Contribution ID: **201** Type: **ORAL**

Interpretation of the requirements for quality management systems for the shipment of SCO-III objects

A management system is essential for ensuring the safe transport of radioactive material. Guidance on the implementation of a management system is provided in TS-G-1.4 [1], but the degree of detail depends on the package design and relevant transport activities. A transport comprises all operations and conditions associated with, and involved in, the movement of radioactive material.
How does the - with the transport regulations [2] newly specified - group for large surface contaminated objects "SCO-III"blend in concerning quality management context?
BASE is the German competent authority for issuing approval certificates for shipments of SCO-III. BASE generally refers to BAM for assessment of mechanical and thermal design, containment, and the quality management during approval procedure. BAM as competent authority has from numerous applications over decades expansive experience in the assessment and the surveillance of the quality management systems.
A meaningful interpretation of the recommendations for the quality management system by BAM for the shipment of SCO-III is presented here to help understand the transport regulations. The quality management system for surface contaminated large objects transported as SCO-III may be seen as a three-stage process (Application, Preparation, Transport). All steps should be based on an integrated management system (IMS) of the responsible company for the shipment application (see Figure 1).

Figure 1: Scheme of the Quality-Management-System for SCO-III Shipments
The IMS of the responsible company as basis for an application should be described in corresponding documents. General requirements for quality management systems are given in e.g. ISO 9001 [3] and in the TS-G-1.4 [1].
An application for the transport of SCO-III shall include specific information about quality assurance regarding all activities for the transport [2]. Corresponding measures may be stipulated in form of a comprehensive Quality Management Plan (QMP) to manage all aspects related with the SCO-III transport in terms of the quality assurance, e.g. for the design and the preparation of the closings and bearings.
SCO-III were not built for a transport; they need to be prepared for the transport accordingly. Therefore, comprehensive inspections shall be carried out. A clear determination of the radioactive content and of state of the object itself (materials and construction) is among others important for the transport. Finally, SCO-III shall be inspected according to the QMP after preparation and before commissioning to prove compliance with the design specification.
The QMP shall also consider all activities during the transport. A transport schedule with description of the relevant steps, controls, instruction documents and responsibilities can help to ensure compliance with the foreseen quality assurance measures of the QMP.
The number of SCO-III transports is expected to be increasing in the next decades. The understanding of the requirements, especially for the quality assurance, is difficult since the standards established for packages have to be adapted to SCO-III objects. BASE and BAM provide guidance on a meaningful interpretation of the requirements for quality management systems for SCO -III objects. A corresponding QMP plays a pivotal role in considering all important measures for application, preparation and transport to ensure a safe and secure transport.
[1] IAEA TS-G-1.4: The Management System for the Safe Transport of Radioactive Material, Vienna: International Atomic Energy Agency (IAEA), 2008.
[2] IAEA Safety Standard, SSR-6 Rev.1, Regulations for the Safe Transport of Radioactive Material, Specific Safety Requirements, 2018 Edition, Vienna, Austria, 2018.
[3] DIN EN ISO 9001: Qualitätsmanagementsysteme, Anforderungen, November 2015.

Country or International Organization

Instructions

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Track Classification: Track 3 Safety and Security during Transport Operations