Section 1
LASER SYSTEM REPORT

1.A GDL Facility Report

The glass development laser (GDL) system continued activity this quarter as a UV interaction facility. Shots were taken in support of various interaction programs, transport studies, users, and damage testing. A highlight of the quarter was a record-breaking 102 target shots in a single week in support of damage testing.

A summary of shots on GDL this quarter follows:

Interaction	57
X-Ray	44
Damage Testing	301
Test, Pointing, Software	34
TOTAL	436

ACKNOWLEDGMENT

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1.B OMEGA Facility Report

OMEGA system activities this quarter have consisted of normal target shooting, calibration of the energy-measurement system, and system maintenance. Members of the operations group have begun procurement activities for the frequency conversion of the next six beams of the OMEGA laser system.

The beginning of the quarter was marked by the complete calibration of the energy-measurement system, including a cross calibration of the blue output, using 8″ calorimeters with Corning 5834 UV bandpass filters. Following this calibration activity a number of experimental campaigns were carried out, including uniformity, transport (including time-resolved transport), coronal physics, and a National Laser Users Facility (NLUF) experiment from the Naval Research Laboratory. As part of the uniformity campaign, an extensive series of equivalent-target-plane (ETP) photographs was taken to characterize each of the six blue beams of OMEGA. During the uniformity series, an experiment to correlate the equivalent-target-plane UV image with the x-ray emission photograph of that beam on a large solid target was successfully attempted. Results of these tests will be published in a future report.

With the removal of the Pockels cells from the blue beams during the previous quarter, and the addition of the neutral solution lens in the output spatial filter, higher energies could be propagated through the system. The highest energy output of the system, in the UV, was 420 J, with a high beam of 95 J. Beam balance for this quarter's target shots has been consistently below 10%, with a best of 5%.

As has been the rule for the last several quarters, system performance and reliability have been keynotes of all the campaigns. Not a single day of shooting has been lost due to equipment malfunction.

In the target area, several new diagnostics have been activitated during this quarter. A photomultiplier with a sensitivity at 2ω (175 nm) was activated during the coronal physics campaign. An imaging streak camera and a streaked elliptical crystal x-ray spectrograph built at the University of Hawaii as part of an NLUF collaboration were being activated during the quarter. In addition, a backlighting target positioner and auxiliary viewing system were activated.

Additional activities of the operations group during this quarter have been the engineering of driver upgrades for OMEGA and GDL, and the continued development of the active mode-locked, Q-switched oscillators. Procurement activities by the group have resulted in the majority of the component parts for the pending frequency conversion of the six-beam "A" group of OMEGA being on order as of this writing. An exception was the new conversion cell mount, which was redesigned during this quarter.

A summary of shots on OMEGA this quarter follows:

Target Shots	156
Driver Testing	68
Beamline Test, ETP	107
Software Testing	40
TOTAL	371

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