UNDERGROUND STORAGE OF AMMUNITION AND EXPLOSIVES: MODEL TESTS WITH THE BLOCK CLOSING DEVICE IN THE MAIN PASSAGEWAY

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Starting from the results of Operation Block and corresponding to the recommendation of the NATO-Subgroup AC 258, model tests of a scale 1:50 are made at the Ernst-Mach-Institut for an underground two-chamber storage site. For protection of the surroundings against blast and debris a block closing in the main passageway is installed as well as a bypass. Important results of the model tests are as follows:
1: The block closing device diminishes the quantity distance against blast and debris in such a way, that the ground shock distance is no more exceeded if there is sufficient cover to contain the effects of a detonation.
2. The pressure-distance and impulse distance relations in the surroundings and the quantity distance against blast can be quoted as simple power function of the loading quantity Q.
3. The loading of the concrete block and of the support has at the two-chamber storage site about half the size than the Operation Block. Nevertheless the block in the main passageway is more effective for reduction
of the blast effect.
4. The results of our model tests are quite well compared with those of NDCS-model tests for Operation Block. It is therefore possible to discuss relations between loading quantity, loading density, propagation of pressure and protective distance which are generally valid for underground storage.