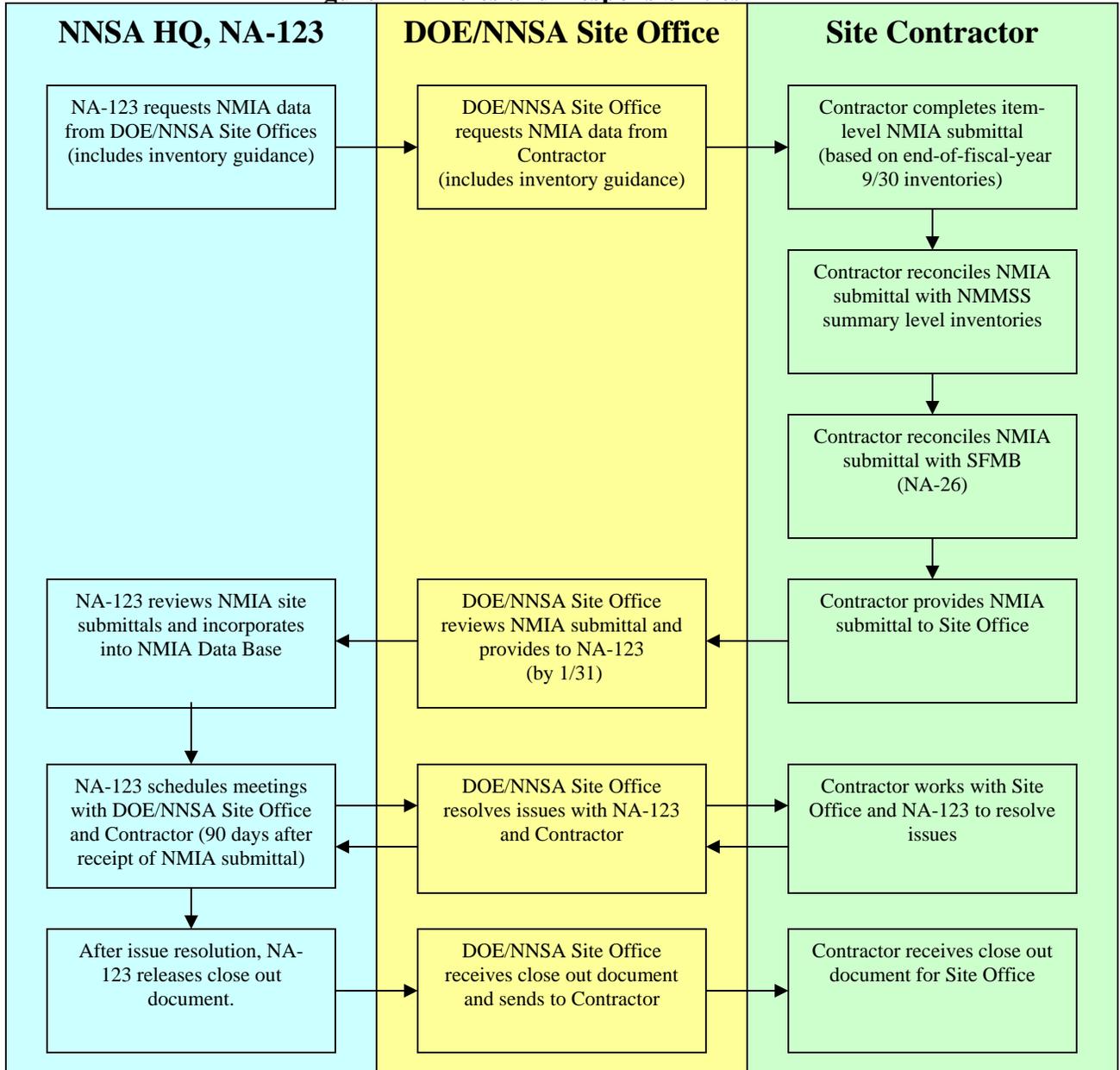
7. DOE-owned enriched uranium and plutonium at NRC licensees with MTCs of 21 or 51 should be carefully reviewed to ensure the MTCs are correct when compared to the material assay data as shown in Table A1-3 of [Attachment 1](#).
8. Detailed MTCs (e.g., 51, 52, 53, 54, 55, 56, and 57 for plutonium), as shown in Table A1-3 of [Attachment 1](#) should be used in lieu of abbreviated summary MTCs (e.g., 50 for plutonium).
9. All nuclear materials must be categorized as “Defined Use” or “No Defined Use” using the USE field. If possible, the USE field should align with project codes, and hence, be in the PROJECTS table as shown in the shaded fields of Table A2-1 in [Attachment 2](#). If, however, a single project contains both Defined Use and No Defined Use material then the USE field must be in the INVENTORIES table as shown in Table A1-1 of [Attachment 1](#).
10. In support of the Implementation Plan for DNFSB Recommendation 2005-1, *Nuclear Material Packaging*, last years NMIA submittals required any available packaging information within the INVENTORIES table (see [Attachment 4](#)). This year, this information is optional.
11. Prior to submittal, the site Nuclear Materials Manager is responsible for reconciling the NMIA submittal with NMMSS.
12. Prior to submittal, the site Nuclear Materials Manager is responsible for ensuring the SFMB attribute of the site NMIA reconciles with the Materials Disposition Program.
13. NA-123 will provide feedback/concurrence within 90 days of receipt of the site NMIA submittal, to the appropriate site office.



### 4.0 ROLES AND RESPONSIBILITIES

The following flowchart depicts the basic roles and responsibilities associated with reporting the Nuclear Materials Inventory Assessment.

**Figure 4-1: Roles and Responsibilities**



**ATTACHMENT 1: GUIDANCE FOR PREPARING THE INVENTORIES TABLE**

This attachment provides information for submitting the Inventories table for the end-of-fiscal-year (EFY) 2006 inventories. These specifications facilitate NA-123 data standardization, consolidation and validation functions.

[Table A1-1](#) shows the information required in the INVENTORY table of the NMIA submittal. Additional optional information is shown in [Table A1-2](#). The first column in both tables is the name of the field, the second column gives a description of the field, the third column provides information on field values, and the remaining columns provide data format guidelines.

