

Building an Integrated Safety–Security Culture in the Transport of Radioactive Material through Management System Standards: Strengthening Indonesia's Framework

Abstract

The safe and secure transport of radioactive material poses critical challenges, particularly for Indonesia as an archipelagic nation on international trade routes. Risks of radiation exposure, theft, or sabotage demand a robust regulatory framework supported by strong safety–security culture. This paper explores Indonesia's approach in aligning national regulations, such as Government Regulation No. 58/2015 and its derivative, with international standards to strengthen radioactive material transport safety. Integrating ISO 9001:2015, ISO 31000:2018, ISO 28000:2022, and ISO 22301:2019 improves quality management, risk assessment, supply chain security, and business continuity. The study emphasizes that management systems and culture must reinforce each other: systems without culture risk becoming formalities, while culture without systems lacks consistency. Adopting ISO's Annex SL high-level structure makes IAEA TS-G-1.4 more compatible and efficient. Key recommendations include applying risk-based thinking, enhancing supply chain traceability, embedding continuity planning, strengthening audits, and expanding competence, ensuring Indonesia contributes to a harmonized global framework.

Key words: transportation of radioactive material, security–safety culture, standardization, global harmonized management systems.

Country or International Organization

Instructions

Author: WULAN PUSPITA SARI, Widi (National Standardization Agency of Indonesia (BSN))

Co-author: Mrs DINAR, Latifa (National Standardization Agency of Indonesia)

Presenters: Mrs DINAR, Latifa (National Standardization Agency of Indonesia); WULAN PUSPITA SARI, Widi (National Standardization Agency of Indonesia (BSN))

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