Upgrades Completed at the DIII-D Facility during the Long Torus Opening in FY05-06

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DIII-D has returned to operation with a substantially enhanced capability to increase the understanding of advanced fusion plasmas and to support the U.S. contribution to ITER. Several upgrades to the DIII-D facility, driven by physics needs, were completed during the Long Torus Opening Activities (LTOA) period spanning April 2005 through March 2006. To make this twelve month period available without sacrificing operating time, two of the normal periods for construction, refurbishment and maintenance were put back-to-back. These upgrades included installation of a new divertor for improved pumping of high triangularity plasmas, rotation of one of the four neutral beamlines from co-injection to counter-injection, and replacing the short-pulse gyrotrons in the electron cyclotron system with 1 MW long-pulse gyrotrons. In addition to these high priority tasks, the upgrade of the toroidal coil return bus for long-pulse operation was started. During this period the heat rejection of the cooling water systems was improved, part of which involved replacing two cooling towers with higher capacity units. In addition, the exceptional suite of plasma diagnostics at DIII-D was improved in nearly all areas.

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