- provide metallographic and ceramographic examination and interpretation
- examine corrosion products
- determine fuel burn-up and provide transuranic isotopic analysis
- determine hydrogen and deuterium content
- determine oxide thickness on fuel cladding and reactor materials using FTIR
- gamma scan fuel and reactor materials
- puncture irradiated fuel elements to collect and analyze fission gas samples and measure fuel element void volume and gas pressure
- conduct fracture toughness, tensile, compressive, impact and hardness tests
- conduct burst and fatigue tests
- assess crack initiation and sub-critical crack growth evaluation
- measure microdensity
- provide scanning electron microscope examination and interpretation
- conduct a full range of fuel and reactor component safety experiments
- remotely encapsulate and package waste
- perform surveillance testing for nuclear power stations to monitor changes in the properties of materials
- conduct specialized experiments based on client specifications

Handling

Irradiated fuel and fuel channel assemblies are dismantled and sectioned in our research reactor spent fuel bays and/or the large receiving cells. The bays can handle 75 ton shipping containers, with assemblies up to 4 meters long and 30 cm in diameter. AECL is currently modifying a dry hot cell receiving station to accommodate shipping containers up to 30 tons, with larger assemblies up to 4 meters long and 30 cm square. Smaller fuel assemblies and fuel channel components can be received directly into the cells.
Using remotely operated equipment, fuel assemblies and fuel channel components are dismantled, dimensioned and visually examined using a wide variety of optical instruments. For further examination, fuel and fuel channel sections are then transferred to a more specialized hot cell.

Support Services

AECL will also:

- facilitate shipment of radioactive materials to and from sites
- provide contract administration and project management
- provide requisite technical expertise and consultation
- undertake new experiments and accommodate a wide range of investigations
- archive experimental samples in storage blocks
- provide irradiation services in our high flux research reactor
- provide analyses by gamma spectroscopy, mass spectrometry and liquid chromatography, secondary ion mass spectrometry, inductively-coupled plasma spectroscopy, and other methods
- perform transmission electron microscopy and X-ray photoelectron spectroscopy

For more information, please contact your AECL Account Representative

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Related Products & Services

Hot Cell Workstations (Catalogue # 7-12)
Fracture & Failure Analysis (Catalogue # 7-13)
ZED-2 Research Reactor (Catalogue # 7-14)
Fuel Bundle & Fuel Channel Testing (Catalogue # 7-15)

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