

MANAGUA, NICARAGUA EARTHQUAKE

DECEMBER 23, 1972

SUMMARY REPORT

by

Roland O. Marsh

Peter I. Yanev

The capital city of Nicaragua, Managua, was struck by a magnitude 6.25 earthquake on the early morning of December 23, 1972. Due to a combination of factors such as shallow focal depth, extensive faulting through the city, and ground acceleration exceeding 0.4G, the city and its vicinity experienced extensive damage.

The most seriously affected area of the city included the downtown business area, which was nearly totally destroyed, and the surrounding residential areas. Modern, high rise structures generally survived the shock without collapse and often without significant structural damage. However, the architectural and other non-structural components were often damaged severely. Many mechanical systems were generally inoperative after the earthquake.

Power and industrial facilities survived the earthquake, apparently with significantly lower losses. The main power plant of Managua, located near the main fault zone, survived without structural collapse but with some significant damage. A major refinery, located on the outskirts of the city, experienced only minor equipment and structural damage. The refinery site experienced peak recorded acceleration of 0.39G in the EW direction, 0.34G in the NS direction, and 0.33G in the vertical direction.

The damage to equipment and equipment systems was the most adverse effect of the earthquake to industry. Much of that damage and the consequent delays in operation could be prevented in future earthquakes with improvement of anchorage and other seemingly minor details.

Few aspects of the physical plant of Managua were left undisturbed by the earthquake. All of the damage illustrates the importance of giving more attention to structural and mechanical details and earthquake engineering concepts.

FOR A FREE COPY, WHILE AVAILABLE,
WRITE TO:

PETER I. YANEV
URS/JOHN A. BLUME & ASSOCIATES
130 JESSIE ST.
SAN FRANCISCO, CA 94105



Bechtel Power Corporation
San Francisco Power Division
San Francisco, California

March 9, 1973