TREAT is located at the Materials and Fuels Complex west of Idaho Falls and is near operating facilities designed to receive, handle and process irradiated nuclear fuel assemblies.

Transient Reactor Test Facility

Operating from February 1959 until April 1994, the Transient Reactor Test Facility at Idaho National Laboratory was specifically built to conduct transient reactor tests where the test material is subjected to neutron pulses that can simulate conditions ranging from mild upsets to severe reactor accidents. The reactor was constructed to test fast reactor fuels but has also been used for light water reactor fuel testing as well as other exotic special purpose fuels (i.e. space reactors).

The Transient Reactor Test Facility, commonly referred to as TREAT, is an air-cooled, thermal spectrum test facility designed to evaluate reactor fuels and structural materials.

TREAT was designed to:

- Induce intense fission heating in the nuclear fuel being tested.
- Test nuclear reactor fuels under severe reactor-accident conditions.
- Provide nondestructive test data through neutron radiography of fuel samples.

These capabilities are required for predicting safety margins for next generation fuels and reactor design safety.

TREAT was historically used to study fuel meltdowns, metal-water reactions, interactions between overheated fuel and coolant, and the transient behavior of fuels for high-temperature systems. The open core design of TREAT also allows for the detailed monitoring of the experiments during the test. In its steady state of operation, TREAT can be used as a large neutron radiography facility that can non-destructively examine assemblies up to 15 feet long.

TREAT was specifically designed to test prototypic-sized reactor fuel pins and bundles under transient power conditions. During its 35 year operating history, it conducted thousands of transient experiments.

Today, even though TREAT has not operated since 1994, return to operable conditions and resumption of testing is believed feasible and is currently under consideration by DOE.

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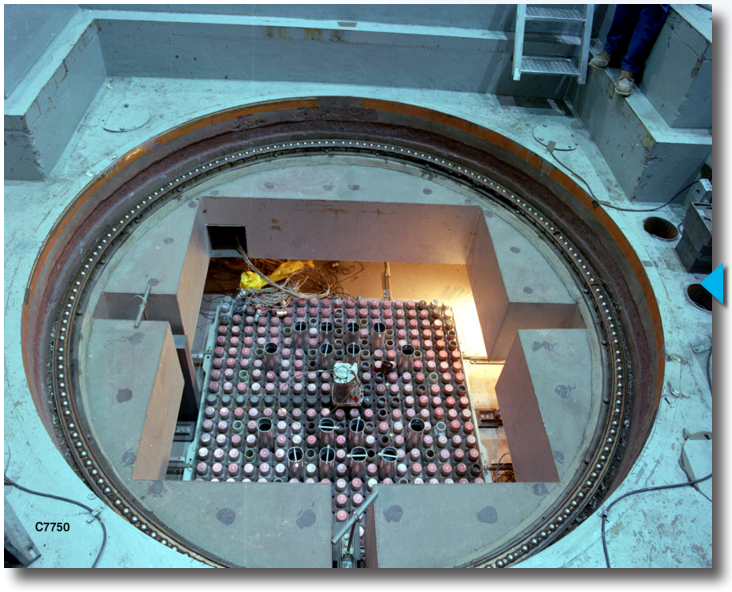
TREAT is located at the Materials and Fuels Complex west of Idaho Falls and is near operating facilities designed to receive, handle and process irradiated nuclear fuel assemblies, construct test experiment assemblies with either fresh or irradiated fuels, receive tested transient experiments containing failed fuel and perform post irradiation examinations on failed fuels.



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