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ATR Firewater Pump Replacement

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August 2022

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Prepared for the
U.S. Department of Energy
Under DOE Idaho Operations Office
Contract DE-AC07-05ID14517
The objective of this project is to replace faulty firewater pumps 619-10 and 633-1 at INL's Advanced Test Reactor (ATR). The current 633-1 pump case and impeller are eroded, due to a manufacturing error, reducing its performance. The 619-10 fire pump's shaft sleeve is worn, and needs replaced. However, since the pump was made in 1983 and the cost of replacing the sleeve alone is so high, it is worthwhile to replace the whole pump to provide for extended wear.

ATR Fire Pump Functions

Around the Advanced Test Reactor, firewater pumps supply firewater, which is raw water from the aquifer stored in a supply tank, to serve the following functions to support ATR systems in the case of emergency. The firewater pumps around site can serve from one to all three of these functions.

How will they be replaced?

Emergency core injection as well as emergency canal makeup are nuclear safety functions, meaning they are crucial to maintaining the safe operation of the Advanced Test Reactor. Firewater pump 619-10 just performs firefighting functions. Firewater pump 633-1, however performs nuclear safety Emergency Canal Makeup functions. Since it is originally manufactured by a commercial supplier instead of nuclear, it needs to go through testing to become dedicated for nuclear use, a process called Commercial Grade Dedication. Both pumps are currently in the process of being procured before they go through their required testing and installation.

My role in this process was to assist project engineers Don Ashcraft and Paul Nielsen in the correspondence between the pump vendors, project planner, quality engineers, procurement engineers, and supply operations professionals to complete all the steps of purchasing the two pumps, including creating Catalog Identification numbers, managing the documentation on Asset Suite, and the sizing and research of supplementary parts like gaskets and nuts.