**Table A1-1: Required Fields for the INVENTORIES Table**

Field	Description	Field Values	Type	Length	Format
UNIQUE_SITE_ID	A unique identifier for each record, even if multiple records are part of the same item. UNIQUE_SITE_ID should remain unchanged from year to year.	Site-specific	Site Specific	Site Specific	Site Specific
ITEM_ID	An identifier used to link together records associated with the same physical item. The ITEM_ID should remain unchanged from year to year.	Site-specific	Site-specific	Site-specific	Site-specific
LRIS	<b>Location Reporting Identification Symbol:</b> Physical location of the nuclear material being assessed.	Accepted by NMMSS	Text	3	XXX
MTC	<b>Material Type Code:</b> A code that identifies nuclear material type.	See Table 1-2	Text	2	XX
PROJ	<b>Project Code:</b> An alphanumeric code tied to the Budget and Reporting code.	Specified in NMMSS Report T-141	Text	13	X-XX-XXXX-XXX
COEI/ANSI	<b>Composition Of Ending Inventory:</b> A code that identifies process steps for nuclear materials and may provide processing or form information. Or <b>American National Standards Institute:</b> A code that amplifies COEI codes for uranium and plutonium scrap.	COEI is specified in NMMSS Report I-17 ANSI is specified in ANSI N15.1-1970 and ANSI N15.10-1972	Text	3	XXX
ASSAY	<b>Assay:</b> The ratio of isotopic weight to element weight.	See Table 1-2	Double	7	999.999
ELEMENT	Element weight; NMMSS units.	See Table 1-2	Double	14	999999999.999
ISOTOPE	Isotopic weight; NMMSS units.	See Table 1-2	Double	14	999999999.999
IDES	<b>Item Description Code:</b> A field that specifies four attributes for each item: primary form, secondary form, form detail, and function/status.	See Attachment 2	Text	6	XXXXXX



Field	Description	Field Values	Type	Length	Format
NS	National Security: Flag (Y/N) indicating whether or not a record is needed for National Security.	Y or N	Text	1	X
SFMB	Surplus Fissile Material Baseline: Flag (Y/N) indicating whether or not a record is part of the SFMB.	Y or N	Text	1	X
RU	Restricted Use: Flag (Y/N) indicating whether or not a record is restricted from use in a weapons program.	Y or N	Text	1	X
USE	Defined Use: Flag (Y/N) indicating whether or not a record has a defined use.	Y or N	Text	1	X
DISP_COST	The <b>Disposition Cost</b> field identifies whether material tagged as No Defined Use (USE="N") is more likely than not to be dispositioned.	B, D, or N	Text	1	X
USER_PROG	A code that specifies the near-term programmatic use of nuclear material inventories. This field supplements the National Security and Use fields.	See Table A1-4	Text	10	XXXXXXXX XXX
DISP_GRP_ID	Disposition Group Identifier	Site Specific See <a href="#">Attachment 5</a>	Site Specific	Site Specific	Site Specific

**Table A1-2: Optional Fields for the INVENTORIES Table**

Field	Description	Field Values	Type	Length	Format
PACK_CODE	A code identifying the packaging system associated with an inventory.	Site Specific See <a href="#">Attachment 4</a>	Site Specific	Site Specific	Site Specific
PACK_DATE	The date the inventory was put into the packaging system (denoted by PACK_CODE).	Site Specific See <a href="#">Attachment 4</a>	Site Specific	Site Specific	Site Specific

The following descriptions provide additional guidance for determining values for the fields in the inventory assessment report.

**Unique Site Identifier (UNIQUE\_SITE\_ID)**

The Unique Site Identifier is a unique identifier for each record at a site. A record is the most discrete amount of information about an item. The Unique Site ID establishes a reference number for facilitating questions to the site from DOE Headquarters. The Unique Site Identifier should remain unchanged from on assessment to the next.

**Item Identifier (ITEM\_ID)**

The Item Identifier is used to link together records associated with the same physical item. A physical item is a single piece or container consisting of one or more nuclear materials (and hence more than 1 inventory record) that satisfy all of the following criteria:

- the presence can be visually verified;
- there is a unique identification, and cannot be readily divided; and
- there is a recorded nuclear material mass.

For example, all records associated with a single pit or CSA would have the same ITEM\_ID. The ITEM\_ID should remain unchanged from one assessment to the next.

**Location Reporting Identification Symbol (LRIS)**

The Location Reporting Identification Symbol shows the physical location of inventories. In general,

**Material Type Code (MTC)**

Material Type Code (MTC) is a NMMSS field that identifies the type of nuclear material as shown in Table A1-3. This table also shows how the value of the MTC dictates the units that should be reported and how the assay, element and isotope fields are used.

**Table A1-3: Materials with Required Reporting**

Material Description	MTC	NMIA Units	Nuclear Materials Management and Safeguards System (NMMSS)			
			Units	Element	Isotope	Assay
Uranium - Depleted in Uranium-235 (U-235)	11 – 18	kg	kg	Total U	U-235	% U-235
Uranium – Enriched in U-235: Low Enriched	21 – 33	g	G	Total U	U-235	% U-235
Uranium - Enriched in U-235: Highly Enriched	34 – 39	g	G	Total U	U-235	% U-235
Plutonium-242 (Pu-242): ≥ 20 Percent Pu-242	41 – 42	g	G	Total Pu	Pu-242	% Pu-242
Americium-241 (Am-241)	44	g	G	Total Am	Am-241	% Am-241
Americium-243 (Am-243)	45	g	G	Total Am	Am-243	% Am-243
Curium (Cm-246)	46	g	G	Total Cm	Cm-246	% Cm-246
Berkelium (Bk-249)	47	µg	µg		Bk-249	
Californium (Cf-252)	48	µg	µg		Cf-252	
Plutonium (Pu-239)	51 – 57	g	G	Total Pu	Pu-239 + Pu-241	% Pu-240
Enriched Lithium (Li6 > 7 Percent)	61 – 63	kg	kg	Total Li	Li-6	% Li-6
Depleted Lithium (Li-6 < 7 Percent)	64	kg				
Normal Lithium (Li-6 = 7 Percent)	65	kg				

Material Description	MTC	NMIA Units	Nuclear Materials Management and Safeguards System (NMMSS)			
			Units	Element	Isotope	Assay
Uranium – Enriched in Uranium-233 (U-233)	71 – 74	g	g	Total U	U-233	PPM U-232
Normal Uranium-0.711 Percent U-235	81	kg	kg	Total U		% U-235
Neptunium-237 (Np-237)	82	g	g	Total Np		
Plutonium-238 (Pu-238): > 10 Percent Pu-238	83	g to 10 <sup>ths</sup>	g to 10	Total Pu	Pu-238	% Pu-238
Helium-3	85	g				
Heavy Water (D <sub>2</sub> O) / Deuterium Gas (D <sub>2</sub> )	86	kg to 10 <sup>ths</sup>	kg to 10 <sup>ths</sup>	Equivalent D <sub>2</sub> O	D <sub>2</sub>	
Tritium	87	g to 100 <sup>ths</sup>	g to 100 <sup>ths</sup>	Total Tritium		
Thorium	88	kg	kg	Total Thorium		
Uranium in cascades	89	g	g	Total U	U-235	% U-235

**Project Code (PROJ)**

The Project Code is an alphanumeric code tied to the B&R code. The project codes identify the Headquarters and Field Elements with programmatic responsibility for each project. This attribute is linked to the identical attribute in the Projects table shown in Table A2-1 of Attachment 2.

**Composition of Ending Inventory (COEI/ANSI)**

The Composition of Ending Inventory (COEI) is a code that identifies process steps for nuclear materials and may provide processing or form information. The American National Standards Institute (ANSI) amplifies COEI codes for uranium and plutonium scrap. For this attribute, select either COEI or ANSI depending upon which alternate provides the more detailed information.

**ASSAY**

The assay field is the ratio of isotopic weight to element weight. Table A1-3 gives the ratio calculation for different material types.

**Isotopic Weight (ISOTOPE)**

The isotope field displays the weight of an isotope (in NMMSS units) associated with a particular element. Table A1-3 shows the isotope of interest for different material types.

