Transport Permissioning (SVC4381211)

Application for renewal of lapsed Certificate of Approval for GB/1648A Package and its Shipment

Project Assessment Report ONR-SDFW-PAR-19-007 Revision 0 April 2021

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EXECUTIVE SUMMARY

Application for renewal of lapsed Certificate of Approval for GB/1648A Package Design and its Shipment.

This report summarises the basis of the regulatory decision by the Office for Nuclear Regulation (ONR) as Great Britain (GB) Competent Authority (CA) for Class 7 (radioactive material) dangerous goods, to grant a Certificate of Approval (CoA) for GB/1648A transport package design, together with related shipment approval certificate.

Permission Requested

The Applicant, International Nuclear Services (INS) has written to ONR to request ONR to grant their application for a Certificate of Approval for the GB/1648A package design.

The Applicant has also written to ONR, on behalf of Magnox Chapelcross, for approval of their application for a Shipment Approval for the GB/1648A transport package.

This approval request was made under 'The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009' for road and rail in GB. These regulations transpose into GB law the United Nations Economic Commission for Europe (UNECE) modal requirements ADR for transport of dangerous goods by road. The above modal regulations are based on the International Atomic Energy Agency (IAEA) Regulations for the Safe Transport of Radioactive Material, currently SSR-6 (2012 Edition) supported by advisory material in SSG-26.

Background

The package was previously approved for transport in 2010. However, this expired in August 2013.

Magnox Chapelcross recently identified that an on-site store contained one, previously unaccounted for, container of radioactive waste material. The material, and the container it is stored in, are identical to the content shipped under previous GB/1648A transport package licences.

Re-use of a GB/1648A transport package for this single item would provide Magnox with the most expedient and proven export route from Chapelcross to the Sellafield Miscellaneous Beta Gamma Waste Store.

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

ONR has agreed that in this instance it would be reasonable and proportionate to consider this application to use this package design for a single consignment only.

ONR carried out a programme of work in consideration of this request which involved assessment of the applicant's safety case, its claims, arguments, supporting documentation and evidence, with particular attention given to the grandfathering provisions given in paragraph 820 of SSR-6.

[Note: Under the transitional measures defined within ADR provision is made to allow continued use of Transport Packagings manufactured to a package design approved by the competent authority under the provisions of earlier editions of the regulations, subject to certain provisions. This is referred to as grandfathering rights or provisions]

No inspection work was conducted explicitly in support of this application. Regulatory confidence is drawn from inspection history of the UK based dutyholder and historical use of this package design in accordance with the previous revision of the Certificate of Approval.

The applicant has provided evidence of the current condition of three packages. One of these packages shall be inspected and maintained in accordance with the requirements given in the Certificate of Approval prior to use.

Matters arising from ONR's work

Discussions with the applicant have confirmed that the package chosen for use will be maintained and NDT performed as specified in the applicable maintenance instructions.

Conclusions

Based on the sampling undertaken I am satisfied with the claims, arguments and evidence within the safety case documentation and conclude that package design GB/1648A complies with the regulatory requirements detailed within ADR and SSR-6, under the provisions of para.820 of SSR-6, and with the specified temperature limitations for the purposes of mitigating risk of brittle fracture.

The proposed changes in arrangements, from previous applications, to secure the transport package to the bed of the transport vehicle are considered to be adequately justified.

Recommendation

It is my recommendation that the Transport Competent Authority approve the GB/1648A transport package design CoA for the specified contents for transport in the UK by road. Use being limited to a single consignment from Magnox Chapelcross, with an associated shipment approval.

LIST OF ABBREVIATIONS

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
CA	Competent Authority
CDG	The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations
CoA	Certificate of Approval
DCI	Deputy Chief Inspector
DL	Delivery Lead
GB	Great Britain
IAEA	International Atomic Energy Agency
ONR	Office for Nuclear Regulation
PAR	Project Assessment Report
SAR	Safety Analysis Report
SDFW	Sellafield, Decommissioning, Fuel & Waste
SI	Superintending Inspector
SSG	(IAEA) Specific Safety Guide
SSR	(IAEA) Specific Safety Requirements
UK	United Kingdom

