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| ONR Project assessment report  PR-01937 Mk A2 AGR Transport Flask (Design No. 2834) - Assessment of Modification N0287 |



ONR Project assessment report

**Project name**: PR-01937 Mk A2 AGR Transport Flask (Design No. 2834)

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# Executive summary

This report presents the findings of the ONR assessment of the proposed Category B Modification N0287 for the Mk A2 AGR transport flask, Design No. 2834 that was submitted by EDF Energy Nuclear Generation Limited (the applicant).

The modification was required to correct a number of non-safety significant inconsistencies in key technical data and operational practice between the Package Design Safety Report (PDSR), Package Operations and Maintenance Manual (POMM) and the certificates of package design and shipment approval issued for the package under the GB/2834 identification mark.

Based on the work carried out by ONR, it is concluded that the applicant’s proposed modification has addressed the identified inconsistencies between their safety case documents and correctly aligned them with the various certificates of approval issued by ONR as the Great Britain transport competent authority.

It is recommended that ONR’s Head of Regulation for the GB Transport Competent Authority:

* accepts this report to confirm support for the ONR technical and regulatory arguments that justify granting competent authority approval of the requested Modification N0287; and
* grants approval of the modification by signing the competent authority approval section of the applicant’s modification sheet, Modification Number N287 Issue 1.

Table 1: List of abbreviations.

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| Term/Acronym | Description |
| AGR | Advanced Gas-cooled Reactor |
| CA | Competent Authority |
| GB | Great Britain |
| ONR | Office for Nuclear Regulation |
| PAR | Project Assessment Report |
| PDSR | Package Design Safety Report |
| POMM | Package Operations and Maintenance Manual |
| RI | Regulatory Issue |
| UK | United Kingdom |
| WIReD | (ONR) Well Informed Regulatory Decisions |

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# Permission requested

1. EDF Energy Nuclear Generation Limited (the applicant) has applied (refs. [1, 2]) to the Office for Nuclear Regulation (ONR) as the Great Britain (GB) competent authority (CA) for approval of Modification N0287 to the Mk A2 Advanced Gas-cooled Reactor (AGR) transport flask, Design No. 2834.
2. This Project Assessment Report (PAR) presents the basis of our regulatory decision regarding Modification N0287.

# Background

## Overview of Package Design

1. The GB/2834 package design is commonly known as the Mk A2 AGR transport flask and has been in operation since the 1990s. It has principally been used for the shipment of AGR fuel from the applicant’s AGR power stations to Sellafield for storage and reprocessing, as well as transport of fuel assembly tie-bars and other non-fissile components.
2. The package design comprises a forged carbon steel flask body with attached external cooling fins, a flask lid assembly and an internal stainless steel skip (of two different designs) carrying the radioactive contents.
3. The package design has five variants:

* ‘A’ - unbottled AGR fuel elements in a 15-compartment skip;
* ‘B’ - bottled AGR fuel elements in an 8-compartment skip;
* ‘C’ - loose AGR fuel pins in slotted cans or whole/part pins, pellets and powders in debris capsules within slotted cans in an 8-compartment skip;
* ‘D’ - discharged flask; and
* 'E' - non-fissile components, e.g. irradiated tie-bars.

## Regulatory History

1. The last renewal of the GB/2834 package design approval was completed in 2022. Based on our assessment, we granted package design and shipment approval for the ‘A’, ‘B’, ‘D’ and ‘E’ package variants for transport by road and rail in the United Kingdom (UK).
2. We subsequently approved Modification N0251 to:

* extend the flask major maintenance period from four to five years;
* grant package design and shipment approval of the ‘C’ package variant for transport by road and rail in the UK; and
* extend package design approval of the ‘D’ and ‘E’ package variants to include sea transport.

1. Our assessment of Modification N0251 (ref. [3]) identified some inconsistencies between the applicant’s Package Design Safety Report (PDSR), the Package Operations and Maintenance Manual (POMM) and the certificates of package design and shipment approval for all variants of the GB/2834 package. These related to details of flask shipment and AGR fuel, including (but not limited to):

* peak AGR fuel burnup;
* arrangements for oversheeting of packages; and
* fissile material approval conditions for beryllium, graphite and deuterium.

1. We judged that these inconsistences were not safety significant and ensured that the correct information, limits and conditions were specified in the revised certificates of package design and shipment approval for all GB/2834 package variants that were issued through our approval of Modification N0251 (refs. [4, 5, 6, 7, 8, 9, 10]).
2. The applicant committed to resolve the inconsistencies in their safety case documentation and we monitored their progress via a Level 4 regulatory issue (RI-12219) which was closed on submission of Modification N0287 by the applicant.

## Purpose and Scope of Modification

1. The applicant’s modification is to update the Mk A2 AGR transport flask PDSR and POMM as required to ensure that they are fully aligned and consistent with the package design and shipment approvals granted by the CA. It has been submitted as a Category B modification because it amends the PDSR and therefore requires CA approval under the applicant’s arrangements and in line with our guidance (ref. [11]).

