



August 1, 2011
REL:11:029

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Director, Spent Fuel Project Office
Office of Nuclear Material Safety and Safeguards
Washington, D.C. 20555

Gentlemen,

Subject: 10CFR71.95 Report of Event Involving a Shipment of Uranium Dioxide Powder Received from Cameco in Model ANF-250 Packagings That Violated the Requirements of DOT Competent Authority Certification USA/9217/AF Revision 15 and NRC Certificate of Compliance 9217 Revision 16

On June 15, 2011 during the opening of ANF-250 S/N 1044 containing four plastic bottles full of 1.0% to 1.05% low enriched (LEU) UO_2 and U_3O_8 powder at AREVA NP's (AREVA) Richland facility, it was discovered that the package had been shipped from Cameco's Port Hope, Canada facility to Richland, Washington without using the required steel powder insert in violation of NRC Certificate of Compliance (COC) 9217 Revision 16. NRC COC 9217 Revision 16 Section 5(b)(1) lists two different powder forms, (i) Dry uranium oxide powder enriched to a maximum of 5.0 % in the U-235 isotope and (vi) Uranium oxide powder enriched to a maximum of 1.0 % in the U-235 isotope. Section 5(b)(2)(i) of the COC states that the contents described in 5(b)(1)(i) must be shipped in the powder product container insert described in 5(a)(3)(iii) and shown on license drawing EMF-306,176 Revision 6 Sheets 1 and 2. Despite missing the powder product container insert, both the lid of the inner steel container and the drum lid were affixed and the four powder bottles were tightly sealed with the package. There was no escape of material outside of the power bottles into the inner cavity.

On May 31, 2011 Cameco Fuel Manufacturing in Port Hope, Ontario, Canada shipped eleven ANF-250 packages containing low enriched uranium oxide powder to AREVA's Richland, Washington fuel facility. The eleven ANF-250 packages were received at the Richland site on June 6, 2011. It was noted at the time of receipt that two of the eleven ANF-250 packages were marked as Limited Quantity, UN2910 and did not have YII Radioactive Material Labels, though the shipping papers indicated that all eleven contained LEU uranium oxide powder and were UN3327. Cameco was informed of the labeling problem shortly after receipt of the material in Richland. During the downloading of the eleven ANF-250 packages the problem with ANF-250 S/N 1044 was found; the other ten packages were found to contain the required steel powder insert in compliance with the COC. On June 21, AREVA notified Cameco that ANF-250 S/N 1044 had been shipped without the required powder insert in violation of Canadian Certificate CDN/E140/ (Rev.9), DOT CAC USA/9217/AF Revision 15, and NRC COC 9217 Revision 16. Cameco reported the incident to the Candian Nuclear Safety Commission (CNSC) on June 22, 2011.

This report is being provided to the NRC per the requirements of 10 CFR 71.95(a)(3) and to meet the information requirements specified in 10 CFR 71.95(c). That information is attached along with a copy of the Cameco June 22, 2011 report to the CNSC.

AREVA NP INC.
An AREVA and Siemens company

2101 Horn Rapids Road, Richland, WA 99354
Tel.: 509 375 8100 - www.aveva.com

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If you have any questions or require additional information, please feel free to contact me at 1-509-375-8409.

Very truly your;

A handwritten signature in black ink that reads "Robert" followed by a stylized monogram or initials "LJ".

R. E. Link, Manager
Environmental, Health, Safety, & Licensing

cc: E. W. Brach, Director
Division of Spent Fuel Storage
And Transportation
Office of Nuclear Material Safety
and Safeguards
Washington, D.C. 20555

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Event Information Required by 10 CFR 71.95(c)

(1) A brief abstract describing the major occurrences during the event, including all component or system failures that contributed to the event and significant corrective action taken or planned to prevent recurrence.

Several years ago AREVA sent Cameco several ANF-250 packages loaded with LEU uranium oxide powder and one empty ANF-250 package (S/N 1044) configured for pellet transport (pellet frame insert and two empty pellet suitcases). According to Cameco, soon after receiving ANF-250 S/N 1044, the pellet suitcases and the pellet frame insert were removed and the inner cavity was loaded with four powder jugs (without a powder insert). The loaded ANF-250 S/N1044 was stored in a secure storage location at Cameco's Port Hope facility for several years. On May 31, 2011 ANF-250 S/N 1044 was returned to the AREVA fuel manufacturing facility in Richland, Washington along with ten other loaded ANF-250 packages. Cameco states that the contents of the ANF-250 packages were verified prior to shipment; however, the operator did not realize that the powder product container insert was missing for ANF-250 S/N 1044.

