MORE ON MEXICO CITY'S LOCAL GEOLOGY

Accompanying Ellis L. Krinitzky's (EERI, 1973) article on the Mexico earthquake of 1985 in the Association of Engineering Geologists Newsletter, January 1986, is the accompanying map of the surface rocks in the Valley of Mexico.

Quoting from Krinitzky's article:

The major damage and loss of life from the earthquake occurred in Mexico City, though Mexico City is 400 km from the epicenter.

Mexico City is in a large valley that is surrounded by volcanic mountains. The valley was occupied by two large lakes until they were drained during historic time. Thus Mexico City is built partly on rock, and mostly on alluvial and lacustrine deposits. The latter are about 30 to 50 m thick in their uppermost section. This layer is highly montmorillonitic. Deposits deeper in the valley are barely known because of an almost complete absence of borings. There is only one boring, made by Pemex in the 1970's that goes to 2500 m. It found reworked soils at its maximum depth which is at the equivalent of sea level.

Earthquake damage occurred selectively in restricted areas or pockets in Mexico City. The city looked as if it had been bombed in a random fashion. The pockets of failures suggest that there was focusing of the earthquake waves. The cause of focusing is in the deeper geologic structure which is mostly unknown.

Volcanic rocks, alluvial and former lake deposits in the Valley of Mexico.
toured the area on Oct. 28-29 at
the invitation of local IEEE
volunteers.

"The damage was intense, but it
was highly localized -- most of the
city was unaffected," said Eldon.
He explained that the situation was
roughly analogous to the Wall
Street area of lower Manhattan
being devastated while the rest of
New York City's five boroughs
remained intact.

Nevertheless, the Mexican quakes
damaged hundreds of buildings,
reducing scores of them to rubble
-- including three of the telephone
company's four switching centers.

The first shock wave hit during the
morning rush hour at 7:19 a.m. on
Sept. 19, measuring 5.1 on the
Richter scale. According to Jorge
Gutierrez Vera, general manager
of the Mexican Light & Power Co.,
it knocked out eight of 89 power
substations and 270 of 700 primary
distribution feeders, or about 40
percent of the total load. The
engineers scrambled, operating
from a central control room to
telecontrol some substations and
dispatch crews to others, to
restore power within a few hours.

By 7:30 p.m. the next day, 263 of
the 270 distribution feeders were
operating again. The second
quake, later that evening, M 7.8
left the electric transmission
system intact and only 95 of the
distribution feeders were lost.

Service to these was reestablished
within 24 hours. Overall, electric
service was restored to nearly 98
percent of Mexico City's customers
only 72 hours after the first quake,
according to the government
utility general manager. The only
customers without service were
those near the collapsed buildings
where overhead lines were brought
down.

Gutierrez, who is also vice
president for technical activities
of the local IEEE Power
Engineering Society Chapter, told
THE INSTITUTE that it was hard
to judge the quake's damage at
first because there was no phone
service to convey customer
complaints. Consequently, utility
crews used Army motorcycles
along the streets to survey the
damage. Some 1300 transformer
fuses were found to be blown and
about 600 poles were down. (Only
a small part of Mexico City uses
underground cables for power
distribution, Gutierrez said.)

Working 24 hours a day, some 300
crews of five men each repaired
the transformers and fallen poles.
By Oct. 1, the electric system,
with the exception of one
permanently damaged 85-kilovolt
underground cable, was back to
normal.

According to Eldon, telephone
service will not be restored to full
capacity for some time, since plans
call for constructing a
decentralized system, with three
new switching plants around the
perimeter of the city connected by
fiber-optic cables and radio links.

MEETINGS, CONFERENCES,
SEMINARS, CALLS FOR PAPERS

CALL FOR PAPERS

3RD INTERNATIONAL
CONFERENCE ON SOIL
DYNAMIC AND EARTHQUAKE
Princeton University, Princeton,
NJ.

The objective of the Conference is
to provide a forum for the
presentation and discussion of new
and advanced ideas in soil
dynamics and earthquake
engineering and to encourage and
enhance the role of mechanics and
other disciplines as they relate to
earthquake engineering by
providing an opportunity for the
presentation of the work of applied
mathematicians, geologists, and
engineers involved in solving
problems closely related to the
field of earthquake and
gotechnical engineering.

Abstracts of no more than 300
words should be submitted to the
Conference Director, Dr. Ahmet S.
Cakmak, Department of Civil
Engineering, Princeton University,
Princeton, NJ 08544, by
November 1, 1986. For further
information, contact the
Conference Director.

ACI CONVENTION
IN SF

A note from G. Vondran, publicity
chairman for the ACI National
Convention, in San Francisco, May
16-21, 1986: American Concrete
Institute announces that the
National Convention is scheduled
for May 16 thru 21 at the Hyatt
Regency in San Francisco. This
annual convention of international
experts meets to exchange
technical information pertaining to
all phases of concrete used in
construction. The central theme
on "Seismic Design" is of major
interest to the construction world.
Particular emphasis on the
Mexican quake will be presented by
industry authorities. Interested
parties need not be members of
ACI to attend. Any paid registrant
receives 6 months free membership
in ACI National. Students get free
registration and are encouraged to
sign up early because of limited
space for the UC Berkeley Seismic
test facility tour in Richmond.

The local ACI publicity contact is
Chuck Kanapicki at Testing
Engineers Inc. in Oakland
415-835-3142.

MEXICO
EARTHQUAKE
CONFERENCE

"The 1985 Mexico Earthquakes -
Factors Involved and Lessons
Learned," September 19-21, 1986,
Mexico City, Mexico

On September 19-20, 1985 Mexico
was hit by the strongest series of
earthquakes in its recorded
history. This conference will
bring together experts on seismic
effects from the disciplines of
structural engineering,
gotechnical engineering, lifeline
earthquake engineering and
engineering mechanics to discuss
the factors involved and the
lessons learned.

Some of the subjects that will be
covered include: historical
seismology, damage patterns and
characteristics, the immediate
engineering and emergency
response (local and international),
performance of structures, soil/
structure interaction, analysis/
repair/retrofit/rehabilitation of
structures, dynamic soil response,
foundation failures and the effects
on lifelines. There will also be a
tour of Mexico City damage sites
as well as an optional post
conference field trip to the
epicentral area.