Laguna Verde - A Photo Story

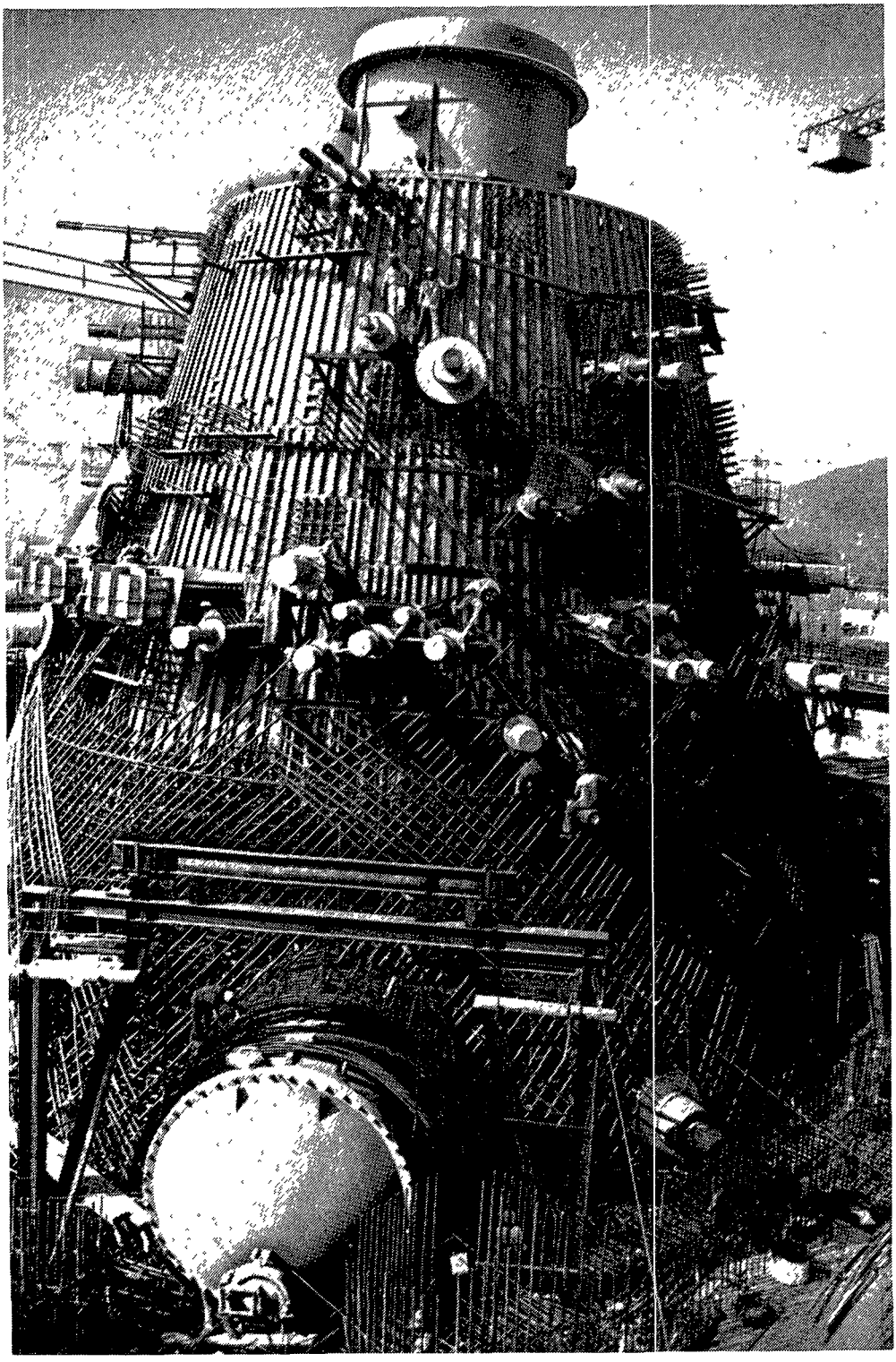
Safety is one of the main factors in the construction and operation of a modern nuclear power plant. There are many barriers between the fission products produced in the fuel elements of the core, and the environment: the cladding of the fuel pins which are enclosed in the reactor core, the pressure vessel containing the core and which in turn is enclosed in the reactor containment, all this being located in a low-pressure secondary containment or reactor building.

