|  |
| --- |
|  |
| ONR Project Assessment Report  PR-01167 Mk A2 AGR Transport Flask (Design No. 2834) - Assessment of Modification N0236 |



ONR Project Assessment Report

**Project Name**: PR-01167 Mk A2 AGR Transport Flask (Design No. 2834)

**Report Title**: Assessment of Modification N0236

**Dutyholder/ Applicant**: EDF Energy Nuclear Generation Limited

**Report Issue No**.: 1

**Publication Date**: December 2023

**Document ID**: ONRW-2019369590-5276

© Office for Nuclear Regulation, 2023

For published documents, the electronic copy on the ONR website remains the most current publicly available version and copying or printing renders this document uncontrolled. If you wish to reuse this information visit [www.onr.org.uk/copyright](http://www.onr.org.uk/copyright) for details.

# Executive Summary

EDF Energy Nuclear Generation Limited has applied for approval of Modification N0236 for the Mk A2 AGR Transport Flask (Design No. 2834) package design.

The Mk A2 AGR flask carries irradiated Advanced Gas-cooled Reactor (AGR) fuel between the applicant’s AGR nuclear power stations and the Sellafield Nuclear Licensed site. The Mk A2 AGR flask is categorised as a Type B package.

This modification proposes to make changes and update several drawings. The changes to the drawings relate to the approval of historic EDF production permits and technical queries that were not integrated into the respective drawings at the time of approval. The applicant has determined that a Category B modification request is required to ensure that changes to the flask components are compliant with the relevant regulations.

We have assessed the applicant’s updated drawings and materials changes supporting Modification N0236 in relation to the relevant engineering aspects of the modification. We did not assess the criticality and shielding aspects of the package design as the modification did not materially affect these requirements.

It is concluded that the modification provides an adequate justification to update the design drawings and that these updates would not have a negative impact on safety and that the GB/2834 package design will remain compliant with transport regulations.

It is recommended that the Competent Authority grants approval of the design drawing changes by endorsing Modification N0236 Issue 1.

# List of Abbreviations

|  |  |
| --- | --- |
| Term/Acronym | Description |
| AGR | Advanced Gas-cooled Reactor |
| CA | Competent Authority |
| CDG | The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 |
| GB | Great Britain |
| HOW2 | Business Management System |
| ONR | Office for Nuclear Regulation |
| PAR | Project Assessment Report |

Table of Contents

[Executive Summary 3](#_Toc147824654)

[List of Abbreviations 4](#_Toc147824655)

[1. Permission Requested 6](#_Toc147824656)

[2. Background 6](#_Toc147824657)

[2.1. Purpose of Modification 6](#_Toc147824658)

[2.2. Overview of package design 6](#_Toc147824659)

[3. Assessment and Inspection Work Carried out by ONR in Consideration of this Request 7](#_Toc147824660)

[3.1. Engineering Assessment 7](#_Toc147824661)

[4. Matters Arising from ONRs Work 8](#_Toc147824662)

[5. Conclusions 8](#_Toc147824663)

[6. Recommendations 8](#_Toc147824664)

[References 9](#_Toc147824665)

# Permission Requested

1. EDF Energy Nuclear Generation Limited has applied [1] to the Office for Nuclear Regulation (ONR) as the Great Britain (GB) Competent Authority (CA) for approval of Modification N0236 [2] to the Mk A2 AGR Transport Flask (Design No. 2834).
2. This Project Assessment Report (PAR) presents the basis of our regulatory decision regarding Modification N0236.

# Background

## Overview of Package Design

1. The GB/2834 package design is commonly known as the Mk A2 AGR fuel flask and has been in operational use since the 1990s. It has principally been used for the shipment of Advanced Gas-cooled Reactor (AGR) fuel from the applicant’s AGR power stations to Sellafield for storage and reprocessing, as well as transport of 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.

