

August 8, 2016

Ms. Sarah Bryson
Licensing Engineer
Croft Associates Limited
Building 4F, Culham Science Centre
Culham Abingdon
Oxfordshire, OX14 3DB, United Kingdom

SUBJECT: SECOND REQUEST FOR ADDITIONAL INFORMATION FOR REVIEW OF THE
MODEL NO. 3977A PACKAGE

Dear Ms. Bryson:

By letter, dated March 21, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16081A142), as supplemented on July 6, 2016 (ADAMS Accession No. ML16188A082), Croft Associates Limited submitted an application for amendment of Certificate of Compliance No. 9338 for the Model No. 3977A package. To assist with our review, the U.S. Nuclear Regulatory Commission staff needs the information identified in the enclosure to this letter. Discussion of this request for additional information (RAI) and a response date occurred on August 8, 2016.

We request that you provide this information by September 9, 2016. Inform us at your earliest convenience, but no later than September 2, 2016, if you are not able to provide the information by that date. If you are unable to provide a response by September 9, 2016, please propose a new submittal date with the reasons for the delay.

Please reference Docket No. 71-9338 and CAC No. L25100 in future correspondence related to this amendment request. The staff is available to discuss these questions as well as your proposed responses. If you have any questions regarding this matter, feel free to contact me at (301) 415-6877.

Sincerely,

/RA/

Chris Allen, Project Manager
Spent Fuel Licensing Branch
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

Docket No. 71-9338
CAC No. L25100

Enclosure: Second Request for Additional Information

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Enclosure: Second Request for Additional Information

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Request for Additional Information
Docket No. 71-9338
Model No. 3977A Package

By letter, dated March 21, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16081A142), as supplemented July 6, 2016 (ADAMS Accession No. ML16188A082), Croft Associates Limited submitted an application for amendment of Certificate of Compliance No. 9338 for the Model No. 3977A package. This RAI letter identifies information needed by the staff in connection with its review of the application. Each individual RAI describes information needed by the NRC staff to complete its review of the application to determine whether the applicant has demonstrated compliance with the regulatory requirements. NUREG-1609, "Standard Review Plan for Transportation Packages for Radioactive Material," was used by the staff in its review of the application.

Thermal Review

- 3.1 Provide the calculation that determines the pressure within the containment boundary during normal conditions of transport (NCT) and hypothetical accident conditions (HAC).

The response to RAI 3.6 cites a calculation sheet that presumably shows how the applicant obtained 5.15 bar (gauge) NCT pressure and 8.99 bar (gauge) HAC pressure for the shielding insert. Staff needs to verify the calculation addresses all relevant factors which increase pressure, e.g.; water vapor pressure, temperature changes, the change in moles due to radiolysis, etc.

This information is needed to determine compliance with Title 10 of the *Code of Federal Regulations* (10 CFR) 71.51(a).

- 3.2 Demonstrate that the HAC pressure accounts for radiolysis associated with higher HAC temperatures.

SAR Section 3.3.2 stated that the NCT pressure accounted for radiolysis associated with a higher NCT temperature (84.56 degrees C) compared to the test temperature (28 degrees C). However, SAR Section 3.4.3 did not include a similar explanation (e.g., a 1.2 multiplier factor was used for normal conditions) for HAC.

This information is needed to determine compliance with 10 CFR 71.51(a)(2).

- 3.3 Justify the apparent exclusion of water vapor pressure when calculating the containment vessel pressure.

The response to RAI 3.3 indicated that the increase in vapor pressure from 20 degrees C loading temperature to 80 degrees C would not affect the containment vessel pressure. However, no justification was provided.

This information is needed to determine compliance with 10 CFR 71.51(a)(1).

3.4 Clarify the HAC package pressure.

SAR page 3-21 indicated that the maximum pressure at HAC was 10 bar (gauge). However, SAR page 1-11 indicated that the maximum pressure for HAC was 7 bar (gauge). In addition, SAR page 3-21 indicated that the maximum pressure in the containment vessel was 8.99 bar (gauge) whereas SAR page 2-57 stated that the maximum pressure reached during the HAC fire was 7.47 bar (gauge).

This information is needed to determine compliance with 10 CFR 71.51(a)(2).