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MEMORANDUM FOR: Deputy Director for Science and Technology

SUBJECT: Status of Project CHIGOE

1. The objective of Project CHIGOE is to utilize the timeliness, efficiency, and large area effectiveness of airborne collection in those broadly defined tropical areas where limited or irregular warfare is a way of life, specifically in Vietnam and surrounding territory, through the early development and proof of concept of a tactical multisensor aircraft.

2. Toward this goal the CHIGOE system utilizes a multisensors for night operations which have as its core, the CIA proprietary infrared scanners. These sensors may be divided into three groups; radar, optical and magnetic.

3. Radar Sensors: This is the standard military forward looking APQ-110 radar used for terrain following, terrain avoidance and ground mapping. Its primary use is to avoid crashing into terrain during night flying. A CRT display is provided the pilot copilot and one for the navigator.

4. Optical Sensors

a. Forward looking low light level TV system to aid in navigation and to assist in locating and identifying targets. It differs from the military versions in that it is sensitive out to the near infrared. This has the advantage of higher contrast to delineate water ways (water looks black, foliage white) and is in the spectral region of the infrared filters reported to be in use on Viet Cong trucks for night driving.

b. Forward looking infrared system. A passive real time infrared viewing system for target detection, location and attack. In addition it may be used

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for check point navigation and reconnaissance. It differs from the military version in that it has a dual spectrum capability, (3-5 , 8-14) to furnish information to the displays. A high spot indicator on the display is furnished to the viewer to direct his attention to targets of interest.

c. Convergent infrared scanning system. Two high resolution (1/2 mrad.) thermal infrared system set into a convergent mode provides thermal images on film for post strike studies. There is no comparable version in the military which provides IR stereo images or such high resolution.

d. 1/10 mrad infrared stereo scanner. This scanner was not part of the original equipment. However it is included due to higher permissive altitudes over certain areas in Vietnam. There is no operative IR system comparable to 1/10 mrad. IR scanner in the military.

e. KA-53A Camera. This is a daytime reconnaissance camera modified for high shutter speeds, maximum 1/3000 second. Four different focal lengths are available for use.

f. 501-B-1. This is a Perkin-Elmer Panoramic camera to provide horizon-to-horizon daytime coverage normal to the aircraft heading.

5. Magnetic Sensor. An active magnetometer operating in the audio frequency is an Agency proprietary which outperforms present magnetometers for metal detection. It is truly foliage penetrating and permits detection of vehicles from ranges of 700-1,000 feet.

6. Project CHIGOE was initiated under Admiral Rayburn and was CIA funded with coordination affected with DDR&E, Air Force, and Navy. At present CIA funds have been cut off from this project and $1 million from DoD is being allocated to complete the proof of feasibility in the South East Asia environment. It is expected that the CHIGOE aircraft will be deployed to Bangkok early in July to conduct calibration test against the [redacted] site. Subsequently, after a week of testing, the (b)(1) (b)(3)

system will perform operational testing out of Udorn over Laos, and Thailand with further tests in Vietnam. Except for the 1/10 mrad. scanner the CHIGOE system will be turned over to the Navy.

7. Present Navy plans call for a return of the CHIGOE system to the U.S. to perform maintenance chores and return it to the Vietnam area for operational use with a new crew.

[redacted] (b)(3)
Chief, Optics
Office of Research and Development

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