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CHEMICAL CORPS DESERT TEST TEAM  
YUMA TEST STATION, YUMA, ARIZONA

Prepared at:

Dugway Proving Ground  
Dugway, Utah

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TESTING AND TEST FACILITIES

MISSION OF THE DESERT TEST TEAM

The Desert Test Team is responsible for the determination of operational suitability and performance of military items under conditions of desert environmental stress. The general objectives of the Environmental Evaluation Program are to determine:

1. The operational suitability of all items for which the Chemical Corps has responsibility, and
2. The effect of long-term environmental stress when these items are stored under adverse desert conditions.

Specific objectives of the program are:

1. To determine the performance characteristics and usability of specific test items after direct exposure to long-term environmental stress under normal forward-depot storage;
2. To determine the extent to which the items tested under desert conditions satisfy the military requirements given in Special Regulation 705-70-5, as amended;
3. To collect information for DA Project No. 877, "Environmental Analysis of Chemical Corps Material Performance by Rapid Methods (Project ENVANAL);" and
4. To determine the capabilities of CW, BW, and RW under adverse desert conditions.

#### AUTHORITY FOR CHEMICAL CORPS TESTS

The authority for the Chemical Corps Desert Test Team is contained in:

1. General Orders No. 9, Office of the Chief Chemical Officer, 4 June 1953;
2. AR 705-15, with Change 1, Operation of Materiel Under Extreme Conditions of Environment, 10 December 1952.
3. SR 705-70-5, with Change 1, Operation and Protection of Materiel Under Adverse Conditions of Temperature, 26 December 1950.
4. A series of nine letters, CMLRE-G-1, Chemical Corps Research and Engineering Command, dated 12 March 1952, 11 August 1952, 19 August 1952, 29 October 1952, 20 November 1952, 21 November 1952, 2 December 1952, 17 December 1952, and 19 March 1953.

#### ORGANIZATION OF THE DESERT TEST TEAM

The Chemical Corps Test Team, Yuma Test Station, Arizona, is a field activity under the command of the Chief, Environmental Test Laboratories, Dugway Proving Ground, Dugway, Utah (Fig. 2). The team consists of the following personnel:

Commanding Officer, charged with the overall command responsibility for the operations and with conduct of the organization,

Property Officer, accountable for Account 6-4459, charged with the responsibility for all property activities,

