Section 1
LASER SYSTEM REPORT

1.A GDL Facility Report

GDL continued operations this quarter as a 0.35-μm irradiation facility. Shots were taken into the BETA chamber in support of various interaction-physics, shell-hydrodymanics, and thermal-transport experiments. Damage testing continued with increased activity from the previous quarter. Several shots were directed into the x-ray chamber for x-ray-diffraction, biological-stimulation experiments, and for an NLUF experiment for the Naval Research Laboratory.

A total of 336 shots was delivered by the facility during the period January 1 to March 31, 1983. The shot distribution was as follows:

3ω Target Experiments	85	(25%)
Damage Test Facility	102	(30%)
X-Ray Chamber	60	(18%)
Miscellaneous	89	(27%)
TOTAL	336	(100%)

The 3ω target experiments were carried out in the BETA chamber and included interaction-physics, shell-hydrodynamics, thermal-transport, and Users' experiments.

1.B OMEGA Facility Report

OMEGA activities during this quarter have included the conclusion of the coronal-physics campaign, the x-ray-backlighting campaign, a limited NLUF campaign for the Naval Research Laboratory, reconfiguration of the system to provide 50-ps pulses for the x-ray-laser campaign, and initial manufacturing engineering necessary for the conversion of six OMEGA beams to the "blue" (0.35 μm).

Pulse-width stability, system reliability, and operations flexibility were highlights of the experimental campaigns. Due to the variety of programs, more time than usual was spent configuring diagnostics and preparing the laser system for shots; this prevented us from implementing substantial changes in the systems. Even though little time was available for maintenance, a near-perfect shooting record was achieved with minimal failures, and absolutely no shot days were lost due to equipment problems. One of the outgrowths of the coronal-physics campaign was the activation and successful calibration of several new diagnostics, including various x-ray spectrometers and visible-light spectrometers. We also made our first recording of backlit implosions during the x-ray-backlighting campaign; this work will be reported at a later date.

During a shutdown period consisting of the last two weeks of March, the oscillator was reconfigured to provide stable 50-ps laser pulses, and a minimal amount of system maintenance was carried out to allow for another quarter of operation prior to the June 3 shutdown planned for Blue Conversion.

Virtually every member of the operations group has been given an engineering assignment related to the Blue Conversion program. Through this quarter, the execution of these assignments has resulted in the specification, evaluation, and procurement of the main components of the conversion system, scheduling, and some component design and prototyping.

The distribution of OMEGA system shots during the period January 1 to March 31, 1983, was as follows:

Target Shots	123	(58%)
Beam Balance and Calibration	11	(5%)
Driver Alignment and Testing	49	(23%)
Miscellaneous	31	(14%)
TOTAL	214	(100%)