

Paul Butchart

Paul began his career in the nuclear field as an Electronics Technician and Reactor Operator in the US Navy. Following that he worked building and starting two separate steel mills as a technician and then as Process Control Engineer. He returned to the nuclear field as an Instrumentation and Controls Engineer at the Advanced Mixed Waste Treatment Facility at the Idaho National Lab. Then he worked at Information Systems Laboratories, consulting for the NRC and various other regulatory organizations. During this time, he completed a Bachelor's Degree in Software Engineering and subsequently a Master's Degree in Computer Science. Currently, he is an I&C Engineer at NuScale Power, LLC in Corvallis Oregon. In 2014 he was assigned to perform a hazard analysis of the safety-related module protection system. Along with his supervisor, he determined that the usual methods of analysis such as failure modes and effects analysis, fault tree analysis, and to some extent PRA did not do an adequate job of analyzing complex digital control systems. After researching various methods, they settled on Systems Theoretic Process Analysis. It required a significant amount of work determining the best way to implement but they managed to sort it out with help from Dr Leveson and Dr John Thomas at MIT. NuScale's most significant addition to the MIT method was a cross-reference between the safety constraints identified by the analysis and the requirements identified for the systems under analysis.