

Session 1-D

Paper No. 39

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In the analysis of the seismic displacements on the slip surface, the two important quantities required are the timewise variation of the acting acceleration and the threshold acceleration. I would like to present the tests and analysis carried out at the Earthquake School, Roorkee on Pandoh Rock fill dam (Fig. 1). An elastic analysis of the dam showed substantial amplification of accelerations towards the top of the dam. Stability analysis showed that the slope will not be stable if the resulting acceleration was applied statically particularly in the upper quarter height of the dam. Model tests on shake table confirmed the amplification of acceleration for small base motions. But for large base motions, the amplification of accelerations was reduced. Instead, some permanent deformation was observed near the top. To compute the permanent displacement, the timewise distribution of acceleration was computed at a depth of $1/8$ height below top by dynamic elastic analysis taking the reversal of shocks into account. (Fig. 2) The results compared well with the observed permanent displacement. Hence, the writer will recommend a displacement analysis in place of reduced factor of safety of 0.9 or any other figure. What is more important will be establish the criteria for permissible displacements. The writer would request the authors to give their views on this aspect.

- LEGEND**
- 1- IMPERVIOUS
 - 2- FILTER (75 mm MATERIAL)
 - 3- COMPACTED PHYLLITES
 - 4- COMPACTED GRAVEL OR QUARRIED ROCK

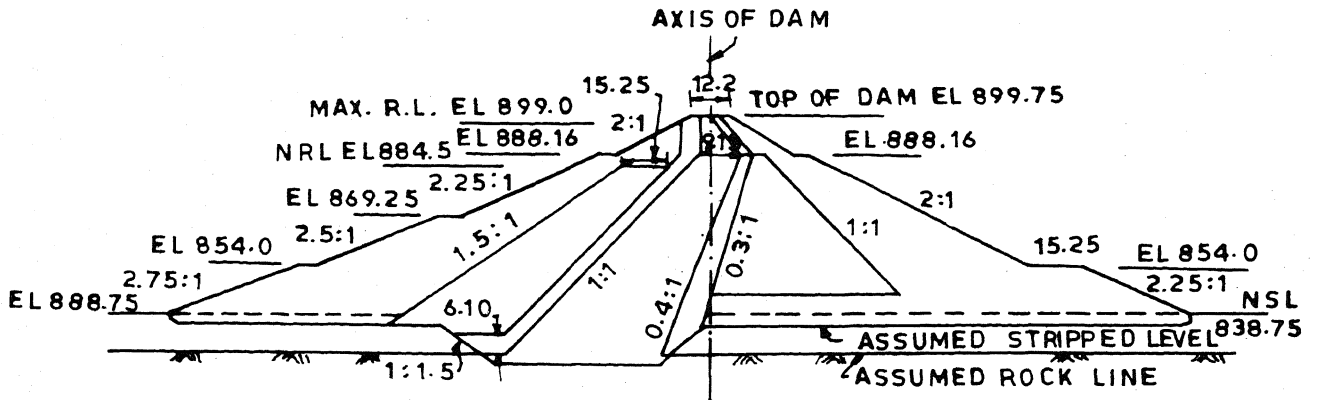


Fig. 1 - ROCKFILL DAM AT PANDOH PROPOSED ORIGINAL SECTION

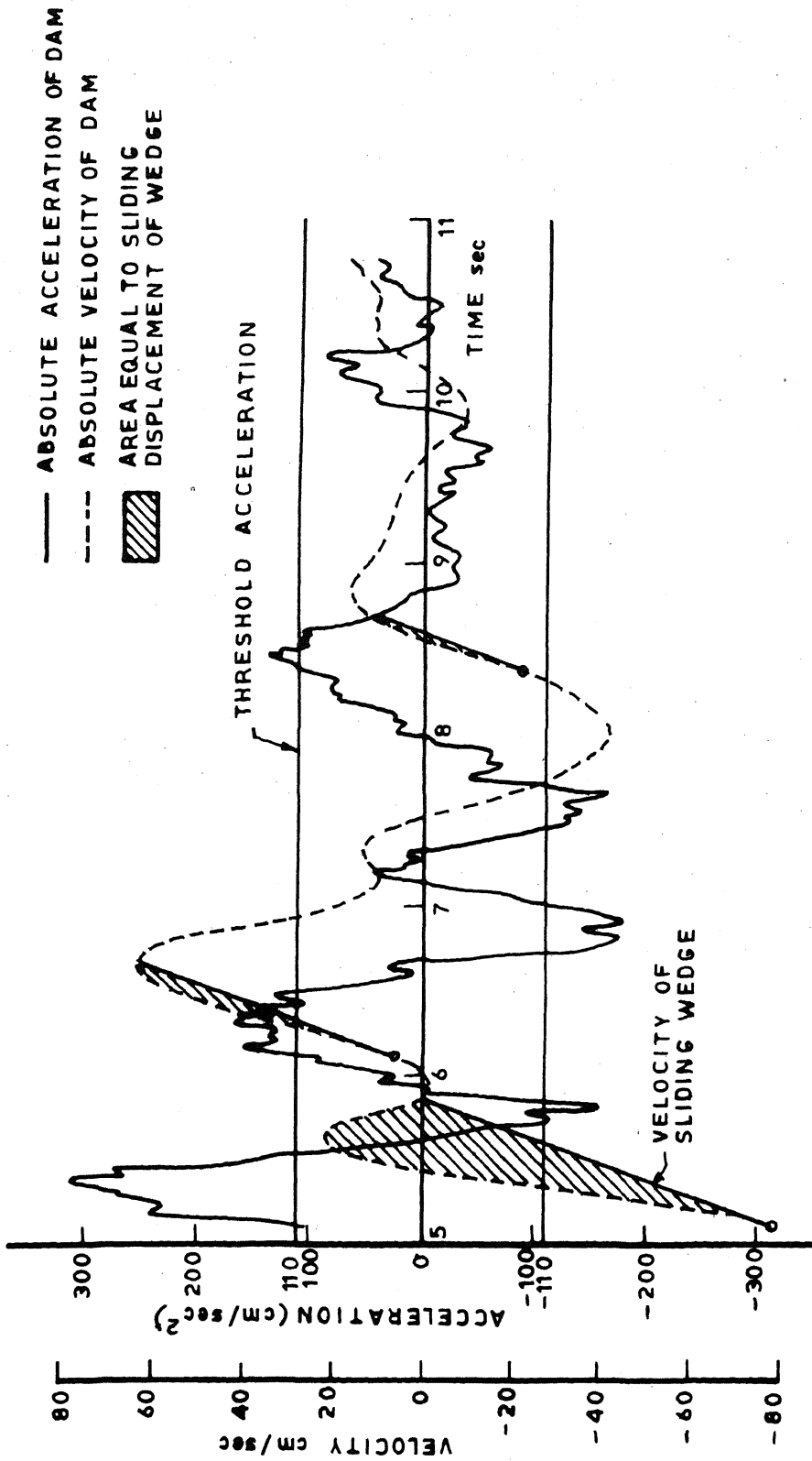


FIG. 2 - ACCELERATION AND VELOCITY RESPONSE OF DAM
 AS A FUNCTION OF TIME FOR A POINT 8.54 m
 BELOW CREST