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DIRECTORATE OF SCIENCE & TECHNOLOGY HISTORY

(TITLE OF PAPER)
History of the Office of Special Activities
Annexes 121 through 153

(PERIOD)
From Inception to 1969

DO NOT DESTROY

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Date prepared : 1 April 1969
Written by : Helen Kleyla
Robert O'Hern

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ANNEX 121

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19 November 1957

PROPOSED ADVANCED RECONNAISSANCE SYSTEM1. Background:

a. The President's Board of Consultants on Foreign Intelligence Activities included in its latest semi-annual report the recommendation "that an early review be made of new developments in advanced reconnaissance systems". In the text of its report, the Board states that it is aware of two proposed reconnaissance systems: It is known informally that this is intended to refer, on the one hand, to the several proposals now under consideration in the Department of Defense for a reconnaissance satellite and, on the other, to a study currently in progress in the Central Intelligence Agency of the feasibility of a manned reconnaissance aircraft designed for greatly reduced radar cross section. This memorandum deals exclusively with the latter of these two proposed systems.

b. The study in question had its origin in the RAINBOW Project, the purpose of which was the development of radar camouflage which would be applicable to the U-2 aircraft without serious impairment of performance and sufficiently effective to permit a small percentage of reconnaissance missions to go undetected and greatly to reduce the accuracy and extent of radar tracking of reconnaissance missions even when detected. Although considerable success has been achieved toward this objective, it began to be apparent by mid-summer 1957 that only limited and temporary success could be hoped for through the application of passive camouflage to an aircraft of conventional structure. Briefly the reason is that (so far as known to the U.S. Government) all camouflage devices in use, under development, or even contemplated, in either the United States or Europe, are either too heavy or too bulky for aircraft application (except at prohibitive cost in performance) or are inherently narrow banded. At the same time, the Russian radar system is already characterized by a very considerable degree of frequency diversification which is rapidly increasing. Any feasible combination of narrow banded solutions can cover only two or three regions in the whole spectrum and can therefore give only limited protection.

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c. These circumstances suggest that only a much more radical approach offers the possibility of really satisfactory results. The objective must be to achieve inherently broad banded solutions, which would afford protection not only over all the ranges of frequencies in which Russian radar currently operates, but also against sets operating at new points on the spectrum. Preliminary consideration led to the conclusion that any such radical approach would involve the use of unconventional materials, or unconventional structures, or unconventional configurations of aircraft, or some combination of the three and would, therefore, inevitably require the design of an entirely new aircraft optimized with respect to radar reflectivity. Accordingly, an exploration of possible design approaches was set in motion in August 1957.

2. Study Now in Progress:

a. Unconventional materials, structures, and configurations all have a cost in terms of weight or drag, so any of the radical approaches now under consideration will involve a compromise between the invisibility of the aircraft and its performance. In the present state of knowledge a clear cut choice of the optimum approach is difficult and no one can be certain that even the best compromise will be worthwhile. The familiar techniques of reducing reflectivity are either too heavy and bulky or just not effective enough and the accurate evaluation of the reflectivity of complete aircraft is extraordinarily difficult. Accordingly, in its present phase, the study is focused on the "invention" of new approaches to the electronic objective and upon techniques of measurement and experiment designed to reveal the effectiveness of these approaches. At the same time, recent advances in the state of the art in aerodynamics must be reviewed in an effort to offset as far as possible the inevitable penalties to aircraft performance. In the next phase, it will be necessary, and it should be possible, to weigh the gains to be achieved in the form of reduced reflectivity by each approach against its aerodynamic costs and on this basis to select one (or at most two or three) as the most promising. Once the field has thus been narrowed, it will be possible for an aircraft manufacturer to develop a concrete proposal (or alternative proposals) for an aircraft which will achieve the best performance obtainable within the state of the art employing the approach that has been selected.

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b. Especially in its present phase this is more a scientific than an engineering study, though the scientists must have access to competence in airframe design and in structures and materials for their guidance. Accordingly, a temporary technical staff for the Project has been assembled in Cambridge, Massachusetts, in a small separate facility. The core of the staff is the group of scientists from MIT's Lincoln Laboratory who have been working on the RAINBOW Project for the last year. They will be supplemented with two or three additional men in the field of electronics and will be assisted by consultants from several other organizations, including the A. D. Little Company (on certain materials problems), possibly the National Advisory Committee for Aeronautics, and firms on the east and west coasts that are conducting both full-scale and model tests under the direction of the technical staff. In addition, basic research contracts have been concluded with Bell Laboratories and the Farnsworth Electronics Company (a Division of the International Telephone and Telegraph Corporation). Considerable effort has been and is being expended to develop really reliable measurement techniques, including a small range in Cambridge for model tests of low frequency reflection, a large outdoor range at Westinghouse for model tests of high frequency reflection and equipment for full-scale testing (both ground and flight tests) at Indian Springs AFB, Nevada. Most of the personnel and facilities thus assembled had already been employed in the RAINBOW program and the work on the production of camouflage application to conventional airframes is still proceeding.

c. Since the autumn of 1956 when it began to appear that the RAINBOW Project might achieve some degree of success, the Air Force and the Navy have been kept informed of its progress and have provided support. Knowledge of the activity has been closely held but has been available to a sufficient number of officers in each Service to insure that the implications of radar camouflage for military programs could be taken into account. All of the arrangements described in the preceding paragraph were made in the first instance as the means of carrying out the original RAINBOW development of radar camouflage and are believed to be satisfactory to the Air Force and the Navy, at least in connection with that program. When emphasis was shifted to the above-described study of a

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more radical solution, a very few senior Air Force and Navy officers were so informed and are aware both of the character of the work in progress and of its purpose. The bulk of the work done in this country in aviation and electronics and of the competence available in the Government in these two fields is to be found in the Air Force and the Navy. Since the Central Intelligence Agency neither does nor should possess any parallel capability, the most intimate cooperation is required if the above-described program is to have a chance of success.

3. Preliminary Conclusions:

a. Although, as stated above, it is too soon to judge the technical feasibility of an extremely low reflectivity reconnaissance aircraft, such a system, if feasible, would have notable advantages as a complement to a reconnaissance satellite. Operating at seventy to eighty thousand feet, extremely high resolution photography and excellent electronic intelligence is available. Since radar reflectivity would be exceptionally low in the X-band the aircraft would have a high degree of immunity to both aircraft and missile interception. If not susceptible to more than sporadic detection and tracking, its immunity to interception would be further enhanced and the political obstacles in the way of its employment would be reduced to a minimum. In particular, it is believed that (if feasible) such a reconnaissance vehicle is more promising than a manned aircraft designed for greater performance but without benefit of radar camouflage. Although it would be entirely within the state of the art to build an aircraft with a ceiling of ninety thousand feet (or even higher), it might well be subject to interception by ground-to-air missiles by the time it could be operational. In brief, it is submitted that any reconnaissance vehicle can achieve reasonable immunity from physical interception and political frustration only by going far higher than manned aircraft or achieving effective invisibility to radar.

b. If, on the basis of a favorable outcome to the study now in progress, the decision should be made to proceed with the reconnaissance system herein discussed, this project should be carried out with maximum speed and security. There is no slightest possibility that a successor aircraft could be operational sooner than the spring

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of 1959, yet by that date it seems highly likely both that the U-2 will be obsolete and that the urgency of the need for photographic reconnaissance will be even greater than it is today. The management and organization of this later phase of the project, if it is undertaken, should be chosen with these objectives in view.

c. An appreciable part of the possible benefit of the present study and of any project that grows out of it will be lost if the tightest security is not maintained around it. It must be emphasized that in the fields of radar and of passive and active countermeasures there are not likely to be a few crucial secrets, the safeguarding of which can protect the security of the whole system in which they are used. Most or all of what is known to us in these fields is known to the Russians and they are as capable as we of devising and understanding the design approaches now under study. The only way to achieve a decisive lead over their radar defense is to develop a system and have it operational before they have discovered that an intensive effort is being made in this area.

4. Proposed Course of Action:

a. The program of studies, measurement and experimentation will be carried forward with all possible speed, in conjunction with further work on the RAINBOW camouflage, looking toward the choice of a design approach for a possible new aircraft within three months' time. The work will be under the technical direction of the above-described scientific staff in Cambridge with actual systems responsibility remaining in the AQUATONE Project Headquarters in Washington, D. C.

b. During this phase, contact will be made with certain manufacturers as appropriate in order to explore the possibilities of unconventional materials and structures and receive the benefit of their views on the general design problem.

c. It is proposed to maintain more continuous and more intimate contact than hitherto with appropriate components in the Air Force and the Navy.

d. Appropriate steps should be taken to control discussion with manufacturers in the aviation and electronics

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industries and actions such as the issuance of formal requirements which might stimulate unusual interest in the concept of a non-radar reflective aircraft.

e. As soon as it is possible to select the optimum design approach for a low reflectivity reconnaissance aircraft and to evaluate with reasonable reliability both its feasibility and its performance, a Governmental decision should be made as to the advisability of a crash program to produce eight to twelve such vehicles.

5. If the above-outlined conclusions and course of action are generally satisfactory, the joint report by the Secretary of Defense and the Director of Central Intelligence, although it should avoid any description of the concept and study herein discussed, could respond to this part of the Foreign Intelligence Board's recommendation with the statement (a) that one of the possible advanced reconnaissance systems known to the Board is being studied, (b) that for the present at least questions of funding and management are in hand, (c) that the study is proceeding with the utmost sense of urgency, and (d) that joint recommendations for action will be submitted if and when the feasibility of the system is established.

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ANNEX 122

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~~TOP SECRET~~THE DEPUTY SECRETARY OF DEFENSE
Washington, D. C.

November 26, 1957

MEMORANDUM FOR MR. ALLEN DULLES

On November 19th, you and Mr. Bissell discussed with General Twining, General LeMay, Admiral Burke and me the subject matter of ~~Top Secret~~ 164671. I wanted to let you know we are in agreement with the exploratory work that is now going on in Cambridge and elsewhere. Noting that you expect this to reach a definitive stage about three months hence, we will be glad to consider with you at that time the feasibility and desirability of proceeding with a definite design project.

While the Navy, as well as the Air Force, is very much interested in this project, we are looking to the Air Force to carry the Defense responsibility for it and particularly to be the agency to undertake any follow-on project of the kind proposed in Paragraph 4. e. of your ~~Top Secret~~ 164671.

With reference to Paragraph 5 of ~~Top Secret~~ 164671, we concur in the proposed joint report in response to the FIB recommendation.

(Signed)

Donald A. Quarles

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ANNEX 123

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15 November 1958

MEMORANDUM FOR: Dr. James R. Killian

An advisory group composed of the undersigned, together with the Assistant Secretaries for Research & Development of the Air Force and the Navy, have considered over the past several months the technical features which must be achieved in order to provide an adequate successor to the presently operational special reconnaissance aircraft. These features are:

Substantial increase in operational ceiling and probably also in speed to avoid interception;

Low susceptibility to detection by radar and other modes of observation;

No sacrifice in operational range;

Minimum size and weight.

The group has evaluated a number of proposed special reconnaissance aircraft concepts. These various concepts have included the use of unique engines, special fuels, launching by rocketry or mother aircraft, new structural materials and design methods, unusual design configurations and other features. The advisory group has had access, it is understood, to all design proposals that have been made to the Military Services that might be of interest in the reconnaissance application and have considered the technical characteristics of certain aircraft now under military development.

It is our conclusion that the most satisfactory design approach is one based upon a new, small and reasonably light-weight aircraft carried aloft to supersonic speed by the B-58 as a mother aircraft. The special reconnaissance aircraft would cruise by itself at substantially higher altitudes but over the same distances as now achieved and would be powered by dual ram-jet engines using conventional fuel. By reason of its high supersonic speed, cruise altitude, and design features, this aircraft would be much less susceptible to radar detection and tracking than current aircraft. There appear to be no unusually difficult problems in terms of facilities or techniques in the development of this aircraft and its engines except perhaps those of aerodynamic heating and of achieving

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ANNEX 124

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16 December 1958

MEMORANDUM OF UNDERSTANDINGFUNDING OF PROJECT GUSTO
FY 1959 AND FY 1960

1. For the past fourteen months feasibility studies have been in progress looking toward the development of a new intelligence collection system. In May 1958 a panel of consultants was established by the Scientific Advisor to the President, who acted also on behalf of the Secretary of Defense and the Director of Central Intelligence. In a report rendered in late November, this panel indicated its choice between competing design proposals and recommended that the development of the intelligence collection system be undertaken immediately on an expedited and highly secure basis. Although considerable further work will have to be done before the optimum configuration for the proposed system can be determined in detail, there is agreed to be a strong presumption that substantially the desired performance can be achieved.

2. With the feasibility studies completed the next phase of this project, if it is to go forward, will involve extensive tests, development of detailed design, final determination of configuration, and (in order to achieve a capability at the earliest possible date) some fabrication or procurement of long lead items. This phase of the project will require four to six months for its completion and will not involve a major financial commitment. At the completion of this phase, a much more solid estimate of the performance of the system and of its total cost will be available and a final decision can then be made to abandon the undertaking or carry it through to completion. It is planned in the near future to seek approval for this next phase. Presumably, such approval will be granted only if the development of the proposed intelligence collection system is considered worth while subject to a more firm demonstration of its performance and a satisfactory hard estimate of its cost.

3. Partly because many of the details of the optimum configuration remain to be determined and partly because it is believed that cost estimates submitted by the contractors under consideration will be subject to considerable change in the course of negotiation, firm and reliable estimates of total funding required cannot be made at this time. It seems clear, however, that the minimum cost of the system may be in

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the neighborhood of \$100,000,000 and could well turn out to be higher. It has been firmly estimated, however, that the next phase will cost between \$4,000,000 and \$5,000,000, depending in considerable part on whether two competing designs are carried along through this phase or a final choice of design approach and source is made at this time.

4. It is understood that if approval is obtained (on the terms outlined in paragraph 2, above) to proceed with the next phase of the project, this activity will be financed by release of funds from the CIA Reserve in the amount of \$4,000,000 to \$5,000,000. This sum will be obligated almost immediately and will be wholly expended during FY 1959.

5. It is understood that if, after completion of the next phase, approval is received to proceed with the development of the proposed system, \$75,000,000 of FY 1959 and/or FY 1960 Department of Defense funds will be made available for this purpose but these funds are not a part of the FY 1960 CIA budget and will not in any way affect the Agency Reserve.

6. With respect to the management of the \$75,000,000 to be made available to the Agency in the event of final project approval, it is understood:

a. That these funds will be available for no purpose other than the project herein referred to, and

b. That CIA will have the same degree of effective control over their use that it would have if they were obtained as a release from the CIA Reserve.

CENTRAL INTELLIGENCE AGENCY
(Signed)
L. K. White
Deputy Director (Support)
16 Dec 1958

BUREAU OF THE BUDGET
(Signed)
Robert M. Macy
Chief, Internat'l Div.
16 Dec 1958

(Signed)
Richard M. Bissell, Jr.
Special Asst to the Director
for Planning and Development

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ANNEX 125

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OXC-0323-60

24 February 1960

MEMORANDUM FOR: Director of Central Intelligence
THROUGH: Deputy Director (Plans)
SUBJECT: Bureau of the Budget Request for DCI
Memorandum Concerning OXCART Presidential
Approval.

1. This memorandum contains a recommendation for DCI approval. Said recommendation is contained in paragraph 3.

2. At a 15 February meeting attended by Messrs. Saunders and Mason of the Agency's Office of the Comptroller and the undersigned, Mr. Robert M. Macy of the Bureau of the Budget, stated that it was his impression that further Presidential approval was required beyond that given OXCART on 20 July 1959, prior to implementing the full scope of the program. Mr. Macy was informed that it is the consensus of opinion of the DCI, Deputy DCI and Deputy Director (Plans), who is the Project Director, that no further Presidential approval is required. Further, he was advised that the technical radar objectives of the program remaining to be achieved, and discussed with the President at the 20 July 1959 meeting, were reviewed on 20 January 1960 by the Project Director, certain Agency and USAF personnel, contractor representatives and special consultants, who determined that technical radar objectives were being achieved satisfactorily; the Agency then initiated appropriate action to implement the full scope of the Project. Mr. Macy appeared to be satisfied with this information but requested that a memorandum for the record to this effect be forwarded to the Bureau of the Budget by the DCI.

