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Design and Fabrication of Closed Loop Systems (CLS) for the Fast Flux Test Facility (FFTF)

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The FFTF was designed to accommodate up to four CLS. Each CLS was an irradiation testing system capable of operating at 2.3 MWt with its own independently controlled coolant system. An irradiation test in a CLS was inserted into the core within a Closed Loop In-Reactor Assembly (CLIRA). An entire CLS consisted of a CLIRA, a primary and a secondary cooling loop, and a Dump Heat Exchanger (DHX) as the ultimate heat sink. Four CLS were designed and two were fabricated. All connections needed to install a CLS were likewise fabricated including the branch arm piping within the reactor vessel. The CLS were not installed prior to startup of the FFTF due to resources being shifted to achieving full power as soon as possible. This paper will describe the design and fabrication of the FFTF CLS as well as the lessons learned during design and fabrication.

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