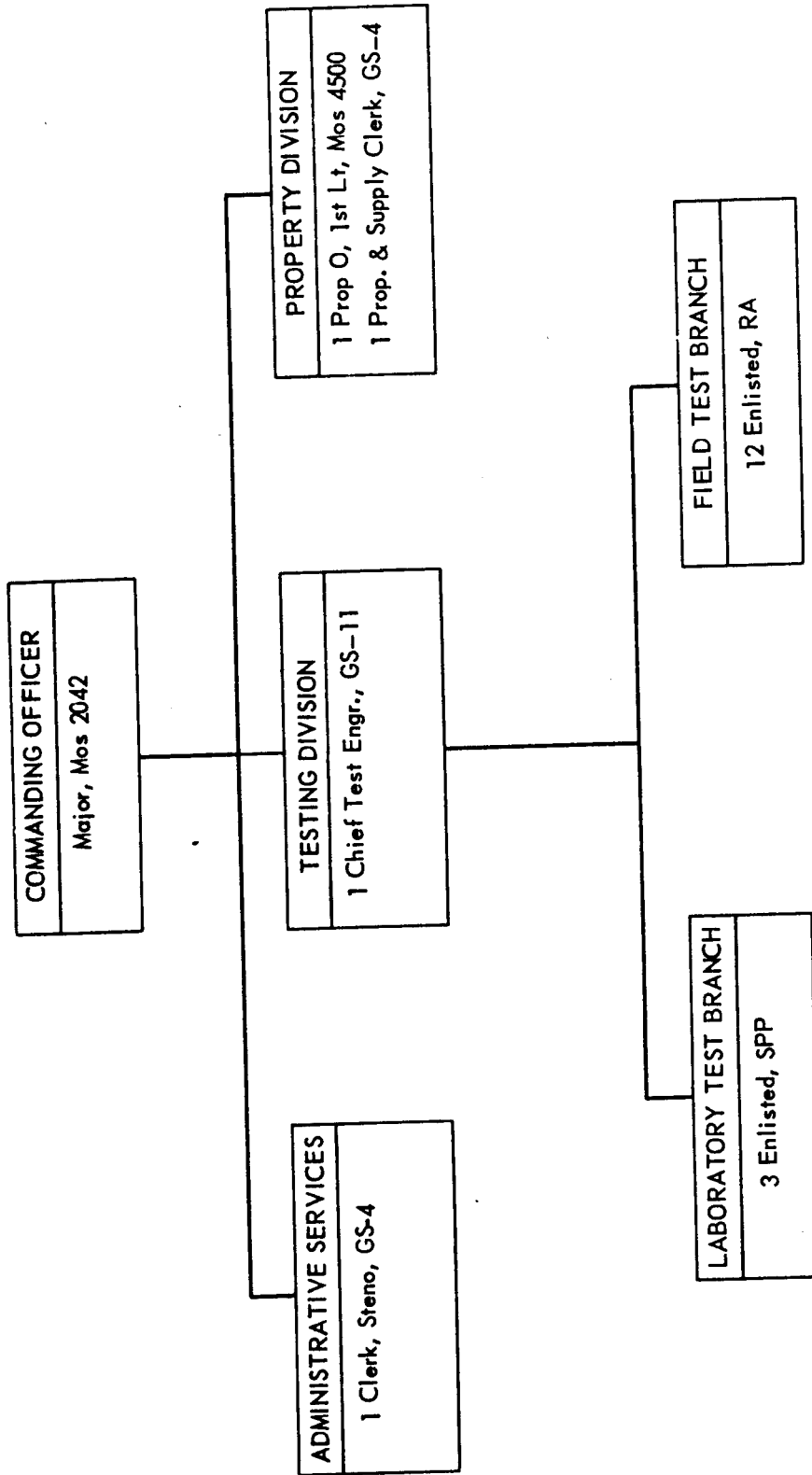


Fig. 2.- Organization of Yuma Test Team.

Chief Test Engineer (civilian), responsible to the Test Team Commander for conducting all field and laboratory tests,

Administrative Section, consisting of two personnel responsible for the clerical and administrative activities required for the operation of the test team, and

Testing Division, consisting of 15 enlisted men, responsible for conducting tests as directed by the Chief Test Engineer.

#### HISTORICAL BACKGROUND OF TESTING AT YUMA

In 1943, the Yuma Test Branch was established near the present site of the Yuma Test Station on the Colorado River by the Research and Development Laboratories of the Corps of Engineers. Pontoon and Bailey bridges were tested on the Colorado River. Large areas of the present site were used for the Army Desert Training and Maneuvers during 1943 and 1944. -In 1949, the Yuma Test Branch was inactivated and the Corps of Engineers sought to dispose of the area. On 7 March 1951, G-4, Department of the Army, instructed the Commanding General, Sixth Army, to reactivate the Yuma Test Station as of 1 April 1951, to support hot weather desert research and development. On 14 March 1951, representatives of the research and development agencies of the technical services met in Washington, D. C., to discuss and plan desert tests to be conducted during 1951, and to draft a regulation governing the operation of Yuma Test Station. As a result of this meeting, AR 705-28, "The Program for Desert and Hot Weather Tests (Yuma Test Station, Yuma, Arizona)," was published in 1951.



Fig. 3.- Chemical Test and Storage Area.

#### FACILITIES AVAILABLE FOR TESTING

Among the test facilities available at Yuma are:

1. Storage and Test Areas

A CW and BW bombing range, approximately 5 miles in width and 12 miles in length, is available for all toxic tests of any chemical or bacteriological agents. Gravel flats are used for a flame-thrower test area and a chemical storage area (Fig. 3). Electrical power is available from portable generators only and means are provided to supply this area with water. There is also a CW and BW laboratory (Fig. 4). The general areas in which these appear are shown in Figure 1. Area 1 is the chemical test and storage area and Area 3 is the site of the CW and BW laboratory.