3. In accordance with the foregoing request of Mr. Macy for a memorandum from the DCI to the Bureau of the Budget, it is recommended that the Director approve and sign the attached memorandum. The memorandum may then be returned to the undersigned for transmittal to the Bureau of the Budget.

(Signed)
WILLIAM BURKE
Colonel, USAF
Acting Chief, DPD-DD/P

Attachment

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8 March 1960

MEMORANDUM FOR: Director of the Budget

ATTENTION: Mr. Robert M. Macy
Chief, International Division

SUBJECT: Project VULGARIAN

When the Project known to the Bureau of the Budget as VULGARIAN was discussed with the President and approved by him on 20 July 1959, the presentation included a statement of technical objectives believed to be attainable. These expectations of accomplishment, including both technical radar characteristics and vehicle performance, were based on extensive feasibility studies undertaken prior to that date; the results of which had been reviewed by a panel of external consultants. The approval then granted obviously presupposed that the anticipated results would be achieved, so it was felt desirable six months after full-scale initiation of the Project to review the work so far accomplished in order to determine whether, in the light of the additional information acquired in extensive tests and measurements, the original objectives still appeared to be valid. Such a review was undertaken in a series of meetings on 20 and 21 January 1960 by: the CIA Project Director, USAF technical representatives, and Drs. Edwin H. Land, Edward Purcell and H. Guyford Steever acting as special consultants. The result was favorable in that the evidence presented, which was far more definitive than that available at the time of the original decision, strongly supported the conclusion that the objectives discussed with the President could be substantially achieved. Accordingly, the Agency is proceeding with the Project.

(Signed)
ALLEN W. DULLES
Director

/Initialed:
CPC
Deputy Director/

/Originator:
(Signed)
Richard M. Bissell, Jr.
DD/P/7

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ANNEX 126

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OXC-0152

8 December 1959

MEMORANDUM FOR: Deputy Director (Plans)

THROUGH: Deputy Director (Support)
General Counsel

SUBJECT: Competitive Bidding on Certain OXCART
Components

1. This paper contains a recommendation for the Deputy Director (Plans). Such recommendation is contained in paragraph 7.

2. PROBLEM:

A decision is required to permit or disallow competitive bidding for certain OXCART components for which Lockheed Aircraft Corporation is the immediate consumer.

3. ASSUMPTIONS:

a. In the CHALICE Program, which in many respects serves as a model for OXCART in the fields of administration, contracting, security and finance, time deadlines, security considerations, and the relatively more simple equipments involved dictated that normal open competitive bidding for prime and subsystems not be followed. Adequate justification for sole source contracts was therefore available, and no major shortcomings in the sole source system occurred in CHALICE, since no contractor defaulted in performance.

b. The OXCART Program, on the other hand, can be said to represent a more significant forward step in the state of the art in many fields: aerodynamics, thermodynamics, propulsion, optics, etc. It is therefore, reasonable to assume that the element of risk is proportionately larger along with an obviously greater dollar requirement for the equipments needed. Thus a major failure, such as the selection of a manufacturer whose product might not prove adequate to the difficult task, would be not only more costly but more difficult to explain. Were it possible to connect such a failure with the sole source mechanism, in which competition had been ruled out, the error would become even more conspicuous in the light of

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hindsight. Consequently, it appears that any recourse to sole source bidding, undertaken either by ourselves as the prime customer or by our prime contractor in the form of subcontracts, should be amply justified before such a decision is made.

4. FACTS BEARING ON THE PROBLEM:

a. One area in OXCART serves as an illustration of the problem, and that is in the procurement by Lockheed as the prime of three major integral components: (1) air conditioning equipment, (2) inertial guidance gear, and (3) automatic pilot equipment.

b. An as yet undesignated number of dollars, estimated as running into the millions for each of the three equipments, is involved. It is not possible to estimate the probable dollar differences between bids of the competitors in each field, since they are being asked for state of the art equipments in each instance, though all competitors have had experience at the advanced and sophisticated level in their special areas. The principal subsystems and major competitors are as follows:

Air conditioning installation: Hamilton Standard
Mfg. Co.
Airesearch

Inertial guidance gear: Minneapolis-Honeywell
Manufacturing Co.
North American Aviation
Corporation
Nortronics (Div. of
Northrop Aircraft Corp.)

Automatic pilot: Sperry-Rand Corporation
Bendix Aviation Corporation

c. In the view of Mr. C. L. Johnson, Engineering and Research Vice-President of Lockheed, each of the above concerns stands as a recognized leader in the special fields enumerated. Were OXCART not ringed with the highest security considerations, and were the same system of principal prime contractor subbing out aircraft components employed, Lockheed would invite design competition between these competitors followed by competitive bidding. This would add a minimum of

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thirty days to the procurement process (and to eventual delivery date), when contrasted with the sole source mechanism.

5. DISCUSSION:

a. Open competitive bidding has the undeniable advantage of creating a permanent record to show that the Government's interests were "adequately protected" and that all possible savings consistent with the nature of the requirement were made.

b. The greatest potential problem encountered in employing competitive design and bidding on OXCART stems from the truism that only one competitor can finally get the order. Since the orders cited as examples above will be for dollar amounts running into the millions, the acquisition of the final order can and would become a matter of considerable concern to all bidders. The loss of the final order might well occasion active disappointment on the part of the loser, leading either to an overt inquiry of the military regarding the program for which the components were sought, or possibly to a request for interested Congressmen or legislative committees to investigate the validity of the final decision. Either of these actions could be potentially destructive of the security we are attempting to ensure for OXCART.

c. Another area of potential damage would arise from surfacing these exotic and sophisticated requirements among more than the required minimum of industrial concerns, simply because definitizing the specifications would in effect give away much of the performance of the basic vehicle. This can be justified within a single company, but it becomes questionable when it is known in advance that the information will go to more people than will eventually have to use it. Even though substantive briefings could be given to top officials in each bidding concern, with a view to holding them responsible for containment of information, the working level engineering force in each company would come into possession of enough information to permit at least speculation on aircraft performance characteristics. In addition, competitive bidding would surface numbers of components required, which would tip off production objectives:

d. The basic fact is that we are attempting clandestinely to construct a manned, high-performance aircraft

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costing huge sums of money in a domestic political climate unfriendly if not hostile to such programs. The magnitude of the costs of major items under OXCART precludes reliance upon the protective coloration of "proprietary in-house research and development." There are today, in contrast to CHALICE in 1955, no other USAF or U.S. military airframe procurement programs in existence to which we could attribute activity on the part of a supplier of major components were questions to be raised at any level outside the witting circle. The cancellation of the F-108 program and the recent reduction of the B-70 effort to prototype status are but two examples.

e. While it is true that there has been limited competition in the basic airframe design phase, it would have been possible if challenged, to attribute this activity to advanced feasibility studies since no actual production was involved, and the dollar amounts were modest in comparison to actual production costs once design is fixed.

f. We have been assured by the airframe manufacturer that in the event sole source procurement on subsystem components needed by him is authorized, he will exercise the greatest care possible in picking competent concerns and obtaining from them all available evidence to substantiate their design decisions. It is, of course, in his interests to ensure this sort of compliance as much as in our own.

g. The conduct of a program of the scope and character of OXCART requires a delicate balance between many forces to achieve success. Too much conservatism, either in planning or execution, may be as damaging as an overdose of liberalism in these same fields. What must be demonstrated is that all aspects of major decisions have received thorough and prudent consideration, and that all reasonable precautions consistent with the priority of the mission have been taken to ensure proper performance with maximum technical gain for the funds committed to our trust.

6. CONCLUSIONS:

a. The adoption of a system of competitive bidding for major OXCART components, either wholly open or carefully controlled and limited to not more than say two participants at most, contains the ingredients of possible unexpected surfacing of the OXCART program as a major aircraft procurement effort under United States Government, if not CIA-USAF auspices at a time when such programs have been largely

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eliminated. The risk of such exposure must be assumed to be a calculated one.

b. Dollar savings possible through limited competitive bidding cannot accurately be estimated, since few knowns are available where new and advanced components are required. That such savings could occur, as between bids of competitors in a specific field, cannot be ruled out.

c. Because of the magnitude of the dollars involved in even such component procurements as were outlined under paragraph 4 of this paper, the device of "proprietary development at company expense" is not available for concealment purposes.

d. Competitive bidding for component or subsystem procurement of necessity will reveal by extrapolation much of true aircraft performance and scope of program to companies who will have no requirement to possess such information if they are not successful bidders.

e. Even limited competitive bidding will add an increment of time, estimated at a minimum of thirty days, to first flight of prototype date. Slippage of this date cannot but lead to a like delay in operational readiness date, and delay in bringing the OXCART capability into being cannot be considered as in the national interest.

f. Lastly, additional Security manpower would be required to clear, record, and maintain concern over principals and employees in concerns ultimately eliminated from competition as unsuccessful bidders. This concern would have to be maintained throughout the life of the project with at best no positive result.

7. ACTION RECOMMENDED:

a. In the light of the considerations discussed and weighed above, and for the reasons set forth herein, it is recommended that you approve the adoption of sole source procurement for those components, systems, or subsystems whose performance, configuration, characteristics, materials, major expense, or specifications could be assumed to be indicative of the existence of a major effort in the field of manned propelled supersonic flight, provided that reasonable and prudent care be exercised by all concerned, not only in the

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initial selection of a source but in all managerial and substantive areas possible.

b. That wherever limited competitive bidding is possible without interference with the execution of the basic mission, each case of this sort will be considered individually upon recommendation of the prime contractor. Approval to conduct limited competitive bidding will in each instance come from the Deputy Director (Plans).

(Signed)
WILLIAM BURKE
Colonel, USAF
Acting Chief, DPD

CONCURRENCE:

(Signed)
Lawrence K. White
Deputy Director (Support)

(Signed)
Lawrence R. Houston
General Counsel

Recommendation in paragraph 7 APPROVED:

(Signed)
Richard M. Bissell, Jr.
Deputy Director (Plans)

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ANNEX 127

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BYE 2608-66

OXC-0321

14 October 1960

ORGANIZATION AND DELINEATION OF RESPONSIBILITIES

PROJECT OXCART

1. General direction and control of the Project shall be exercised jointly by the Director of Central Intelligence and the Chief of Staff, USAF, subject to guidance from higher authority and coordination with other departments of the Government as appropriate. They shall furnish policy guidance to lower echelons, ensure the conformity of operations under the Project with national policy, and make recommendations to higher authority on matters transcending their own authority. Further, it shall be their joint responsibility to resolve differences that may arise at lower staff and operating levels.

2. The following are the organizational elements which shall be responsible for the conduct of the Project:

a. CIA

(1) There is in existence a Project Headquarters headed by a CIA Project Director. An Air Force officer is assigned as Deputy Project Director. Project Headquarters will establish an operational unit presently planned to be stationed in the Zone of Interior. This unit will be manned by USAF and CIA personnel in numbers, proportions, and skills as agreed between the Project Director and the Air Force Project Officer.

(2) All military personnel assigned to Central Intelligence for full-time duty on this Project will be carried on CIA rolls, chargeable to CIA for a projected minimum of three years.

b. Headquarters USAF

(1) Chief of Staff, USAF, has assigned supervisory responsibility to the Deputy Chief of Staff, Operations.

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(2) The Deputy Chief of Staff, Operations has designated an Air Force Project Officer who, under the guidance and direction of the Deputy Chief of Staff, Operations, will be the action officer and point of contact for all functions related to USAF interests in the project.

(3) In addition to the DCS/O Project Officer there has been established a Project Staff. This Staff includes selected officers designated by other interested Air Force staff agencies who will act as points of contact for the Project Officer within their several offices.

3. The functions and responsibilities of these elements will be as follows:

a. The CIA Project Director and the Air Force Project Officer shall have primary responsibility for the development and execution of all activities concerning the Project within their own organizations; the resolution of differences that may arise at lower echelons; and the reporting of progress and the making of recommendations to their respective chiefs.

b. The Project Headquarters will be responsible for any continued research and development, operational planning, and the direction and control of activities in the final operational phase of the Project when overflights are being launched.

c. The Air Force Project Staff shall be responsible for implementing plans approved by the CIA Project Director and the Air Force Project Officer, and arranging for Air Force support of Project activities which can appropriately be furnished through staff channels or by other Air Force commands.

d. Security of this project within the DOD will be the responsibility of the Air Force Project Officer. All clearances for personnel within the DOD will be approved in advance and monitored by the Air Force Project Officer.

4. Activities under this Project fall into three phases. These overlap one another in time but may be distinguished on the basis of the kinds of activities involved in each. The following are the specific authorities and responsibilities of the several organizational elements in the successive phases of the Project:

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a. The first phase is that in which the major activities are: research and development, procurement, the construction and activation of a test and training base, the testing of equipment, and operational planning. The Project Director shall have control of these activities. The Air Force Project Officer will provide and coordinate necessary Air Force support. This will be a matter for informal agreement between the CIA Project Director and the Air Force Project Officer. Full and complete coordination of all Air Force elements during this phase is essential.

b. The second phase will be devoted to flight test and training. These activities will be conducted at the test and training base. The operational flight training will be conducted in accordance with syllabi and standards as mutually agreed between the CIA and the Air Force. Phase II terminates with the decision that crews and equipment are operationally ready.

c. The third phase will be that of active operations. This phase follows the decision as to operational readiness. The final decision as to execution and timing of actual over-flight missions shall rest jointly with the CIA and the USAF, subject to such guidance as may be received from higher authority, and in accordance with notification, coordination, and support procedures currently employed in Project OILSTONE. The line of command shall be direct between operational units and the CIA.

5. Responsibility for the overall security of the program shall rest with CIA. In view of the security aspects of this project, it is important that maximum practicable compartmentation be maintained in both CIA and Air Force Headquarters. Compartmentation should include provision for logical, innocent explanation of the activities involved.

APPROVED FOR USAF:

/s/ Thomas D. White

Date 15 February 1961

APPROVED FOR CIA:

/s/ A. W. Dulles

Date 18 February 1961

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ANNEX 128

~~SECRET~~OXC-2401
17 October 1961

MEMORANDUM FOR: Deputy Director (Plans)

SUBJECT: Price Overrun on Pratt & Whitney Engines,
Contract No. TT-1002

1. This memorandum constitutes a status report on negotiations to date relative to subject price overrun on the first 30 engines. It also contains a recommendation in Paragraph 10 for requested concurrence of the DD/P

2. Background facts:

a. September 1960, Estimated Cost to Complete	\$31.5 M
September 1960, Contract Ceiling Price Established	<u>29.7</u>
September 1960, Potential Cost Overrun Agreed to be absorbed by Pratt & Whitney	\$ 1.8 M
b. June 1961, Estimated Cost to Complete	\$46,065,000
Contract Ceiling Price	<u>29,700,000</u>
Contractor's Claimed Overrun (June 1961)	<u>\$16,365,000</u>
c. September 1961, Pratt & Whitney Estimate to Complete	\$49,768,515
Contract Ceiling Price	<u>29,700,000</u>
Pratt & Whitney Projected Overrun (September 1961)	\$20,068,515
Hamilton-Standard (subcontractor) Projected Overrun	1,500,000
Contractor's Claimed Overrun (Sept 1961)	<u><u>\$21,568,515</u></u>
d. Contractor now proposes a contract amend- ment adding 10 addtl AF-12 engines and repricing 40 engines at	<u><u>\$64,768,515*</u></u>
* Broken down as follows:	
Contract Ceiling Price for 30 engines	\$29,700,000
Cost Overrun on 30 engines	21,568,515
10 additional (AF-12) engines	<u>13,500,000</u>
	<u><u>\$64,768,515</u></u>

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3. Exploratory negotiations were held with Pratt & Whitney on 29 September to determine what percentage of this claimed overrun should legally and equitably be borne by the Government at this time (that is, concurrent with the procurement of 10 additional engines).

