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(09/09)**

AMERICAN REINVESTMENT AND RECOVERY ACT (ARRA)

**QUARTERLY REPORT FOR THE PERIOD
JULY THROUGH SEPTEMBER 2009**

**by
PROJECT STAFF**

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**GENERAL ATOMICS PROJECT 30200
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\$12,335,000 of funding was obligated on September 28, 2009 for tasks to be accomplished through June 2011. These funds will be used for additional DIII-D operations, staff retention and facility upgrades to diagnostic and auxiliary heating systems.

Enhanced Operations

Two weeks of additional DIII-D operations were completed as scheduled in August FY09 and focused on carrying out a helium plasma campaign to characterize operating conditions in the early, nonactivated, phase of ITER operation.

Upgrades

ECH Socket and Transmission Line

Design of the ECH socket and transmission line began in August 2009. An agreement was reached on the layout of the socket in an expansion of the area where the operational gyrotrons are located. The designs of the existing water manifold and gyrotron stand are being modified as needed both for the new location and for the 1.2MW gyrotron.

High Voltage Power Supply

Design of the high voltage power supply was begun in September 2009. A proposed layout of the equipment within the DIII-D building was developed. Preparation of the bill of materials for the modulator-regulators is underway. A proposed location of the outdoor equipment was selected. Development of a layout of the equipment was started.

The purchase requisition for the two long-lead-time high power tetrodes was submitted.

Gyrotron

A draft specification and statement of work for the 1.2 MW gyrotron was prepared and discussions are underway with a potential vendor, CPI.

ECH Launcher

The ECH launcher specification was completed and communicated to PPPL. PPPL is responsible for fabrication of the launcher.

Edge Diagnostics

Edge diagnostic design and initial procurements were begun in September 2009.

The upgrade of the Lithium Beam diagnostic was begun. New control modules have been ordered and control circuitry upgraded.

The expansion of the Thomson scattering system was begun in August 2009 and new lab space made available for the planned addition of the Edge Thomson system.

Initial measurements were made in July 2009 for the design of a system for measuring flows in the edge and scrape-off layers, using coherence imaging techniques.

Core Diagnostics

The coil module designed to reproduce the field perturbation of an ITER Test Blanket Module (TBM) was designed, built and test fit on DIII-D in late September 2009. Electrical testing of the coils and final installation are scheduled for October 2009 in preparation for the November experimental campaign.

Two Yag lasers for the Thomson scattering systems have been ordered and received in August 2009.

The visible camera intensifier was ordered in July 2009 and the delivery is expected in early 2010.

Scientific Staff

Scientific staff were funded and retained to support diagnostic and experimental analysis under this task.

Milestone Status (Scheduled/Completed)

Enhanced Operations

- Begin additional DIII-D Research Operations for FY09 (Jul 09/Jul 09)
- Complete additional DIII-D Research Operations for FY09 (Aug 09/Aug 09)

Upgrades

- Begin design of ECH Socket and Transmission Line (Aug 09/Aug 09)
- Begin design of High Voltage Power Supply (Sep 09/Sep 09)
- Begin High Voltage Power Supply procurement (Dec 09/Sep 09)
- Complete Gyrotron specification (Sep 09/Sep 09)
- Begin initial Edge diagnostic work (Sep 09/Aug 09)
- Begin Edge Diagnostic procurements (Oct 09/Sep 09)
- Begin Core and Test Blanket Module Diagnostic design (Aug 09/Jul 09)
- Complete Test Blanket Diagnostic Module design (Sep 09/Aug 09)
- Begin Core and Test Blanket Module Diagnostic fabrication (Sep 09/Aug 09)
- Begin additional staff acquisition to support diagnostic and experimental analysis (Aug 09/Jul 09)
- Complete ECH Launcher specification (Sep 09/Sep 09)

Upcoming Events (October – December 2009)

- Begin 3 weeks of additional DIII-D Research Operations for FY10 (Oct 09)
- Complete 3 weeks of additional DIII-D Research Operations for FY10 (Dec 09)
- Complete design of ECH Socket and Transmission Line (Nov 09)
- Begin ECH Socket and Transmission Line procurement (Dec 09)
- Hold design review on High Voltage Power Supply (Nov 09)
- Begin High Voltage Power Supply procurement (Dec 09)
- Begin Gyrotron procurement (Dec 09)
- Install Test Blanket Diagnostic Module (Oct 09)