**Elemental Weight (ELEMENT)**

The element weight is also in NMMSS units. Table A1-3 shows the element associated with different material types.

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**Item Descriptor (IDES)**

Attachment 3: Item Description (IDES) Code Key gives a complete description of the IDES field and Table A3-1: IDES Key shows the acceptable values for the IDES field.

**National Security (NS) (Y/N)**

Determines whether the nuclear material is part of the National Security Program. National Security Programs include the following categories:

1. **Stockpile** - All nuclear materials in the active and inactive nuclear weapons stockpile managed by the Department of Defense (DoD)
2. **Strategic Reserve** - Tritium, weapon-grade plutonium-239, and highly enriched uranium (HEU) set aside for future weapon builds; and depleted uranium, enriched lithium (enriched in LI-6), and deuterium gas associated with weapon components included in the strategic reserve. The nuclear materials in the strategic reserve are considered defined use material.
3. **Nuclear Weapons Council (NWC) - Other Approved Set-Aside** - Weapon-grade plutonium-239 and HEU for Naval Reactors, mutual defense agreements, a new tritium source, and weapons research and development (R&D). The nuclear material in the NWC-Other Approved Set-Aside are either active or have a potential programmatic use.
4. **DOE Approved Set-Aside** - Miscellaneous nuclear materials (e.g., plutonium-242, helium-3, enriched lithium, heavy water, etc.) in active national security programs or being held for future use in a national security program, such as a new tritium source or weapons R&D. The nuclear material in the DOE Approved Set-Aside are either active or have a potential programmatic use.

**Surplus Fissile Material Baseline (SFMB) (Y/N)**

Surplus Fissile Material Baseline (SFMB) materials are those quantities of fissile materials designated by the Nuclear Weapons Council in November 1994 as no longer required for national security purposes. The initial baseline was derived from the FY 1998 NMIA and is governed by the Memorandum of Agreement for Control of Surplus Highly Enriched Uranium and Plutonium. Materials meeting this criterion are designated with a “Y” and are subject to a change control process as defined in the MOA. SFMB materials cannot be NS.

**Restricted Use (RU) (Y/N)**

Plutonium, HEU, and uranium-233 to which peaceful use restrictions, resulting from treaty obligations, legislation, or policy decisions, have been applied. These nuclear materials can be used only for non-weapon programs and are identified by a special project number.

Examples of restrictions requiring a “Y” in the field value are: International Atomic Energy Agency safeguards; the United States-United Kingdom Policy Agreement of 1964 regarding Barter A and B Plutonium; the agreement with Taiwan regarding Taiwan Research Reactor spent fuel; Public Law 95-242, Nuclear Nonproliferation Act of 1978 and Public Law 97-415, Limitation on Use of Special



Nuclear Material; former Secretary O'Leary's December 1994 Policy Decision, under which plutonium and HEU separated and/or stabilized during the phase out, shutdown, and clean out of weapons complex facilities cannot be used in nuclear explosives; and agreements with the Russian Republic regarding nuclear material monitoring, safeguarding, and use.

## USE (Y/N)

Whether the material has a defined use or has no defined use (it is not in active use, not needed for current use by an approved DOE program, or not being held for potential future use by an approved DOE program). The terms “Defined Use” and “No Defined Use” are as follows:

### 1. *Defined Use (Y)*

Defined use nuclear material is actively being used by a DOE program. Defined use nuclear material should be assigned to an active user project and reported to NMMSS. Any DoD material at a DOE site is considered active. Active material includes plutonium and tritium in the strategic reserve that supports future nuclear weapon builds. This also includes nuclear material being actively sold during the current year (e.g., normal lithium, heavy water, etc.) or being blended or processed now for later sale or reuse (e.g., HEU blend down program for the Tennessee Valley Authority). Nuclear materials being stabilized for long-term storage or discard are not considered active. Active material includes plutonium, uranium, tritium, lithium, and deuterium.

Defined use material also includes material not in current active use but held for future use by an approved DOE program. This category includes the plutonium and HEU in the NWC-approved national security set-aside that is not in active use but is being held for use in Naval Reactors, mutual defense agreement activities, a new tritium source, and nuclear weapons R&D. It includes miscellaneous nuclear materials that are not in active use but are part of the Defense Programs approved national security set-aside, such as plutonium 242 for weapons R&D and enriched lithium (Li-6), helium-3, and heavy water for a new tritium source. Other nuclear materials in this category are neptunium-237 at the Savannah River Site (SRS) being held for stabilization and transfer to a nuclear materials management account of potential programmatic use by the NE, Science and Technology; nuclear materials such as americium and curium at SRS proposed for categorization as National Resource materials; HEU in a nuclear materials management account that will be used to make fuel for research and test reactors; and depleted, normal, and enriched uranium in a nuclear materials management account that will be transferred to Materials Disposition (MD) and blended for sale.

### 2. *No Defined Use (N)*

No defined use nuclear material is not in active use, not needed for current use by an approved DOE program, and not being held for potential future use by an approved DOE program. This includes nuclear materials being stabilized for long-term storage or discard, material in program accounts being held for disposition (e.g., NE plutonium at the Hanford site), material in an “M” prefix account that has no identified future use within DOE, and material in an “E” prefix account that has not been identified for recovery. It also includes material in EM accounts, such as plutonium-bearing residues at that eventually may be discarded. Nuclear materials that are categorized as no defined use are **not** national security required material.



**Known Disposition and Cost for Other Material (DISP\_COST)**

The **Disposition Cost** field identifies whether material that has been tagged as No Defined Use in the USE field is more likely than not to be dispositioned. If it is more likely than not to be dispositioned, a “B” indicates that a budget quality cost estimate is available and a “D” indicates that a cost estimate is not available. An “N” indicates that there is no known future disposition for the material.

The following examples are circumstances in which a disposition cost should be recognized:

- When the preferred alternative in a draft environmental impact statement is to disposition materials, a final decision selecting the preferred alternative is considered more likely than not, and a reasonable estimate of the cost of the preferred alternative is available.
- Program Officials have identified materials to be dispositioned, and have prepared estimates of the related costs.
- Although a final decision to disposition materials has not been made, such a decision is considered probable and a reasonable estimate of disposition costs is available.

This field is used by the Office of Management, Budget and Evaluation to identify potential future financial liabilities in preparation of the annual financial statements for the Department.

**User Program (USER\_PROG)**

The DOE-owned nuclear materials at DOE sites are categorized in accordance with use/disposition plans of one of six Headquarters user programs: Defense Programs (DP/NA-10); Fissile Materials Disposition (MD/NA-26); Environmental Management (EM); Nuclear Energy (NE); Science (SC), and Miscellaneous DOE Programs. The DOE-owned nuclear material at NRC licensees will be assessed by the DOE Operations/field offices that have responsibility for projects at the licensee facility. Values for the USER\_PROG field, grouped by the program organization responsible for the inventory, are shown in Table A1-4.

