BLASTING WATER HOLES

by J.K. Smart

A hole of 50-55 cubic yards can be blown for a materials cost of $8-00. Some subsidence and wall slip occurs but a finished hole containing 6-7000 gallons of water has been regularly achieved. This hole approximates 20-22' diameter 8-10 feet deep, and roughly cone shaped.

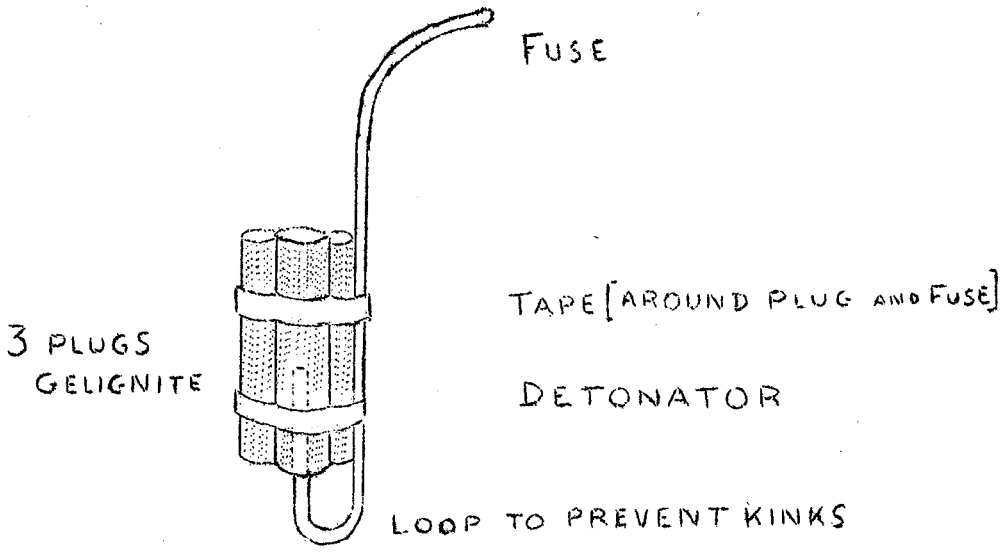
Materials and Cost

1 x 66 lb. bag Porous prilled Ammonium Nitrate.
3 x 6 oz. plugs Gelegnite.
1 detonator.
6 feet safety fuse.
3 pint distillate.

The Nitropril, as it is known, is purchased for $7-00 and $1-00 would cover the remaining material.

Method To the full bag of Nitropril is added exactly 3 pints of distillate, and this is mixed well through it in a wooden box, or on a plastic sheet. Never in a metal container. This mixture must then be allowed to stand for one hour.

Nitropril comes in a plastic bag which is covered by a strong paper bag. Care must be taken not to tear the plastic or paper when the Nitropril is taken out for mixing. When mixing is complete tip the contents back into the bags. This protects the charge and prevents the charge dissolving if water is present in the hole.



Three plugs of Gelegnite are then taped together with Durex tape and a convenient length of safety fuse with detonater inserted into one plug.

The fuse should then be doubled back and taped again to the plugs as shown in the sketch. This method should be used as it reduces the chances of a misfire to practically nil.

This priming charge is then placed in the centre of the bag. This too is important for maximum utilization of the charge.

The whole charge is then placed in a hole 4-5' deep and stemming packed around and above it. Invariably water is present so fuse should be greased and the neck of the bag tied and grease smeared around the frill. The charge is then ready to be fired.

Certain basic precautions must be taken.

1. It must be remembered that less than one plug of gelegnite weighing 6oz. can kill a man. In this case over 67 pounds of explosive are involved.

2. Always mix Nitropril in a wooden or plastic container with wooden paddles or by hand. Never use metal.

3. Observe all the usual precautions involving use of explosives as laid out in the manual.

4. All persons within range must take cover at least twenty chains from the site preferably up wind. This is necessary since debris can be lifted up to 400 feet in the air.

5. Allow a minimum of six feet of safety fuse to the charge.

One further refinement to the process has been tried with good results. A "necklace" charge of single plugs of gelegnite is placed around the expected perimeter of the hole. The plugs are connected to each and fired simultaneously using Cordtex fuse. The plugs are buried to about 18" and placed about 6' apart. This relieves edge pressure and allows more debris to be lifted out by the main charge.

The main advantages of this method of making water holes over dragline operation appear to be.

1. Dollar for dollar it is half the price of drag line holes.
2. It does not depend on availability of contract machines - this can be a real problem in the wetter portions of the State.
3. Relatively inexperienced operaters with adequate back ground training can be used.
4. A dry hole has not cost very much.
5. In the south where situations where water holes can be made are more frequent, a better spread can be obtained. e.g. a dragline hole containing 40,000 gal. costs approximately $80. Ten or twelve blown holes can be put in for the same cost. Thus reducing hauling distances for Heavy Duty tankers.

6. The unsightly spoil heap left by the dragline is eliminated.

Further trials using two and three bags connected in series and fired simultaneously are proposed together with some studies of the optimum charge and depth required for holes in "coffey" rock. These will be reported on when results are at hand.

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