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Defining Design Authority Elements in Nuclear Power Plant Construction Projects.

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ABSTRACT

In Nuclear Power Plant operation, Nuclear Safety is paramount to protect the personnel, public, environment and the plant from the potentially harmful effects of nuclear radiation. This is evidenced by nuclear accidents such as Chernobyl and Fukushima. The ability to ensure that the design of a nuclear plant remains aligned to the design intent of its safety systems and components is fundamental to nuclear safety. This responsibility lies with the Design Authority appointed in the operating organisation.

With many nuclear power plants being built around the world in countries which have not operated nuclear plants previously, it is imperative that these organisations are supported with guidance on what is needed to establish the Design Authority function. The lack of comprehensive industry guidance has led the researcher to the primary research question: *What elements should be considered for the effective establishment of the Design Authority function at commercial operation of a New Nuclear Power Plant Construction project?* Based on a comprehensive literature review of existing international industry regulations, standards and guidance documents, followed by a survey of internal nuclear experts, the critical elements for establishing the Design Authority function were identified. The survey covered existing power plant operations and nuclear build projects, as applicable, in countries which included the, United States of America France, United Kingdom, South Korea, Canada, Romania, China, South Africa and. United Arab Emirates

The study identified the fundamental elements in establishing the Design Authority function as; acquiring the design knowledge and skills to execute the function; securing the plants design information; and establishing and ensuring compliance to a configuration management process.