Despite these precautions, nuclear safety is still a widely-discussed issue. The important fact remains, however, that there has not been a single radiation-induced fatality or serious injury at any civilian nuclear power plant during 20 years of nuclear power generation. This includes the accident that occurred in March 1979 at the Three Mile Island nuclear plant in the USA

A substantial component contributing to safety in a nuclear power plant is the containment. The following photos of Laguna Verde, Mexico's first nuclear power station being constructed at Alta Lucero in Vera Cruz, give an impression of how strong this concrete and steel containment actually is. Laguna Verde consists of two 600 MWe units and the plant is scheduled for commercial operation in 1982. Construction began in 1974. Both units are boiling-water reactors.

The photos show, in general, the construction of the primary containment for the reactors (the dry wells). The dry well contains the reactor itself and has two layers: the leak-tight steel liner and the heavy concrete building. At the top of the containment, in photo number 1 can be seen a hatchway for refuelling the reactor. The purpose of the primary containment is to retain steam and gases that might escape in an emergency and to direct these through relief tubes to a water pond for cooling. Surrounding this primary containment will be a reactor building which serves as a secondary low-pressure containment, able to operate at pressures up to 0.2 atmospheres. In photo number 2 the wall of this secondary containment can be seen under construction.

Photo 1. View of the containment with an access at the top for refuelling; an equipment removal hatch can be seen in the lower foreground.



