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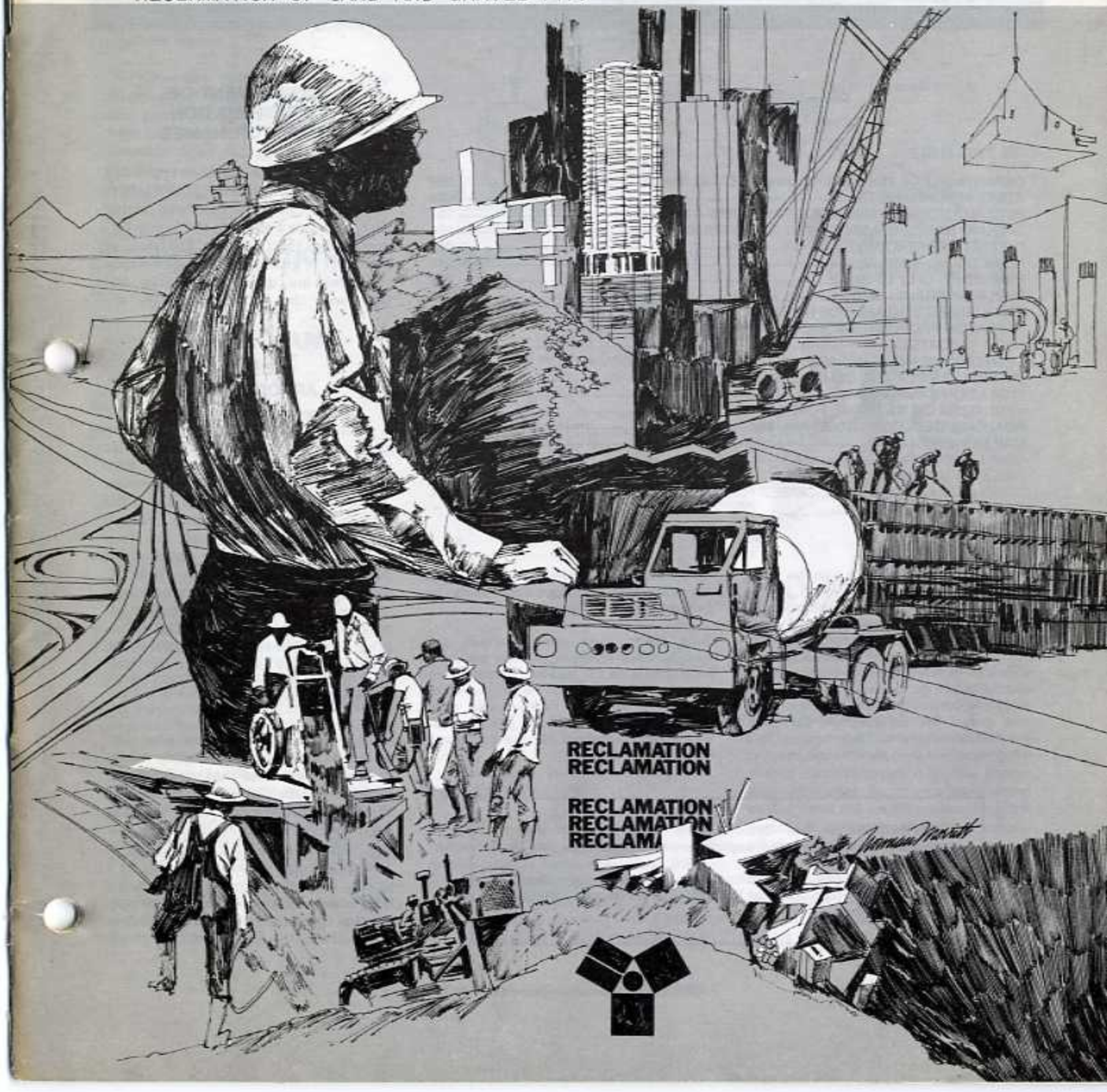
RECLAMATION OF SAND AND GRAVEL PITS



OROVILLE EARTHQUAKE

This description of sensations felt very near the seismic epicenter during the Oroville earthquake of 1 August 1975 was sent to us by Dan Tidwell, Lowry and Associates, Geotechnical Engineers, of Sacramento. We think it's interesting and informative—particularly the comment on remaining calm. Also interesting is the roar and the observation of up-and-down motion of the ground and the structures....editor

This is a memo to record my personal impressions of the earthquake and related phenomena near Oroville on 1 August 1975.

