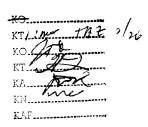
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DDESB-KT (31 Jan 80) 1st Ind

SUBJECT: ALCM Support Facilities, Munitions Storage Facilities Design Analysis and Plans

Department of Defense Explosives Safety Board, 2461 Eisenhower Avenue, Alexandria, VA 22331

26 FEB 1980

TO: HQ USAF/LEEVX, Washington, DC 20330

- 1. Reference SEV letter to DDESB dated 31 Jan 80, subject as above.
- 2. Drawings and design calculations forwarded with referenced letter have been reviewed. The earth-covered magazine depicted on U.S. Army Engineer District Omaha Drawing AW 33-15-01 is approved as a typical layout for ALCM storage. This approval is subject to satisfactory adaptation to the specific sites where such igloos will be proposed for construction.
- 3. The ALCM igloo is considered equal to U.S. designed reinforced concrete arch-type magazines designated as standard for application of intermagazine separation distances in DoD 5154.4S, Ammunition and Explosives Safety Standards. The net side-to-side separation of 40 feet between adjacent arches shown on drawing AW 33-15-01 limits the maximum net explosive content to 30,000 pounds per magazine. Exposures of the portal walls of such magazines to each other, at locations within the 120-degree sector centered on the longitudinal axis with the apex at the wall, require separations of 6W1/3 or 11W1/3 feet from W pounds of explosive, depending on whether or not an effective earth barricade is interposed.

/s/ W. G. Queen

1 atch

ALTON W. POWELL Colonel, USAF Chairman

CF: AFISC/SEV

MFR:

High-quality design work by Omaha District iaw TM5-1300. Portal wall design pressure and impulse were 100 psi (7 bars) and 1100 psi-ms (76 bar-ms), as recommended by this office. Arch design pressure was 40 psi, a little less than the 3-bar figure recommended, but the same impulse, apparently for lack of a specific recommended figure. Arch response model includes mass of earth cover moving with the arch, and passive soil pressure developed at sidewalls.

T.A. Zaker