

mHTGR-DC 30

Issue:

Maintaining quality of helium coolant requires capability to detect and monitor ingress of moisture, air, secondary coolant, or other fluids to within the reactor helium pressure boundary

Proposed Change to mHTGR-DC 30

Markup is based on GDC 30

Quality of reactor ~~coolant~~ helium pressure boundary.

The moisture ingress into reactor coolant was identified in NUREG/CR-6839, “Fort Saint Vrain Gas Cooled Reactor Operating Experience,” and DOE report, INL/EXT-14-31179 (page 103) as an important HTGR operational safety issue.

- Does using “helium” in mHTGR-DC 30 prevent the consideration of moisture and air ingress?
- A clarification in mHTGR-DC language may be needed to ensure the design considers detection and monitoring of moisture and air ingress *to within the reactor helium pressure boundary.*

Proposed mHTGR-DC 30

Markup is based on GDC 30

Quality of reactor ~~coolant~~helium pressure boundary.

Components which are part of the reactor ~~coolant~~helium pressure boundary shall be designed, fabricated, erected, and tested to the highest quality standards practical. Means shall be provided for detecting and, to the extent practical, identifying the location of the source of reactor ~~coolant~~helium leakage. Means shall be provided for detecting and monitoring ingress of moisture, air, secondary coolant, or other fluids to within the reactor helium pressure boundary.

Compare to Proposed mHTGR-DC 14

Markup is based on GDC 30

Reactor ~~coolant~~helium pressure boundary.

The reactor ~~coolant~~helium pressure boundary shall be designed, fabricated, erected, and tested so as to have an extremely low probability of abnormal leakage, of rapidly propagating failure, ~~and~~ of gross rupture, and of unacceptable ingress of moisture, air, secondary coolant, or other fluids.