**Table A1-4: User Program (USER\_PROG) Codes**

NEAR-TERM USER_PROG	DESCRIPTION
DP-AS/IS	Active stockpile and inactive stockpile
DP-SR	Strategic reserve
DP-RD	Research and development
DP-PROD	Production (e.g., pit fabrication)
DP-TRIT	Tritium production (including new tritium source)
DP-UK	United Kingdom use of DOE material or DOE use of UK material
DP-NAVY	Nuclear material held for future use by Naval Reactors
DP-SALE	Nuclear material being sold by DP or held for sale
DP-MISC	Nuclear material in DP projects/programs not listed
DP-WASTE	Nuclear waste generated by DP after September 30, 1998



NEAR-TERM USER_PROG	DESCRIPTION
MD-USEC	USEC: Uranium set-aside for transfer to USEC or whose title has been transferred to USEC but is still being held by DOE
MD-SALE	Uranium being sold or held for sale by MD excluding MD-USEC
MD-OFFSPEC	Material for the MD off-specification fuel program
MD-ARIES	Nuclear material in or being held for the ARIES Project
MD-MOX	Nuclear material in or being held for the MOX Fuel Project
MD-RD	Research and development
MD-MISC	Nuclear material in MD projects/programs not listed
MD-DISCARD	Nuclear material being prepared by MD for discard
EM-WASTE	Material designated for a repository, other than spent nuclear fuel
EM-SNF	Material specifically designated as spent nuclear fuel
EM-RD	Research and development
EM-SALE	Nuclear material being sold by EM or held for sale
EM-MISC	Nuclear material in EM projects/programs not listed
NR-NAVY	Nuclear material in current use by Naval Reactors
NE-REACT	Nuclear material in use by NE research & test reactors (other than Naval Reactors or Reduced Enrichment Test Reactors (RETRs) or held for use in these reactors
NE-SPACE	Nuclear material in use or held for future use by NE programs supporting NASA, etc.
NE-RD	Research and development, other than research and test reactors, Naval Reactors, or RETRs
NE-SALE	Nuclear material being sold by NE or held for sale
NE-MISC	Nuclear material in NE projects/programs not listed
NE-RETR	Nuclear material in use in the RETR Program or held for use in this program
SC-RD	Research and development
SC-MISC	Nuclear material in SC projects/programs not listed
MISC-REACT	Nuclear material in use in DOE research and test reactors other than DP reactors, Naval Reactors, NE reactors, or RETRs
MISC-RD	Research and development
MISC-SS	Nuclear material in use in DOE safeguards and security projects
MISC-LOAN	Loan/lease nuclear material
MISC-WFO	Work for others
MISC-SALE	Nuclear material being sold by miscellaneous DOE programs or being held for sale
MISC-MISC	Nuclear material in miscellaneous projects/programs not listed
Other	Other nuclear material (no use)

**Packaging System Code (PACK\_CODE)**

This optional field identifies the packaging system used for the inventory. (See [Attachment 4](#))

**Date Packaged (PACK\_DATE)**

This optional field gives the date the inventory was packaged into the packaging system indicated by PACK\_CODE. (See [Attachment 4](#))

**ATTACHMENT 2: GUIDANCE FOR PREPARING THE PROJECTS TABLE**

The Nuclear Materials Manager at each site is responsible for allocating project codes to specific materials in inventory based on the materials characterization, programmatic requirements, B&R classification, and other considerations. This ensures that material requirements and specifications for each program are met, to the extent possible, and that each item of material is allocated to the appropriate program or use.

The following table shows the structure of the Projects table. The first four fields – PROJ, PROJ\_TITLE, PROJ\_DESC, and PRIS – are required within the projects table. If the other fields – NS, SFMB, USE, RU, and USER\_PROG – align with project codes, then they too should be in the projects table. Otherwise, these five additional fields must be in the inventories table as discussed in Attachment 1.

**Table A2-1: Required Field for the PROJECTS Table**

Field	Description	Field Values	Type	Length	Format
PROJ	Project Code: An alphanumeric code tied to the Budget and Reporting code.	Specified in NMMS Report T-141	Text	13	X-XX-XXXX-XXX
PROJ_TITLE	Project Title	Specified in NMMS Report T-141	Text	255	
PROJ_DESC	Narrative and justification for retention.	Text	Memo		
PRIS	Programmatic Reporting Identification Symbol: DOE site with programmatic responsibility for the nuclear material being assessed.		Text	4	XXXX
NS	See Attachment 1	Y or N	Text	1	X
SFMB	See Attachment 1	Y or N	Text	1	X
USE	See Attachment 1	Y or N	Text	1	X
RU	See Attachment 1	Y or N	Text	1	X
USER_PROG	See Attachment 1	See Table A1-4	Text	10	XXXXXXXXXX

The Projects table provides a direct correlation between the project code for nuclear materials and the following data points:

**PROJ**

Project code. An alphanumeric code tied to the B&R code. The project codes identify the Headquarters and Field Elements with programmatic responsibility for each project. This attribute is linked to the identical attribute in the Required Fields for Materials Table (Attachment 1, Table 1-1) to provide the Nuclear Materials Manager with the capability to characterize the materials to authorized project codes instead of individual items.

**PROJ TITLE**

Project title. Title of the project from the T-141 report.

**PROJ DESC**

Project description. Narrative and justification for retention.

**PRIS**

The DOE site with programmatic responsibility for the nuclear material being assessed.



**ATTACHMENT 3: ITEM DESCRIPTION (IDES) CODE KEY**

The objective of the Item Description (IDES) Code is to utilize a standard set of codes for reporting purposes to generically describe nuclear material forms, which provide consistent descriptions of nuclear material items across the DOE Complex. This categorization will lead to consistency in the description of items at individual sites. Table A3-1: IDES Key gives the IDES key for each of the four attributes of the IDES code where new attribute values are shaded.

The IDES Code is designed to describe all of the forms of nuclear material items residing in the user’s inventory. The IDES code is meant to complement the Material Type Code (MTC). The IDES field/attribute is not meant to duplicate the MTC. The user should refer to the MTC to determine the actinide/element of the item. The only time the user will see a description that contains the actinide/element is when that form is unique to that element (e.g., U<sub>3</sub>O<sub>8</sub>, UNH, and heavy water).

The IDES code is made up of four attributes. For those sites that may incorporate the IDES into their site system, the code was designed to reside in four separate fields for improved use. The code is concatenated into a six-character alphanumeric field for reporting to the NMIA.

This code was selected and designed to enable users to query this data field more easily. Like items are grouped by like code (e.g., all weapon components can be identified by the fifth character which contains an “A”; all oxides can be identified by the second character being an “8”). As a rule, the code was developed to ensure that each attribute is mutually exclusive when possible. In some cases, the code breaks with this rule. In such cases, the user should choose the “best” descriptor with future disposition and/or storage in mind.

An example of a code and a description is: *C810SA, Compound (C)/Dioxide (81)/Non-Specific (0)/Analytical Sample (SA).*

Definitions and examples of each of the four attributes and the six characters making up the IDES Code are described in the following paragraphs. There are four separate attributes from which the user may choose, as outlined below:

Character 1 – Primary [Category Identifier] Attribute (1<sup>st</sup>)

The first character of the IDES Code identifies the major [category] attribute under which an item belongs.