4. Pratt & Whitney's first, and final, position was that they should now have 100% coverage or assurance of future complete coverage of this overrun. Further, they argued that if legal consideration exists for 50% relief, it must also exist for 100% relief.

5. The Contracting Officer's position was as follows. The amount of projected overrun was not seriously questioned (there being no profit component included, and the contract being redeterminable downward to actual costs). It was, rather, assumed that the projected overrun and perhaps even additional costs would materialize. It was further recognized that Pratt & Whitney should be able within a "reasonable time" to recover 100% of this overrun— spread over this 40-engine procurement and subsequent engine procurement. The practical question, therefore, was as to whether it was reasonable, equitable, and legal for Pratt & Whitney to recover 100% of overrun in consideration of its assuming an obligation to furnish 10 additional engines. With considerable cogency, Pratt & Whitney pointed out that it could not be assured of future engine procurement.

6. Culminating several suggested compromise formulae, the Contracting Officer proposed tentatively, and for discussion purposes only, that the Government at this time pick up \$12.8 M of this \$21.5 M overrun as an increase in ceiling price, the balance (\$8.6M) thereof to be left open for final negotiations after delivery of the 30th engine (April 1963), with the understanding that if Pratt & Whitney had not by that time been able to make prorata recovery on additional engine procurement that the present contract would then pick up the unrecovered balance. Even this proposal did not at first appeal to Pratt & Whitney. However, by subsequent telephone conversations, they have indicated general acceptance of this formula. The \$12.8 M increase in price was arrived at as follows:

Projected overrun	\$21,568,515
Less 1.8 M previously agreed as being absorbable by Contractor	1,800,000 **
	<u>\$19,768,515</u>

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	Bal. Fwd.	\$19,768,515
Less 6.0 M bonafide changes		6,000,000*
Materials increase		<u>\$13,768,515</u>
50% Materials increase		6,884,257*
		<u><u>\$ 6,884,258*</u></u>

* To be accepted by Govt as ceiling increase:

Scope changes	\$ 6,000,000
1/2 Material Cost Increase	6,884,257
	<u><u>\$12,884,257</u></u>

** Final negotiations to be postponed until delivery of 30th engine:

Initial projected overrun	\$ 1,800,000
1/2 Material Cost Increase	6,884,258
	<u><u>\$ 8,684,258</u></u>

7. The above formula actually would guarantee ultimate recovery of the entire overrun. Its only virtue from the Government's standpoint is that it defers final acceptance of this overrun balance until approximately April 1963, in the hope that such balance can in the meantime be absorbed on additional engine procurements.

8. Essentially, this same result could be achieved by the following contract action. Within the framework of the present contract the present target and ceiling prices (27.0 M and 29.7 M, respectively) could by amendment be increased (to include 10 additional engines) and the 40-engines repriced at a new target price of 56.0 M and a new ceiling price of 64.7 M, with a proviso clause to the effect that Pratt & Whitney will use every effort to price each future production engine to include 1/40th of the 8.7 M overrun—such revised target and ceiling prices arrived at as follows:

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Present Contract Ceiling	\$29,700,000
Additional 10-engine Cost	13,500,000
Bonafide Changes to Date	6,000,000
50% of Materials Increase	<u>6,884,257</u>
Revised Target Price	\$56,084,257
Balance of presently projected Overrun:	
Initially projected Overrun	1,800,000
50% of Materials Increase	<u>6,884,258</u>
	8,684,258
Revised Ceiling Price	<u>\$64,768,515</u>

9. From a program management standpoint, there is the necessity to consider that there could be additional overruns before delivery of these 40 engines. Subsequent relief, similar to that now being granted by repricing, would be extremely difficult to justify under the present form of contract.

10. On the basis of the above facts and alternate solutions, the Contracting Officer recommends that the contract be amended to (1) procure an additional 10 engines, and (2) to establish (reprice) 40 engines at a new target price of \$56,084,257 and a new ceiling price of \$62,968,515, with a proviso clause requiring the Contractor to use its best efforts to price each of the next 40 future engines inclusive of 1/40th of the \$6,884,258 portion of the present overrun not now included in the new target price of \$56,084,257— it being understood that upon determination of final price under this contract, the Government will reimburse such portion of the \$6,884,258 as has not been recovered on future (interim) engine sales. This would guarantee ultimate recovery to Pratt & Whitney of all presently projected overrun except the \$1,800,000 which the Company originally agreed to absorb. Pratt & Whitney has not yet agreed to relinquish its claim to this \$1,800,000, but it is believed that through further negotiations they will do so.

(Signed)

STANLEY W. BEERLI
Colonel, USAF

Acting Chief, DPD-DD/P

Paragraph 10 recommendation
APPROVED, subject to
availability of funds for the purpose:

(Signed)

RICHARD M. BISSELL, JR. DD/P

31 Oct 1961

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ANNEX 129

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OXC-2661

29 November 1961

MEMORANDUM FOR : Mr. L. C. Mallet
General Manager
Pratt & Whitney Aircraft Division
United Aircraft Corporation
Hartford, Connecticut

SUBJECT: Relocation - JT11D-20 Engine Development
Program

With the advent of the first J58 engine run in December 1957, impressive development progress was made during the subsequent two year period. It is our understanding that:

The first 50 hour endurance test was completed in 1958.

The first Mach 3 sea level demonstration run was made in July 1958.

The first Mach 3 sea level afterburner run was made in October 1958.

The first P-2 engine rating sea level 150 hour endurance test was made in November 1958.

The first heated inlet test stand run was made in December 1958.

The second P-2 engine rating sea level 150 hour endurance test was made in January 1959.

As of December 1959 over 1750 hours of full-scale running time had been accumulated, establishing an average of 73 hours per month.

Since February 1961, it has been apparent that the JT11D-20 engine development program has and continues to suffer from the inability to accumulate sufficient meaningful engine test time. Time accumulation for the 10-1/2 month period from December 1960 to 15 November 1961 is as follows:

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Total engine time: 727 hours at 70 hours per month
(55 hours from 16 October to
15 November)

Afterburner time: 230 hours at 22 hours per month

Hot inlet time: 69 hours at 6.6 hours per month

Hot turbine time: 25 hours at 2.4 hours per month

Time at Mach 3 inlet conditions: 0 hours

While it is acknowledged that engine controls problems have contributed to this inability and notwithstanding the recognized magnitude of the effort, the customer has concluded that this situation is due in part at least to certain inherent shortcomings attributed to the remoteness of the Florida Research and Development Center. It is felt that these shortcomings by their inherent and chronic nature have and will continue to contribute to this deficiency and have and will contribute to increased development and prototype costs. Since the contractor's original estimate of September 1959, requests for substantial amounts of additional funding were made in August 1960 and again in May 1961. Initial engine deliveries recently were delayed several months because of insufficient development progress. In addition, the recent reorganization of the Florida Research and Development Center undertaken by the contractor attests to the existence of these and other shortcomings. It is the customer's impression, stemming from the apparent inability to accumulate meaningful engine test time, that these shortcomings are:

Factory personnel inexperience particularly in the area of experimental engine assembly.

Questionable quality and/or quantity of first line assembly supervision.

Deficiency in numbers particularly of experimental engine assembly personnel for handling periods of unanticipated peak load. Manpower flexibility for handling these

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peak loads is apparently lacking due to the size and geography of the Florida facility.

Difficulty experienced in moving appropriate factory personnel to Florida from Hartford because of personal inconvenience, incentive, and union restrictions.

Geographical remoteness of the effort relative to monitoring and control of vendor technical problems.

Geographic remoteness from much small shop vendor capacity centered in New England useful in affording flexibility in manufacturing operations.

Geographical decentralization of procurement relative to vendor costs and incentive for cost reduction.

Geographical remoteness of the effort relative to top management communication and control.

During early discussions in 1959 concerning implementation of the JT1D-20 engine development effort, this customer was advised by the contractor of the desirability of utilizing the Florida Research and Development Center for development and manufacture of prototype engines. During 1960, however, it became apparent to the contractor that the undertaking of both development and production efforts under the same basically experimental organization and at the Florida location was not feasible. A decision, therefore, was made and implemented by the contractor that the production effort be returned to Hartford in order to eliminate some or all of the shortcomings cited above.

In order that the present engine development situation be improved, it is felt in keeping with the best interest of the United States Government, that careful consideration by the contractor must be given to the feasibility of moving the primary development effort in addition to the prototype program to Hartford at some optimum date in the not far distant future. It is the customer's feeling that Hartford is the centralized focal point of Pratt & Whitney's and the United Aircraft's activity in terms of engineering and production experience, facilities,

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experienced manpower, and manpower flexibility and therefore is in position to overcome the existing deficiencies of the remote Florida development effort. Further, since the overhaul of prototype engines will be concentrated in the Hartford area, it would appear desirable in terms of communication to have the development effort nearby. Concerning the contingency of existing Florida test facility capacity, consideration might be given to the retention of this capacity utilizing engine airlift commutation between Hartford and Florida. The fact that the JT11D-20 engine development is believed to reflect a continuing effort points up the advisability of a timely decision to relocate in order to utilize most efficiently the contractor's capability at Hartford, which it is believed will become more available as existing programs are completed or reduced in scope. As an interim measure, it is expected that every effort is being and will be made to correct the current assembly floor situation in Florida.

The contractor's timely comments concerning the feasibility of relocating the primary D-20 development effort to Hartford in view of the foregoing are specifically requested.

In view of increasing national and international emphasis on high Mach number manned flight, it must be clearly understood that this customer as part of the defense community is obligated to examine and re-examine all avenues leading toward the expeditious and economic realization of this goal. In this regard, the contractor's progress and performance must be and is reappraised continuously in relation to the progress achieved by competitive programs.

(Signed)

RICHARD M. BISSELL, JR.

cc: W. L. Gorton

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ANNEX 130

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OXC-2623

25 November 1961

MEMORANDUM FOR: Colonel Robert J. Holbury

SUBJECT : Instructions

1. Assumption of Duties

You will proceed on/about 15 November 1961 to assume your duties as Chief of Base, representing the Central Intelligence Agency at Watertown, Nevada, referred to hereinafter as your area.

2. Status

a. Your status is that of Commanding Officer, Detachment 1, 1129th (USAF) Special Activities Squadron.

b. Your status as Chief of Base will be made known to those U.S. officials and industry personnel whose cooperation in furtherance of your mission will be solicited.

3. Mission

You will develop, as soon as possible, and maintain an operationally ready unit capable of executing missions as directed by Project Headquarters.

4. Operational Duties and Responsibilities

a. Within your area, your assignment is that of Chief of all CIA operations with authority over all CIA staff

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and detailed personnel and responsibility for the supervision of any CIA-directed activities phased through or at your area.

b. Within the framework of the program for your area, and under the directives you will receive from Headquarters, you will utilize personnel, materiel, facilities, and funds so as to ensure the most effective use of these assets toward the accomplishment of the over-all mission.

c. You will maintain compartmentation of activities and personnel to the extent required by security and as necessary to preserve the long-term effectiveness of the program.

d. You will consolidate administrative and support facilities to the extent and in the manner you deem best to carry out your mission.

e. You will develop and maintain up-to-date emergency plans for your installation and will be familiar with applicable war plans as developed by Headquarters.

5. Line of Command

As Chief of Base in your area, you will be responsible to the Chief, Development Projects Division, the Deputy Director (Plans) and the Director of Central Intelligence.

6. Finance

You will review, supervise and approve all financial

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and budgetary matters, plans, estimates and expenditures relating to your operation. Current authorizations to expend funds will be made known to you; it will be your responsibility to ensure that these authorizations are not exceeded, and that policies and procedures in appropriate CIA regulatory issuances are observed.

7. Communications

You will utilize the established communications system and procedures between your base and Headquarters. All communications, both cable and dispatch, to and from your base, will be accessible to you to the extent and in the manner you desire. You will refer any matter of particularly sensitive nature to the Chief, DPD, on an Eyes Only basis, or to the Deputy Director (Plans).

8. Security

You are specifically charged with the maintenance of physical and operational security in accordance with CIA security directives as applied to your area. You will report any unusual problems to Headquarters.

9. Records

You will maintain, as prescribed in reports directives, records of activity currently in progress, status to date

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and projected adherence to programmed completion dates. Delays and amendments to programmed activities will be reported to Project Headquarters as discrepancies are ascertained.

/s/

RICHARD M. BISSELL, JR.

CONCUR:

/s/

Stanley W. Beerli, AC/DPD

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ANNEX 131

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TAKEN FROM
SALT LAKE TRIBUNE
SALT LAKE CITY, UTAH
SATURDAY 25 May 63
ASSOCIATED PRESS RELEASE

PAGE 19

**A.F. Jet Crashes
Near Wendover**

By Associated Press

LAS VEGAS, NEV., May 24

—A jet trainer on a flight out of Nellis Air Force Base crashed Friday 14 miles south of Wendover, Utah, the Air Force announced. The pilot ejected from his plane safely.

THE CRASH was near the Nevada-Utah line.

Nellis officials said the plane is normally based at Wright-Patterson Air Force Base, Ohio.

The pilot's name was not immediately released.

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FINAL

*Las Vegas***REVIEW-JOURNAL**

NEVADA'S LARGEST AND MOST COMPLETE NEWSPAPER

LAS VEGAS, NEVADA, SATURDAY, MAY 25, 1963

PHONE

**New Jet
Crash Forces
Pilot Bailout**

An F-105 Thunderchief, apparently on a classified mission, crashed and burned near the Nevada-Utah state line Friday, officials at Nellis Air Force base announced.

The pilot, who was unidentified, had taken off earlier in the day at Nellis, and parachuted to safety from his disabled craft 14 miles southeast of Wendover, Utah.

Nellis officials said the supersonic plane was attached to the Air Research and Development Center at Wright - Patterson AFB, Ohio.

Apparently the brief announcement was all that was authorized by high Air Force officials.

It was the second bail out for an AF pilot in the Nevada-Utah area in as many days.

Thursday an Air Force pilot on a refueling mission had to bail out of his F-105 Thunderbird jet after trouble developed near Kanab. The pilot Major Thomas T. Williams, 48, training at Nellis AFB was unharmed.

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Today's

VIEW-JOURNAL

Tuesday, May 28, 1963

FINAL EDITION

PAGE 13

AF Names Crash Pilot

The Air Force identified Monday the pilot who bailed out of his stricken F-105 Thunderchief jet fighter near the Nevada-Utah border Friday.

Officials at Nellis Air Force Base said he is Ken Collins, civilian employe of Hughes Aircraft Co.

The \$2.5 million craft crashed and burned near Wendover, Utah. The Air Force refused for two days to name the pilot. When it did identify him, the Air Force did not give Collins' age, home town or city of employment. Hughes Aircraft, however, has a major plant at Santa Monica, Calif.

Nellis officials said Collins was operating the fighter plane on loan to Hughes during electronic development.

The plane took off from Nellis. It is ordinarily assigned to the Wright-Patterson Air Force Base in Ohio, a research and development center.

"The delay in announcing the name of the pilot resulted from querying not only with the military, but with the Hughes Aircraft Co., over the weekend, and making certain that the relatives of the pilot were properly reassured of his safety," the Air Force said.

Names of pilots who bail out safely are usually made public immediately.

The bail-out and subsequent crash were the second in two days. An Air Force pilot on a refueling mission had to bail out of his Thunderchief Thursday when the single-engine jet developed trouble.