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1 PERMISSION REQUESTED

- The Applicant, International Nuclear Services (INS) has written to ONR [1] to request approval of the package design GB/1648A package for the transport of irradiated stainless steel metal from Magnox Chapelcross. The Applicant has also written to ONR [4] for approval of their application for a Shipment Certificate of Approval for the GB/1648A package design.
- 2. This package design approval request was made under 'The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009' for road [14]. These regulations transpose into GB law the United Nations Economic Commission for Europe (UNECE) modal requirements ADR for transport of dangerous goods by road [12]. The modal regulations are based on the International Atomic Energy Agency (IAEA) Regulations for the Safe Transport of Radioactive Material, currently SSR-6 (2012 Edition) supported by advisory material in SSG-26 [13].
- 3. The application was made under paragraph 820 of SSR-6 regulations, 2012 Edition provisions for "grandfathering rights". [Note: Under the transitional measures defined within ADR provision is made to allow continued use of Transport Packagings manufactured to a package design approved by the competent authority under the provisions of earlier editions of the regulations, subject to certain provisions. This is referred to as grandfathering rights or provisions]

2 BACKGROUND

- 4. There are certain transport package designs carrying Class 7 (radioactive material) dangerous goods that require Competent Authority (CA) approval. For example, all packages containing fissile material (that are not classed as fissile excepted) require multilateral approval, i.e. approval by the relevant CA of the country of origin of the design, and also, where the consignment is to be transported through or into any other country, approval by the CA of that country.
- 5. Magnox Chapelcross recently identified that an on-site store contained one, previously unaccounted for, container of radioactive waste material. The material, and the container it is stored in, are identical to the content shipped under previous GB/1648A transport package licences.
- 6. Re-use of a GB/1648A transport package for this single item would provide Magnox with the most expedient and proven export route from Chapelcross to the Sellafield Miscellaneous Beta Gamma Waste Store.
- 7. The package design was previously approved for transport under DfT certificate GB/1648A/B(M) Issue 8 [2] however this expired in August 2013. At that time no further use of the package was envisioned. That approval was based on the PDSR [3] Transport Report No 55. Package Design Safety Report Extra Thick walled (green) Silo Flask Rev 3.
- 8. That CoA included supplementary operation controls to limit the temperature range for operation of the transport package. [Certificate stated: To compensate for the package not meeting the requirements of IAEA Safety Series No. 6 1973 Edition (As Amended) paragraphs 213, 231 and 241, use of the package shall be restricted to climates in which the ambient conditions fall within the range of -10°C and +26°C and where insolation values do not exceed half of those listed in Table III of that edition of Safety Series No. 6]
- 9. Applicant has requested ONR assessment to utilise the previous PDSR [3].

[Application letter states: As there is limited use/requirement (single item), the previously submitted PDSR 'INS Transport Report (TR) No. 55 Revision 3' has not been updated.]

- 10. As it is intended to use the GB/1648A package to transport radioactive material by road in the UK. INS have submitted an Application [1] requesting package design approval from ONR (the CA) as required by the following modal regulations to allow transport by road:
 - European Agreement Concerning the International Carriage of Dangerous Goods by Road, ADR [12]

3 ASSESSMENT AND INSPECTION WORK CARRIED OUT BY ONR IN CONSIDERATION OF THIS REQUEST

- 11. This ONR Project Assessment Report (PAR) presents the findings of our assessment to confirm this existing transport package design continues to be suitable for the intended use.
- 12. Taking a proportionate and targeted sampling approach, we have taken account of the applicant's request for a single use of the package design, without alteration to the package design or requirements for package operation and maintenance. Therefore our assessment of this submission has concentrated on confirmation that safety will not be adversely affected by granting approval of this design to an earlier regulatory standard as permitted by paragraph 820 of SSR-6 regulations, 2012 Edition.
- 13. The applicant has provided evidence of the condition of three packages in their report "INS ENG R 18 650 Rev 0" [1]. One of these packages will be inspected and maintained by Magnox Chapelcross in accordance with the requirements given in the Certificate of Approval prior to use. (see section 4 matters arising).

3.1 CRITICALITY ASSESSMENT [6]

14. The criticality assessor has confirmed the package is non-fissile.

3.2 ENGINEERING ASSESSMENT [7]

- 15. For the package design, the ONR engineering assessment [7] of the package design application in [3] focused on: (i) whether the new material would have been covered by the 2010 Approval certificate if it hadn't expired in 2013, and (ii) whether any one of the existing GB/1648A packagings that are being proposed for use is still in a good state of repair and has suitable spares available. Item (ii) ensures that any packaging that was compliant with the 2010 Approval certificate would still be compliant.
- 16. The ONR engineering assessor was satisfied with the evidence provided by the Applicant in these two respects and therefore had no objection to the above package design being approved from an engineering perspective.
- 17. For the shipment, the ONR engineering assessment [7] of the shipment application in [4] focused on: (i) the adequacy of the arrangements for complying with ambient temperature restrictions imposed by the package design and (ii) the adequacy of the package restraints during shipment by road.
- 18. The ONR engineering assessor was satisfied with the evidence provided by the Applicant in these two respects and therefore had no objection to the shipment application being approved from an engineering perspective.