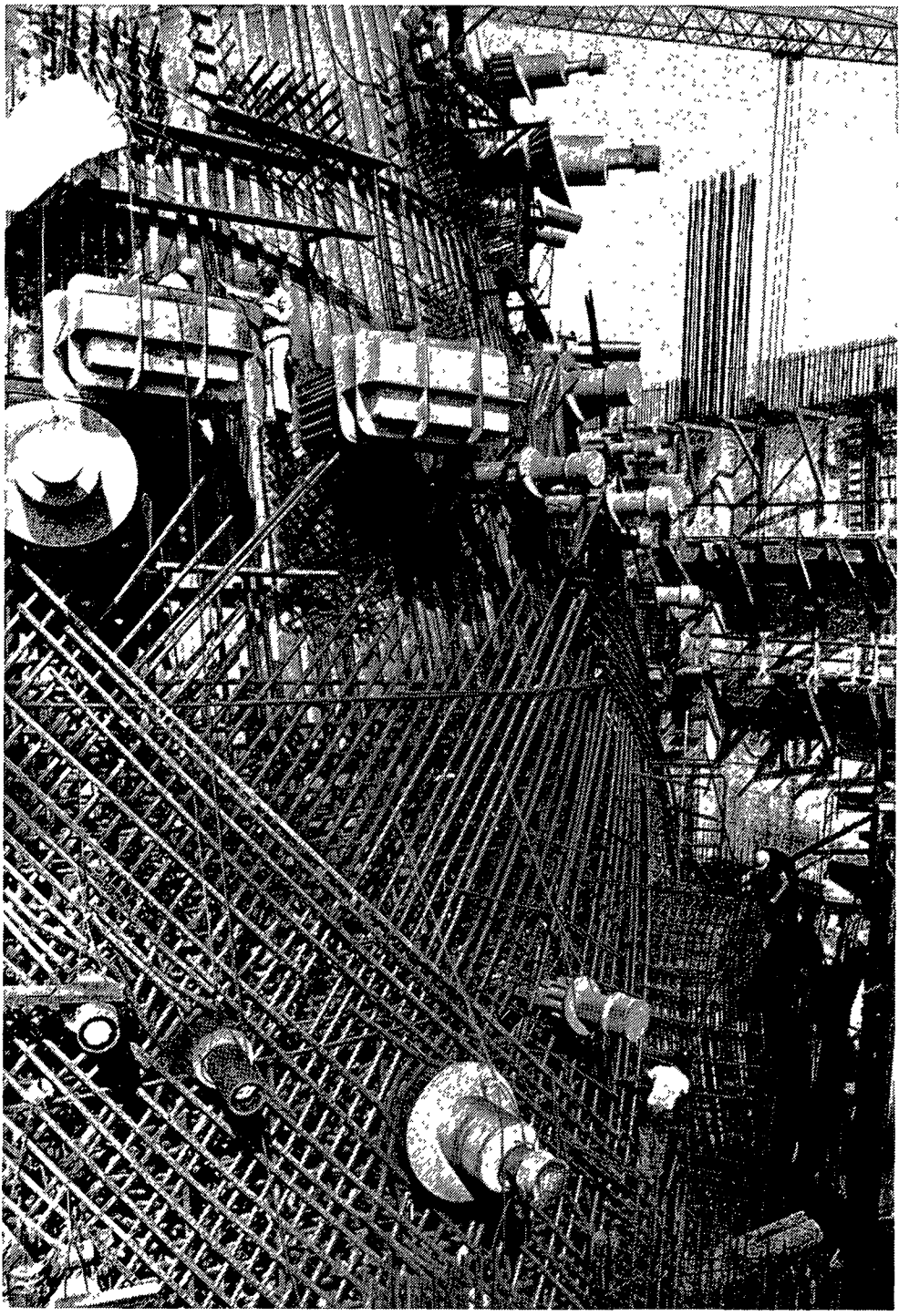
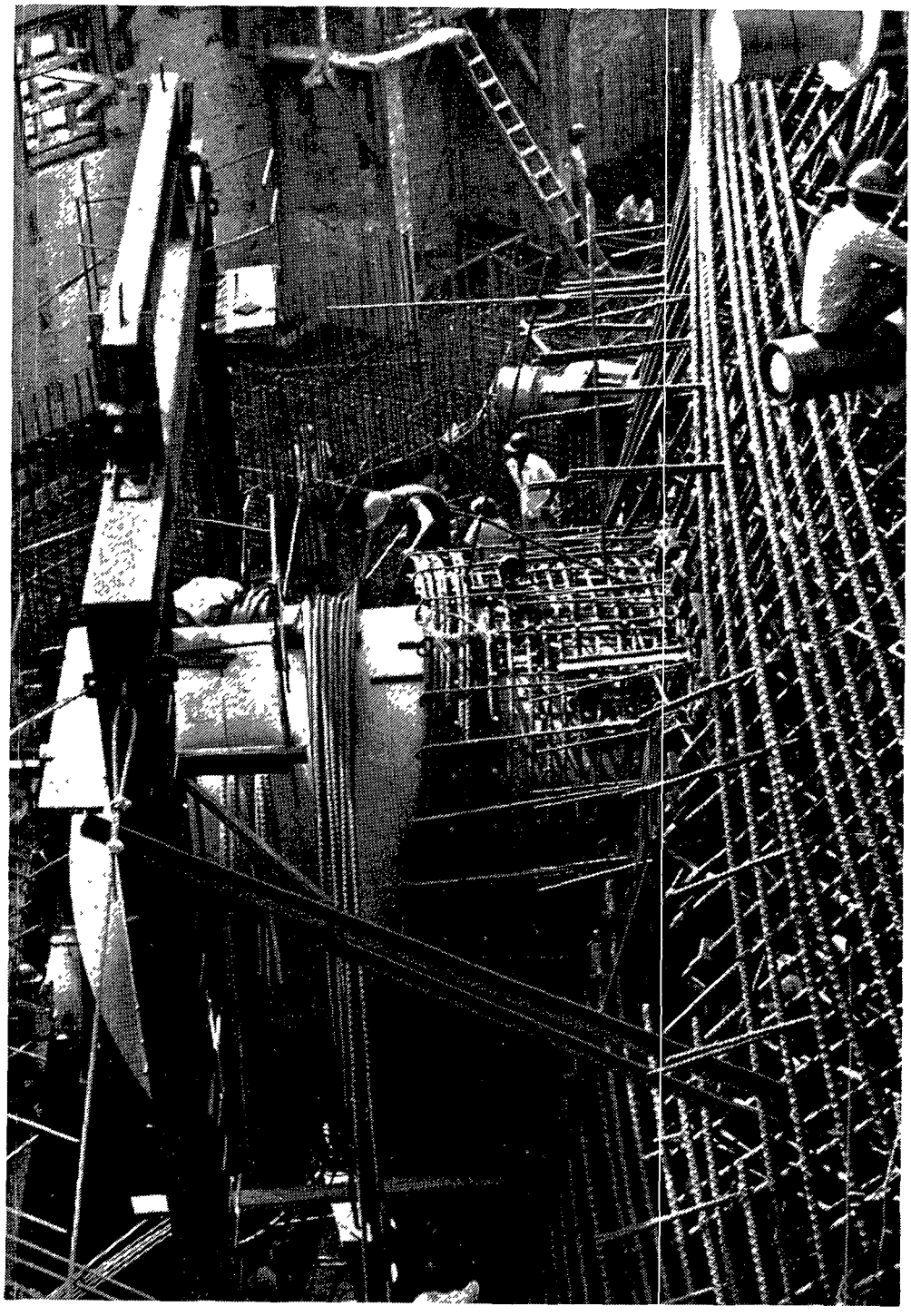
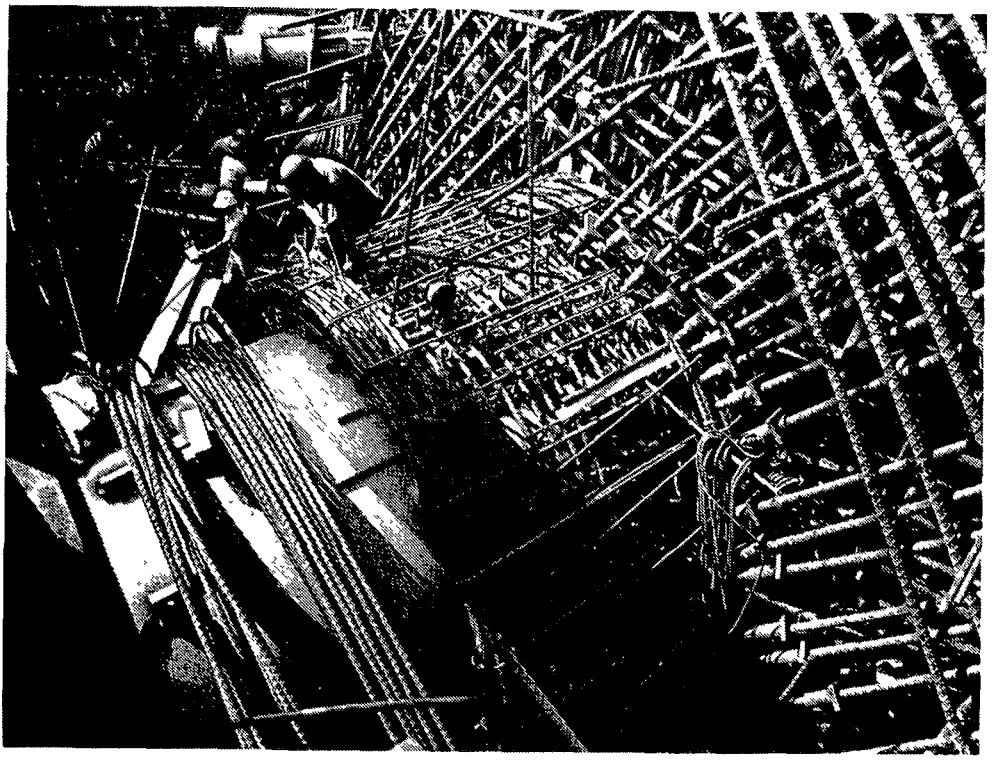
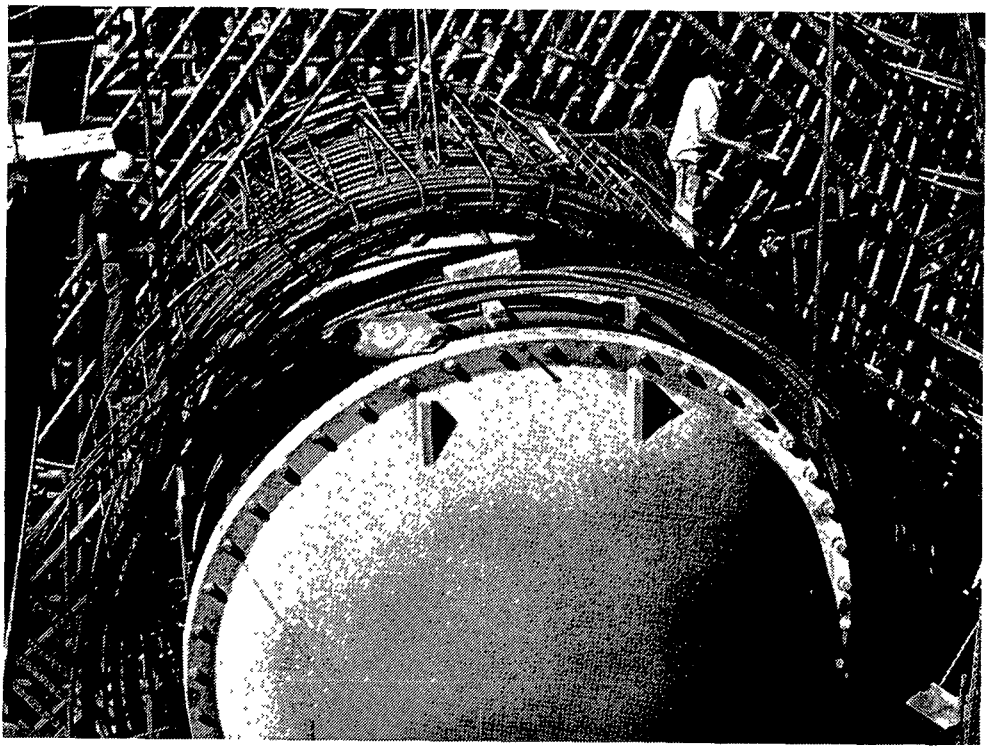


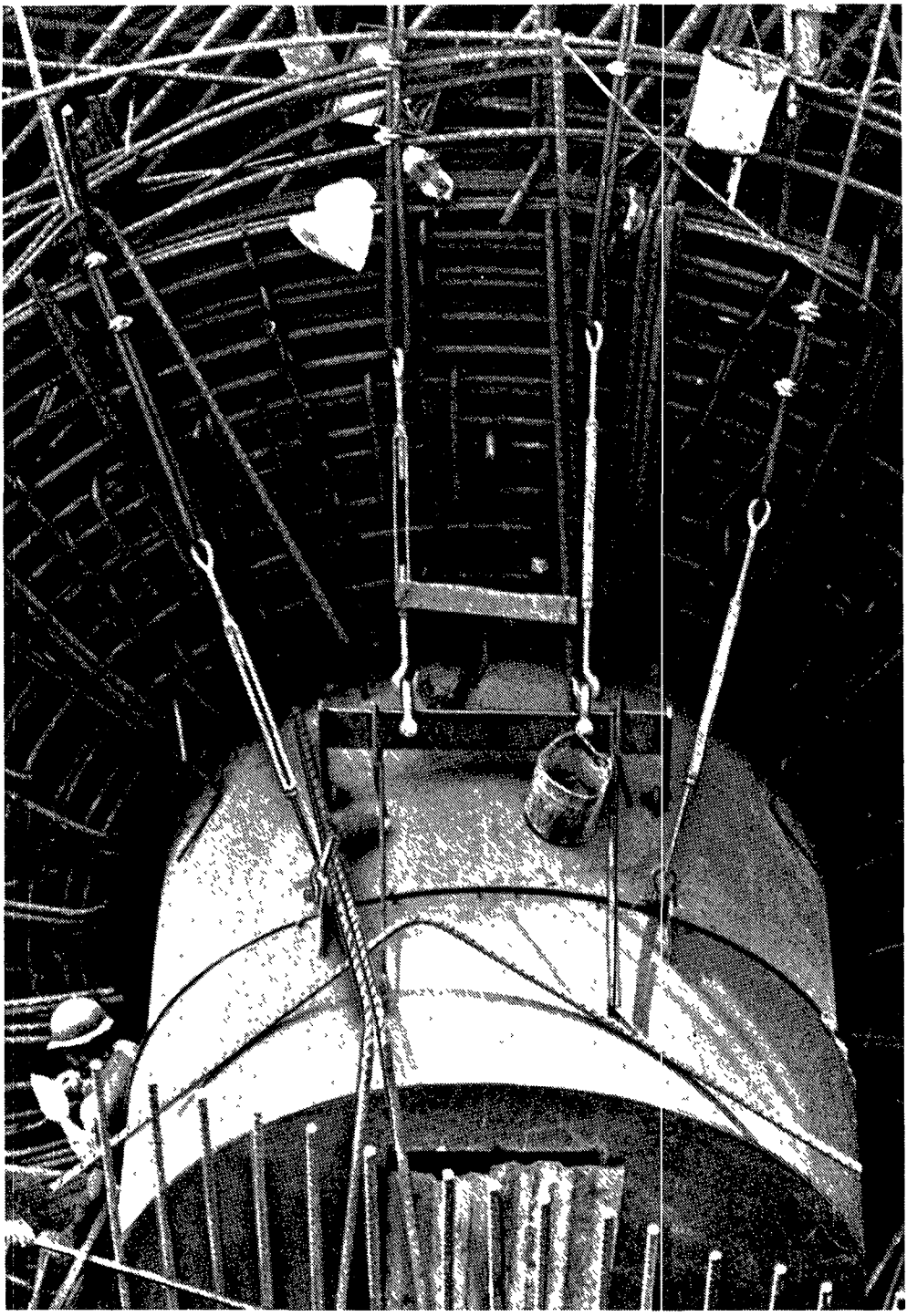
Photo 2. The network of reinforcing steel as seen before the concrete is poured; a number of containment penetrations are visible.



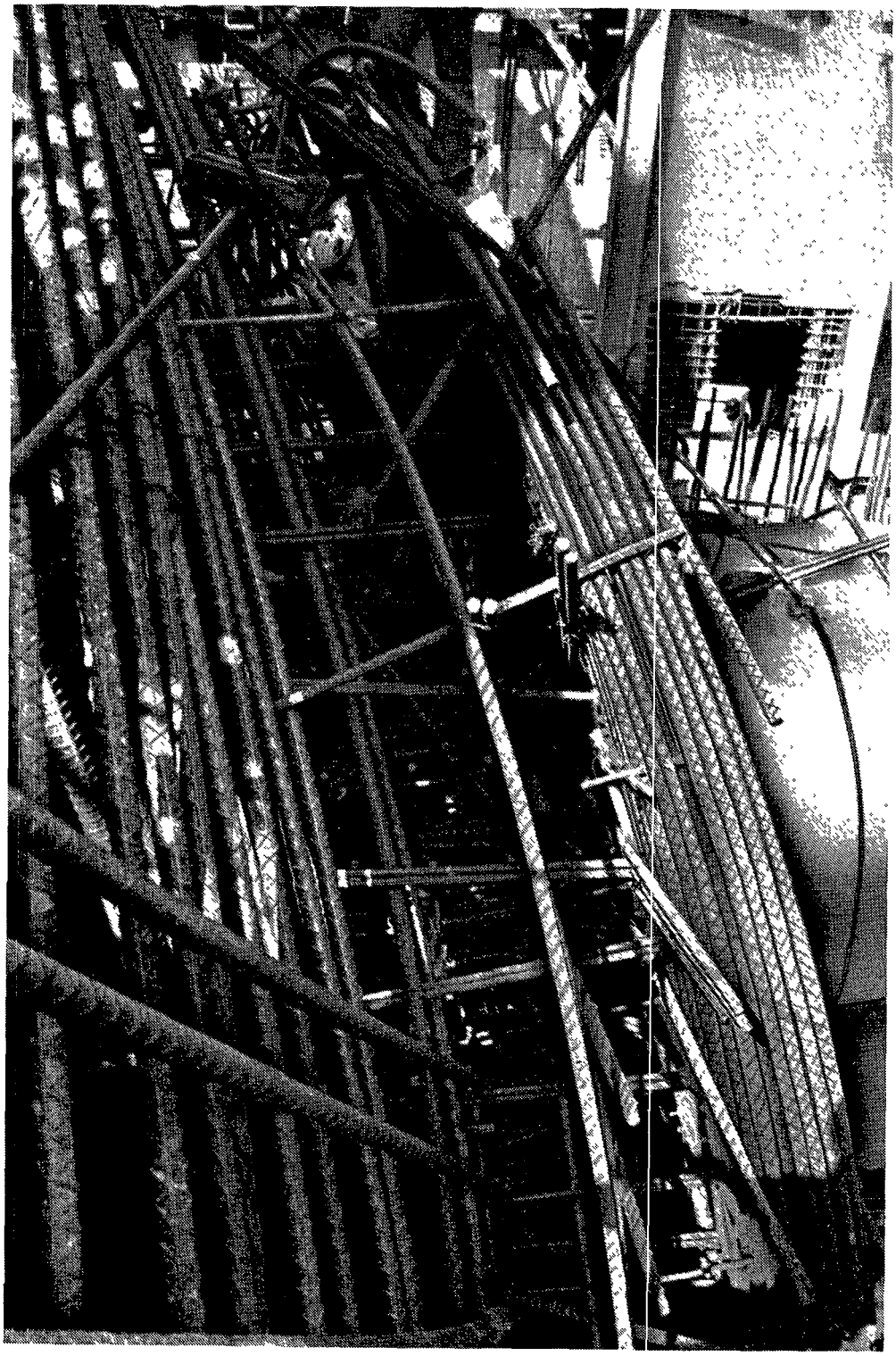