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ANNEX 132

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CHRONOLOGY OF PRESS AND INDUSTRY AWARENESS
OF A-12 PROGRAM

- 1 Nov 63 News article in Herald-News, Fontana, California, speculating about "super secret project site".
- 1 Nov 63 Mr. Marvin Miles, Aviation Editor, Los Angeles Times, telephonically contacted Westinghouse Corp., Pittsburgh, attempting to confirm if employees of that firm were travelling covertly to "the desert" each week in connection with top secret project which he suspects may have CIA association.
- Oct 63 Dr. James B. Rea, independent consultant to several aircraft firms presented briefings at Hughes Aircraft Company and Telecomputing Corporation during which he accurately and openly speculated about recent LAC developments.
- Oct 63 A contractor employee from P&W enroute from Los Angeles International Airport via taxi to the Project Terminal at Lockheed was queried by the driver as to "whether he was enroute to Nevada".
- July 63 &
Sept 63 Mr. Robert Hotz, Editor, Aviation Week, indicated his awareness of developments at Burbank.
- 5 Sept 63 The Hartford Courant, Hartford, Conn., referred to the "secret" development of the J-58 engine in an article on the SST.
- Apr-Oct 63 Several sightings of the Project OXCART vehicle by commercial airline crews.
- June 63 Convair Techrep at Norton AFB, Calif., wrote to his home plant at Fort Worth advising that LAC has secretly developed a Mach 3 aircraft, using titanium alloy.

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- March 63 Col. John J. Smith, USAF, Ret., and his Requirements Staff at North American Aviation (NAA) deduced from various indications in industry that Kelly Johnson has a Mach 3 aircraft in flight test.
- Feb 63 Mr. Robert Widmer, Vice President, Convair, Fort Worth (cleared OXCART); advised that it was common knowledge in the aircraft industry that Kelly Johnson was involved in the manufacture of an advanced U-2 follow on.
- Jan 63 Mr. William Clegern, Assistant to Director, Advanced Technology, Martin, Co., Denver, informed a group of people at his firm that "Lockheed was working on a super U-2 that would fly in excess of 100,000 feet at a speed of 3.2 Mach." His statement was based on hearsay and his personal speculations.
- Apr 62 Admiral John B. Pearson, USN, Ret., Vice President, Development and Planning, NAA, accurately concluded from his speculations and industrial indications that Kelly Johnson was developing a Mach 3 reconnaissance aircraft which would operate at 80,000 to 85,000 feet.

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ANNEX 13⁴

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BYE-4631-68

22 August 1964

MEMORANDUM FOR: Deputy Director for Science and Technology
SUBJECT : SKYLARK

1. It is essential as a matter of the highest national interest that we have an operational capability to conduct reconnaissance flights over Cuba with the OXCART vehicle as soon as possible and in any event no later than the first week in November, with characteristics on the order of Mach 2.8, altitude 80,000 feet, with a range of 2,500 nautical miles, or better as feasible, with four of this type aircraft.

2. You are to take all appropriate actions to insure that this highest priority objective of your program is not in any way hindered by competing requirements of any kind. You should insure that the contractors, the field commanders, and anyone else having a direct impact upon the program are aware of this highest priority objective, and you should bring to my attention at the earliest possible moment any proposal or directed course of action which might in any way interfere with our meeting this objective.

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3. We seek in Project SKYLARK an urgent operational readiness and we must be careful to introduce into the program during the next several months only those modifications, procedures, and additional equipment, as are necessary to attain this objective.

Marshall S. Carter
Lieutenant General, USA
Acting Director

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ANNEX 13
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EXAMPLES OF INDUSTRY AWARENESS OF PROJECT OXCART

1. North American Aviation, Los Angeles, California

Admiral John B. Pearson, USN (Ret.) VP (Development and Planning) North American Aviation, Los Angeles, California, advised in April 1962: Incidental to his responsibilities with NAA (monitoring all military activities within aircraft industry) he concluded a full year before that Kelly Johnson, LAC, was developing a supersonic Mach 2.4 - Mach 3, long-range, high-altitude (80,000 - 85,000 feet) aircraft which would probably be twin engine and have a dual mission, reconnaissance and intercept.

Basis for conclusion:

- a. Evaluation of United States Government's defense needs.
- b. Recognizing the need and realizing that the F-108 program has been cancelled, he noted that no overt mention of a replacement was being made.
- c. The infrequent appearances of Kelly Johnson during the past two years was an indication that he was actively engaged in a new program.
- d. After the cancellation of the F-108, he determined that several of the people who were working on the GAR-9/

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ASG-18 in Hughes Aircraft were working on a hush, hush program. When he speculated to an old friend at Hughes that there was probably no current use of the GAR-9 unless Kelly Johnson was building something at Lockheed, the old friend was noticeably startled and changed the subject which Pearson took as another clue.

e. It was common knowledge that the J-58 program at Pratt & Whitney was continuing as a production effort, with no published customer or use.

f. A budget analyst at North American advised that the previous year's budget failed to identify uses for \$150 million.

Admiral Pearson at the conclusion of the discussion observed that the primary need in his opinion to preclude further disclosures of confirmation of the Lockheed program would be the publication of a cover story for Kelly Johnson. He also suggested the possibility of considering briefing some aviation editors such as Marvin Miles of the Los Angeles Times.

2. Cross Country News, Forth Worth, Texas

Cross Country News, article of 31 January 1963
(aeronautical newspaper published at Forth Worth, Texas):

"LOCKHEED SST SAID IN X STAGE. A HIGHLY GUARDED
SECRET MAY BE REVEALED WITHIN THE NEXT FEW DAYS. LOCKHEED

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AIRCRAFT, BURBANK IS EXPECTED TO ANNOUNCE A NEW SUPER-SONIC TRANSPORT OFF THE DRAWING BOARDS, EVEN IN THE X STAGE LOCKHEED OFFICIALS SAY NOTHING. NO DETAILS CAME WITH THIS TIP, FROM SOURCES CONSIDERED VERY RELIABLE."

"HOWEVER, IF THE LOCKHEED SST IS FLYING, OR ALREADY FOR FLIGHT TESTS, IT MAY EXPLAIN WHY NAJEEB HALABY, CHIEF OF THE FAA, ASKED THE SUPERSONIC TRANSPORT ADVISORY GROUP, TO SLOW DOWN ON THEIR \$1 BILLION DOLLAR PROJECT. GOAL HAS BEEN TO HAVE A U.S. SST FLYING BY 1972. FRANCE AND BRITAIN ARE IN A JOINT VENTURE, EXPECTED HAVE A 1,450 MPH PASSENGER PLANE OPERATING BY 1970. THE U.S. IS EXPECTING TO TEST THE 2,000 MPH RS-70, THIS SPRING."

"LOCKHEED MAY INDEED REPEAT THEIR SLOGAN "LOOK TO LOCKHEED FOR LEADERSHIP", IF THEY BREAK THE WORLD MARKET WIDE OPEN WITH THE SST IN 1963."

3. Martin Co., Denver, Colorado

William Clegern, Assistant to Director, Advanced Technology, Martin Co., Denver, Colorado. During the week of 28 January 1963, Mr. Clegern in discussions before a group pointed out several areas in the design field in which his company had no particular interest. He observed that it might interest the group to know that Lockheed was working on a follow-on vehicle, a "super U-2" that would fly in excess of 100,000 feet at a speed of 3.2 Mach.

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In an interview on 11 February 1963, he observed that he recalled a reference made to Kelly Johnson's plane by an unrecalled source during a visit to the Los Angeles area in November 1962. He indicated that his position with the Martin Company includes future planning. He reasoned:

a. The United States needed a follow-on to the U-2 since satellites could not provide the photographic resolution possible with manned reconnaissance aircraft.

b. That the new plane would have to reach a speed of Mach 5 and fly at 100,000 feet.

c. By studying the Government budget he came to the conclusion that the project budget for the next fiscal year would approximate \$340 million.

4. Convair, Fort Worth, Texas

Mr. Robert Widmer, Vice-President of Convair, Fort Worth, was interviewed on 19 February 1963. He observed that it is his opinion that it is generally known in the aircraft industry and particularly on the West Coast that Kelly Johnson is involved in the manufacture of an advanced aircraft probably designed for the same purpose as the U-2. He stated further he has heard from many individuals that the aircraft is flying. He believes he heard speculation that it was flying at Edwards Air

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Force Base. Mr. Widmer further stated that representatives of Systems Vendors who travel considerably spread rumors, speculation, etc., throughout the industry as to what other aircraft companies are doing. He indicated that this type of individual was the prime source of his awareness.

He mentioned that the advanced state of development of the J-58 is another item which has caused considerable speculation in the industry.

He mentioned that it was significant to him that when all of the officials of Lockheed took up their stock options recently (published information) that Lockheed was indeed in a healthy financial position.

5. North American Aviation, Los Angeles, California

Colonel John J. Smith, (AF Retired), Chief of Requirements, and members of his staff Messrs. Julius Braun, ex-Army Colonel, Fenn Taylor, ex-AF Colonel, Jamie Wallace, ex-AF Colonel and Thomas Collins, ex-Navy, North American Aviation, advised on 15 March 1963 that they had deduced that Kelly Johnson had a plane using two J-58 engines, with a range of about 4000 miles with an altitude of 150 to 160 thousand feet; point design ram jet were employed, or 90 to 100 thousand feet if accelerated ram jets were used. They speculated that the wings are

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made of stainless steel about 65 feet long and the plane has been flying since the fall of 1962. It was the opinion of this group that the plane was started about the fall of 1959, and the Hughes ASG-18 is tied in with the plane. According to this group the plane is probably a two seater and the program has a budget of about \$200 million.

The process of their deductions was as follows:

a. Colonel Smith had experience in the early U-2 project; it was apparent for him that the need for an advanced version was existent. While in the Air Force, he had tried to kill the ASG-18 and due to the dropping of the F-108, he figured that the ASG-18 must have some other application or it would have been similarly dropped.

b. They observed that the funds allotted to developing the J-58 engine did not seem to them justified unless there was some high altitude airplane available in which to utilize the J-58.

c. They also were aware Hughes Aircraft personnel were on a special clearance list which supported their conclusion that the ASG-18 was involved.

d. They concluded that it appeared to be about \$200 million not specifically accounted for in the Government's budget, and such an amount would not normally

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be made up of a large number of small items, but had to include a major project.

Some of the better LAC engineers are known to have left their normal work and gone into a hush, hush project.

e. Usage of liquid hydrogen and oxygen is published in secret documents available to NAA including destination of shipments, quantities, etc. It was observed that a considerable amount was going to Jackass Flats (AEC test flight area) which they knew did not use much, if any. Consequently, they concluded it must be going to the site where the U-2 was tested, supporting the opinion that a flight test program must be underway.

f. They observed that flight test personnel were leaving Edwards Air Force Base indicating another flight test program somewhere else.

g. Indications of subcontracting for precision valves for apparently LAC front organizations and such valves would have no other application than for this type plane.

6. North American Aviation, Los Angeles, California

A weekly information summary for the week ending 15 March 1963 prepared by the NAA Programs Staff for distribution to NAA executives. The summary included the following paragraph:

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"XII-STUDY OF HIGH ALTITUDE RECON AIRCRAFT (S) AFSC HAS BEEN DIRECTED BY HQS USAF TO IMMEDIATELY PREPARE A DEVELOPMENT PLAN FOR A HIGH ALTITUDE RECONNAISSANCE AIRCRAFT. THIS EFFORT WAS INITIATED AT HIGH LEVEL AND IS REPORTEDLY BEING PUSHED BY GENERAL LEMAY. WE UNDERSTAND \$2.5 MILLION HAS ALREADY BEEN ALLOCATED TO THIS PROGRAM. PERFORMANCE REQUIREMENTS ARE NOT KNOWN AS YET, BUT WE BELIEVE THIS AIRCRAFT STUDY WILL CALL FOR LONGER RANGE AND GREATER SPEED AND ALTITUDE THAN THE CURRENT FLYING LOCKHEED RECON AIRCRAFT. LOS ANGELES DIVISION HAS BEEN DOING IR&D WORK IN THEIR HYPERSONIC RESEARCH PROGRAM APPLICABLE TO THIS REQUIREMENT AND IS NOW FOLLOWING UP ON THIS NEW PLANNING STUDY. IN ADDITION TO LOCKHEED, BOTH BOEING AND REPUBLIC ARE REPORTED TO HAVE CURRENT STUDY EFFORTS AIMED AT THIS REQUIREMENT."

Officials of NAA involved were interviewed on 18 March and produced a file entitled, "Lockheed Project". It contained notes dated May 1961 indicating that Lockheed is reported to be developing a very high altitude, 130-140 thousand feet aircraft, utilizing the ASG-18/GAR-9 for AEW Picket Patrol and high-altitude reconnaissance. It was pointed out that the above type of information was pieced together by bits picked up by the staff. It was also concluded that the J-58 engine had some new use for a

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high altitude plane to justify the funds put into it.

The same was true of some existing purpose of the ASG-18
at Hughes Aircraft.

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ANNEX 135

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22 March 1965

MEMORANDUM FOR: Deputy Director for Science and Technology

SUBJECT : Aerial Reconnaissance of Communist China

1. Attached is copy of Memorandum for the Record of a discussion Mr. McCone had with Secretary McNamara and Secretary Vance on 18 March. Also attached is a memorandum for me forwarding the prior reference for necessary action.

2. After informal discussion of this matter with Colonel Ledford I telephoned Colonel Geary who stated that he had been called on to prepare a briefing on this subject for Secretary Vance and that he was in the process of discussing the matter with Dr. McMillan. Geary said he intended to stick entirely to the support phase of the activity and if operational considerations came up would suggest that Secretary Vance be briefed by Colonel Ledford. Geary said that already available on Okinawa was fuel, communications an operations building and an adequate runway. Not available was a hangar or any other means of putting the birds under cover. Geary felt that a 1 October readiness date would be the earliest that could be met. Geary said he had also been asked to look into the matter of putting the drivers back into blue suits but allowing them to keep the same rate of compensation. We both agreed that the pilots would not accept any such rigged-up deal like this even if it were possible. Geary said that going into this whole operation on a temporary basis should be looked upon as only the initial move and that we should make the facility permanent. He said we are talking about several million dollars of facilities. Geary also said it is a fallacy to think the pilots have more protection if they are in uniform.

3. I then placed a call for Secretary Vance but was unable to get through. Later in the day, Geary informed me that he too had been unable to see Vance so he had written a memorandum to him which covered the following general points:

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The operation is feasible from Okinawa. Three aircraft could be moved in and be operational in 60 days, but this would be on a crash basis and would result in a virtual shutdown of the ranch area. October 15th would be the earliest possible operation date under the present extensive modification program. Modification and testing of the entire facility to assure necessary range and operational readiness would take this length of time. During this period, the Okinawa Base would be resurveyed. Geary would want to add a new hangar, increase size of the fuel farm, start processing and move the additional support personnel required, military or otherwise, adjust SAC tanker assets to provide the 7-11 figure for three refuelings and add to the aids as necessary. Geary estimates the initial airlift cost would be approximately \$1-1/2 million for essential equipment to set up the program and there would be a continual annual airlift cost of \$2 million. Air Force support of M & O funds would be about \$200,000 a month. The additional hangar would cost a million dollars.

That was the gist of Geary's memorandum to Vance as reported to me by Geary. Geary also reported that the Air Force Judge Advocate General said it was legally impossible to reimburse the pilots over and above normal military pay if they returned to their blue suit status. It took two pages for this Judge to say that, but the answer was an unequivocal "no, it cannot be done."

4. I subsequently talked to Secretary Vance and offered to give him a briefing on the operational aspects of making these flights from Okinawa.

ACTION to DD/S&T: Please arrange with Secretary Vance's office to give this briefing as soon as possible.

5. In going into this matter and taking all the various actions necessary and indicated by this memorandum and by Mr. McCone's memorandum of conversation, the following should be borne in mind:

(a) A decision has been made to take all the necessary preparatory steps to put into Okinawa whatever construction and related arrangements are needed to be able to operate the OXCART

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in operational flights over Communist China. (If it is considered essential to expand facilities at Taiwan for emergency use of this Base, please come up with statement of requirements.)

(b) No decision has been taken to move any OXCARTS to Okinawa. This decision would probably be made by the President.

(c) No decision has been taken to un-sheepdip or to return to blue suits. CIA pilots. This decision would probably be made by the President.

