	Facility	Description
Fuels and Materials Irradiation	High Flux Isotope Reactor (HFIR)	A versatile 85-MW isotope production, research, and test reactor with the capability and facilities for performing a wide variety of irradiation experiments and a world-class neutron scattering science program. HFIR is a beryllium-reflected light water-cooled and moderated flux-trap type swimming pool reactor that uses highly enriched ^{235}U as fuel. HFIR typically operates seven 23–27-day cycles per year.
	HFIR Gamma Irradiation Facility	Provides high gamma doses for studying the effects of radiation on materials
	HFIR Neutron Activation Analysis (NAA) Laboratory	Provides an inexpensive, precise, accurate screening of samples for fissile material content to support forensic science, environmental research and materials research
	Materials Irradiation Facility at HFIR	Unique facility that can host fully instrumented experiments in a high-neutron-flux environment with the advantage of monitoring and acquiring in situ data and changing capsule operating conditions in real time during irradiation, thus enabling measurement of a variety of material properties such as conductivity and fission product composition
	Thermosyphon Irradiation Facility (concept tested out of pile)	Provides hydraulic isolation, allows fuel/clad irradiation testing under prototypic LWR conditions, offers irradiation in a high heat secondary coolant without contaminating the HFIR primary coolant
	Irradiated Materials Examination and Testing Facility (IMET)	Includes 6 well-equipped hot cells providing physical and mechanical properties testing, examination of irradiated materials, irradiated specimen storage and sample preparation
	Irradiated Fuels Examination Laboratory (IFEL)	A Category 2 nuclear facility with 6 hot cells that permit the safe handling of increased levels of radiation in the chemical, physical, and metallurgical examination of nuclear reactor parts by providing nondestructive and destructive testing capabilities
	Low Activation Materials Development and Analysis Laboratory (LAMDA)	Provides post irradiation examination capabilities utilizing small, compact samples; allows researchers to leverage cutting-edge microstructural characterization and test equipment to study materials phenomenon not possible at a hot cell
	The Radiochemical Engineering Development Center (REDC)	Multipurpose radiochemical processing and research facility that includes laboratories, glove boxes, and Heavily shielded hot cells; includes personnel with radiochemical processing expertise and special equipment and systems to support the nation's R&D needs in the production of unique radionuclides for use in research, defense, medical, and industrial applications

Table 2. ORNL irradiation experiment facilities and capabilities