Photos 3, 4, 5. The twelve-foot diameter equipment removal hatch being fitted into the mesh of reinforcing rod.







Photos 6, 7, 8. Additional reinforcing bar being mounted in place around the provisional personnel lock.



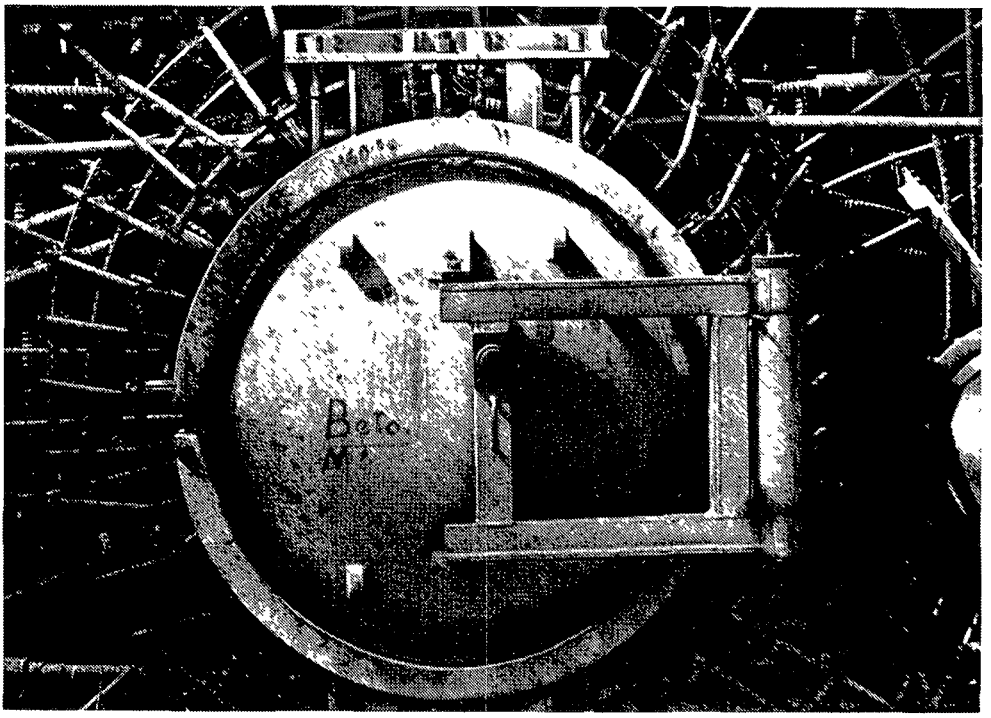


Photo 9. An access penetration surrounded by the network of steel reinforcing.

Photo 10. Crisscrossing arrays of rolled steel bars ready for concrete pouring.