(d) No decision has been taken to fly the OXCART operationally over Communist China. This decision can only be made by the President.

(e) No decision has been taken as to whether or not the aircraft and pilots would be military with military markings and military pilots, or civilian with deniable characteristics of aircraft and pilot. This decision can only be taken by the President.

(f) No decision has been taken as to whether the operations will be conducted by SAC or CIA. This decision can only be taken by the President in light of the several considerations noted above.

5. There is an anomaly here that beggars analysis. Vance and McNamara have been adamant in opposing the use of military U-2's and U. S. military pilots over Communist China. They have been harder against this than the State Department. Yet, at the same time, they now propose utilizing military aircraft and military pilots in a much less deniable and much more flagrant violation of normal overflight procedures. It should be borne in mind that the President and only the President can make the decision as to whether we will use U. S. military pilots, presumably with Air Force markings, or civilian pilots, presumably with no markings. This obviously is a decision of the greatest importance involving national policy at the highest level.

6. Finally, if the operation is to be conducted secretly, whether or not it is to be denied or deniable, then the Agency position is that only the Agency can properly conduct the operation. If the operation

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is to be conducted on a plausibly deniable basis or on a "blank stare--never-heard-of-it" basis even though it is apparent that the Chinese will be aware of the overflights, then it is Agency position that the operation can be conducted in this manner only by the Agency.

7. Until such time that the President has made the conscious and firm decision that the United States Government will admittedly overfly Communist China in military aircraft with military pilots (I am talking here about OXCART) then it is the firm position of the Agency that any other overflights over denied territory will be conducted by the Agency in accordance with past procedures.

8. Please review this memorandum and Mr. McCone's memorandum in great detail and give me a listing of the various actions you propose to take.

(Signed)
 Marshall S. Carter
 Lieutenant General, USA
 Deputy Director

Attachments

Distribution:

Orig (Cy #1) - DD/S&T
 Cy #2 AD/OSA
 Cy #3 DDCI
 Cy #4 O/DCI(Mr. Elder)
 Cy #5 D/NIPE
 Cy #6 ER via ExDir

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19 March 1965

MEMORANDUM FOR: General Carter

Attached is a copy of my memorandum for the record on my meeting with Secretaries McNamara and Vance on 18 March, concerning aerial reconnaissance over Communist China.

I call your attention to certain specific actions on the part of CIA and understand you will contact Secretary Vance to make preliminary arrangements for the CIA actions and to discuss the operational actions referred to in the memorandum.

(Signed)

JOHN A. McCONE
Director

Attachment: DCI M/R #17, 18 Mar 65

Dictated but not read.

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18 March 1965

MEMORANDUM FOR THE RECORD

SUBJECT: Discussion with Secretary McNamara and Secretary Vance concerning Aerial Reconnaissance over Communist China

1. I reported that recent problems with the drones causing the loss of 3 of them and the MIG 21 attack on the March 14th U-2 mission, which apparently (though not absolutely confirmed) involved 3 air-to-air missile firings, led to the conclusion that:

a. The use of U-2's over Communist China is becoming increasingly hazardous because of SAM's and MIG 21 attack techniques;

b. The recent problems with drones may cause an hiatus in the activity which would necessitate use of U-2's for South China coverage of priority targets east of Kunming.

With respect to drones, the cause of the troubles has not as yet been determined but it is felt by Defense, NSA, CIA and the manufacturer that a ChiCom jamming of the drone guidance system is highly unlikely. (In a separate conversation Col. Steakley confirmed this; said 4 or 5 drones were ready; a team was in the field to examine trouble; production of new drones - 1 per week.)

2. USIB, in considering the problem on March 17th, reaffirmed the necessity for continuing aerial reconnaissance of South China. Secretaries McNamara and Vance concurred in this judgment.

3. Therefore it was decided to continue the use of U-2's on priority targets west of Kunming and to extend this coverage to all of South China if drone operations are temporarily stood down. There was no disagreement that the need for intelligence outweighed the risk.

It was further agreed that we should proceed immediately with all preparatory steps necessary to operate the OXCART over Communist China, flying out of Okinawa. It was agreed that we should proceed with all construction and related arrangements.

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However this decision did not authorize the deployment of the OXCART to Okinawa nor the decision to fly the OXCART over Communist China. The decision would authorize all preparatory steps and the expenditure of such funds as might be involved.

NOTE: After some discussion it was decided that Okinawa was preferable to Formosa and no steps are to be taken in anticipation of deploying the OXCART to Formosa unless it is considered advisable to prepare a runway to provide an alternate emergency landing base.

4. It was recognized that the basic decision involved the penetration of denied air space by an American plane with an American pilot (CIA or Air Force) and this decision was not being made at this time. Related to this decision was the question of whether the planes would be operated by SAC or by CIA. Both McNamara and Vance favor SAC operation and the consolidation of the OXCART planes into the RB-71-SAC unit.

5. The two problems which became immediately apparent are pilot's pay and secrecy. I stated that CIA pilots (former Air Force officers) receive considerably higher pay than that received when in uniform. Also I pointed out the unsatisfactory security of SAC operations as evidenced by unauthorized disclosures of U-2's in Saigon, drones in Danang, etc.

6. With respect to reliability, I expressed grave concern over the reliability of the plane, pointing out that at speeds of Mach 3 - 3.25 and at 80,000 feet, we have encountered a series of unanticipated difficulties and that I did not think that the plane was fully "debugged". I indicated a number of planes would be ready for operations by September, one plane might be ready considerably in advance of that date, but that I would give no positive estimate until I had gone to the site with a number of experts and reviewed the situation carefully myself.

7. These decisions authorize all arrangements and the expenditure of funds necessary in connection with anticipated operations of the OXCART out of Okinawa by either CIA or the Air Force. DDCI should confer with Secretary Vance or his designee concerning these arrangements. Planes themselves should not be deployed and the final decision to fly the planes over Communist China will not be made at this time.

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ANNEX 136

~~TOP SECRET~~HANDLE VIA EYEMAN
CONTROL SYSTEM ONLYTHE DEPUTY SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

OXCART

MEMORANDUM FOR THE UNDER SECRETARY OF THE AIR FORCE

SUBJECT: OXCART Operation Okinawa

12 JUN 1965
12 JUN 1965

It is our desire that the minimum construction be accomplished at Kadena Air Base, Okinawa necessary to provide for operations beginning in the fall of 1965. Based upon a review of the list of items enclosed with your memorandum of May 7, 1965, together with information subsequently furnished by representatives of the Air Force, the construction items set forth on the enclosed list are approved.

The approved construction is premised upon providing for the operation and maintenance of three or four aircraft and about 250 personnel (20 officers, 45 airmen and 185 civilians, including contractor employees).

While the four new butler type hangars are under construction, the enclosed program contemplates that hangar facilities will be provided by the interim use of three corrosion control hangars which will revert to their intended purpose as soon as the butler type hangars are ready for occupancy. Four rather than five butler type EOQ's should provide the required living quarters consistent with the contemplated numbers of officers and civilians. The new mess hall is not included since it is understood that this can be provided through the expansion of a SAC mess facility currently planned for construction at Kadena. It is further understood that the additional fuel required, pending completion of the construction of additional storage facilities, can be temporarily provided by a barge or other arrangement so as to provide the necessary fuel support by the fall of 1965.

The construction of the items set forth on the enclosed list is to be provided from within the \$41 million transferred to the Air Force from the appropriation "Emergency Fund, Southeast Asia" for construction. Public Law 89-18 dated May 7, 1965, which provided the appropriation "Emergency Fund, Southeast Asia" may be cited as the authorization for this work.

It is requested that the Air Force proceed with the enclosed construction so as to assure that necessary support capabilities will be available by not later than early fall of 1965.

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Enclosure

OXCART

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<u>Item</u>	<u>Estimated Cost</u>
Four new butler type hangars	\$ 800,000
Modification of the existing hangars for interim use	150,000
New butler type BOQ (4 units)	1,460,000
Butler type airmen's quarters (1 unit)	223,000
Utilities	200,000
Enlarge POL-3, 10,000 barrel tanks and piping	260,000
Enlarge ops building	100,000
Warehouse	120,000
Concrete aprons	275,000
AGE storage	60,000
Engine test stand	25,000
Shops	75,000
Security fence	<u>15,000</u>
	\$3,763,000

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ANNEX 137

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THE SECRETARY OF DEFENSE
Washington

3 June 1965

MEMORANDUM FOR THE UNDER SECRETARY OF THE AIR FORCE

As you know, the Soviets are deploying surface-to-air missiles around Hanoi. I presume this will prevent us from continuing U-2 flights over the area and that drones would also be vulnerable to such weapons.

Would it be practical to meet our continuing requirement for reconnaissance by substituting A-11's for the U-2's and drones?

RMcN

Robert S McNamara

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ANNEX 138

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Department of the Air Force
Washington

Office of the
Under Secretary

June 8, 1965

MEMORANDUM FOR THE SECRETARY OF DEFENSE

SUBJECT: Use of OXCART over China and Southeast Asia

Of the several factors bearing on the use of OXCART aircraft over China and Southeast Asia, the one that now controls is the performance, operational readiness, and reliability of the airplane itself. Second in importance is probably the question of the vulnerability of the airplane to SA-2 missiles.

As a result of our concern about performance and operational readiness, we consider that we must plan for staging from a Western Pacific base such as Kadena. The preparation of the base can keep pace with that of the aircraft.

The use of a foreign base, however, introduces the problem of foreign reaction, since the OXCART closely resembles both the SR-71, which has officially been identified with reconnaissance, and the YF-12A, which has been "exposed" in the trade press as a disguised reconnaissance airplane.

I am not prepared in this memorandum to render a comprehensive report on these issues. A brief account follows of status and of actions under way.

Readiness

It is believed that the air intake and inlet control problems have been solved. All aircraft are being equipped with the final inlet configuration. As an objective, a readiness date of 15 September has been established. A flying program is being developed, for training, and to make statistically valid determinations of the range, fuel consumption, and other operating parameters of the airplane in its

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final configuration. Careful statistics will be kept on the reliability of all subsystems. Flight performance as observed in the last few weeks, and the performance of subsystems during the last several months, are encouraging, but validation will require extensive flying under uniform conditions.

Staging Base

The OXCART airplane is limited, by expendables other than fuel, to three refuelings. Under this limitation, and with the range performance that one can now predict with full confidence (about 2600 miles), one cannot penetrate China and return without using a base in other than U. S. territory. Even at a range of 3500 miles, which is about the best that one can today expect for the future, a Chinese operation is marginal, and China cannot be covered, wholly from U. S. territory. Hence, quite apart from the convenience, operating economy, and better safety that results from eliminating long approach legs and extra refuelings, there is a need to use a foreign base.

The CIA has recommended use of Kadena for temporary detachment operations for periods up to 60 days. I concur. Mr. Vance has recently authorized \$3.7 million to provide minimum construction and facilities improvement requirements, and initiating actions are under way at this time.

Vulnerability

A clear consensus was never reached on the vulnerability of the OXCART to Cuban SA-2 defenses, at the time that this issue was examined. Conditions over China and Southeast Asia will be more favorable than those that were expected over Cuba: the airplane will be operating at higher speed and altitude, and an array of countermeasures will be available. Furthermore, since an atmosphere of war already prevails, loss of an airplane to defensive action may not carry the same political implications as in the case of Cuba.

A technical analysis of vulnerability is being made. It will be reported, along with specific recommendations about the use of countermeasures, well before any operational decisions are necessary.

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Analyses will probably not be complete before a decision is necessary to establish facilities at Kadena.

I think it is safe to predict, even now, that the analysis of vulnerability will not conclusively prove that the airplane is safe from SA-2 fire. My judgment, based on my own conclusions from the Cuban case, is that the risk of loss from defensive action can be kept lower than the risk of accidental loss.

Further Consideration

I shall make another report about 1 July. At that time, the success of the new inlet and inlet control configurations may be verified on the mission, rather than simply the flight test, aircraft. It at that time, inlet performance remains a problem, we will attempt to estimate a new readiness date, and to compare this with the readiness we might predict for the SR-71.

(Signed
Brockway McMillan

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ANNEX 139

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Pratt & Whitney Aircraft DIVISION OF UNITED AIRCRAFT CORPORATION

U
A

November 26, 1965

Jack C. Ledford
Brigadier General, USAF
Director of Special Activities

Subject: YJT11D-20 Mission Capability

Reference: November 24, 1965 Meeting

Dear General Ledford:

In response to your request to me for an expression of our opinion on the current level of reliability and readiness of the YJT11D-20 engine for use in the performance of Black Shield type missions, it is our considered judgment that recent flight testing has demonstrated that missions of this type can be reliably performed providing the engine receives the careful attention to maintenance and operational details it currently enjoys. This is not to say that we consider the engine in the A-12 aircraft installation to be fully operational in the normal military sense. Although the engine has been qualified by completion of numerous 150-hour endurance tests on test stands simulating, within our facility capabilities, high altitude-high Mach number missions, it has not demonstrated this same degree of durability when subjected to the effects of the aircraft installation. Flight testing has revealed numerous problems of interaction between the aircraft and engine not heretofore known. Many of these have been defined, simulated and corrected by continued engine development testing after completion of the initial 150-hour qualification test. However, there still remain many such problems to be more fully defined and corrected before, in our judgment, the engine can be considered satisfactory for normal squadron use involving daily flights by many aircraft.

By way of example, five aircraft were operated by the detachment during the time period 15 September through 20 November. During this time, 54 sorties of which 14 were of approximate Black Shield mission duration were completed. These sorties indicated a very high degree of engine reliability, in that no engine related incidents would have resulted in a flight abort in the critical mission leg. However, it should be pointed out that during this time 14 engines were removed from the five aircraft after flights for suspected or

General Ledford

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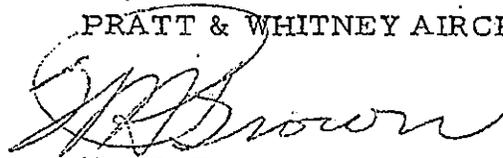
November 26, 1965

real engine discrepancies. In our opinion, this is too high a rate for sustained day-in and day-out squadron operation, although satisfactory for operations requiring only three or four sorties per month.

In summary, it is our judgment based on the record established during Black Shield validation flights and on over-all flight experience to date that Black Shield type missions can be performed using current YJT11D-20 equipment with reasonable assurance that aircraft will not be lost during the critical mission leg because of engine failure or malfunction. Our analysis shows that in the last 300 flights through November 20, 1965, no flight was aborted because of engine trouble once Mach 3 plus cruise was initiated.

Very truly yours,

PRATT & WHITNEY AIRCRAFT



W. H. Brown
Assistant Chief Engineer
Florida Research and Development Center

pk

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THE PERKIN-ELMER CORPORATION

KENNETH G. MACLEISH
VICE PRESIDENT AND DIRECTOR OF ENGINEERING
ELECTRO-OPTICAL DIVISION

NORWALK
CONNECTICUT
U. S. A.

November 23, 1965

General Jack Ledford
CIA Headquarters

Dear General Ledford:

Personally and on behalf of Perkin-Elmer, I wish to express our utmost confidence in the readiness of the Type I camera systems for the Black Shield operation.

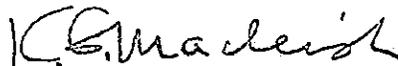
Prior to the recent resumption of flight testing, the B camera system had undergone over two years of field operation, involving 42 flights and over 1-1/2 million feet of film, with only one in-flight failure. In two and a half years in the field, the A system has made 41 flights and exposed a million feet of film with an unbroken record of reliability. Moreover, since March 1962 no flight has had to be rescheduled because of camera problems.

From my own observation I believe that the difficulties of the last three weeks with the B camera are transient in nature, are associated with the break in flight operations, and will disappear with the resumption of the flight test program and the start of operational missions.

The photographic quality achieved in the recent validation flight of the A system is reported to be the best achieved in the program to date.

Our operating personnel are enthusiastic and confident. Their feelings are shared by Perkin-Elmer management. We stand ready to help you insure that the operation will be a success.