<u>Character</u>	<u>Attribute</u>
C	Compound
G	Gas
D	Combustible Residue
S	Liquid/Solution
M	Metal
N	Non-Combustible Residue

Table A3-1: IDES Key

Primary Form		Secondary Form		Form Detail		Function/Status			
C	Compound	00	Non-Specific	0	Non-Specific	00	Non-Specific		
		02	Acetate	A	Precipitate	A1	Pit		
		07	UNH	B	Bonded	A2	CSA		
		12	Sulfate	C	Chloride Based	A3	Hemi		
		13	Carbide	E	Encapsulated	A4	RTG		
		14	Hydroxide	F	Foil	A5	Reservoir		
		16	Phosphate	I	Irradiated (not spent fuel)	A6	Sub-Assembly/Component		
		17	Deuteride	L	Fluoride Based	A7	NAS (Nuclear Assembly System)		
		19	Chloride	M	Mole Sieve	CS	Sealed Source		
		28	Fluoride	N	Nitrate Based	CU	Commercial Use		
		39	Tritide	P	Pu Surface Contaminated	DM	Designated Discardable Material		
		40	Hydride	R	Filtrate	HU	Hold-up		
		52	Nitrate	S	Spent Fuel	RA	Reactor Elem/Clad (Al base)		
		54	Nitride	T	Turnings	RB	Reactor Elem/Unclad (Al base)		
		56	Sulfite	U	Mock-up	RC	Reactor Elem/Clad (non-Al)		
		59	Oxalate			RK	Reactor Elem/Clad (unknown)		
		61	Perchlorate			RT	Target		
		64	Peroxide			RU	Reactor Elem/Unclad (non-Al)		
		80	Oxide (not defined elsewhere)			SA	Analytical Sample		
		81	Dioxide			SH	History/Archival Sample		
		86	Trioxide			TC	Certified Standard		
		88	U3O8			TS	Standard		
		93	Carbonate			WR	Declared Waste (RCRA)		
		G	Gas	00	Non-Specific			WW	Declared Waste (non-RCRA)
				36	Hexafluoride			XH	Heat Source
		D	Combustible Residue	00	Non-Specific			XO	Other Assembly
				15	Cloth				
				60	Wood/Paper				
		S	Solution	00	Non-Specific				
				02	Acetate				
				03	Sludge				
				12	Sulfate				
				14	Caustic/Hydroxide				
		16	Phosphate						
		19	Chloride						
		22	Hydrogenous Salt						
		25	Tritiated Water						
		28	Fluoride						
		34	Heavy Water						
		52	Nitrate						
		56	Sulfite						
		58	Organic/Oil						
		59	Oxalate						
		61	Perchlorate						
		64	Peroxide						
		90	Water/Aqueous						
		93	Carbonate						
M	Metal	00	Non-Specific						
		44	Unalloyed Metal						
		74	Alloyed Metal (not defined elsewhere)						
		75	Aluminum Alloyed Metal						
		76	Zirconium Alloyed Metal						
N	Non-Combustible Residue	00	Non-Specific						
		05	Asbestos						
		21	Sand/Slag and Crucible						
		26	Filter Residue						
		29	Glass/Ceramic						
		31	Graphite						
		47	Ash						
		48	Leaded Gloves						
		55	Non-Actinide Metal						
		67	Plastics						
		69	Resin						
		70	Rubber						
		71	Salt						
		73	Silica						
		78	Sweepings/Screenings						



Notes:

1. For the purposes of describing items, the user should choose the character “C” for “Compound” only if the material being characterized consists primarily of an actinide element in the form of a chemical compound (e.g.,  $\text{PuO}_2$ ,  $\text{PuF}_4$ , etc.). The user should choose the character “D” for “Combustible Residue” or “N” for “Non-Combustible Residue” for non-actinide chemical compounds (e.g.,  $\text{Al}_2\text{O}_3$ ,  $\text{ZrO}_2$ , etc.) which are contaminated or mixed with an actinide.
2. The user should choose the character “M” for “metal” if the metal is an actinide (e.g., plutonium metal or uranium metal). Items that are categorized as metals should have metal properties. Metallic compounds (e.g., hydrides) should be described as compounds using “C” rather than describing the item as a metal. If the metal item is a non-actinide metal (e.g. contaminated aluminum can), the user should choose the character “N” for “Non-Combustible Residue.” Example: N55000 is the code for non-combustible residue/non-actinide metal/non-specific.

Characters 2 and 3 - The Secondary Form Attribute (2<sup>nd</sup>)

The second and third characters of the IDES Code are two integers called the “Secondary Form.” These integers provide further detail of the Major Category represented by the first character of the IDES Code, as discussed above. As one specific example, the Secondary Form will provide information about the specific type of actinide compound being referred to (e.g. dioxide, carbide, tetrafluoride, etc.).

The descriptor “oxide not defined elsewhere” was established for items that have been designated as “oxide” but are not specifically known to be dioxide, trioxide, or  $\text{U}_3\text{O}_8$ . This rule also applies to mixtures of the various oxide forms (e.g., dioxide mixed with  $\text{U}_3\text{O}_8$ ).

Character 4 - Form Detail Attribute (3<sup>rd</sup>)

This character is used to identify some specific details or characteristics of an item.

This attribute or field may not be mutually exclusive. When more than one detail applies to an item, select the detail that is most relevant to the disposition of that item.

The detail “P” indicates Pu surface contamination other than the primary nuclear material present. Items that are mildly surface contaminated, for example, non-accountable amounts of plutonium on uranium metal, should have the “P” detail indicator. This detail is extremely important if the future disposition plans include shipment to Y-12 National Security Complex.

Characters 5 and 6 - Function /Status Attribute (4<sup>th</sup>)

The fifth and sixth characters of the IDES Code are two alphanumeric characters called the “Function/Status.” These characters provide information related to the function of the item (e.g., standard, history sample, RTG) or the status of an item (e.g., approved designated waste, hold up).



The “WW” Detail selection is only for items that have been declared a waste. This means these items have been measured and meet the established criteria for waste declaration or the items have been evaluated on an individual basis and have been approved by DOE for discard. Do not assign the “WW” detail until one of the above criteria has been met. The “WW” code should be used only for non-Resource Conservation and Recovery Act (non-RCRA) waste.

The “WR” Detail selection is only for items that have been declared a waste having RCRA constituents. This means these items have been measured and meet the established criteria for waste declaration or the items have been evaluated on an individual basis and have been approved by DOE for discard. Do not assign the “WR” detail until one of the above criteria has been met. The “WR” code should be used only for waste with RCRA constituents.

### *IDES Code Special Features*

One of the two codes should be used to indicate “non-specific;” “zero” (0) and “double zero” (00). These codes should be used only when specific item information is not available (e.g., a mixed combustible residue item). This feature of the code allows for a graded approach to mapping codes to site-specific descriptors to this code. In many cases, detailed information about an item is not known. This feature may also be used when describing a container as an item, which contains a group of items or multiple items (e.g., a drum containing mixed non-combustibles). Specific information should be provided if known.

Some items or categories do not require further specific information to describe them and, thus, the (0) or (00) code is appropriate.

## **IDES Glossary**

**Alloyed metal** - The combination of two or more elements to form a homogeneous metal.

**Approved designated waste** - Any nuclear material that has been evaluated and determined to be awaiting disposal that has no value (economically not feasible for recovery or no recovery process is available).

