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Part 3

SEISMIC REFRACTION INVESTIGATION IN NAWABGANJ-BADARGANJ AREAS RANGPUR DISTRICT, BANGLADESH

by

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ABSTRACT

A seismic refraction survey was carried out in the area between latitudes from 25°25′N to 25°40′N and longitudes from 88°55′E to 89°10′E (Fig. 1), during March, 1970. The purpose of this survey was to search for hard rocks at shallow depths. The survey was conducted in north-south and east-west profiles. The north-south profiles were laid out between Nawabganj and Badarganj. Along each profile the seismic data were recorded by reverse shooting. East-west profiles were laid out at large intervals (Fig. 2). The reverse time distance curves were used for computing the depths, apparent dips and the true velocities of the sub-surface refractors.

The apparent north-south dips of the Sub-surface horizon are found to be within 1° and hence negligible. The computed depths have been presented as depth sections (Figs 5 to 10). These depth sections have been compared with a section prepared by Anwaruddin and S. M. Nazrul Islam on the basis of the seismic data, collected in March 1968 (Fig. 11). From the comparison it appears that all the depth sections represent one and the same sub-surface horizon. Further comparison with the drill hole data of EDH-17 suggests that this horizon is the top of the granitic basement.

The true seismic velocities obtained from the reverse time distance curves also suggest that the refracting horizon should be granitic. Since the east-west profiles were not observed by reverse shooting, east-west component of the dip and the true dips of the sub-surface could not be determined. However, the results of the survey suggest that the hard rocks may be available at about 455 feet below the surface. This depth has been estimated at two shot holes, *i. e.*, the junctions of SP 21 and SP 22, SP 20 and SP 21 (Table 1). Based on these data a test hole is recommended to be drilled at the point shown in figure 2.