

## Southern Nuclear's "Second" Simulator Project

3-D printing, or additive manufacturing, proved to be the solution for matching specification designs and prefabricating prototypes rapidly. Verified designs were sent out for manufacturing and then installed on the new simulators. In-house rapid prototyping provided more control and consistency in the engineering and quality of the parts.

"There were over 1,000 switches on the Plant Farley simulator that were obsolete and had to be built," said Richard Froelich, senior project engineer for GSE. Froelich described one particularly challenging piece: a brass handle for the Hatch simulator that had multiple machined parts. The team was able to design and verify the part in a couple of days using 3-D printing.

### Industry trends

The challenge of simulator availability is not exclusive to Southern Nuclear, as most U.S. nuclear plants and their original simulators are more than 30 years old. Many utilities have expressed interest in second simulators to increase their trainee throughput and upgrade to modern digital equipment, whether that be through new full-scope simulators, as in the case of Southern Nuclear, or variations, such as so-called glass-top simulators. In fact, the American Nuclear Society dedicated a panel discussion to simulator training during



Photo: Southern Nuclear

Replicating each simulator's unique knobs and switches required non-traditional procurement methods, such as 3-D printing.

its 2017 Conference on Nuclear Training and Education and showcased several additional papers on the topic earlier this year.

Finally, the events at Fukushima over eight years ago have had a profound impact on the industry. While various strategies have been implemented in the industry as a response, namely FLEX, new regulations specific to training have not

been announced by the Nuclear Regulatory Commission. Southern Nuclear and other like-minded utilities, however, are making changes to their operator training programs now. By adding the engineering-grade severe accident modeling code MAAP directly into their simulators, these utilities are attempting to future-proof their training programs. **IN**

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