**Canned Sub-Assembly (CSA)** - (Definition not included for classification reasons.)

**Certified Reference Material (CRM) standard** - A CRM standard has one or more property values certified by a technically valid procedure and is always accompanied by or traceable to a certificate or other documentation issued by a certifying body. Certified standards are typically of high purity.

**Clad** - Item that is mechanically covered by a thin sheet of material that is thicker than plating.

**Combustible Residue** - Materials which can be reduced to an ash by incineration and which are contaminated with accountable quantities of nuclear material. Thermal decomposition is part of the processing plan for these residues (e.g., rags, paper, filters, rubber gloves, etc.).

**Compound** - Only for the purpose of applying the IDES, the material being characterized consists primarily of an actinide element (also includes lithium, deuterium, and tritium) in the form of



a chemical compound (e.g. PuO<sub>2</sub>, PuF<sub>4</sub>, etc.) (See Residue)

**Element** - A substance that cannot be separated into simpler substances by chemical means. The total weight of all the isotopes of any single element is the element weight.

**Encapsulated** - Item that is mechanically sealed within a material thicker than that used for cladding.

**Form** - Describes material in broad terms as falling into one of three physical states: gas, liquid, or solid. The solid materials are further broken down into four other forms: metals, compounds, combustible residues, and non-combustible residues.

**Function** - What the item is currently being used for.

**Gas** - Fluid (for example, air) that has neither individual shape nor volume, but tends to expand indefinitely.

**Heat source** - A source that produces heat by radioactive decay of isotopes for thermoelectric or heating processes. Pu-238 is an optimum radioisotope for heat sources. It has been and continues to be used for defense and space applications. The radioisotope is encapsulated. The type of encapsulation is determined by the application.

**Historical/archival sample** - Nuclear material being retained for exhibit (show and tell) or historical purposes (representative material held for possible future analysis or inspection)

**Hold-up** - This description indicates measurable material that is held up in processing equipment, duct work, tanks, etc.

**Irradiated material** - Material that has been exposed to a radiation field to produce physical changes, chemical changes, or isotopic changes. Exposure to a neutron or *energetic proton* field will produce new isotopes. The irradiated material in this case is a target and is typically highly radioactive. Material exposed to gamma, x-ray, Beta, or Alpha fields will exhibit physical or chemical changes.

**Isotope** - Any of two or more forms of an element having the same number of protons in the nucleus (the same atomic number), but having different numbers of neutrons in the nucleus (different atomic weights). Isotopic weight is the weight of the particular isotope in question.

**Metal** - Indicates the metal is an actinide or lithium (e.g. plutonium metal or uranium metal).

**NAS** - Nuclear Assembly System.

**Non-actinide metal** - A non-actinide metal is a metal element not included in the 17 summary material types tracked by NMMSS (e.g., contaminated aluminum can).

**Non-combustible residue** - Materials that are contaminated with accountable quantities of nuclear material and which cannot be readily converted to an ash by incineration. These are items that were used to perform the experiment (i.e., glassware, metal piping, hand tools, hardware, substrates, etc.) Please note that graphite (even though graphite will burn) is considered a non-combustible residue because thermal decomposition is not part of the processing step for this residue.

**Non-specific** - Specific information is unknown or not provided.

**Pit** - Complete hermetically sealed component.

**Residue** - Only for the purpose of applying the IDES, the material being characterized consists



primarily of non-actinide chemical compounds (e.g.  $\text{Al}_2\text{O}_3$ ,  $\text{ZrO}_2$ , etc.), which are contaminated with an actinide. (See Compound)

**RTG** - A radioisotope thermoelectric generator (RTG) converts the heat from a "heat source" into electricity. Semiconductor materials are usually used for the conversion. The RTG consists of a heat source, thermal insulation material, the thermopile or converter, and an outer container.

**Sample** - Nuclear material being held for analysis.

**Sealed source** - Hermetically sealed nuclear material fabricated for specific use such as a neutron source.

**Solution** - Any nuclear material that is in liquid form or which has sufficient quantities of moisture that will cause a radiolysis reaction to over-pressurize storage containers (i.e., sludge, hydrogenous salt).

**Spent nuclear fuel** - Spent nuclear fuel is fissile material *usually contained in a unit* that has been placed in a nuclear reactor specifically to produce neutrons and has subsequently been removed from the reactor. In the course of producing neutrons, fission products that are isotopes of elements approximately one-half the mass number of the fissile isotope are produced which are typically highly radioactive. Spent nuclear fuel is typically removed from the reactor when the inventory of fission products contains enough neutron poisons to affect the efficiency and the operation of the reactor. Spent fuel may also include fuel materials that have been lightly irradiated and that require shielding for storage or processing.

**Standard** - Nuclear material being used or retained for reference or for quality control.

**Target** - A target is a material that contains elements that are to be irradiated to produce different isotopes by transmutation of the original element through neutron irradiation in a reactor or by irradiation with neutrons or light elements in an accelerator. *Irradiated* targets are typically highly radioactive and must be processed in shielded facilities to recover the desired isotopes.

**Unalloyed metal** - Pure element or high purity metal element with no other metal mixed with it. Unalloyed metal may have parts per million impurities or contamination.

**ATTACHMENT 4: COLLECTING PACKAGING INFORMATION**

*NOTE: For EFY 2006, packaging information is optional within NMIA submittals.*

Defense Nuclear Facility Safety Board (DNFSB) Recommendation 2005-1 identified the need to prioritize implementation of improved nuclear material packaging requirements, consistent with the hazards of the different material types and the risk posed by the current packaging. Individual sites will be responsible for developing implementation plans, and prioritizing efforts to meet new requirements. However, there is also a need for better information on packaging configurations at the national level.

To avoid burdening field sites with specific requirements for packaging, this year NA-123 is requesting that sites provide packaging information in their INVENTORIES table that is readily available within site database systems.

One approach is to add a PACKAGING SYSTEM table to the NMIA submittal and then add a linking field to the INVENTORIES table that links to the PACKAGING SYSTEM table. This approach is similar to the PROJECTS table approach where certain narrative information can be entered once in the PACKAGING SYSTEM table rather than repeated on each record in the INVENTORIES table.

An alternative approach is to add new packaging fields to the INVENTORIES table. For example, a site could add three packaging fields – INNER\_CONTAINER, OUTER\_CONTAINER, and DATE\_PACKED – and then fill these fields in for each inventory. In this approach, it is important that fields be codified to promote querying rather than simply narrative descriptions.

Based on analysis of data provided this year, NA-123 will work with field sites and the DNFSB to standardize an approach for NMIA submittals in subsequent years.

## ATTACHMENT 5: NMDCCC DATA CALL

Last year, the Nuclear Material Disposition Consolidation & Coordination Committee (NMDCCC) issued a data call that requested disposition information on all inventories in end-of-fiscal-year (EFY) 2005 NMIA submittals. Because original submittals had already been completed, sites had to provide disposition information in a second submittal with links to the first.

This year, the NMDCCC is requesting that the disposition information be provided with NMIA submittals. Information requirements remain the same; however, the DLINK table (required last year to link to NMIA records) can be avoided by simply building the disposition group field directly into NMIA submittals. This approach is described below.