The shipment was received at AREVA's Richland site on June 6, 2011 where it was noticed that two of the eleven packages were missing the YII Radioactive Material labels and were marked limited quantity UN2910. The manifest and bill of lading indicated that all eleven packages were radioactive material, Type A package, fissile, and UN3327. Cameco was notified of the label and marking problem. On June 15, 2011 while AREVA personnel were unloading ANF-250 S/N 1044, it was discovered that the four powder plastic bottles had been placed directly into the ANF-250 inner cavity without using the required steel powder insert. The four powder plastic bottles inside the inner cavity were tightly sealed so there was no escape of material into the inner cavity or out of the ANF-250. The other ten ANF-250 packages all had the required powder inserts when they were unloaded. The incident was entered into AREVA's Corrective Action system and as a result, Cameco was notified of the incident on June 21, 2011. Cameco reported the incident in writing to the Canadian Nuclear Safety Commission on June 22, 2011.

For discussion of corrective actions resulting from this event, see discussion under (4), below.

(2) A clear, specific, narrative description of the event that occurred so that knowledgeable readers conversant with the requirements of Part 71, but not familiar with the design of the packaging, can understand the complete event. The narrative description must include the following specific information as appropriate for the particular event.

A narrative of the event was provided under (1), above. NRC Certificate of Compliance (COC) 9217 Revision 16 for the Model ANF-250 packaging Sections 5(b)(2)(i) and 5(b)(2)(vi) require the use of the steel powder insert shown on license drawing EMF-306,176 Revision 6 Sheets 1 and 2 when shipping uranium oxide powder. ANF-250 S/N 1044 (containing ~1% enriched uranium oxide powder) was shipped by Cameco from Port Hope, Ontario, Canada to AREVA's Richland, Washington site without using the required steel powder insert in violation of COC 9217.

(i) Status of components that were inoperable at the start of the event and that contributed to the event;

As described in (1) above, the event involved shipping uranium oxide powder without the required steel powder insert.

(ii) Dates and approximate times of occurrences;

The shipment left Port Hope on May 31, 2011 and arrived at AREVA's Richland site on June 6, 2011 where it was noticed that two of the packages were missing Rad Yellow II labels and were marked as limited quantity. ANF-250 S/N 1044 was opened on June 15, 2011 at approximately 11:00 a.m. when it was discovered that the four full powder plastic bottles inside the inner cavity without a powder insert.

(iii) The cause of each component or system failure or personnel error, if known;

Cameco states that all eleven ANF-250s were labeled with Yellow II Radioactive Material Labels when they left Port Hope and that the two labels must have come off in transit. Cameco attributes the cause of mis-loading of S/N 1044 to operator unawareness in that the operator did not notice or realize that the powder product container insert was missing.

(iv) The failure mode, mechanism, and effect of each failed component, if known;

No failed components were involved in this event.

(v) A list of systems or secondary functions that were also affected for failures of components with multiple functions;

There were no component failures associated with this event.

(vi) The method of discovery of each component failure or procedural error.

The two missing Radioactive Material labels and package mis-markings were discovered by AREVA personnel when the packages were received at the Richland site. The mis-loading of ANF-250 S/N 1044 was discovered by AREVA personnel when the packaging contents were unloaded.

(vii) For each human performance-related root cause, a discussion of the causes and circumstances;

Cameco states that the packages were all properly labeled when they left Port Hope and that the missing labels must have come off while the packages were in transit. They have no explanation on the mis-marking of the packages. It should be noted that this shipment is the only time Cameco has shipped enriched powder using the ANF-250.

Cameco attributes the failure to identify the mis-loading of ANF-250 S/N 1044 to unawareness on the part of the operator in that he did not notice or realize that the powder product container insert was missing when the loading of the eleven ANF-250 packages was verified.

(viii) The manufacturer and model number (or other identification) of each component that failed during the event;

There were no component failures associated with this event.

(ix) For events during the use of a packaging, the quantities and chemical and physical forms(s) of the package contents;

The quantities per ANF-250 were approximately 44.5 kg U of approximately 1.15% enriched solid uranium oxide powder either as UO_2 or as U_3O_8 .

(3) An assessment of the safety consequences and implications of the event. This assessment must include the availability of other systems or components that could have performed the same function as the components and systems that failed during the event.

The actual safety consequences of this event are low. Even though ANF-250 S/N 1044 was missing the steel powder insert, the powder plastic bottles were tightly sealed, the inner cavity lid was in place, the outer drum lid was in place and there was no loss of containment.

