

Section 3

LASER SYSTEM REPORT

3.A GDL Facility Report

During the second quarter of FY93 the refurbished GDL was activated in the infrared. As part of the activation, the new GDL produced 1 kJ of IR energy at a 20-cm aperture on 1 April 1993. The system is presently configured with 15- and 20-cm disk-geometry amplifiers, which were the prototypes for the OMEGA Upgrade, as the penultimate and ultimate amplifiers. These two final stages are driven by conventional-design OMEGA rod-geometry amplifiers.

The refurbished GDL also features a new front-end driver line, which consists of an optical-fiber-fed, regenerative amplifier that drives a large-aperture (40-mm) ring amplifier (LARA). This architecture provides improved reliability over conventional master-oscillator, power-amplifier (MOPA) designs in a very compact package. GDL will ultimately have two of these driver lines to implement co-propagation.

Plans for the third quarter of FY93 include testing co-propagation in the infrared portion of the laser system. Construction of the GDL facility will also continue. One of two KDP plates that will convert the infrared pulse to the ultraviolet is in-house in preparation for coating. Components for the final spatial filter and alignment sensor package are slated to be assembled early in the third quarter. During the third quarter the old OMEGA target chamber, which has been installed on a new base in GDL, will be outfitted with vacuum components; the remainder of integration will continue throughout the fourth quarter.