### Purpose

The purpose in collecting this inventory information is to *identify disposition strategies* for the nuclear material and to *understand container and transportation needs* in order to *develop a comprehensive plan for consolidation and disposition of nuclear materials* throughout the DOE complex.

### Source and Scope

The sites should address all material included in their end-of-fiscal-year (EFY) 2006 NMIA submission, based on ending inventories as of 9/30/2006. In order to have complete accounting, all records in the EFY 2006 NMIA submission must be assigned a “disposition group” and given a DISP\_GRP\_ID. For programmatic materials with a known end-of-life (e.g., Sandia’s SPR fuel), the site should provide information on the expected disposition path and timeframe. All programmatic materials with a continuing programmatic requirement, for the foreseeable future, can be grouped into a single “disposition group”. No further information is required for materials with a continuing programmatic requirement.

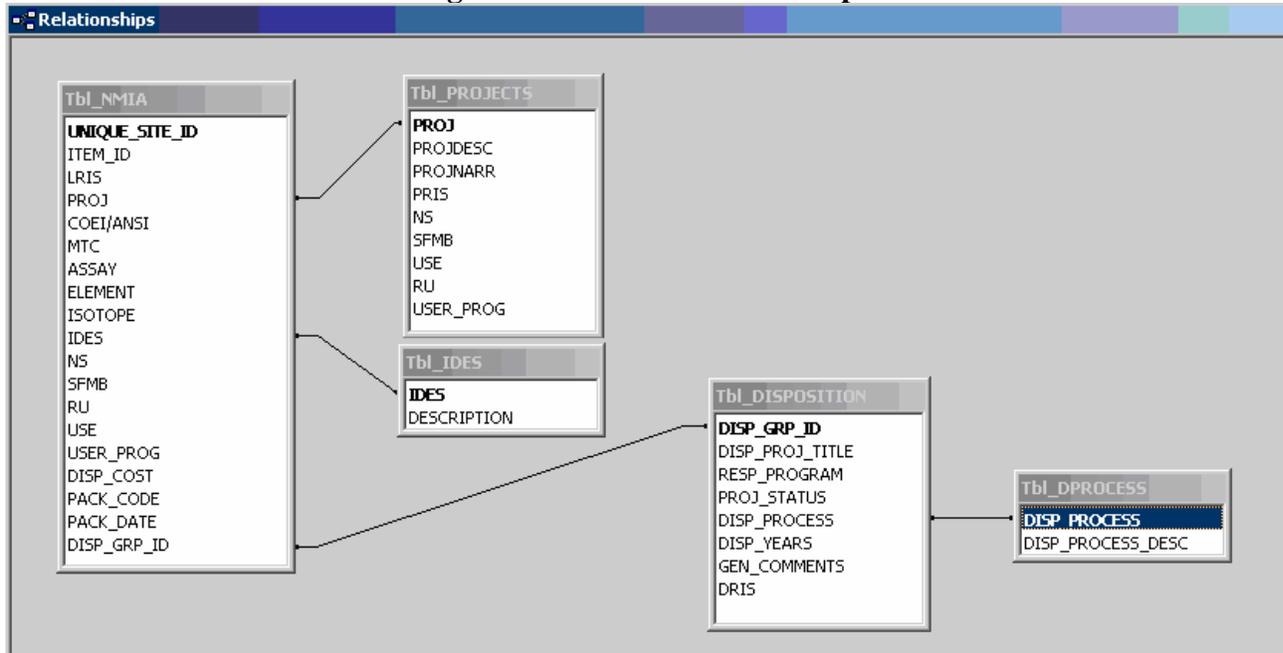
### Tasks

Each DOE site must assign disposition path information to all accountable nuclear materials at their site as of 9/30/2006. Within the NMIA submittal, a DISP\_GRP\_ID field must be provided that groups together materials with similar characteristics and a common disposition path. A disposition summary table – DISPOSITION – must also be provided that gives the specific disposition information associated with the disposition groups.

A graphical display of the relationships among these tables is shown in Figure A5-1. Specifically, this figure shows how the DISP\_GRP\_ID field is used to link records in the NMIA submittal (Tbl\_NMIA) to the DISPOSITION table. For clarity, this figure also shows how other tables are linked to the NMIA table using other fields.



Figure A5-1: Table Relationships



**DISPOSITION SUMMARY TABLE GUIDANCE**

**Intent**

The Disposition Summary Table A5-1 (DISPOSITION) provides information related to the groups of materials that are to be dispositioned. The information provided in this table represents the sites’ current disposition planning and may not have been agreed to by the receiving site. The unique disposition group information reflected in the DISPOSITION table is linked to records in the NMIA data using the DISP\_GRP\_ID field.

**Required Fields for the Disposition Table**

Table A5-1 shows the required fields for the Disposition Table. Each record in this table corresponds to a group of materials with similar characteristics and a common disposition path and must be uniquely identified using the DISP\_GRP\_ID field. These fields are:

- a description of the material (DISP\_PROJ\_TITLE),
- the program responsible for funding for the disposition (RESP\_PROGRAM),
- the status of the project (PROJ\_STATUS),
- the planned receiver site (DRIS) which does not necessarily represent concurrence from receiving site,
- the disposition option expected to be used at the receiving site (DISP\_PROCESS),
- the duration of the anticipated shipping campaign (DISP\_YEARS), and
- any comments or remarks (GEN\_COMMENTS).

**Table A5-1: Required Field for DISPOSITION Summary Table**

Field	Description	Field Values	Type	Length	Format
DISP_GRP_ID	Disposition Group ID: A unique value that identifies materials that will be dispositioned as a group. This field links to the NMIA Inventories table.	Site Specific (LANXX, LLLXX, etc.)	Text (contains text and numbers)	5	TTTXX
DISP_PROJ_TITLE	Disposition Project Title/Description: Field describes the disposition project.		Text	255	
RESP_PROGRAM	Responsible Program: Field lists the program office responsible for funding disposition of the material.	DP, EM, NE, NN, etc.	Text	2	XX
PROJ_STATUS	Project Status: Field describes whether the project (e.g. stabilizing, preparing, packing, etc.) is in progress, or not started. Also show the date the project started, or is expected to start, and the expected completion date.	Not Started or In Progress Start Date Completion Date	Text	100	
DRIS	DRIS: Field should contain the RIS code for where the site plans to disposition the material.	RIS Code	Text	3	XXX
DISP_PROCESS	Expected disposition process option to be executed at the receiving site (DRIS).	See Table 3.	Text	5	TTTXX
DISP_YEARS	Disposition Years: Field lists the FY that the shipping campaign is projected to start and the FY it will be complete. NA for materials remaining on site.	FYYYYY	Text	6	TTXXXX
GEN_COMMENTS	General Comments: Field supplies an area for the site to provide additional information regarding the material.		Text	255	

**Disposition Group Identification Number (DISP\_GRP\_ID)**

The Disposition Group Identifier is used to identify material at a site that will be dispositioned as a group. This field links to the to the NMIA inventories table as shown in Figure A5-1. Sites should create their own DISP\_GRP\_ID using a three digit alpha prefix that identifies the site followed by a two digit numeric code that will be used to describe the material. Programmatic materials, which will not be dispositioned in the foreseeable future, can be identified as part of a single group. Table A5-2 provides examples of the DISP\_GRP\_ID.