Very truly yours,



K. G. Macleish

KGM/mt

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23 November 1965

MEMORANDUM FOR : Brig. Gen. Jack C. Ledford
SUBJECT : Readiness of WLO Furnished Systems
for BLACK SHIELD Operations

In Reply Refer To : WLO-1311-65

As discussed with your personnel this date, the WLO furnished systems are fully satisfactory for use in BLACK SHIELD operations. The WLO furnished systems as well as the supporting logistics and personnel are available and ready to support the program.

Marlowe W. Iverson
MARLOWE W. IVERSON
Project Engineer

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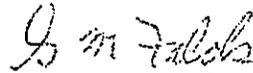
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23 November 1965

MEMORANDUM FOR : Brig. Gen. Jack C. Ledford

1. As of this date, I am pleased to report that, in my judgment, the Honeywell Inertial Navigation equipment is operationally ready.

2. I have carefully reviewed the performance of the airborne equipment, the readiness of the ground support equipment, and the experience level of our personnel and feel that each area is operationally ready.



G.M. FALCK
Program Manager

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22 November 1965

MEMORANDUM FOR: Director of Special Activities

1. In our opinion the two Type II "O" configurations from a standpoint of reliability, consistency and repeatability are operationally ready. We have had 39 flights with one in-flight failure. This occurred in January 1965 and was a faulty fuse-holder. This was immediately replaced with a new design.

2. While we are now achieving 20 to 24 inches of ground resolution on the average, we feel that this is susceptible to improvement as the aircraft achieves a more consistent profile.

3. Our field crew of four (4) people have been with the instruments a minimum of over a year and are considered ready for a staging deployment as is indicated by their record of performance.



E. L. GREEN

Handle via BYEMAN
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22 November 1965

To: Gen. Jack Ledford
From: C. L. Johnson
Subject: Readiness of Black Shield Aircraft for Deployment

Dear Jack:

We were discussing recently the state of readiness of the Black Shield Oxcart aircraft and their crews for deployment in the Far East. I proposed to put in writing my comments on what I think of the reliability and safety of the operation contemplated. They are as follows:

1. To the present date, we have flown this type of aircraft 2,155 times for a total of 3,132 flight hours. There has been intensive testing of the aircraft and its systems for three and one-half years.

2. The recent Black Shield validation tests have proceeded with excellent reliability of all components, with the exception of a radio and an oil pressure gauge. I believe we know the solution to these problems and within a week or two we will have these devices suitable for operation.

3. During the flight test program we have made over 700 refuelings from the KC-135, including night refuelings. These have been very successful.

4. The P&W J58 engines have had a very good safety record since we started to fly. Like all engines, there are always things that can be improved, and we are working diligently on these matters. But I know of no outstanding problem which should prevent deployment.

5. I am very pleased with and proud of the project pilots, in terms of their proficiency in the aircraft and the amount of training they have undergone. I have no reservations as to the qualifications of the crew.

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6. The inertial guidance system now has a record of reliability. In addition to this device, a number of standby navigational aids have been provided, including radio homing. I think the reliability and success of the INS and the aircraft instrumentation are sufficient for the planned deployment.

7. The use of electronic countermeasures gear, combined with the very low radar cross section of the aircraft, will make it a very difficult target to be handled by a surface-to-air missile. Also, I do not know of any aircraft in the world today which can successfully intercept the Oxcart aircraft.

Over-all, my considered opinion is that the aircraft can be successfully deployed for the Black Shield mission with what I would consider to be at least as low a degree of risk as in the early U-2 deployment days. Actually, considering our performance level of more than four times the U-2 speed and three miles more operating altitude, it is probably much less risky than our first U-2 deployments.

I think the time has come when the bird should leave its nest.

Sincerely,

Kelly Johnson

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ANNEX 140

~~TOP SECRET~~DEPARTMENT OF THE AIR FORCE
WASHINGTON

OFFICE OF THE ASSISTANT SECRETARY

OX CARTEYE 3065-65
2 December 1965MEMORANDUM FOR: Special Assistant to the President
for National Security AffairsThe Deputy Under Secretary of
State for Political Affairs

The Deputy Secretary of Defense

Director of Central Intelligence

SUBJECT: OXCART Far East Deployment - CAROUSEL

Justification for OXCART deployment to the Far East was stated in a communication distributed to 303 Committee members on December 1, 1965.

Three aircraft are programmed for movement in January 1966 to Kadena Air Base, Okinawa, where support facilities are in the final stages of preparation. Movement of detachment personnel to Kadena by USAF airlift has been arranged for early January 1966, pending approval of the deployment. Materiel airlift is scheduled for completion by mid-December.

The OXCART aircraft will be committed initially for coverage of highest priority Chinese and Vietnamese targets in areas where missile defense systems prevent high-resolution coverage by the U-2. Missions will be planned at a sortie rate of four per month.

The attached proposal outlines the sequence of events and the time frame in which the three aircraft are to be deployed to Kadena.

RECOMMENDATION:

That the 303 Committee consider the appropriateness of OXCART deployment to Kadena at this time.

/s/

ALEXANDER H. FLAX
Director
National Reconnaissance OfficeOX CARTHANDLE VIA BYEMAN
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ANNEX 141

6 December 1965

MEMORANDUM FOR THE RECORD

SUBJECT: Minutes of the Meeting of the 303 Committee,
3 December 1965

PRESENT: Mr. Bundy, Ambassador Johnson, Mr. Vance, and
Admiral Raborn

Also present were General Jack Ledford, Dr. Albert
Wheelon, and Mr. Huntington Sheldon

1. OX CART

a. An extensive and detailed discussion of the status and future use of OXCART took place with considerable emphasis by General Ledford on the tested capabilities of the aircraft and its systems as revealed by the comprehensive statistics on every flight made thus far.

b. The proposed timing of an actual OXCART deployment to Kadena Air Base as requested in the basic paper (BYE 3065/65) was not approved for the month of December. Mr. Bundy stated that other complex national and international problems which were to be sorted out in the month of December pre-empted this. Mr. Vance indicated that Secretary of Defense McNamara was of the same mind. However, the Committee did agree that all steps to ready the forward operating base to the greatest extent possible - short of moving the aircraft - be undertaken with the purpose of a potential quick reaction deployment within 21 days after 1 January 1966.

c. Admiral Raborn emphasized the current lack of intelligence in the face of various indices of increasing aid by the Chinese to North Vietnam. The decreasing reliance (due to mounting vulnerabilities) which can be placed on IDEALIST in this theatre and the decline in the performance of certain random programmed satellites pointed to a need for OXCART with its wide coverage and one foot resolution perhaps sooner, rather than later.

d. The Committee then tackled the problem of the current single base capability and concluded that steps should be taken

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promptly to develop a simultaneous dual base capability. Dr. Wheelon indicated that this would require an addition to the budget for more technical personnel and more equipment, but the Committee agreed that a dual base capability was fundamental to maximum operational use of the system.

e. Dr. Wheelon pointed out that, in addition to deployment and prior to eventual use, base support rights for recovery would have to be negotiated with governments on Taiwan, Manila, Bangkok, and Seoul. It was apparent that the State Department would take the lead in this field and that special briefings by persons connected with the program might be necessary at that time.

2. NRO Forecast for December 1965

a. The NRO forecast for December was approved by telephonic vote on 2 December 1965.

b. An additional IDEALIST flight for coverage of North Korea for December was approved telephonically by Committee principals on 3 December (see ADIC 0457).

3. Ban Takhli Withdrawal

Committee approval not being obtained for Sino-Indian border coverage from Ban Takhli during the months of October, November, and December, NRO issued on 15 November, "Withdrawal of IDEALIST Detachment at Ban Takhli" (BYE 3000-65), which returned personnel and equipment to Tao Yuan and Edwards Air Force Base.

4. Cambodia

When weather interfered with the accomplishment of the Cambodian coverage approved in special minutes of 8 October 1965 (BYE 58345/65), approval for another mission was obtained from the Department of State on 5 November 1965.

/s/
Peter Jessup

Distribution
Ambassador Johnson
Mr. Vance
Admiral Raborn

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ANNEX 142

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BYE-3194-63

4 September 1963

MEMORANDUM FOR: Deputy Director of Central Intelligence

SUBJECT: OXCART Briefing for Prime Minister
and Defense Minister of Canada

1. This memorandum is for your information only.
2. On 29 August 1963, Air Marshal Slemon, Deputy Commander, NORAD; Col. Leo P. Geary, AFIGO-S; and the undersigned briefed Prime Minister Pearson of Canada on the OXCART/KEDLOCK programs. Air Marshall C. R. Dunlap, CAS, RCAF, was also present at the briefing. Immediately subsequent to the presentation to the Prime Minister, and at the latter's request, a similar briefing was given to the Minister for National Defense, Mr. Paul Hellyer.
3. The briefing was carried out in accordance with instructions contained in your Action Memorandum No. A-280 (BYE 4281-63) dated 1 August 1963. Materials used in the briefing included photographs of the A-12 and AF-12, a map depicting typical training and development phase flight routes affecting Canadian air space, and a 10-minute film clip of the AF-12 and the GAR-9 air-to-air missile.
4. Arrangements were made for the briefing to be given in the Prime Minister's "alternate" office which is located in the East Block of the Parliament buildings. This enabled us to avoid exposure to the reporters and photographers who normally frequent access areas leading to the PM's primary office.
5. It was quite apparent, upon being introduced to Mr. Pearson, that his curiosity had been piqued to a considerable degree by the President's personal phone call to arrange for the meeting. His initial query, offered in a jocular vein but not wholly without a discernible trace of concern, was whether he was guilty of some heinous

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breach of security. (The Prime Minister possesses a TKH clearance.) We assured him that such was not the case, adding "at least not yet".

6. Air Marshal Slemon then explained the purpose of our visit and stressed the highly sensitive nature of the program. The Prime Minister seemed to be most impressed by the fact that a project of this magnitude could have been brought to its present stage of development without public exposure of some sort and he commented to this effect on several occasions during our approximately one-hour discussion.

7. Although we were completely candid about acknowledging that the A-12 was a follow-on to the U-2, we emphasized that no high-level political decision to utilize it in that role had been made or even, at this point, had been considered. In subsequent discussions we focused attention on the interceptor version, aided and abetted by the film clip which featured the AF-12.

8. Air Marshal Slemon, anticipating the query, took the initiative in emphasizing the necessity for testing the aircraft and navigation system in an environment which would require use of Canadian air space. He assured the Prime Minister that he had personally investigated this aspect of the proposal and was completely satisfied that there was no alternative. If this question had occurred to Mr. Pearson, the Air Marshal's assurances apparently were more than satisfactory and the subject was not broached again during our visit.

9. Col. Geary provided a running commentary for the film clip which Mr. Pearson viewed throughout with obviously keen interest. At the conclusion of the film, we summarized briefly what we desired with regard to overflight approval and support and assistance as it might be required in the event of a mishap or forced landing in Canada.

10. In response, Mr. Pearson stated that he was desirous of providing any and all assistance we might require. Concerning approval for overflight, the Prime Minister granted same with only one minor qualification; i. e. that his approval be brought within the

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BYE-3194-63

Page 3

framework of existing intergovernmental agreements between the U. S. and Canada. He foresaw no difficulty in being able to accomplish this and considered this essential political protection in the event of an incident. Air Marshals Slemon and Dunlap agreed that this would pose no problem. Air Marshal Dunlap was instructed by Mr. Pearson to review the pertinent documents and to report back to him on his findings. It was agreed that when this had been done, the Prime Minister would call the President personally, and advise him that he was approving our requests. (On 3 September at approximately 1500 Air Marshal Slemon called the undersigned and reported that the Prime Minister would call the President that afternoon. This information was passed to the Office of the DDCI which had also been alerted by a call from the Air Marshal.)

11. Before leaving Mr. Pearson we requested his views concerning the need for briefing Mr. Hellyer, the Minister of Defense. The Prime Minister's opinion was that in the event of an incident that would require support and assistance from the defense establishment it would be almost essential that the Defense Minister have advance knowledge of the program if he were to respond with the alacrity and efficiency which would be desired under such circumstances. (Although Air Marshal Dunlap would be our primary contact in a situation of this nature, it is most probable that the Defense Minister would become involved.) It was agreed that Mr. Hellyer should be briefed and the Prime Minister called and made the necessary arrangements.

12. The briefing for the Defense Minister followed the same pattern as that for the Prime Minister and his reaction was essentially the same. He foresaw no problem in meeting the Prime Minister's injunction that the approval be brought under appropriate clauses of existing agreements between the U. S. and Canada, and assured us that he would be happy to provide any assistance that might be required.

13. Although we were prepared, as a last resort, to give assurances that Canadian air space would not be used in conjunction with overflights of denied areas, unless there was prior referral to the Prime Minister, such a commitment was not sought and, consequently, was not made. The Defense Minister did observe at one point that such operations would present a somewhat different situation; but we permitted this observation to pass without comment. In this context it should be recognized, however, that the strong emphasis we

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BYE-3194-63

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placed on the fact that we were seeking approval only for use of Canadian air space for test and training flights might bring any more exotic use dangerously close to a breach of faith, even in the absence of an explicit commitment not to do so.

14. In conclusion, I would like to note the unstinting support and cooperation provided by Air Marshal Slemon. He is obviously held in high esteem by the hierarchy of the present Canadian administration and his unqualified endorsement and persuasiveness were undoubtedly major factors in influencing the Prime Minister to grant his approval without any crippling restrictions.

(Signed)

[Redacted]
Special Assistant for Liaison
OSA

Withheld under statutory authority of the
Central Intelligence Agency Act of 1949 (50
U.S.C., section 403g)

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ANNEX 143

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OXCART

PROJECT PILOT SELECTION, PHASING AND TRAINING:

A. Selection Criteria:

1. During January 1961, Project Headquarters established the following prerequisite qualification criteria for Project pilot candidates:

a. Flying Experience:

- (1) A fighter pilot with outstanding professional competency.
- (2) Mandatory Qualifications:
 - (a) Minimum of 1000 jet flying hours.
 - (b) Minimum of 100 hours in Century series a/c.
 - (c) Air refueling experience.
 - (d) One-half of flying experience accomplished in tactical units.
- (3) Desirable Qualifications:
 - (a) Multi-jet engine aircraft experience.
 - (b) Flight test experience.
- (4) Good accident and flying record.

b. Psychological Fitness:

- (1) Must possess a high degree of:
 - (a) Emotional stability.
 - (b) Stability of personal affairs.
 - (c) Motivation.
 - (d) Acceptance of and enthusiasm for the proposed assignment.

c. Physical Qualifications:

- (1) Physical characteristics:
 - (a) Age: 25 to 40.
 - (b) Height: Under 72 inches.
 - (c) Weight: 175 pounds or less.

This criteria remained standard throughout the program except for Century series aircraft experience which was increased to 500 hours in 1966 and aerial refueling experience became a "desirable qualification".

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OXCARTB. Group Phasing:

(1) To insure an orderly input to the programmed training, A-12 pilots were recruited in phased groups to insure efficient use of available flying hours. The following are pilots recruited, date recruited and group phase assigned for training:

Group A:

Alonzō J. Walter, Jr.	November 1962
William L. Skliar	November 1962
Walter L. Ray	November 1962
Kenneth S. Collins	November 1962

Group B:

Ronald L. Layton	February 1963
Jack W. Weeks	February 1963
Mele Vojvodich	February 1963

Group C:

David D. Young	June 1963
Dennis B. Sullivan	June 1963

(2) The following pilots were recruited in 1966 as replacements:

Russell J. Scott	November 1966
Francis J. Murray	October 1966

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OXCART

(3) Summary of pilot status:

<u>Name</u>	<u>EOD</u>	<u>Remarks</u>
Alonzo J. Walter, Jr.	Nov 62	Returned to USAF Mar 64
William L. Skliar	Nov 62	Returned to USAF July 67
Walter L. Ray	Nov 62	Fatality in aircraft accident January 1967
Kenneth S. Collins	Nov 62	Still on board
Ronald L. Layton	Feb 63	Still on board
Jack W. Weeks	Feb 63	Fatality in aircraft accident June 1968
Mele Vojvodich	Feb 63	Scheduled to return to USAF July 1968
David D. Young	June 63	Returned to USAF March 65
Dennis B. Sullivan	June 63	Still on board
Francis J. Murray	Oct 66	Still on board
Russell J. Scott	Nov 66	Civilianized June 67

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OXCART

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ANNEX 144

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21 February 1966

MEMORANDUM FOR THE RECORD

SUBJECT: Minutes of the Meeting of the 303 Committee, 17 Feb 1966

PRESENT: Mr. Bundy, Ambassador Johnson, Mr. Vance, and
Mr. Richard Helms.