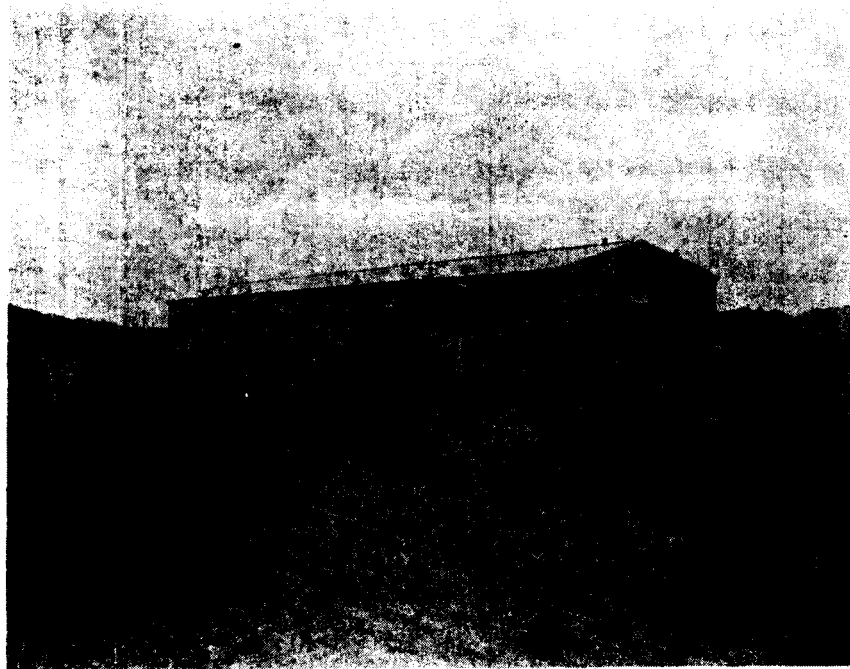


Fig. 4.- CW and BW Laboratory Building.



2. Administrative

Administrative space for the Desert Test Team is in the Technical Services Operations Building, T-2100. (Figs. 5 and 6).

3. Meteorological

The Signal Corps Meteorological Field Station No. 1, 9575th TU, Fort Huachuca, Arizona, assigned to Yuma Test Station, provides complete meteorological support for this team.

4. Photographic

Yuma Test Station personnel supply the photographic needs of this organization. The test team has an assigned photographer to augment the services afforded by Yuma Test Station. Facilities are not available at the station for processing motion picture film.

ACTIVITIES

The Chemical Corps Test Team activities at Yuma Test Station are part of the Environmental Test Program conducted at Desert, Arctic and Tropic sites under the supervision of the Commanding Officer, Dugway Proving Ground, Dugway, Utah. The desert phase of the overall program was initiated in August 1952. Surveillance tests only or surveillance and performance tests are performed on many items of supply or equipment. These tests normally are conducted on the basis of 3, 6, or 12-month cycles over a period of four years. Chemical Corps items for the Air Force are tested for 3, 6, or 12-month cycles over a period of five years. Chemical Corps items for the Navy

are tested for similar cycles, but for four or five years, depending upon specific instructions from the Department of the Navy. Some items, mostly experimental, are subjected to tests for one year on the basis of 3-month cycles. Authorization for specific tests is provided by Headquarters, Chemical Corps Research and Engineering Command, Army Chemical Center, Maryland. Plans for testing the various items are prepared by Environmental Test Laboratories, Dugway Proving Ground, Dugway, Utah. Test plans are prepared using Department of Army Regulations, technical and field manuals relative to Chemical Corps Materiel, all reports, records, and other pertinent data concerning the standardization of Chemical Corps materiel, and the SR 742-507 series of publications and Materiel Command Appendices. Reports on the test items are given in narrative style and on the standard DPG ENVANAL Report Forms (note the sample form on page 15 ).

FACTORS WHICH RELATE TO TESTING

Yuma Test Site was chosen because it offers adverse desert conditions for the testing of military materiel. Knowledge of terrain surfaces at Yuma is important, but even more important is the knowledge of the form and structure of these surfaces. For example, it makes considerable difference whether sand is firmly packed or so loose that it can be easily blown about by the wind; whether it is arranged in plains or in dunes. These facts must be taken into consideration before plans for military operations or tests can be made. Also of importance is the effect of these conditions on personnel performing the tests.