**Disposition Project Title (DISP\_PROJ\_TITLE)**

The Disposition Project Title contains a brief description of the material to be dispositioned.

**Program Responsible to Fund Disposition (RESP\_PROGRAM)**

Identifies the Program that is responsible to fund disposition for the material.

**Project Status (PROJ\_STATUS)**

Project Status provides the current disposition status for the material (e.g., not started, in progress, expected start date, completion date, etc.)

**Disposition Reporting Identification Symbol (DISP\_RIS)**

Reporting Identification Symbol for the site where the material will be dispositioned.

**Disposition Process (DISP\_PROCESS)**

The Disposition Process provides the expected disposition process option that will be used at the receiving site. If this process is not known, the disposition site should be contacted in order to provide the most accurate information. See Table A5-3 for a list of options. The listed disposition processes are based upon the EFY 2005 supplemental data call. If necessary, sites may include additional disposition paths, but those paths should be coordinated with NA-123.

**Disposition Years (DISP\_YEARS)**

The Disposition Years provides the FY that the site plans for the shipping campaign to start and the FY when the campaign will be completed. FY is only listed at the beginning of the field with the two-digit beginning FY and the two-digit year of completion (e.g., FY0608). Enter NA for materials that will remain on site (e.g., recycle/recovery, programmatic, or on-site disposal).

**General Comments (GEN\_COMMENTS)**

General Comments provides a field for the site to provide additional information regarding disposition of the material. If "Other" is selected in the DISP\_PROCESS, description of the "Other" should be provided in this field.



**Table A5-2: Example Data in the Disposition (Tbl\_Disposition) Summary Table**

DISP_GRP_ID	DISP_PROJ_TITLE	RESP_PROGRAM	PROJ_STATUS	DISP_RIS	DISP_PROCESS	DISP_YEARS	GEN_COMMENTS
LAN01	LANL HEU	DP	In Progress	FZF	Y12-RRPU	FY0608	Characterization and repackaging schedule goal is completion beyond of FY 05 assuming added funding; funding is requested until received.
LAN02	LANL Fuel Grade Pu	DP	Not Started	DZA	SRS-MXMF	TBD	These items are scheduled to be repacked by 2009 but can be done sooner if needed.
LLL05	LANL WG Pu Contam EU	NE	Not Started	NAB	NTS-HLWR	TBD	Part of IADG materials but could have technology developed at LANL
SNL03	Pu/Be Sources	DP	In Progress	WIPP	WIP-TRUW	FY0607	Neutron sources that have DP pedigree and will go to WIPP

**Table A5-3: Lookup Table for DISP\_Process Attribute**

General Process	Disposition Process	Disposition Process Description
1-Programmatic	BWX-RRPU	BWXT – Recycle/Recovery OR Programmatic
	CONTPU	Continuing Programmatic Use
	INL-PU	Idaho – Continued Programmatic Use
	INL-RRPU	Idaho – Recycle/Recovery OR Programmatic
	LAN-RRPU	LANL – Recycle/Recovery OR Programmatic
	LLL-RRPU	LLNL – Recycle/Recovery OR Programmatic
	NBL-CRM	New Brunswick Lab – Cert. Ref. Matl
	NFS-RRPU	NFS – Recycle/Recovery OR Programmatic
	NTS-PU	NTS – Programmatic Use
	NTS-SDAF	NTS – Storage at DAF
	ORN-RRPU	ORNL – Recycle/Recovery OR Programmatic
	PAD-FD	Paducah – Cascade Feed
	POR-TC	Portsmouth – Technetium-99 Processing
	SRS-RRPU	SRS – Recycle/Recovery OR Programmatic
	USEC	USEC – Privately Owned Material
	2-Nonproliferation	Y12-CP1
Y12-RRPU		Y-12 – Recycle/Recovery OR Programmatic
BWX-DNBD		BWXT – Downblend
LAN-ARIES		LANL – ARIES
NFS-DNBD		NFS – Downblend
SRS-DNBD		SRS – H-Area Processing / EU to Downblend
SRS-MXMF		SRS – MOX Fuel (not from pits)
SRS-MXPD		SRS – MOX Fuel (from pits, PDCF)
3-Dispose	Y12-CP2	Y-12 – Non-NS Commercial Processing
	Y12-DNBL	Y-12 – Downblend
	BNL-OSD	BNL – Onsite Disposal
	BWX-OSD	BWXT – Onsite Waste Disposal
	CWDF	Commercial Waste Disposal Facility
	HAN-DHLW	Hanford – Process/Dispose as HLW
	HAN-OSD	Hanford – On Site Disposal
	INL-DHLW	Idaho – Process/Dispose as HLW
	INL-NAVY	Idaho – Spent Naval Fuel
	INL-OSD	Idaho – Onsite Disposal
	INL-SFDD	Idaho – Spent Fuel Direct Disposal
	LAN-OSD	LANL – Onsite Disposal
	LAN-OSRP	LANL – Offsite Source Recovery Program
	LAN-TRUW	LANL – TRU Waste Packaging/Ship to WIPP
	LLL-OSD	LLNL – Onsite Disposal
	NTS-HLWR	NTS – HLW Repository
	NTS-RWMS	NTS – Radioactive Waste Management Site
	ORN-DHLW	ORNL – Processing/Disposal as HLW
	ORN-DNBD	ORNL – U-233 Downblend
	ORN-OSD	ORNL – Onsite Disposal
ORR-EMWMF	ORO – EMWMF on Oak Ridge Reservation	
POR-UDS	Portsmouth – DUF6 Conversion	
SRS-DHLW	SRS – Process/Dispose as HLW	
SRS-IMNP	SRS – Immobilization	



General Process	Disposition Process	Disposition Process Description
	SRS-OSD	SRS – Onsite Disposal
	SRS-SFDD	SRS – Spent Fuel Direct Disposal
	WIP-TRUW	WIPP – TransUranic Waste Repository
	Y12-OSD	Y-12 – Onsite Disposal
4-Unknown	ANL-TBD	ANLE – To Be Determined
	BNL-TBD	BNL – To Be Determined
	BWX-TBD	BWX – To Be Determined
	HAN-TBD	Hanford – To Be Determined
	INL-TBD	Idaho – To Be Determined
	LAN-TBD	LANL – To Be Determined
	LLL-TBD	LLNL – To Be Determined
	NBL-TBD	New Brunswick Lab – To Be Determined
	NFS-TBD	NFS – To Be Determined
	NTS-TBD	NTS – To Be Determined
	ORN-TBD	ORNL – To Be Determined
	POR-TBD	Portsmouth – To Be Determined
	SRS-TBD	SRS – To Be Determined
	TBD	To Be Determined
	TBD-DLLW	To Be Determined – Low-level waste
Y12-TBD	Y-12 – To Be Determined	



**REFERENCES**

**DOE O 5610.2**, *Control of Weapon Data*

**DOE M 471.2-1C**, *Classified Matter Protection and Control Manual*

**DOE M 472.1-1B**, *Personnel Security Program Manual*

**DOE O 472.1C**, *Personnel Security Activities*

**DOE O 5660.1B**, *Management of Nuclear Materials*

