

EXAMPLE RESEARCH AND TEST REACTOR LICENSE RENEWAL AND FUEL CONVERSION REVIEW FINDINGS

Some examples of the more significant items the staff has discovered during the review of Research and Test Reactor renewal and conversion applications are (issues with conversion are included as examples because they are items that could potentially remain in a renewed license if a narrowed scope of review were implemented):

- A safety analysis report (SAR) contained an accident analysis that assumed a maximum coolant temperature at the beginning of a maximum hypothetical accident, yet the technical specifications (TSs) did not contain an operating restriction to ensure that the coolant temperature would not exceed the analytical limit.
- An SAR contained a thermal-hydraulic analysis that was not based on limits for reactor power or coolant temperature. The safety margins for operation of the reactor were not known.
- An SAR did not contain calculations showing that the limiting safety system setting (LSSS) protected the safety limit. The response to a staff request for additional information (RAIs) showed that the proposed LSSS did not protect the safety limit under all allowed core configurations. Changes to the TSs were needed.
- An SAR contained accident analysis with unrealistic assumptions that resulted in large postulated doses to members of the public. Through the RAI process, the analysis was made more realistic and stated doses were reduced.
- The proposed TSs for one facility would allow operation up to 500 kW in natural circulation. However, the SAR only evaluated the use of natural circulation up to 10 kW.
- The accident analysis provided in one SAR demonstrated a dose to the member of the public in excess of the 10 CFR Part 20 limits with no information required by 10 CFR Part 20 to approve an alternate dose limit.
- The accident analysis in one SAR discusses in general terms that earthquakes in the area are rare and not likely to damage the reactor, but provided no actual accident analysis.
- The review of the SAR for one site identified a potential direct release path to the environment. The site in question has a single heat exchanger used to remove heat from the primary coolant. The water used to cool the primary coolant is released to the atmosphere. A failure of the heat exchanger could potentially release primary water directly into the environment.

Potential reductions in the scope of review could lead to these issues remaining unresolved in the renewed license. While these issues were not created during the license renewal process, they are items that the staff has had the opportunity to address under the current scope of review that a streamlined process may not afford.