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~~CONFIDENTIAL~~ANNEX BTESTING AND DEVELOPMENT

1. Until now, General Mills, manufacturer of the operational balloons, has been doing the development. It is felt at this time that General Mills has gone as far as possible with their limited knowledge of tradecraft. Some of the problems the Agency is faced with and which should be determined are:

a. Graphs which will show the rate of rise when the balloon is given various free lifts. Previously we have been concerned with safe amounts. Now we should determine emergency statistics. For example, when an agent steps out of a balloon without valving gas, what will be the reaction of the balloon? Will it flutter and rip or can it stand the resultant tremendous rate of rise? Is the reaction the same in each case? When a balloon is in equilibrium it will neither rise nor descend. When it has free lift the gas has more lift than the ballast on board and will then ascend at a rate conversely proportional to the difference in weight.

b. Present day operations are being considered for one and two man operations in thirty foot balloons. This means that with one man in the vehicle, ballast or equipment equalling 450 pounds must be added. In other words, a twenty-five foot balloon for a man going to a denied area with average amount of equipment would suffice. Another problem is simply a short border crossing by one man with no equipment. For this it is probable that a twenty foot balloon would suffice. During past operations the problem of getting enough weight into the gondola to overcome the free lift given by 12,000 cubic foot of gas has arisen when one man is sent in a thirty foot balloon. It is dangerous to fly a balloon with less gas in the thirty foot type because of what is termed a "slack balloon flight."

2. The fact should be established as to the exact maximum and minimum number of flights necessary for training of indigenous personnel.

3. One operational hazard of present Agency inflation techniques results from the noise caused by the flow of gas out of cylinders (60) and into and out of the diffuser. The diffuser reduces the gas pressure from 2,000 pounds per square inch to close to atmospheric pressure. An effort should be made to reduce this noise either by changing the diffuser or the procedure.

4. Technical Services Staff is developing a chemical hydrogen generator and a mechanical type generator. This balloon area will provide operational procedure tests of these items under simulated field conditions.

5. The question has been asked if two men were launched would it be possible to have one man bail out over one target and have the other bring the balloon into equilibrium and fly on to a second target. Procedures of this

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type have never been used and a definite technique should be developed.

6. A study could be developed on the capabilities of balloons as photographic reconnaissance vehicles, both with and without pilot. This problem has already had great consideration within our Agency as well as within the Air Force and other Agencies. Tracking stations located in Denver could be utilized for this purpose.

7. Manned propaganda flights could be considered in areas where the geography allows; for example, Korea, where a balloon launched on the west side could be recovered on the eastern shore or overwater. Technique of recovery and/or disposal in such a situation could be worked out.

8. Covert launching procedures for propaganda balloons could be considered. A twenty-five foot balloon is being considered for propaganda flights. For this type flight only a portion of the gas in a sixty unit manifold would be used on each balloon. A procedure could be developed to cover launching of such balloons from various sites during one night.

9. The potentialities of personnel balloons for escape and evasion, using both chemical type hydrogen generators and local gas supplies, could be considered. After techniques have been established host country representatives could be invited to witness demonstrations of such techniques. Such demonstrations should also convince host countries which border the satellites of balloon capabilities for infiltration.

10. The problems listed above are just a few of those with which the Agency is faced at present. Future development of balloon techniques will pose many more questions to be answered.

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