General Jack Ledford was also present.

1. Resumption of GRC TACKLE Overflights

On the resumption of GRC TACKLE overflights, the arguments were heard and Mr. Bundy said he felt the matter should be resolved by the principals. He directed the Executive Secretary to prepare a summary, and the Secretaries of Defense and State could determine the issue with higher authority at an early date. General Ledford indicated that resumption could be construed to mean a bank of four missions.

2. OX CART

The Executive Secretary raised the question of the decision on the deployment of OXCART. Mr. Vance stated that he could speak for Secretary McNamara, who felt the situation had not changed since earlier discussions and he remained opposed to deployment at this time. Even deployment without a mission would attract undue attention. Mr. Bundy asked for a summary statement on this matter as well and said he planned to bring the status of OXCART to the attention of higher authority.

3.

Signed

Peter Jessup

Distribution

Ambassador Johnson

Mr. Vance

Admiral Raborn

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ANNEX 145

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29 March 1966

MEMORANDUM FOR THE RECORD

SUBJECT: Minutes of the Meeting of the 303 Committee, 28 March 1966

PRESENT: Ambassador Johnson, Mr. Vance, Admiral Raborn,
Mr. Richard Helms, and Mr. Peter Jessup.Dr. Albert Wheelon, General Jack Ledford, and
Dr. William Tidwell were also present.High Resolution Photographic Coverage of South China and North Vietnam
(BYE-0064-66).

a. A lengthy discussion took place on the merits of deploying and utilizing OXCART at this time. Admiral Raborn explained the Agency paper which recommended the immediate deployment of OXCART to Kadena to satisfy intelligence community requirements which were not being satisfied at this time through the other available methods, i. e. KH-7 (satellite photography), TROJAN HORSE, BLUE SPRINGS, and IDEALIST/TACKLE flights.

b. Much of the discussion centered around the three principal target areas--the border, the triangle (NVN), and South China--and the relative degree of present coverage. Dr. Tidwell presented a chart which depicted the gaps and weaknesses of present coverage: the earlier limited success of BLUE SPRINGS, the inadequacy of TROJAN HORSE, the increasing difficulties in the use of GRC pilots (due to stepped-up air defenses and Chinat reluctance), and the built-in hindrances in KH-7 coverage (due to weather and the pre-programming limitations which underline its lack of mobility for spot targeting).

c. Ambassador Johnson and Mr. Vance cited the recent marked improvement in BLUE SPRINGS capabilities with the introduction of a decoy system.

d. Admiral Raborn made his main point quite clearly: Being charged with the responsibility of not being caught by surprise, having a major list of requirements, and presently having an inadequate coverage by the aforementioned methods, he could only opt for the introduction of a new vehicle which was ready and gave every indication of being able to improve production.

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e. Mr. Vance returned to the nub of the matter and stated there was a split opinion in Defense to the following extent: The JCS was against deployment to Kadena without immediate use and was in favor of deployment and use against South China. However, Mr. Vance said that he and the Secretary of Defense were against deployment at this time largely on the issue that the introduction of OXCART could be seriously misinterpreted by the Chinese. Messrs. Vance and McNamara felt that sufficient coverage of North Vietnam could be obtained at this time by maximum use of existing means.

f. Admiral Raborn felt the coverage was simply inadequate and cited the point that each mission uncovered new SAM sites.

g. There was additional speculation as to what signal the deployment would give to the Chinese. Different viewpoints showed themselves here: Mr. Vance felt the Chinese reaction could be one of fear, i. e. that the USG was preparing more aggressive moves. Ambassador Johnson commented that they could interpret the deployment as a desperate measure.

h. There was additional exchange about using OXCART for North Vietnam alone, but it was apparent that once OXCART was employed in Vietnam it would be but a short time before it was used over South China. Returning to how China would interpret the use of OXCART, two extremes of interpretation came to the surface: One viewpoint was that it could signify USG intent to invade; the other that China would regard it as simply one more in a long list of violations of sovereignty which they have been recording monotonously.

i. Ambassador Johnson summed up by saying that since the Department of Defense was indeed the principal customer and DOD was willing to live with lesser coverage, he could accept that and the committee's conclusion was that we should not deploy at this time. He fully understood Admiral Raborn's dissent and the reasons for it, and he recommended that current opinions on OXCART be brought to the attention of higher authority by the two Secretaries and Admiral Raborn at an early date.

(Signed)

Peter Jessup

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ANNEX 146

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12 May 1966

MEMORANDUM FOR THE RECORD

SUBJECT: Minutes of the Meeting of 303 Committee, 11 May 1966

PRESENT: Mr. Rostow, Ambassador Johnson, Mr. Vance, and
Admiral RabornAlso present were Gen. Maxwell D. Taylor, Mr. Huntington
Sheldon, and Dr. Albert Wheelon.OX CART

1. A wide-ranging discussion took place on various aspects of dealing with the possible deployment of OXCART.

2. It became apparent that although the target breakdown for North Vietnam was well summarized statistically, a qualitative analysis of these targets had not been attempted. The acceptability of the fact that 11 targets would remain uncovered had also not been determined.

3. General Taylor felt that a statistical and qualitative analysis should also be done for the South China targets in order to obtain a more complete picture. General Taylor also made the point that we were addressing (in the proposed deployment of OXCART) the question of surprise attack by China rather than tactical improvements in the war in Vietnam.

4. Mr. Rostow raised the question of whether, if the decision were made to bomb POL in North Vietnam, this would have the corollary effect of raising our requirements for observation. Mr. Vance thought the answer was yes*. General Taylor felt that the bombing of POL in North Vietnam was not a consideration in the deployment of OXCART.

5. Admiral Raborn and Dr. Wheelon made a detailed explanation of the withering asset of GRC-piloted U-2's. They pointed to problems of the Chinats wanting "canned routes", the problem of the Chinats themselves becoming their own weather experts, and the Chinats using some of their quota of missions for their own use, i. e. the Straits. Charts depicted a tale of woe in which there was one flight in March for South China, one in April for South China (plus one Straits) and one in May (one Straits). Admiral Raborn called this a

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hand-to-mouth existence on a month-to-month basis. Dr. Wheelon pointed out that despite the various obstructions of the Chinats, their pilots had been undertaking missions under difficult conditions.

6. Mr. Rostow asked about the quality of other intelligence such as SIGINT for coverage of South China. Mr. Sheldon pointed out that SIGINT had seriously declined when the Chinese had shifted from radio to landlines in key areas.

7. Ambassador Johnson raised the question: Why do we make the decision now if the recommendation is for a September deployment? Admiral Raborn underlined the fact that he had always stuck to the 30 day stretch as the safest time factor for a deployment. General Taylor raised the question: If we are going to make a covert deployment is there any other better time than right now? Will there ever be a more propitious time?

8. Ambassador Johnson made the point that the principals had not sufficiently addressed themselves to cover and contingency problems. The elaborate cover plans were to a certain extent self delusory. It was one thing for the pilot to have memorized a set story but quite another for the U.S. Government to know exactly how it felt and what it was going to say.

9. The Executive Secretary queried whether the camera complex now available was not far superior to that maintained in existing systems. The retort was, yes, there was a marked improvement in resolution in the OXCART system.

10. The Executive Secretary indicated a major factor in the deployment decision would be the negotiations with foreign governments for emergency landing rights. He particularly cited Japan with its traditional proprietary interest in Okinawa. Ambassador Johnson said this was a puzzler, and he wanted to think and discuss the Japanese aspects with his colleagues.

11. General Taylor reminded the principals that they should not forget to address themselves to the basic question: Is now the best time for deployment?

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12. What then, in conclusion, did the meeting decide? First, there would be a qualitative judgment on the target question in regard to North Vietnam and a statistical and qualitative judgment on the target problem in South China. Second, the principals would do their homework on just what posture the USG would take (i. e. contingency statements) in regard to deployment of OXCART and its planned uses. Third, Ambassador Johnson would explore the problems surrounding deployment to Okinawa that might arise with Japan. When the aforementioned problems have been assessed, then the Committee would be in a better position to pose the entire problem to higher authority.

(Signed)

Peter Jessup

* See attached "Expansion of Minutes..."

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17 May 1966

MEMORANDUM FOR THE RECORD

SUBJECT: Expansion of Minutes of Meeting of the
303 Committee, 11 May 1966

At the request of Mr. Vance, sentence two of paragraph four of the minutes of the 303 Committee meeting of 11 May 1966 (BYE 66, 704/66) is expanded to read: "Mr. Vance thought the answer was yes but pointed out that you would have to weigh against that need the increased risk discussed in paragraph 5 of SNIE 10-2-66, 'Reactions to a Possible U.S. Course of Action' (BYE 44001/66)."

(Signed)

Peter Jessup

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ANNEX 147

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27 June 1966

MEMORANDUM FOR THE RECORD

SUBJECT: Minutes of the Meeting of the 303 Committee, 24 June 1966

PRESENT: Mr. Rostow, Ambassador Johnson, Mr. Vance, and
Mr. Helms.

Dr. Albert Wheelon was also present.

OXCART

a. On the question of deployment of OXCART, it was agreed that the time had come to present the divergent views to higher authority. The line-up is approximately as follows: The CIA is in favor of deployment and use at this time. The State Department is against. The Department of Defense is split to the extent that Secretary McNamara and Mr. Vance oppose deployment at this time, whereas the Joint Chiefs of Staff are in favor of deployment and use at this time to satisfy requirements of targets in South China. The President's Foreign Intelligence Advisory Board is on record as favoring deployment and use at this time.

b. Almost all of the necessary homework seems to have been completed except for the area concerning the public stance of the United States government. There seemed to be some ambiguity about where the United States stood officially on overflights of China. At a news conference on 27 May 1966, Secretary Rusk replied in answer to a question that "They (U. S. pilots) have instructions not to intrude into Chinese air space" and later in the same conference, "It is true that we do not instruct our pilots to overfly China."

c. Ambassador Johnson said that we could hope, in response to any hue and outcry, to point to some Chinese violation as a cause for our action. We must avoid questions of basic confidence in the U. S. government as in the case of the U-2.

d. A summary of the reasons for and against deployment of this system was to be prepared at an early date for presentations to higher authority.

(Signed)
Peter Jessup

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ANNEX 148

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THE WHITE HOUSE

August 12, 1966

MEMORANDUM FOR: Director of Central Intelligence

The President has decided for the time being that OXCART will not be deployed.

In order to minimize the time lag in bringing OXCART to bear during an emergency, would you be good enough to consider with Secretary McNamara measures that might shorten the present estimated 21-day deployment interval.

(Signed)

W. W. ROSTOW

cc: Secretary Rusk
Secretary McNamara

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ANNEX 149

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The Secretary of Defense
Washington

31 August 1966

MEMORANDUM FOR THE DIRECTOR OF CENTRAL INTELLIGENCE

I concur in your recommendation to propose to the
303 Committee that it approve "test flights" of OXCART
over Cuba in addition to the present SAC U-2 coverage.

(Signed)

Bob

Robert S. McNamara

cc: CJCS
Dir., DIA

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OXCART

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BYE-5513-66

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ANNEX 150

Air Force Spots Lost Spy Plane

Test Pilot Not In Nevada Wreckage

LAS VEGAS, Nev. (UPI) —The Air Force announced today that the wreckage of the missing SR-71 super spy plane, the world's fastest operational aircraft and successor to the U2 reconnaissance plane, was located from the air late Friday.

A spokesman said the black, javelin-like aircraft crashed approximately four miles southwest of the town of Leith, Nev.

An Air Force helicopter crew who examined the wreckage said there was no evidence that the civilian test pilot who flew the aircraft was still aboard at the time of impact.

An intensive ground and air search was continuing for the pilot.

Built By Lockheed

The plane, made by Lockheed, was capable of flying 2,000 miles an hour at a top altitude of better than 80,000 feet. It was described in 1964 as the most advanced aircraft of its type in the world.

The Air Force announced Friday the black, javelin-like plane had been missing since Thursday afternoon on a routine test flight from Edwards Air Force Base, Calif.

The SR-71, made by Lockheed jet engines, is a more sophisticated and advanced spy plane than the U2 model in which American pilot Gary Francis Powers was shot down over Russia in 1960.

First Flight

In 1965, a year after it made its first flight from Palmdale, Calif., the SR71 became operational with the Strategic Air Command at Beale AFB in Northern California.

As a strategic reconnaissance plane, it has a top speed of Mach 3 (three times the speed of sound), and a top altitude of more than 80,000 feet.

President Johnson an-

EVENING OUTLOOK

Santa Monica, California

Saturday, January 7, 1967

Spy Plane

Continued From Page 1

announced July 24, 1964, that the aircraft was "capable of worldwide reconnaissance," he said it would be used "during periods of military hostilities and in other situations in which the United States military forces may be confronting foreign military forces."

Flying at maximum capabilities, the SR71 can survey 60,000 square miles of land or ocean in each hour of operation. It is equipped with the latest electronic reconnaissance equipment.

One Other Crash

One other SR-71 has crashed. In February of last year, two Lockheed crewmen ejected over New Mexico during an undisclosed air emergency.

One of two civilian test pilots, James T. Zwayer of Lancaster, Calif., bailed out and was killed. William A. Weaver, Northridge, Calif., survived the jump.

The SR71 was developed from the YF12A triple-sonic interceptor. The two planes are nearly identical, incorporating a double-delta wing design.

EVENING OUTLOOK

Santa Monica, California

Monday, January 9, 1967

**Test Pilot's Body
Found After
Desert Jet Crash**

EDWARDS AIR FORCE BASE (AP) — The body of the man who piloted the ill-fated SR71 reconnaissance jet last week was found nearly 10 miles from the plane's wreckage.

Walter L. Ray, a civilian test pilot for the Lockheed Aircraft Corp. of Burbank, took the slender, experimental craft on a run Thursday. It crashed some 73 miles northeast of Las Vegas, Nev.

Ray, 33, is survived by his widow, Diane Carole; his mother, Thelma Ray, of Havana, Ill.; a sister, Elmora Cealka, of Elkshart, Ind., and a brother, Vernon O. Ray, Orange, Calif.

PJB *[initials]*

RAK *[initials]*

AOL *[initials]*

file Law code

AVIATION WEEK : 16 Jan 67

SR-71 Crash Probe

Los Angeles—Seven-man Air Force team was here last week to investigate the loss of an experimental model of the USAF/Lockheed SR-71 reconnaissance jet Jan. 5 near Leith, Nev.

The aircraft was abandoned in flight and crashed. Lockheed test pilot Walter L. Ray, 33, ejected from the experimental airplane but did not survive the ejection.

The SR-71 has been involved in five accidents or more. It is a two-place aircraft normally manned by a pilot in the front cockpit and a reconnaissance systems officer in the rear. An SR-71B is fitted with an elevated rear cockpit and dual controls for pilot training, but the standard model has no piloting controls in the rear cockpit.

An SR-71 was damaged Jan. 10 at Edwards AFB during a wet runway braking test. The accident occurred after the drag chute failed during a high-speed taxi run to test the brake system.

The aircraft continued to the end of the runway, stopping on the dry lakebed.

The landing gear apparently failed as the aircraft passed over the rough transition area between the lakebed and the runway. The airplane was damaged considerably.

Law Code

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ANNEX 151

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CENTRAL INTELLIGENCE AGENCY

WASHINGTON 25, D. C.

