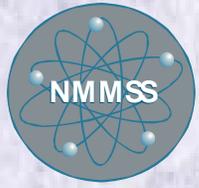


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# NRC Other Issues

Brian Horn / Larry Harris  
U.S. Nuclear Regulatory  
Commission

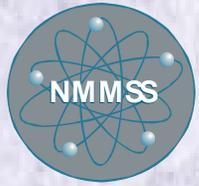


# NRC Other Issues

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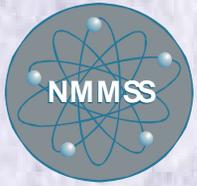
- **Concise Notes**
- **Pu-238 decay to Pu**
- **Spent fuel reporting**
- **NRC staff items**
- **Your issues**



# Concise Notes

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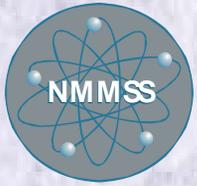
- **NUREG/BR-0006, Rev.6, Pages 21 & 22 Instructions**
  1. Applies to all licensees who have been notified by letter from the NRC that their installation has been identified under the US/IAEA Safeguards Agreement. The Facility Attachment/Transitional Facility Attachment may specify circumstances when Concise Note should be submitted such as an advance notice of your next scheduled physical inventory taking;
  2. Documentation that Importer cannot use the same batch names as the shipper or the shipper failed to supply a batch name and;
  3. To provide additional explanatory information.



# Concise Notes (continued)

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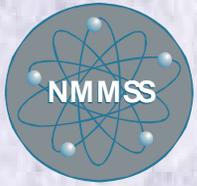
- Concise Notes can be attached to
  - (Material Transaction Form-741),
  - (Material Balance Report Form-742) and
  - (Physical Inventory Listing Form-742C).
- Submitting a Concise note puts a text message in the NMMSS data base.
- The concise note DOES NOT modify NMMSS or your nuclear accountancy information contained in NMMSS.



# Concise Notes (continued)

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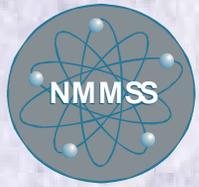
- Examples of activities that may result in a licensee submitting a Concise Note to NMMSS for the purpose of providing additional explanatory information:
  - A:
    - Operator finds irradiated uranium pellets at the bottom of a spent fuel pool.
    - Operator brings the uranium and plutonium, in the pellets, onto the NMMSS Inventory using a Form-741.
    - Concise note is attached to the Form-741 to document that the uranium and plutonium is contained in the discovered irradiated uranium pellets and to explain the method used to establish the quantity of uranium and plutonium in the pellets.



# Concise Notes (continued)

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- B)
  - Reactor starts using a new computer code to calculate the quantities of nuclear material contained in its irradiated fuel
  - The reactor operator decides to use the code to recalculate all of its spent fuel in the pool
  - Resulting in new values of plutonium and uranium for its spent fuel
  - The reactor staff makes changes to its facility books, documents the changes to NMMSS with a Form-741 and submits a Concise Note to document that use of the new computer code resulted in a NMMSS submittal to document the corrected values for the spent fuel

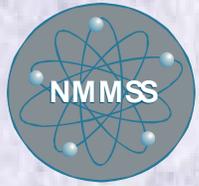


# Pu Decay to Pu

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- Licensee question:
  - My Pu-238 has decayed to less than 10% Pu-238. How do I report the change to NMMSS?
  - Guidance provided: (Repeated from February 2005 *NMMSS News*)  
Form-741, A-M onsite adjustment

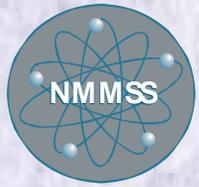
Line No.	Type of Inv. Change	Material Type	Element Wt.	Wt. % Isotope	Isotope Wt.
1	TN (decay)	83	20	10.0000	2.0
2	34 (Mis. Receipt)	50	19	6.4	15



# Spent Fuel Reporting

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- Licensee question:
  - The uranium in my spent fuel now contains less than 0.711% U-235, so the uranium is considered depleted.
    - 1) How should I report to NMMSS that my site inventory change due to the rounding from grams to kilograms of Uranium and U-235?
    - 2) How should the receiving facility adjust their site inventory to bring the rounded grams of Uranium and U-235 onto their site inventory?



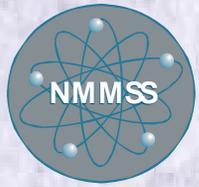
# Spent Fuel Reporting to NMMSS

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- Examples of two typical spent fuel assemblies located at a Pressurized Power Reactor.

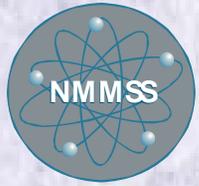
Weights in grams*	Spent Fuel Assembly #1*	Spent Fuel Assembly #2*
<b>Total U</b>	<b>366,175.25 grams</b>	<b>435,244.16 grams</b>
<b>Total U-235</b>	<b>1,456.22 grams</b>	<b>3,589.39 grams</b>
<b>(wt % isotope)</b>	<b>0.39%</b>	<b>0.82%</b>
<b>Material Type</b>	<b>MT=10</b>	<b>MT=20</b>
<b>Total Pu</b>	<b>4,047.44 grams</b>	<b>5,284.08 grams</b>
<b>Pu-239/241</b>	<b>2,465.44 grams</b>	<b>3,592.68 grams</b>
<b>Pu-240</b>	<b>1,462.21 grams</b>	<b>1,505 grams</b>
<b>(wt % isotope)</b>	<b>36.13%</b>	<b>29.43%</b>
<b>Material Type</b>	<b>MT=50</b>	<b>MT=50</b>

\* The site keeps track of nuclear material to 0.01 grams but maintain its books at the whole gram level.



# Spent Fuel Reporting to NMMSS

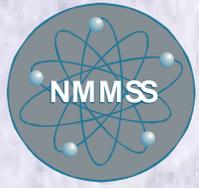
- When the spent fuel is shipped from the licensee, the following is reported on DOE/NRC Form-741 for Spent Fuel Assembly #1:
  - MT=10
    - 366 (kilograms of element)
    - 1 (kilograms of isotope)
    - 0.39 (wt % isotope)
  - MT =50
    - 4,047 (grams of element)
    - 2,465 (grams of isotope)
    - 36.13 (wt % isotope)
  - Difference between site book value and NMMSS shipment value:
    - 175 grams Uranium
    - 456 grams U-235
- When the spent fuel is shipped from the licensee, the following is reported on DOE/NRC Form-741 for Spent Fuel Assembly #2:
  - MT=20
    - 435,244 (grams of element)
    - 3,589 (grams of isotope)
    - 0.82 (wt % isotope)
  - MT =50
    - 5,284 (grams of element)
    - 3,593 (grams of isotope)
    - 29.43 (wt % isotope)
  - Difference between site book value and NMMSS shipment value:
    - Zero grams of Uranium and plutonium



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# NRC Staff Observations

- Periodic reconciliation by all licensees with NMMSS would increase the likelihood that NMMSS values agree with licensees physical holdings.
- NRC expectations that licensees periodically reconcile their Physical Inventory Listings and Material Balance Reports with NMMSS need to be formalized

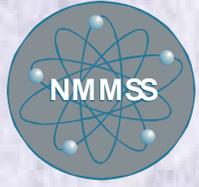


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# NRC Staff Observations (continued)

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- Additional source material reporting, for selected activities, would improve our understanding of the Facilities material balance equation.
- “Foreign” facility side information for imports/exports may not be required unless there is a significant shipper/receiver difference.



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# Your Issues

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