Friday, 1 August 1975, I was assigned to batch plant observation at Mathews Ready Mix Plant on Highway 70, approximately 5 miles southwest of Oroville. This plant is situated near the Feather River and dispatches both ready-mix concrete and sand and gravel for various construction requirements.

I arrived at the plant at approximately 10:15 A.M. and observed the first load of concrete dispatched to the Butte Community College. During the batching operation, I was standing in the control room and noticed the entire plant seemed to rock slightly with a subtle jar. I assumed this to be typical of the plant itself as there are approximately 100 tons of material in bins directly overhead and the batching operation necessarily requires shifting of material, "banging" of gates, and cycling of water valves which must cause the plant to move somewhat. Apparently this shock was 3.5 ± Richter and I was unaware of the earlier 5.0±. The batchman told me they had felt shocks frequently this morning. We continued to feel small "bumps" and "shakes".

At approximately 1:00 P.M., I observed batching operation on Load No. 10 and moved my pickup into the shade on the west side of the plant. By this time, there had been much discussion among the people around the plant as to what one could do during a severe quake. I had made a mental note that if a severe shock hit, I would run away from the plant in a direction to avoid the numerous high voltage lines in the area.

At approximately 1:20 P.M., I had just sat down in my truck to have lunch. My first indication was a distant "roar", perhaps like the rumble of a train. The shaking started within a few seconds and seemed to increase sharply after a few seconds of relatively minor movement. At this time, I made the decision to move away quickly from the plant. The door of the truck was open so I started running diagonally away from the plant. I ran approximately 50 yards and stopped and looked back at the plant. At this time, the major shaking was still going on and the entire earth and plant and auxiliary buildings appeared to be moving up and down 6"±. The feeling was one of being on a giant rock crusher, very severe and very rapid, perhaps 10 cycles per second. There was a lot of noise, both from the equipment shaking and the surrounding stockpiled materials settling and also a background roar of the quake itself.

I would estimate the major motion lasted less than 30 seconds. In the minutes after the quake, I stayed in one place and could feel the earth "quiver" as if resonating. The after shocks were frequent, every 5 minutes more or less and were, for the most part, gentle bumps; however, at least one was severe enough to cause us to run out of the control room.

Personally, I did not feel sick or dizzy at any time, although some of the drivers did. I think this is just an individual thing—I did not feel any "fear" at anytime; however, I think this is because I did not feel threatened—I was outside and had effectively planned what I was going to do and had a safe, clear area to run to. For someone closed up in a building, the feeling must be oppressive.

They tell you to be calm. For a quake of this magnitude or greater, I don't think it is possible. The noise and movement compel you to want to move quickly—in any direction!

Concerning Emergency Services—I had a radio with me capable of receiving police and fire frequencies. I turned this on within 5 minutes of the event and monitored their response for some time.

I also switched around to the AM stations. The local station was off the air for 10 to 15 minutes; Sacramento and National stations broadcasted very uninformed vague reports of heavy damage, no communication, many casualties, etc. In other words, the radio seemed to sensationalize and overstate the facts.

If the quake had caused major damage, I feel it would have been every man for himself for several hours. My point being, generally people are not prepared for a major disaster that could come at any time.

NOAA DIVING MANUAL

"NOAA Diving Manual: Diving for Science and Technology", published by the National Oceanic and Atmospheric Administration was prepared primarily for the nearly 300 divers within the Commerce Department agency. However, it contains basic up-to-date information on the diving technology required to carry out scientific investigations and other working diver tasks. It is designed to provide divers with the knowledge needed for safe and efficient diving, and for carrying out useful scientific research.

One section of the manual is devoted to scientific diving procedures, and covers a wide variety of operations ranging from underwater surveying and photogrammetry to biological surveys and sampling, shellfish capture, geology, micro-physical oceanography, and archaeological diving, and capture techniques, including the use of anesthetics in obtaining marine specimens.

Sections of the manual deal with basic diving physics and physiology, diver training, equipment, breathing media, and procedures. Special topics include diving under varied conditions, such as under ice and in rivers and lakes, air diving and saturation diving, and marine animals hazardous to divers.

Prepared by NOAA's Manned Undersea Science and Technology group, the manual was extensively reviewed and includes contributions by 58 experienced scientific and operational divers from universities, Federal and state agencies, and private organizations throughout the United States. Much of the information in the manual has never before been published.

The work is illustrated with diagrams, sketches, and photographs designed to help the user understand the techniques and procedures discussed. Warnings regarding safe diver procedures are highlighted in red throughout the book.

The NOAA Diving Manual is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, at a cost of $8.55. The Stock number is 003-017-00283.