AMERICAN SOCIETY OF CIVIL ENGINEERS
TECHNICAL COUNCIL ON LIFELINE EARTHQUAKE ENGINEERING

Address reply to:

COALINGA, CALIFORNIA EARTHQUAKE
May 2, 1983

A Richter magnitude 6.5 earthquake (Berkeley Seismological Laboratory) occurred at 4:43 p.m. (PDT) on Monday, May 2, 1983. The epicenter (Latitude 36.2° N, Longitude 120.3° W) was located approximately 5 miles northeast of the community of Coalinga, California. After shocks as strong as magnitude 5 occurred by the score immediately after the initial jolt. The after shocks diminished to a magnitude of 3 or 4, and to a frequency of 5 to 10 per hour by midnight of the same day. After shock data indicated a thrust fault movement at depth (6.5 ± miles) in the basement rock. No visible rupture at the surface of the ground was discernible.

Generally, lifeline systems at Coalinga performed well. Main lifeline components sustained only minor damage as a whole. No major disruptive long-term outages of lifelines were experienced except for utility services in the buildings that suffered major building damage or building collapse.

Three electric power substations in the Coalinga area sustained minor damage to electrical components. Except for a momentary trip at a substation the power system remained functional. Seismic mitigation measures utilized in the design of power equipment and support structures were effective in preventing serious damage. Reported failures were a broken ceramic insulator for a lightning arrestor, and major damage to a small unreinforced masonry control house. Buildings suffering major damage or collapse also lost

their electric service.

The water distribution system in Coalinga continued to function despite reports of leaks, largely at connections to a large number of damaged or collapsed houses and unreinforced masonry commercial buildings. Breaks in 4- and 6-inch cast iron pipes were attributed in part to corrosion. Other reported damage to water system facilities was not major. These included a broken diagonal on an empty elevated water tank, stretched anchor bolts at a pumping plant, sheared bolt connections on two diagonals at a water treatment plant, a leak in a 27-inch water supply line along Highway 33/198 and Palmer Avenue. There was no known damage to canals.

The Coalinga sewage system remained functional. There was reported damage in a 480-foot section of old concrete sewer pipe west of the downtown area.

Telephone systems remained operational despite an overload caused by a flood of incoming and outgoing calls. Radio communications were used by government and disaster response organizations to supplement the telephones. Telephone service connections were severed by building damage and building collapse. Telephone switchracks, equipment and battery racks were braced seismically, and were thus protected in the intact telephone office.

Transportation lifelines in the epicentral area sustained slight to moderate damage. Fissures, landslides and slumping of embankments impacted roads. Concrete bridges experienced minor spalling and hairline cracking. Two bridge-abutment retaining walls showed moderate displacements from rotation about their bases.

PPW:ljb

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