

A Portable Culture: Challenges of Maintaining a Strong Security Culture during Radioactive Material Transport

Building a robust security culture is a foundational element for any organization, but culture is especially important for ensuring the safe and secure handling of radioactive materials and in reducing the risk of insider threats. Although the characteristics and attitudes among individuals that constitute culture are widely promoted in the operational environments of fixed facilities—power plants, hospitals, research institutions, and industrial users of radioactive sources—the transportation of radioactive materials presents a distinct set of cultural and operational challenges that warrant closer examination, in both policy and practice. To address these challenges, the paper proposes actionable recommendations to align cultural norms and values within the operational realities of being isolated in a mobile, decentralized environment, ultimately enhancing organizational culture and strengthening security.

Unlike a fixed location where employees and management engage in regular, in-person interactions that help establish and strengthen that cultural element, transport environments are inherently mobile, decentralized, and variable. Radioactive materials can pass through different hands, companies, jurisdictions, and layers of oversight. These movements may involve drivers, logistics personnel, subcontractors, customs officials, and end-users—each of whom may operate under different organizational norms and levels of training. In many cases, transportation personnel—especially those employed by third-party carriers or contracted for short-term operations—may not receive the same level of cultural integration or security reinforcement as their counterparts in fixed facilities. The result is a fragmented operational environment which can dilute cultural continuity and accountability in security operations.

While technical protection measures—GPS tracking, tamper-evident seals, and armed escorts—are central to transport security, physical measures are not sufficient on their own. The human element of security remains a critical piece, particularly for identifying and mitigating the risk of insider threat. A commitment to radiological security must be deeply internalized among all individuals involved in transportation because if staff are insufficiently trained, unengaged, or culturally detached from the mission, technical systems alone—no matter how strong—will not guarantee safety or mitigate insider threats.

International Atomic Energy Agency (IAEA) guidance documents such as NSS No. 7 (Nuclear Security Culture), NSS No. 9-G (Security of Radioactive Material in Transport), and NSS No. 26-G (Security of Nuclear and Other Radioactive Material in Transport) emphasize the need to maintain a strong security culture throughout the transport life cycle. However, these documents also recognize the complexities of implementing such culture in multi-actor environments and cross-border contexts. Using established psychology literature alongside workplace culture research, this paper offers an analysis of the challenges and opportunities for sustaining nuclear and radiological security culture during the transport of radioactive materials and explores how structural, organizational, and behavioral factors contribute to cultural erosion that results in key vulnerabilities of transport operations. Among the key vulnerabilities examined are a reliance on procedural compliance over internalized values, limited visibility of security leadership in mobile contexts, and differing interpretations of security culture across jurisdictions. Ultimately, if organizational security culture is to be truly effective, it must extend beyond static facilities and travel with the material. A well-protected shipment is the result not just of hardened containers and secure routes but of a shared, visible, and enduring commitment to security across the entire chain of custody.

Country or International Organization

Instructions

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