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Cont'd - Cloud Sampling Requirements for Castle, 5 Feb 53

(2) Special sample:

H<sup>h</sup>4:00 to H<sup>h</sup>4:30 hours.

6. Collection Altitudes

a. Six (6) primary samples - initial true altitude 42,000 feet, final true altitude at least 47,000 feet (a higher altitude would be most desirable) over the time intervals listed in paragraph 5.

b. One (1) special sample - at least 55,000 feet true altitude.

7. Sampling Aircraft Operational Requirements

a. Primary sampling aircraft:

- (1) Flight time capability (paragraph 5)
- (2) Altitude capability (paragraph 6)
- (3) Axial flow engines with turbine and air intake located not less than ten feet from the crew's compartment.
- (4) Speed about 0.8 mach.
- (5) Capable of carrying high performance filter devices.
- (6) Filtered air to crew's compartment.
- (7) Carry gas sampling equipment.

b. Special sampling aircraft:

- (1) Flight time capability (paragraph 5).
- (2) Altitude capability (paragraph 6).
- (3) Speed and engine type as required.
- (4) If a medium speed aircraft is used, the "shoe-box" type filter is recommended.
- (5) If a higher speed jet-type aircraft is used (0.8) mach, a type of filter similar to that used in IVY is recommended.
- (6) Filtered air to crew's compartment.

8. Control Aircraft Operational Requirements

- a. Three scientific personnel.
- b. Position in the immediate vicinity of the cloud.
- c. Initial true altitude 35,000 to 40,000 feet with capability of climbing to 45,000 feet as required by cloud structure.
- d. Medium speed with endurance capability of remaining aloft for 10 hours.
- e. Two 8 channel VHF systems.
- f. One HF liaison set.
- g. One low frequency homer with about 200 mile ranging capacity.
- h. Continuous positioning to within five miles.
- i. Suitable back-up aircraft.

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Commander

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