(4) A description of any corrective actions planned as a result of the event, including the means employed to repair any defects, actions taken to reduce the probability of similar events occurring in the future;

The following is taken from the June 22, 2011 report from Cameco the CNSC: "Cameco reviewed the event with the individuals involved. As this was a unique one off shipment, no further action was taken. The process for loading unique shipments will be reviewed and amended as required."

(5) Reference to any previous similar events involving the same packaging that are known to the licensee or certificate holder.

AREVA is not aware of any previous similar events involving the ANF-250.

(6) The name and telephone number of the person with the licensee's organization who is knowledgeable about the event and can provide additional information.

*Robert E. Link, Manager
Environmental, Health, Safety, & Licensing
AREVA Richland Fuel Fabrication Plant
(509) 375-8409*

(7) The extent of exposure to individuals to radiation or radioactive materials without identification of individuals by name.

This event did not involve the exposure of individuals to radiation or radioactive materials.



June 22, 2011

Mr. Sylvain Faille
Director, Packaging and Transport Licensing Division
Materials Regulation Division
Canadian Nuclear Safety Commission
P.O. Box 1046 Station B
280 Slater Street
Ottawa, ON K1P 5S9

CAMECO CORPORATION

Fuel Services
205 Peter Street
Port Hope, Ontario
Canada L1A 3V6

Tel 905.885.1129

Fax 905.885.8229

www.cameco.com

Dear Mr. Faille:

Missing Product Container Insert in ANF-250 s/n 1044 – May 31, 2011

On May 31, 2011, Cameco Fuel Manufacturing in Port Hope shipped 11 ANF-250 containers to Areva NP located in Richland, Washington. The containers contained the slightly enriched uranium (SEU) material from the Low Void Reactivity Fuel project, which was being returned to Areva. On June 21, 2011 Areva NP notified Cameco that the ANF-250 serial number 1044 was missing the product container insert. The ANF-250 container is approved for transport under Canadian Certificate CDN/E140/ (Rev.9) and requires the use of the powder product container insert when transporting uranium oxide powder. Both the flange of the inner steel container and the drum lid were affixed and contained the product within the package. There was no escape of material outside the package.

Areva NP also notified Cameco that some of the ANF-250 containers were missing labels upon arrival in Richland, Washington. All the containers were properly labelled prior to leaving Cameco Fuel Manufacturing in Port Hope. Since only a couple of containers were missing labels, it is believed that these labels may have fallen off during transport.

The contents of a follow-up report are specified in Section 19(5) of the *Packaging and Transport of Nuclear Substances Regulations*, which are copied in italics below. A reply is given for each requirement immediately following in normal text.

1. *The date, time and location*

Cameco was notified of the missing product container insert by Areva NP on June 21, 2011. The ANF-250 was shipped from Cameco Fuel Manufacturing in Port Hope, on May 31, 2011.

2. *The probable cause*

Several years ago the ANF-250 serial number 1044 was shipped by Areva NP empty in the pellet shipment configuration (without the powder product container insert) to Cameco Fuel Manufacturing for evaluation. Soon afterwards the ANF-250 serial number 1044 was loaded and stored in the secure storage area at Cameco Fuel Manufacturing, Port Hope location for several years before being returned to Areva NP on May 31, 2011.

The contents of the ANF-250 containers were verified prior to shipment; however, the operator did not notice or realize that the powder product container insert was missing for the ANF-250 serial number 1044.

3. *The names of the persons involved.*

Various individuals at Cameco Fuel Manufacturing in Port Hope.

4. *The circumstances*

This was a unique shipment to return the SEU material to Areva with a package not typically used by Cameco Fuel Manufacturing.

5. *The effects on the environment, the health and safety of persons, and national or international security that have resulted or may result*

No material escaped from the container during transport and there was no effect on the environment, the health and safety of persons, and national or international security.

6. *The dose of radiation that any person has received or is likely to have received,*

There was no dose of radiation received by any persons as a result of this event.

7. *The actions taken by the consignor, the carrier and the consignee.*

Areva NP advised Cameco of the missing product container insert on June 21, 2011. Cameco reviewed the event with the individuals involved. As this was a unique one off shipment, no further action was taken. The process for handling unique shipments will be reviewed and amended as required.

Mr. Sylvain Faille
June 22, 2011
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If you have any questions or require further information please feel free to contact me by telephone at (905) 885-1129, extension 4053 or by email at marc-andre_charette@cameco.com.

Yours sincerely,


Marc-André Charette
Director, Transportation

c: Cameco - Corporate Saskatoon: A. Wong, J. Zaidan, W. Summach, L. Aitken, Regulatory Records
Cameco - Cameco Fuel Manufacturing: D. Jones, A. Kodarin, G. Honey
Cameco - Port Hope: A. Thorne, D. Ingalls