The Transient Reactor Test Facility is located 32 miles west of Idaho Falls, Idaho, near Idaho National Laboratory's Materials and Fuels Complex.

Transient Reactor Test Facility

The Transient Reactor Test (TREAT) facility at Idaho National Laboratory is a national asset that will help to re-establish the United States' leadership in an essential nuclear research field. It will foster the development of new ways to provide baseload and load following electrical power without harmful emissions. Transient testing is an essential component of the United States and international efforts to develop robust, safer nuclear fuels, and to bring innovative reactor technologies to the market.

Transient testing involves the application of controlled, short-term bursts of intense neutrons directed toward a test specimen in order to study fuel and material performance under off-normal operational conditions and hypothetical accident scenarios. In TREAT, nuclear fuel or material test samples are placed into the reactor core center and then subjected to quick, intense power bursts. After a transient test experiment is completed, the fuel or material is analyzed at a post-irradiation examination facility utilizing very high

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Resuming operations at the TREAT reactor will re-establish a vital scientific testing capability to support INL's nuclear research mission.

The Energy of Innovation

Idaho National Laboratory

The transient control rod drives are key to TREAT's ability to create millisecond bursts of extreme power to test and verify fuel and material safety limits. Engineers, technicians and scientists work to thoroughly inspect components to prepare for reactor operations.

For more information

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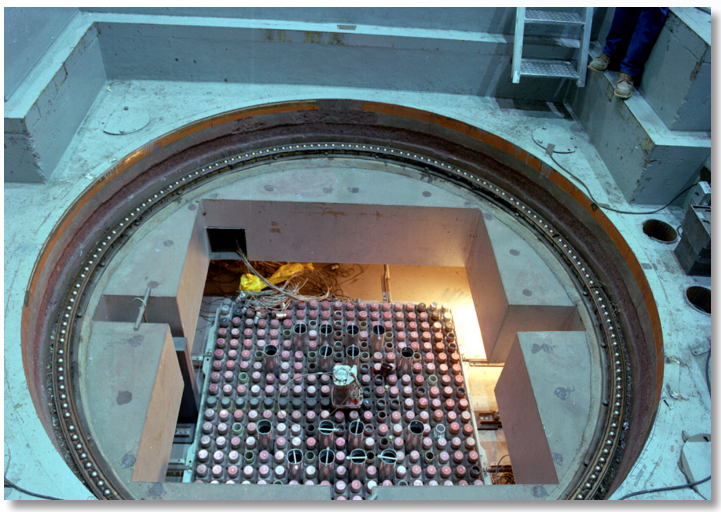
fidelity inspection equipment. The results of these tests are then evaluated and used in advancing fuel or material design and qualification.

TREAT is a highly capable test reactor; its unique design offers real-time monitoring of the fuel or material's behavior under postulated reactor accident conditions. This allows scientists to determine the appropriate safe limits for the fuels and materials in nuclear power reactors. TREAT's simple, self-limiting, air-cooled design can safely accommodate multipin test assemblies, enabling the study of fuel melting, metal-liquid reactions, and overheated fuel and coolant interactions, as well as the transient behavior of fuels for high temperature system applications. It also allows for the detailed monitoring of the specimens during a test via the hodoscope, a system that detects fast neutrons and makes possible real-time evaluation of the fuel behavior within a test sample.

The elegant, air-cooled design of the TREAT reactor is key to its flexibility and longevity as an important INL research tool.



The TREAT facility operated from 1959 through 1994, when it was placed in safe-standby mode. A resurgence of the United States and international interest in developing innovative nuclear technologies has restored the demand for transient testing. INL's Resumption of Transient Testing Program (RTTP) is working to re-establish transient test capability and is on track to resume operations in FY 2018.