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By ERC NARS, Date 6-4-74

29 May 1945

SUBJECT: 509th Composite Group; Special Functions

TO: Commanding General, XXI Bomber Command
A.F.O. 234, c/o Postmaster, San Francisco, California

THRU: Deputy Commander, Twentieth Air Force

1. Confirming and amplifying a previous discussion between Norstad and LeMay, this letter will outline the mission and certain special functions of the 509th Composite Group and attached groups of civilians and Naval Officers.

2. Mission

The 509th Composite Group was organized and activated in December 1944, by direction of General Arnold, for the specific purpose of delivering certain special bombs when these bombs become available. It is now anticipated that the first of these bombs will be available for delivery in August 1945.

3. Tactical Factors

The above bombs are of two types, each weighing about 10,000 pounds. The power of each of these bombs is of the order of several thousand tons TNT equivalent. The completeness and extent of the damage is importantly affected by height of detonation, contour of terrain within several miles, type of structure, and by a heavy rain or low fog.

The bombs are designed for detonation by radar proximity fuzes at heights of 700 to 2,000 feet above terrain. The optimum height of detonation lies within these limits, depending upon the expected energy release, which will be known.

The present design of the bombs requires assembly of mechanical, electronic, explosive and special components in the field. Shipment of all of the components will be under Navy orders. The mechanical, electronic and explosive components are replaceable in the sense that loss of one shipment could be replaced in a period of three to four weeks. These latter components will be shipped from the San Francisco Area in semi-monthly shipments which have been arranged in a letter from Cominch to Cincpoa. In the same letter provision was made for shipment of the special components in heavy combatant ships. It is quite possible

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that in order to save two to three weeks in the initial bomb delivery, that the final twenty to thirty percent of special components will be flown out to the Advanced Base.

4. Training and Rehearsal

The B-29 airplanes in the 509th Composite Group have been modified to carry the special bombs and cannot be converted to carry the standard heavy bombs. In order to provide facsimiles of the more bulky type of special bomb, for use in training and rehearsal, the "Pumpkin" has been developed. The Pumpkin has the same external shape as the special bomb and contains about 5500 lbs. of HE. It is a blast bomb only and will not penetrate the ground. At present it can be fused for instantaneous explosion only, but very shortly a proximity fuze will be available for it to allow bursting in the air. While originally designed for training only this bomb should have very definite tactical uses. It's capabilities can be determined from personnel with the Group, particularly Captain Parsons. A flow of sixty Pumpkins per month is at present established for expenditure by the Group. It is desirable in the interest of security that the ostensible mission of the 509th Composite Group be to deliver Pumpkins in battle. In this connection data including strike photographs and results of Pumpkin hits are of specific interest to the Operational Studies Group here.

5. Functions of Special Personnel

In order to handle the special assembly and test problems involved in loading these bombs, it is essential that most of the operations be either performed or directly supervised by civilian specialists, who have a background of research and development in connection with each component. The personnel are organized into a so-called "Project A", of which Captain W. S. Parsons, U.S.N., will be the Officer-In-Charge. His technical deputy will be Dr. Norman F. Ramsey. All technical problems connected with tests and readiness of the bombs for delivery, will be channeled from the members of the scientific group through Ramsey to Parsons, who, together with the 509th Group Commander and the liaison officer of General Groves should be the only individuals to deal with General LeMay. Commander F. L. Ashworth, U.S.N., will be the alternate for Captain Parsons.

In actual delivery it is desired that the B-29 airplane which carries the bomb also carry two military officer specialists. The senior officer specialist will be qualified by familiarity with the design, development and tactical features of the bomb, to render final judgment in the event that an emergency requires deviation from the tactical plan. Captain W. S. Parsons, U.S.N., will undoubtedly be the senior officer specialist for initial battle deliveries, with Commander F. L. Ashworth as his alternate. Other alternates will be designated when they are fully qualified. The junior officer specialist will have the duty of performing

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tests and planned adjustments on the circuits of the bomb during flight. One or more B-29's of the same squadron should accompany the delivery plane and will be provided with special observation equipment which will require operation by one or two military officer specialists in each airplane.

6. Special Air Transportation

Normal expectation in the state of development which will have been reached by the time of first battle deliveries, is that emergencies will arise requiring shuttling of personnel and material. To handle these emergencies as well as the air shipment of special components referred to in paragraph (3), a squadron of C-54 aircraft has been incorporated in the 509th Composite Group. This squadron has been cleared by the War Department to operate between the United States and the Theater over ATC routes, and under the supervision of ATC while on their routes. Wendover Field, Utah, has been established as the supply and support base in the United States and the C-54's are planned to operate between there and the Marianas.

7. Operational Studies Group

The requirements and conditions for successful delivery of these bombs differ markedly in many respects from those which are adequate for delivery of ordinary bombs. The principal difference lies in the fact that the potency and small number available, tremendously increases the need for absolute reliability of delivery. It would be impossible to list all of the differences which might be important in any given tactical situation. In order to handle this problem, a special operational studies group has been formed under Dr. Stearns, who heads the Twentieth Air Force operational studies group. It is intended that these individuals will be present at the headquarters of the XXI Bomber Command during the vital period which will precede initial deliveries of these special bombs. These individuals, who include Dr. D. H. Dennison and Mr. Warren T. Dickinson, will be fully informed in regard to the special problems inherent to the delivery of these bombs from the stripped B-29 airplanes of the 509th Composite Group.

8. The 509th Group will be under your command and control, but because of the experimental nature of the project considerable control may be exercised from this headquarters, especially in the initial phases, with regard to the targets for the primary weapons. At present, Kyoto, Hiroshima, and Niigata have been reserved for destruction by these and operational plans should be worked out in close cooperation with the key personnel assigned and attached to the Group, to get the maximum results and obtain the maximum information for further development of the weapon. Operational use of the Pumpkins should primarily point to insurance of proper delivery of basic bombs, but otherwise

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decisions on targets and use is yours.

LAURIS NORSTAD
Brigadier General, U.S.A.
Chief of Staff

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