## Purpose of Modification

1. This applicant proposes to formally update several package design drawings to capture changes made under historic EDF production permits and technical queries that were not integrated into the respective drawings at the time of approval. The update also includes a change to the material of several components due to changes in material standards. The applicant has categorised this modification as Category B.
2. EDF has supported this request with the updated drawings [3] [4] [5], modification request document [1]​, and an approval certificate from its Independent Nuclear Assurance team​ [6]​.
3. EDF has graded the drawing changes based on their safety significance, Grade One having the highest safety significance and Grade Three the lowest; there are five Grade One updates, two Grade Two updates, and six Grade Three updates. There are also three drawing updates that have not been graded as these updates only revise drawing numbers.

# 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 targeted and proportionate assessments of the applicant’s modification request. The key aspect of this modification is integration of EDF drawing changes into the live package design safety case. Consequently, a mechanical engineering assessment [7] was conducted to determine whether the drawing changes, or material changes due to changes in standards, could challenge the ability of the GB/2834 package design to comply with the Carriage of Dangerous Goods and Transportable Pressure Equipment Regulations 2009 (CDG) [8].
2. The modification does not have any criticality or shielding implications [9]. Therefore, we have not assessed the criticality and shielding aspects of the package design.
3. We previously assessed safety case requirements aspects of the package design as part of the approval for the renewal of the existing transport and shipment certificates for the GB/2834 package in 2022 [10]. Given that this was a recent assessment, and that the modification does not require any changes to the existing safety case or management system, we have not reassessed the safety case requirements as part of this modification.
4. We undertook our most recent inspection of the applicant in 2023 [11] and concluded that the applicant was compliant with its duties under CDG. The applicant has a positive history of compliance. Given the nature of this modification and the recent history of transport compliance inspections, I did not consider it proportionate to undertake further inspection activities as part of this assessment.
5. All our assessments were undertaken in accordance with the requirements of ONR’s HOW2 Business Management System (BMS) and its associated guidance.

## Engineering Assessment

1. Our engineering assessment of Modification N0236 was reported in an assessment report [7]. The mechanical engineering inspector sampled all Grade One and Grade Two drawing updates.
2. The mechanical engineering inspector concluded that the modifications would not have a negative impact on safety and that the GB/2834 package will remain compliant with transport regulations [8]. The mechanical inspector recommended approving the modification.

# Matters Arising from ONRs Work

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

# Conclusions

1. I conclude that the proposed modification provides an adequate justification to update the GB/2834 package design drawings that have been revised through EDF’s historic production permits and technical queries.

# Recommendations

1. I recommend that the Competent Authority grants approval to enable EDF to update the GB/2834 drawings by endorsing Modification N0236 Issue 1 and countersigning the EDF modification sheet.

# References

|  |  |
| --- | --- |
| [1] | EDF Energy Nuclear Generation Limited, “Modification N0236 Request for Approval Letter,” ONRW-2019369590-868, February 2023. |
| [2] | EDF Independent Nuclear Assurance, “GB/2834 Category B Transport Modification N0236 Approval Certificate,” ONRW-2019369590-872, January 2023. |
| [3] | EDF Nuclear Generation Limited, “Drawing Mark Ups Part 1,” ONRW-2019369590-869, February 2023. |
| [4] | EDF Nuclear Generation Limited, “Drawing Mark Ups Part 2,” ONRW-2019369590-870, February 2023. |
| [5] | EDF Nuclear Energy Limited, “Drawing Mark Ups Part 3,” ONRW-2019369590-871, February 2023. |
| [6] | EDF Independent Nuclear Assurance, “Mk A2 AGR Flask Drawing Changes related to Approved Production Permits,” ONRW-2019369590-873, February 2023. |
| [7] | ONR, “GB/2834 – ​Mechanical Engineering Assessment of EDF Mk A2 AGR Flask Category B Transport Modification N0236,” ONRW-2126615823-1025, November 2023. |
| [8] | HMSO, “The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009,” [Online]. Available: https://www.legislation.gov.uk/uksi/2009/1348/contents/made. |
| [9] | ONR, “GB\_2834 N0236 - Mk A2 AGR Flask Drawing Changes - Shielding and Criticality Implications email,” ONRW-2019369590-4401, September 2023. |
| [10] | ONR, “ONR-TD-AR-22-003 Safety Case Requirements Assessment of Modification N0219,” CM9 2022/31401, May 2022. |
| [11] | ONR, “Compliance inspection - nuclear transport - EDF,” IR-52708, May 2023 . |