3.3 SHIELDING ASSESSMENT [8]

- 19. The ONR shielding assessment [8] raised two queries which were included as SCR1/08 and SCR1/09 in the Q1 AR [5].
- 20. The questions focused on the confidence of the consignor that the material 'previously unaccounted for' is in accordance with the safety case specification.
- 21. The applicant's responses were considered acceptable. Dose rate measurements were undertaken that ensure the material is both in compliance with the recipient store acceptance conditions and will meet the transport criteria. The dose rates are midrange with respect to cans carried in previous campaigns.
- 22. Visual inspection of the opened can provided further evidence that the material inside was Chapelcross Processing Plant irradiated steel, in accordance with the safety case.
- 23. There is no requirement to undertake a conveyance shielding assessment for the shipment approval as this is for a single shipment of one package. Compliance with package criteria implies compliance with conveyance criteria in this case.
- 24. The ONR shielding assessor was satisfied with the supplementary evidence provided by the Applicant and therefore had no objection to the package design and shipment being approved from a shielding perspective.

3.4 SAFETY CASE REQUIREMENTS (SCR) ASSESSMENT [9]

- 25. The ONR safety case requirements assessment [9] assessed the submission documentation and INS condition report [1] for three packages stored at Magnox Chapelcross. The assessment also included a review of known facts to demonstrate the adequacy of the applicant's and consignor's management system arrangements in accordance with ADR 2017 paragraph 1.7.3.
- 26. Magnox Chapelcross has consigned this transport package in the past with similar contents. Hitherto, its consignment procedures were found suitable and these procedures will continue to be implemented for this package design approval.
- 27. The SCR assessment identified that the user had not planned to perform NDT of the transport package, as specified in the package maintenance instructions. Following ONR queries the applicant provided confirmation [16] that this NDT would be performed prior to usage of the package. (see section 4 matters arising)
- 28. Therefore, I conclude there are no outstanding issues that would preclude approval of this application to grant a CoA for package design GB/1648A.

4 MATTERS ARISING FROM ONR'S WORK

29. Discussions with the applicant have confirmed that the package chosen for use will be maintained and NDT performed as specified in the applicable maintenance instructions.

5 CONCLUSIONS

30. This report presents the basis of the regulatory decision by the Office for Nuclear Regulation (ONR) as Competent Authority of Great Britain for the transport of Class 7 (radioactive material) dangerous goods, to approve the package design GB/1648A for transporting Irradiated stainless steel from Magnox Chapelcross site to Sellafield by road.

- 31. To mitigate risk of brittle fracture the Certificate of Approval includes Supplementary Operational Controls which define temperature limitations for package use.
- 32. The submission from the applicant [1], together with supporting documentation provided to ONR is considered to be adequate to meet applicable regulatory requirements and the package design is judged to be safe.

6 **RECOMMENDATIONS**

33. It is my recommendation that the Transport Competent Authority approve the GB/1648A transport package design CoA [10] for the specified contents for transport in the UK by road. Use being limited to a single consignment from Magnox Chapelcross, with an associated shipment approval [11].



7 REFERENCES

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- 2. {Expired} GB/1648 Legacy 100803-Certificate GB1648A-Iss 8-GM. TRIM Record: 2012/391521
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- 4. Application for Shipment Approval of Package Design for The Carriage of Radioactive Materials GB/1648A/B(M) CM9 2019/145729
- 5. GB1648A SVC4381211 Report Q1 AR Form Assessment Review team queries Magnox Chapelcross TRIM Record: 2019/62463
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- 9. GB1648A SVC4381211 Report QA Safety Case Requirements Assessment SCR Magnox Chapelcross TRIM Record: 2019/62447
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- 11. Shipment CoA for 2019 TRIM Record: 2019/129954
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- IAEA Safety Standards: SSR-6, 'Regulations for the Safe Transport of Radioactive Material (2012 Edition)', IAEA, Vienna, 2012. SSG-26, 'Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (2012 Edition)', IAEA, Vienna, 2012. www.iaea.org.
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