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# PRECISION BLASTING, ASSOCIATED PULP AND PAPER MILL PLANT, BURNIE

by L. F. Egan.

Sinking three feet diameter pile holes through a reinforced concrete floor (varying in thickness between 10 inches and 15 inches) as a preliminary step in the installation of an additional paper machine presented a problem to Associated Pulp and Paper Mill engineers which they referred to this Department for solution.

Owing to the proximity of the valuable paper machine in operation, A.P.P.M. engineers had been loth to blast out the pile holes and attempted to gouge out a hole with a pneumatic pick.

The engineers took a complete shift of eight hours to form one hole. At this rate the whole job of 80 holes would have taken 80 shifts thereby delaying an urgent installation.

The floor in which the holes were to be formed consisted of a layer of concrete over a reinforcing mat of one-quarter inch M.S., the concrete being in turn overlain by an inch thick cover of 4:1 surfacing concrete.

A system of blasting was decided on with a preliminary drilling pattern of five holes. Of these the first was a central vertical hole drilled to a depth of eight inches. The remaining four holes were bored on the circumference at the quarter points. Each of these holes was bored to a depth of eight inches at an inclination of 45° towards the centre.

Each hole was charged with 1 oz. of Polar A.N. gelignite 1" x ' 60 ', holes being connected in series using Cordtex, which was initiated with a No. 6 detonator using safety fuse.

The explosions were dampened with rope blasting net weighed down by bags of sand.

The effect of the blasting was to pulverize the concrete below the surface leaving the thin (one inch) shell of hardened surfacing concrete. Five minutes work with a pneumatic pick was sufficient to break all this away and a clean circular pile hole resulted. It was necessary to cut the reinforcing net with wire cutters.

After examination of the results of this blast, it was decided that an additional two holes would be more effective. Accordingly the drilling pattern finally adopted consisted of one hole at the centre of the circle and six other holes on the circumference at points radiating from the centre at 60° (see figure 19).

The effectiveness of this method was demonstrated when 16 pile holes were formed on one shift. The delay in installation was thereby reduced from 16 weeks to one week.

The writer wishes to express his appreciation to the staff of the Associated Pulp and Paper Mills and to the Inspector of Explosives, Burnie (Mr. A. E. Hemsley) for their assistance and co-operation during the investigation.

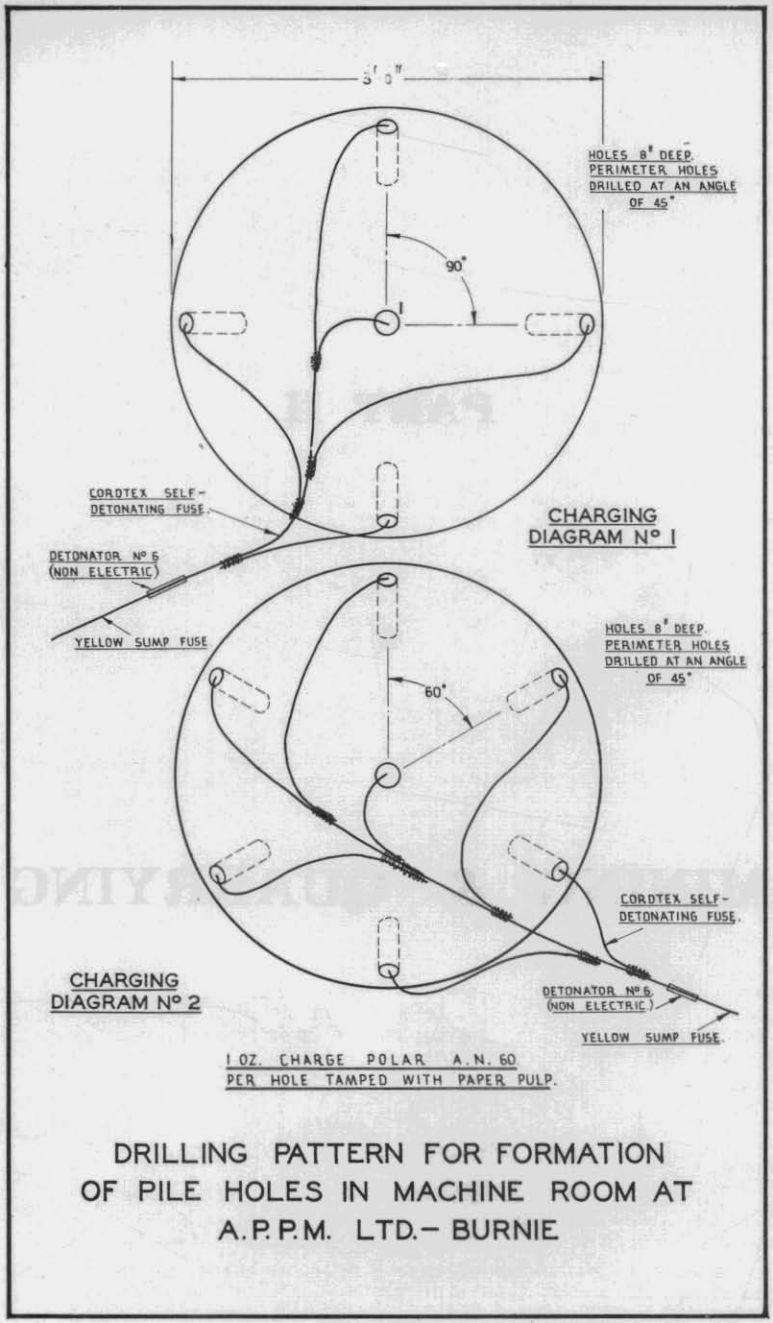
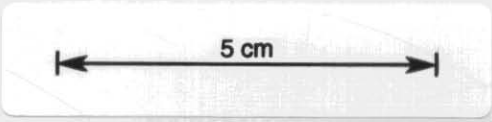

5' 0"
HOLES 8' DEEP
PERIMETER HOLES
DRILLED AT AN ANGLE
OF 45°
90°
CORDTEX SELF-
DETONATING FUSE
DETONATOR Nº 6
(NON ELECTRIC)
YELLOW SUMP FUSE
CHARGING
DIAGRAM Nº 1
HOLES 8' DEEP
PERIMETER HOLES
DRILLED AT AN ANGLE
OF 45°
60°
CORDTEX SELF-
DETONATING FUSE
DETONATOR Nº 6
(NON ELECTRIC)
YELLOW SUMP FUSE
CHARGING
DIAGRAM Nº 2
1 OZ. CHARGE POLAR A.N. 60
PER HOLE TAMPED WITH PAPER PULP.
DRILLING PATTERN FOR FORMATION
OF PILE HOLES IN MACHINE ROOM AT
A.P.P.M. LTD.– BURNIE

FIGURE 19.


5 cm