July 28, 2008

Patrick L. Paquin
GM, Engineering & Licensing
Energy Solutions
140 Stoneridge Drive
Columbia, SC 29210

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR REVIEW OF THE CERTIFICATE OF COMPLIANCE NO. 9196, REVISION FOR THE MODEL NO. UX-30 PACKAGE

Dear Mr. Paquin:

By letter dated October 22, 2007, Energy*Solutions* submitted a revision request to the U.S. Nuclear Regulatory Commission for Certificate of Compliance No. 9196. You requested recycled UF_6 as authorized contents for this package.

In connection with our review, we need the information identified in the enclosure to this letter. Additional information requested by this letter should be submitted in the form of revised Safety Analysis Report pages. To assist us in scheduling staff review of your response, we request that you provide this information by September 30, 2008. If you are unable to provide a response by that date, our review may be delayed.

Please reference Docket No. 71-9196 and TAC No. L24143 in future correspondence related to this request. The staff is available to meet to discuss your proposed responses. If you have any questions regarding this matter, I may be contacted at (301) 492-3339.

Sincerely,

/RA/

Kimberly J. Hardin, Senior Project Manager
Licensing Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Docket No. 71-9196
TAC No. L24143

Enclosure: Request for Additional Information

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OFC	SFST	E	SFST		SFST		SFST		SFST		SFST	
NAME	KHardin		MDeBose		BTripathi		NJordan		RParkhill		MPanicker	
DATE	7/8/08		7/11/08		7/11/08		7/11/08				7/14/08	

OFC	SFST	E	SFST		SFST		SFST		SFST	
NAME	MGordon		CRegan		MWaters		LCampbell		EBenner	
DATE	7/11/08		7/14/08		7/25/08		7/14/08		7/28/08	

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Request for Additional Information
Energy*Solutions*
Docket No. 71-9196
Certificate of Compliance No. 9196
Model No. UX-30 Package

By application dated October 22, 2007, Energy*Solutions* (the applicant) requested an amendment to Certificate of Compliance (CoC) No. 9196 for the Model No. UX-30 package. The applicant requested to incorporate recycled UF_6 as authorized contents. Accordingly, the Model Type will change from AF to B(U)F because the content may exceed a Type A quantity. The existing safety analysis report (SAR) was revised to reflect these changes.

This request for additional information (RAI) identifies information needed by the U.S. Nuclear Regulatory Commission staff in connection with its review of the application. The requested information is listed by chapter number and title in the applicant's SAR. NUREG-1609, "Standard Review Plan for Transportation Packages for Radioactive Material," was used by the staff in its review of the application.

Each individual RAI describes information needed by the staff for it to complete its review of the application and to determine whether the applicant has demonstrated compliance with regulatory requirements.

Drawings Review

D-1 Specify the welding code or codes used for the welding of American Society for Testing and Materials (ASTM) A240-304 stainless steel in the fabrication of the UX-30.

Note 3 on engineering drawing C-110-B-57922-0001, Revision 4, states that "All welds shall be visually inspected in accordance with AWS 1.1 paragraph 6.9 (Statically loaded)" and note 8 on engineering drawing C-110-B-57922-0001, Revision 4, states that "All welding procedures and personnel shall be qualified in accordance with AWS D1.1 or ASME Section IX requirements."

American Welding Society (AWS) code D1.1 relates to the welding of low carbon or low alloy steels for structural purposes and should not be used for the welding of stainless steel.

This information is needed to determine compliance with 10 CFR 71.33(a)(5)

D-2 Provide the revised public version of drawing C-110-B-57922-0002. Show the exact location of the two welding symbols that were inadvertently omitted from the public drawing.

The cover letter dated October 22, 2007, from Patrick. L. Paquin to Mr. Robert Nelson of the NRC staff states that one of the proposed revisions was, adding two welding symbols to the public version of drawing C-110-57922-0002 to comply with the proprietary version of the same drawing.

The staff needs to verify this in accordance with the requirements of 10 CFR Part 71.7.

Chapter 1 General Information Review

1-1 Clarify if there are any steel to stainless steel welded joins in the UX-30.

The SAR state that the UX-30 is constructed from American Society for Testing and Materials (ASTM) A36 and ASTM A240-304 steels, but it was unclear if there were any steel to stainless steel welded joins.

This information is needed to determine compliance with 10 CFR 71.33(a)(5).

Chapter 4 Containment Review

4-1 Clarify the design pressure of 22 psig for the UX-30 containment vessel.

