

**International Conference on Occupational Radiation Protection:
Strengthening Radiation Protection of Workers –Twenty Years of Progress
and the Way Forward**

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The Importance of Safety Culture In Occupational Radiation Protection

1. The Meaning of Safety Culture We first saw term of safety culture in the OECD Nuclear agency Report of 1987 [1]. Later, more and more people accepted it and thought of it as a culture where safety is a top priority. Safety culture has different interpretations on different occasions. For example, The IAEA (1991) defined safety culture as, “that assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, nuclear plant safety issues receive the attention warranted by their significance” [2]. This means that safety culture can be interpreted as a combination of tendencies, beliefs, rules and practices of organizations and individuals. ①Tendencies: indicates the method that an individual or organization likes to take in dealing with something. This is a mindset formed by long-term practice, which will inadvertently determine their behavior and culture. ②Beliefs: is the foundation of safety culture and the source of tendency. If tendency is the final choice, then belief is the power that drives this choice. Organizations usually will turn beliefs into rules and make individuals learn. ③Rules: refers to both written laws and regulations and enterprise rules and regulations, and unwritten constraints. Various rules determine the way individuals and organizations practice. ④Practices: is the ultimate tangible and concrete behavior of an organization or individual. Long-term practice will determine a specific tendency. In addition to the inheritance of previous cultures, there are also new culture arising from new practices and new members.
2. The Role of Safety Culture in Occupational Radiation Protection As nuclear technology becomes more widely used, the number of people potentially exposed to radiation increases and the risk of radiation harm increases. Especially, new nuclear power plant workers, doctors operating radiation therapy machines and researchers. They usually lack operational experience or theoretical knowledge related to radiation protection. A top-down safety culture helps them get into character quickly. The most immediate benefit of a safety culture is an effective reduction in staff doses. According to Fetterly, implementing a safety culture can reduce the mean cumulative skin dose of 27 staff cardiologists and 65 fellows-in-training by 40% over 3 years [3].
3. How to Establish Safety Culture The establishment and perfection of safety culture is inseparable from the joint efforts of organizations and individuals. ①For organizations: establish a safety system based on past experience and require all staff to learn, managers should promote the atmosphere of safety culture from top to bottom, organize safety protection training regularly and actively check the mastery of the staff, promote use of current national or international sources for these guidelines/criteria (ACR, IRQN, NIRS, IAEA, etc.) [4]. ②For individuals: actively integrate into the atmosphere of safety culture, strictly abide by various laws and regulations, pay attention to communication with peers and organizations, develop the habit of lifelong learning safety culture.

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