

Section 1

LASER SYSTEM REPORT

1.A GDL Facility Report

The glass development laser (GDL) facility has returned to service as a target interaction facility during this quarter. By mid-April, the system had been modified to include a free-propagation path for the oscillator output, and was realigned. Throughout May and June, the system was used in target experiments. Maximum beam energy achieved was 685 J (at 1054 nm). This energy was reached with the active-mirror output amplifiers configured for double pass amplification.

A summary of GDL operations follows:

System Alignment and Pointing Shots	165
Calibration and Characterization Shots	55
Target Shots and Focus Scans	<u>160</u>
TOTAL	380

1.B OMEGA Facility Report

During the third quarter of FY86 OMEGA continued full operation as a 351-nm target irradiation facility. The emphasis was on satisfying experimental requirements for various target interaction studies, assessment of the state of uniformity of the OMEGA beams, and engineering of the driver-line free-propagation upgrade, scheduled for implementation this summer.

Throughout the quarter, target experiments consumed at least two days of every week. While the primary aim of the quarter was the study of high-density target implosions, various experimental campaigns were satisfied. Numerous shots were taken as part of the National Laser User Facility (NLUF) program, for users from the University of Maryland and the Naval Research Laboratory. Using activated krypton targets a collaborative study was conducted sampling areal densities of shells with the nuclear activation apparatus from Lawrence Livermore National Laboratory (LLNL). Other target interaction studies included coronal physics, time-resolved ionization studies, diagnostic development, on-target uniformity, absorption, and beamline/on-target streak camera correlation.

In addition to conducting laser-target interaction experiments, the laser system was used in carrying out various beam uniformity programs.

A summary of the operation of OMEGA follows:

Driver Alignment and Test Shots	76
Beamline Test and Calibration Shots	192
Target Shots	<u>188</u>
TOTAL	456

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