# Assessment and inspection work carried out by ONR in consideration of this request

1. In accordance with the regulatory permissioning strategy, we have carried out a targeted and proportionate assessment of the applicant’s proposed modification. No specialist inspector assessment was required to support this permission because the modification aligns the PDSR and POMM with respect to the key technical data and operational practice previously assessed and approved by ONR.
2. No inspection work was required to complete the permissioning requested under Modification N0287. We intend to inspect the applicant’s management system and Mk A2 AGR transport flask modification process as part of our assessment of Modification N0286 during 2025 (ref. [12]).
3. As Project Inspector, I assessed the applicant’s revised PDSR (ref. [13]) and POMM (ref. [14]) that were submitted with Modification N0287. My assessment (ref. [15]) confirmed that:

* the inconsistences identified during our assessment of Modification N0251 had been rectified;
* that further minor inconsistencies identified by the applicant had also been rectified; and
* that the updated PDSR and POMM documents were now consistent on key technical parameters and operational practice, and fully aligned with the GB/2834 certificates of package design and shipment approval.

# Matters arising from ONR’s work

1. There are no matters arising from our assessment of this modification.

# Conclusions

1. Based on the work carried out by ONR, I am satisfied that the proposed modification has addressed the identified inconsistencies in the safety case documentation and has correctly aligned the revised PDSR and POMM with the GB/2834 certificates of package design and shipment approval.

# Recommendations

1. I recommend that ONR’s Head of Regulation for the GB Transport Competent Authority:

* accepts this PAR to confirm support for the ONR technical and regulatory arguments that justify granting competent authority approval of the requested Modification N0287; and
* grants approval of Modification N0287 by signing the competent authority approval section of the applicant’s modification sheet, Modification Number N287 Issue 1 (ref. [2]).

# References

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| [1] | EDF, "RI-12219 Alignment of PDSR and POMM", NSLGEN32888, November 2024, WIReD Ref: ONRW-2019369590-15159. |
| [2] | EDF, "EDF Energy Nuclear Generation - Modification Number N287 Issue 1", November 2024, WIReD Ref: ONRW-2019369590-15104. |
| [3] | ONR, "PR-01479 Mk A2 AGR Transport Flask (Design No. 2834) - Assessment of Modification N0251, Phase 2", September 2024, WIReD Ref: ONRW-2019369590-8531. |
| [4] | ONR, "Certificate of Approval of Package Design and Shipment for the Carriage of Radioactive Material, GB/2834A/B(M)F (Rev.14)", WIReD Ref: ONRW-2019369590-12978. |
| [5] | ONR, "Certificate of Approval of Package Design and Shipment for the Carriage of Radioactive Material, GB/2834B/B(M)F (Rev.14)", WIReD Ref: ONRW-2019369590-12979. |
| [6] | ONR, "Certificate of Approval of Package Design and Shipment for the Carriage of Radioactive Material, GB/2834C/B(M)F (Rev.13)", WIReD Ref: ONRW-2019369590-7999. |
| [7] | ONR, "Certificate of Approval of Package Design for the Carriage of Radioactive Material, GB/2834D/B(M) (Rev.14)", WIReD Ref: ONRW-2019369590-7996. |
| [8] | ONR, "Certificate of Approval for the Shipment of Radioactive Material, GB/2834D/B(M)T (Rev.17)", WIReD Ref: ONRW-2019369590-11681. |
| [9] | ONR, "Certificate of Approval of Package Design for the Carriage of Radioactive Material, GB/2834E/B(M) (Rev.6)", WIReD Ref: ONRW-2019369590-7997. |
| [10] | ONR, "Certificate of Approval for the Shipment of Radioactive Material, GB/2834E/B(M)T (Rev.5)", WIReD Ref: ONRW-2019369590-11682. |
| [11] | ONR, TRA-PER-GD-014 Issue 4, "Guidance for Applications for UK Competent Authority Approval", October 2023, CM9 Ref: 2019/335838. |
| [12] | ONR, WIReD Permissioning Record PR-01936. |
| [13] | EDF, "Package Design Safety Report for the Mk A2 AGR Flask Design No 2834", E/REP/BRDB/0007/AGR/03, Revision 015, November 2024, WIReD Ref: ONRW-2019369590-15703. |
| [14] | EDF, "Package Operations and Maintenance Manual for the Mk A2 AGR Fuel Transport Flask Design No.2834", E/REP/BRDB/0008/AGR/03, Revision 021, October 2024, WIReD Ref: ONRW-2019369590-18945. |
| [15] | ONR, "Permissioning Assessment - Mk A2 AGR Flask, Design No. GB/2834 - Modification N0287 - Alignment of PDSR and POMM", May 2025, CM9 Ref: 2025/16805, WIReD Ref: ONRW-2019369590-21512. |