Section 4.1.1 of the amended SAR indicates that the design pressures for the UX-30 containment vessel are 22 psig external and 200 psig internal for 30B and 30C cylinders. However, ANSI N14.1-2001, Addendum 1, Section 6.10, Design Conditions for a 30B cylinder lists the design pressure as 25 psig external and 200 psig internal. The staff would like the applicant to explain the discrepancy between the values in the SAR and the ANSI N14.1 for the external design pressure.

This information is required to verify compliance with 10 CFR 71.71

4-2 Explain why UX-30 30B cylinder lacks the valve protective cover (VPC) similar to the one that bolts over and protects the 30C cylinder valve during normal conditions of transport and hypothetical accident conditions of transport preventing intrusion of water in to the cylinder.

The SAR Section 1 and 4 describes that the VPC on the 30C cylinder provides additional level of protection for the cylinder valve over the standard 30B cylinder, and protects against leakage of water into the cylinder. Chapter 1 and 4 should explain why the 30B cylinder is not equipped with the VPC and to explain whether the effectiveness of the 30B cylinder to prevent water leaking in to the cylinder is maintained compared to the effectiveness of the 30C cylinder.

This information is required of the applicant to confirm compliance with 10 CFR 71.43 and 71.55.

4-3 Explain the method and procedure for measuring the package leak rate to be less than 1 x 10^{-7} cm^3/sec with a test sensitivity of at least 5 x 10^{-8} ref-cm^3/sec. Describe the procedure of the leakage test that will be employed in including equipment and instrumentation that should be used.

Sections 4.2.1, 4.2.3, and 8.2.1 of the license amendment request (LAR) and the amended safety analysis report (SAR) states that the "*acceptance tests for the 30B and 30C cylinder used for reprocessed UF_6 – in addition to the tests (listed above), the cylinder must have a measured leak rate less than 1 x 10^{-7} cm^3/sec. The leakage rate*

tests are performed per ANSI N14.5 – 1997 using a leak test with a test sensitivity of at least 5 x 10^{-8} ref-cm^3/sec." Appendix A of ANSI N14.5 – 1997 lists many leakage test methods and procedures. The application should identify the method(s) that is used with the specific UX-30 cylinder design for the required leak tests in ANSI N14.5-1997.

This information is required of the applicant to confirm compliance with 10 CFR 71.43(f), and 71.51(a) (1).

Chapter 5 Shielding Review

5-1 Update shielding evaluation to address any potential radiation from requested authorized contents.

10 CFR 71.47 states that each package of radioactive materials offered for transportation must be designed and prepared for shipment so that under conditions normally incident to transportation, the radiation level does not exceed 2 mSv/h (200 mrem/hr) at any point on the external surface of the package.

It was stated in Revision 0 of the SAR for the UX-30 package that, because of the UF_6 payload, the UX-30 does not require any neutron or gamma shielding. However, as part of the current amendment, it is proposed that the package classification be changed from a Type AF package to a Type B(U)F package. This is due to the proposed authorized shipment of recycled UF_6 and the potential for increased activity over time. It is the view of NRC staff that the shielding evaluation should be updated to address any potential radiation as a result of authorized contents (e.g., recycled UF_6).

This is needed to ensure compliance with 10 CFR Part 71.47.

CHAPTER 7 Operating Procedures.

7-1 Provide the following information regarding the operating procedures applicable to UX-30 cylinders transportation package for recycled UF_6.

(a) Provide details of test method such as type, procedure, and instrumentation by which the leak tightness of the filled cylinder is verified before each shipment.

(b) Explain in detail the leak test type, procedure and instrumentation used for the Valve Protection Cover (VPC) of UX-30 Cylinder 30C prior to each shipment.

This information is required of the applicant to confirm compliance with 10 CFR 71.43(f), and 71.51(a) (1).

Chapter 8 Acceptance Tests and Maintenance Program Review

8-1 Specify the qualifications of the welding inspectors who perform the visual inspections of welds as part of the maintenance program.

Section 8.2.1.1 states that “Visual inspection of all welds shall be carried out every 6 months,” but does not specify the qualifications of the weld inspectors.

This information is needed to determine compliance with 10 CFR 71.33(a)(5).

8-2 Revise Chapter 8 of the application to specify the method, frequency, and leak test procedures in Chapter 8 for the containment boundary test requirements in Table 1 of ANSI N14.5-1997.

Chapter 8 only specifies the generic requirement that ANSI-N14.5-1997 should be satisfied with no specific information on the leakage tests. Chapter 8 should provide additional leakage test requirements to ensure the package user will meet the testing requirements for this design.

This information is required of the applicant to confirm compliance with 10 CFR 71.43(f), and 71.51(a) (1).