



Global Nuclear Energy Partnership Advanced Fuels Test & Research Center



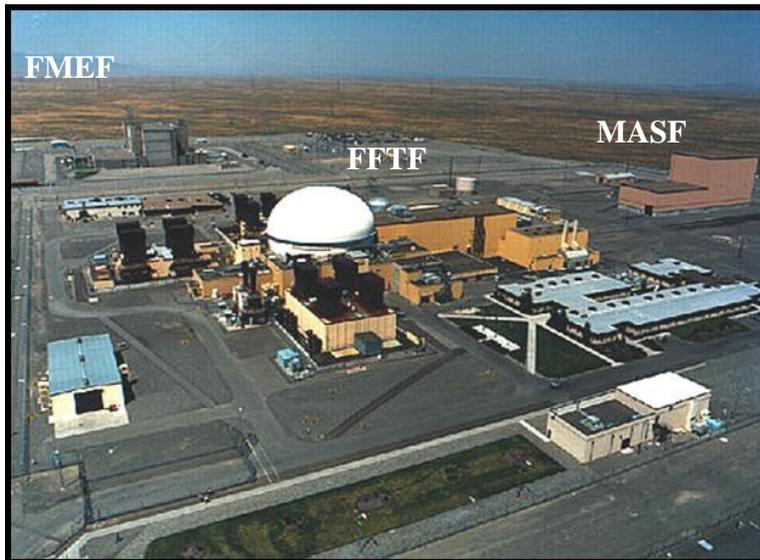
The United States Department of Energy (DOE) has proposed the Global Nuclear Energy Partnership (GNEP) as a major US Government mission to recycle nuclear fuel using new proliferation resistant technologies to recover more energy and reduce waste. Under the TRIDEC GNEP grant, the Columbia Basin Consulting Group evaluated the use of the 400 Area facilities as an Advanced Fuels Test & Research Center to support GNEP mission needs for nuclear fuel qualification and testing.

Capabilities

Hanford has an impressive complement of available facilities and an experienced cadre of personnel to effectively implement any federal nuclear energy testing or isotope production project. Central to Hanford's capability is its 400 Area complex comprised of the Fast Flux Test Facility (FFTF), the Fuels and Materials Examination Facility (FMEF), and the Maintenance and Storage Facility (MASF). These assets provide DOE with a highly capable and secure nuclear complex.

The 400 Area complex was designed, certified, and built specifically for advanced nuclear fuels and materials testing.

- The FFTF is the only domestic fast neutron reactor capable of conducting actinide transmutation burnup testing and qualification of fast reactor fuels and materials for use in the Advanced Recycling Reactors.
- The FMEF is a 250,000 sq. ft. category one structure and was designed specifically to manufacture plutonium-oxide fuels and to manipulate (disassemble and inspect) irradiated fuel assemblies.
- The MASF is a fully equipped high-bay facility for maintenance and repair of reactor equipment.
- The FFTF and FMEF have irradiated fuels examination capabilities that are unique to any such facility in the world, capabilities that allow irradiated fuels to be examined 3-5 years earlier than any other reactor available to GNEP.



Expert review panel, April 30, 2007, provides the following conclusions:

- FFTF is fully recoverable.
- Hole drilled in a non-pressure core basket - repairable.
- Sodium systems covered in high purity argon gas
- 60-66 months to pull rods
- Recovery cost: \$500 million
- 20-year full-power life
- FMEF & SAF line are available for examination and fuel fabrication.
- Complete 1/3 scale liquid sodium test loop is available in the 309 Building. Unique in USA

The 400 Area complex is available for reactivation to support the GNEP mission. Specification needs in the Technology Development Plan describe the combined capabilities of the 400 Area.