OFFICE OF THE DIRECTOR

BYE 2369-67

Copy 7 of 8

15 MAY 1967

MEMORANDUM FOR: The Deputy Secretary of Defense

✓ Special Assistant to the President
(Mr. Rostow)

The Deputy Under Secretary of State for
Political Affairs

SUBJECT: OXCART Reconnaissance of North Vietnam

1. The attached document is forwarded to the members of the 303 Committee for further consideration and approval as a result of the meeting on Friday, 12 May 1967.
2. Part I delineates the requirement for expanded, repetitive, high resolution photography with particular attention to those priority areas where the emplacement of offensive missile systems is considered most likely.
3. Part II is an operational plan to obtain this photography. The plan proposes the use of the OXCART vehicle, deployed to and operating from a prepared base in Okinawa, to overfly and photograph the priority areas of North Vietnam.

A handwritten signature in cursive script, appearing to read "Richard Helms".

Richard Helms
Director

Attachment - 1
As stated

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Central Intelligence Agency Act of 1949 (50
U.S.C., section 403g)

SAS/O/OSA/[] (13 May 67)

Distribution:

- 1 - Special Assistant to the President (Mr. Rostow)
- 2 - The Deputy Secretary of Defense (via DIA/TCO)
- 3 - The Deputy Under Secretary of State for Political Affairs
(via State TCO)
- 4 - Director of Central Intelligence
- 5 - Office of the Special Assistant to the President
(Mr. Jessup)
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- 7 - Deputy Director of Science and Technology
- 8 - Director, National Reconnaissance Office

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OXCART RECONNAISSANCE

OF

NORTH VIETNAM

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- I. Requirement (Presented 12 May by Mr. Wagner)
- Attachment I - Map - Present Photographic Coverage North Vietnam
 - Attachment II - Map - Priority Sensitive Areas North Vietnam
 - Attachment III - Rationale for Search Area Selection
- II. OXCART Reconnaissance Plan (Presented 12 May by Gen. Bacalis)
- Attachment I - Chart - OXCART Deployment Timetable
 - Attachment II - Map - OXCART Deployment Route
 - Attachment III - Map - Typical OXCART Operational Mission North Vietnam
 - Attachment IV - Sample OXCART Target Coverage North Vietnam

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I. DETECTION OF OFFENSIVE MISSILES IN
NORTH VIETNAM THROUGH PHOTOGRAPHY

GENERAL

1. Examination of operational limitations, vulnerabilities, swathe widths and other related aspects of present photographic reconnaissance activities in North Vietnam reveals that it would be inadequate to provide timely and positive assurance of detection of offensive medium range missile systems if they are introduced into North Vietnam. (For details see discussion of Current Coverage.)

While the remedy suggested in this proposal will still not provide "positive assurance" of detection of such systems, it appears to be the only photo recce plan that will materially increase the likelihood of such detection.

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Coverage Requirements

2. The primary requisite is, of course, nearly complete coverage of North Vietnam with particular attention to those priority areas where the emplacement of offensive missile systems is considered most likely. Ideally it would be desirable to obtain thorough coverage of the important rail transloading yards of Pingshiang and Kung Ming in China in order to detect possible introduction of offensive missiles at the earliest possible date, i. e. while they are in transit. This may be politically undesirable. Therefore this operational proposal confines itself to the likely areas in North Vietnam including marshalling yards and spurs in the North Vietnamese rail system as well as the port of Haiphong. A second requirement is that the coverage be repetitive. This is essential in order that new activity or changes in the nature of previously observed activity, can be detected promptly. A third and equally important requirement is adequate resolution to identify different types of missiles or missile-associated equipment. Resolution on the order of 2-1/2 to 3 feet is needed to distinguish between missiles and missile-associated ground support equipment and other hardware such as armored vehicles and transport equipment.

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Current Coverage

3. Following is a brief review of the limitations of the current photography on North Vietnam.

a. Satellite Coverage

High-resolution coverage is currently being provided by the KH-7 and KH-8 satellites. Weather is a limiting factor owing to the difficulties in scheduling satellite coverage to coincide with periods of good weather. Additionally, the width of stereo coverage of these vehicles is limited, however, to nine miles for the KH-7 camera system and five miles for the KH-8 system. Because of the constraints of the high-resolution systems, only a few high-priority targets such as the Pingxiang rail transshipment point and the Hanoi and Haiphong areas can be photographed on any one mission.

The lower resolution KH-4 missions are capable of providing the necessary overall coverage of North Vietnam because they photograph an area approximately 160 miles wide. Experience has shown, however, that only about one KH-4 mission a year--they are launched about once a month--finds North Vietnam sufficiently cloudless to obtain adequate overall coverage of the country. The quality of KH-4 photography would generally permit the detection of a missile site of standard configuration, but better resolution would be required to identify missiles or missile-associated equipment and to detect a well-camouflaged site or one of a novel configuration. (See Attachment I)

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b. High Altitude U-2 Coverage

This reconnaissance aircraft, with any of its camera systems, is capable of providing the required resolution to identify missiles and missile-associated equipment. The vulnerability of the U-2 to multiple launches of SA-2 missiles imposes serious operational limitations on the use of this reconnaissance vehicle in North Vietnam. Therefore, since the introduction of surface-to-air missiles into North Vietnam in 1965, operations of these aircraft have been restricted to areas outside the range limitations of known SAM emplacements. This has generally confined U-2 photography to the northwestern portion of North Vietnam.

Since the beginning of the year, 67 U-2 missions have been flown, 37 of which covered portions of North Vietnam. Much of the photography from these missions, however, had cloud cover. (See Attachment I)

c. Combat Reconnaissance Coverage

These missions range from high level (30,000 feet) to low level (500 feet) with the majority between 5-10,000 feet. The quality of this photographic coverage ranges from excellent to poor. The National Photographic Interpretation Center reports that it received photography from an average of

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800-900 of these missions a month during 1966 and 750 a month this year.

About 20-25 percent of these, however, are flown to produce infrared or side-looking radar imagery--a product that cannot generally be applied to identifying missiles. Much of the coverage consists of short film strips covering major road and rail segments, point targets such as the Thai Nguyen Iron and Steel Complex, and other strike targets. The shortness of the flight lines and the narrow band of lateral coverage because of the relatively low altitude of the reconnaissance aircraft result in numerous gaps in photo coverage. Moreover, tactical reconnaissance aircraft are prohibited from flying in the sanctuary or buffer area--that part of North Vietnam within 20 miles of the Chinese border. Because this effort is utilized primarily to support strike operations, the overall photographic coverage of North Vietnam by combat reconnaissance aircraft has been relatively limited. (See Attachment I)

d. Drone Coverage

Low-level drones--24 have been recovered thus far in 1967--are flown at 1,500 feet and provide excellent quality photography. The low altitude of the drone, however, restricts the usable photography to approximately one mile on either side of the flight line. These missions are directed primarily against critical targets in the Hanoi and Haiphong areas.

The high-level drone--five out of twelve have been recovered--is flown at an altitude above 60,000 feet but is vulnerable to the SA-2 missile. Most of

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the high-level drone missions have been programmed over the eastern portion of the China/North Vietnam border where tactical aircraft do not operate, but for missile search purposes they have not provided any usable photography of that area, largely because of unfavorable weather. High-level drone photography is capable, however, of providing identification of missiles or missile-associated equipment under optimum operational and weather conditions. The above notwithstanding, high-level drones have proved to be highly vulnerable. Thus neither the high-level drone with its vulnerability nor the low-level drone with its very narrow coverage, could provide timely repetitive photography necessary for the detection of the type of missile sites in question. (See Attachment I)

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Priority Search Areas

4. The priority missile search areas delineated on the attached map are a slightly modified version of those first established by the LOOKOUT Task Force over a year ago. These areas are receiving additional study.

In general, our considerations for establishing priority search areas-- particularly for fixed-site medium-range missiles--were the availability of adequate road nets and the suitability of terrain for the emplacement of the site and for masking or camouflaging it. A secondary consideration was the availability of air defense protection with such weapons as the SA-2 surface-to-air missile. (See Attachments II and III)

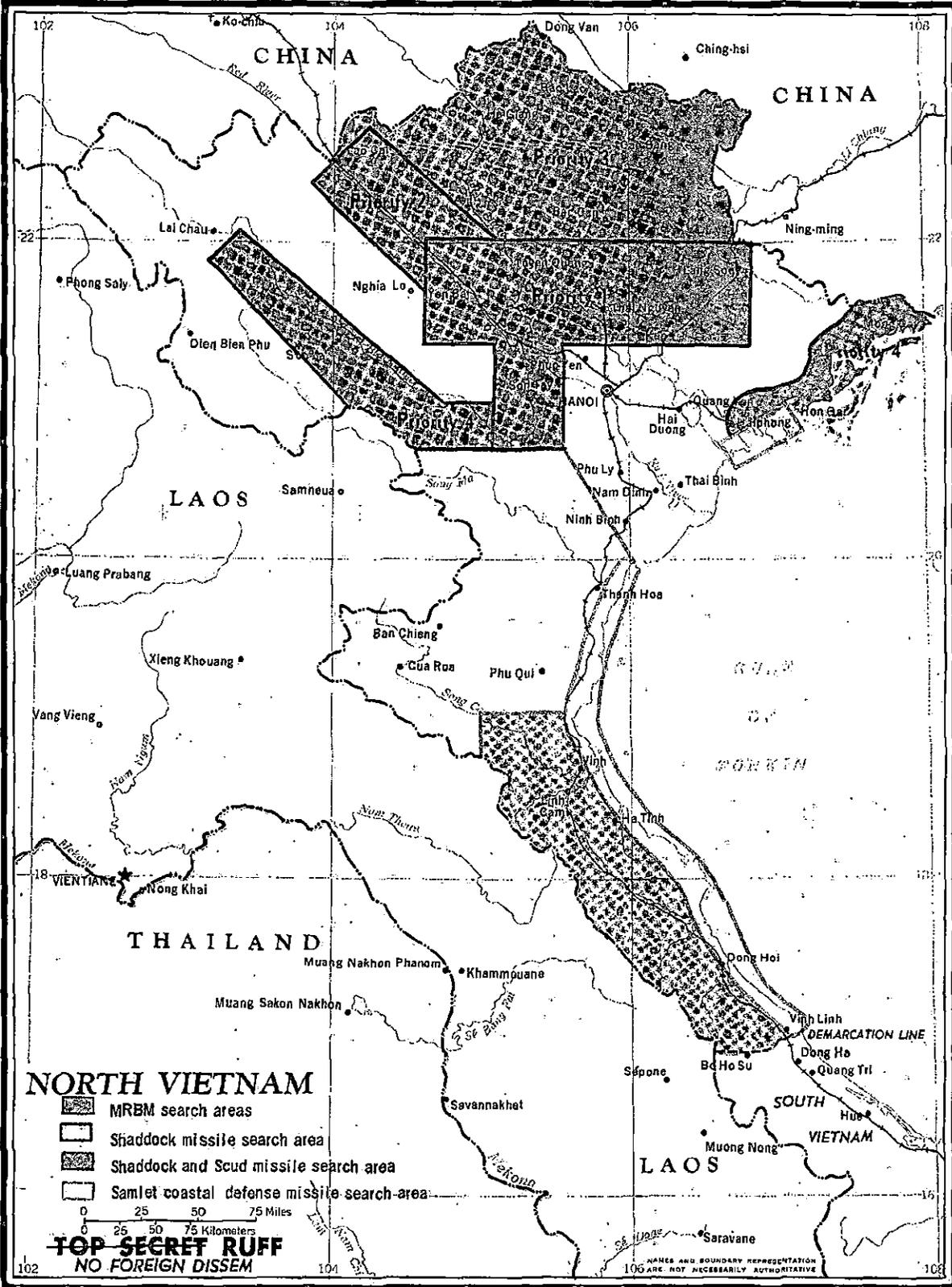
Attachments: 3

- I - Map of Photographic Coverage
- II - Map of Priority Missile Search Areas
- III - Rationale for Search Area Selection

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PRIORITY SEARCH AREAS FOR SURFACE-TO-SURFACE MISSILES



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ATTACHMENT III

Rationale for Selecting Search Areas for MRBMs in North Vietnam.

Priority 1: This area--a short distance north and west of Hanoi--is given first priority because it already has excellent SAM and AAA defenses and good interceptor defenses, good rail and road facilities, forested areas for concealment, and suitable plain to hilly terrain.

Priority 2: This area along the rail line from Hanoi to China is given second priority because of the rail transportation available and its location well inland and behind a barrier of SAM, AAA, and interceptor defenses. It also has extensive forests for concealment and large areas of suitable terrain.

Priority 3: This area well north of Hanoi is given third priority because of its rearward position, good roads, extensive forests for concealment, and generally suitable terrain. This is the best area for defense by Hanoi's interceptors. Much of the northwestern part of this area is too mountainous to be suitable.

Priority 4: Two areas have been assigned fourth priority: a strip of hilly country along the Moc Chau - Lai Chau road in the northwest, and a strip along the northeastern coast from Haiphong to the Chinese border. Except for the SAM-defended Haiphong vicinity, these areas

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Page 14
ATTACHMENT III (con'd)

would be difficult to defend from air attack. They have good roads, and offer generally suitable terrain and good opportunity for concealment.

Rationale for Selecting Search Areas for Tactical Missiles

The areas for these missiles were selected entirely on the basis of weapons range.

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II. OXCART RECONNAISSANCE OPERATIONS PLAN

1. The required photographic coverage of North Vietnam will be accomplished by the OXCART vehicle operating from Kadena Air Base in Okinawa. This operating location at Kadena has been prepared for OXCART operation for some time.

2. Operational missions will be planned, directed and controlled by the Central Intelligence Agency Operations Center. Three OXCART aircraft and the necessary task force personnel will be deployed from Area 51 to Kadena.

3. With this inventory a minimum of nine (9) successful operational missions per month can be flown consistent with available weather. Overcast skies are a predominate feature associated with the monsoon season and limit the number of days suitable for effective photographic reconnaissance. As the monsoon season wanes, the number of clear days increases permitting more frequent, repetitive reconnaissance coverage. Missions will be launched on a twenty-four hour alert basis. This will permit maximum utilization of the favorable weather available. In addition to the operational missions flown, necessary test and proficiency sorties will be flown from Kadena. OXCART aircraft will be rotated between Area 51 and Kadena to maintain the required number of operationally ready aircraft at Kadena.

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4. Project OXCART has been maintaining a capability to deploy to Kadena and to launch the first operational mission fifteen (15) days after approval of implementation of this plan. Dependent upon aircraft condition upon arrival at Kadena the first operational mission could be launched on the thirteenth (13th) day after approval. Three (3) days after approval is received the supporting task force will be in place, necessary logistical support will be airlifted and the supporting tanker aircraft will be deployed. The OXCART aircraft will deploy on alternate days starting with the fifth (5th) day after approval. This deployment schedule is included as Attachment I to this plan.

5. The OXCART aircraft will be flown non-stop from Area 51 to Kadena with three aerial refuelings enroute. These refuelings will be supported by tanker aircraft operating from Beale AFB, California; Hickam AFB, Hawaii; and Kadena AB. The deployment route is planned to provide for adequate fuel reserves at designated recovery bases in the event of a missed aerial refueling or loss of one engine. The deployment route is included as Attachment II.

6. Should a crisis situation dictate, an extension of the deployment route from Kadena for photographic coverage of

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North Vietnam and return to Kadena is possible. This would require two additional aerial refuelings for a total elapsed time of 8 hours and 40 minutes.

7. A typical OXCART operational mission from Kadena with two aerial refuelings enroute is included as Attachment III.

8. Coverage of the majority of the SA-2 defended areas of North Vietnam northward from the Demilitarized Zone is possible on one mission which will provide photographic ground resolutions from 1 foot to 3.5 feet. An enlargement of this typical route is included as Attachment IV. Flexibility of operation will permit several possible variations of this route to provide additional coverage of North Vietnam.

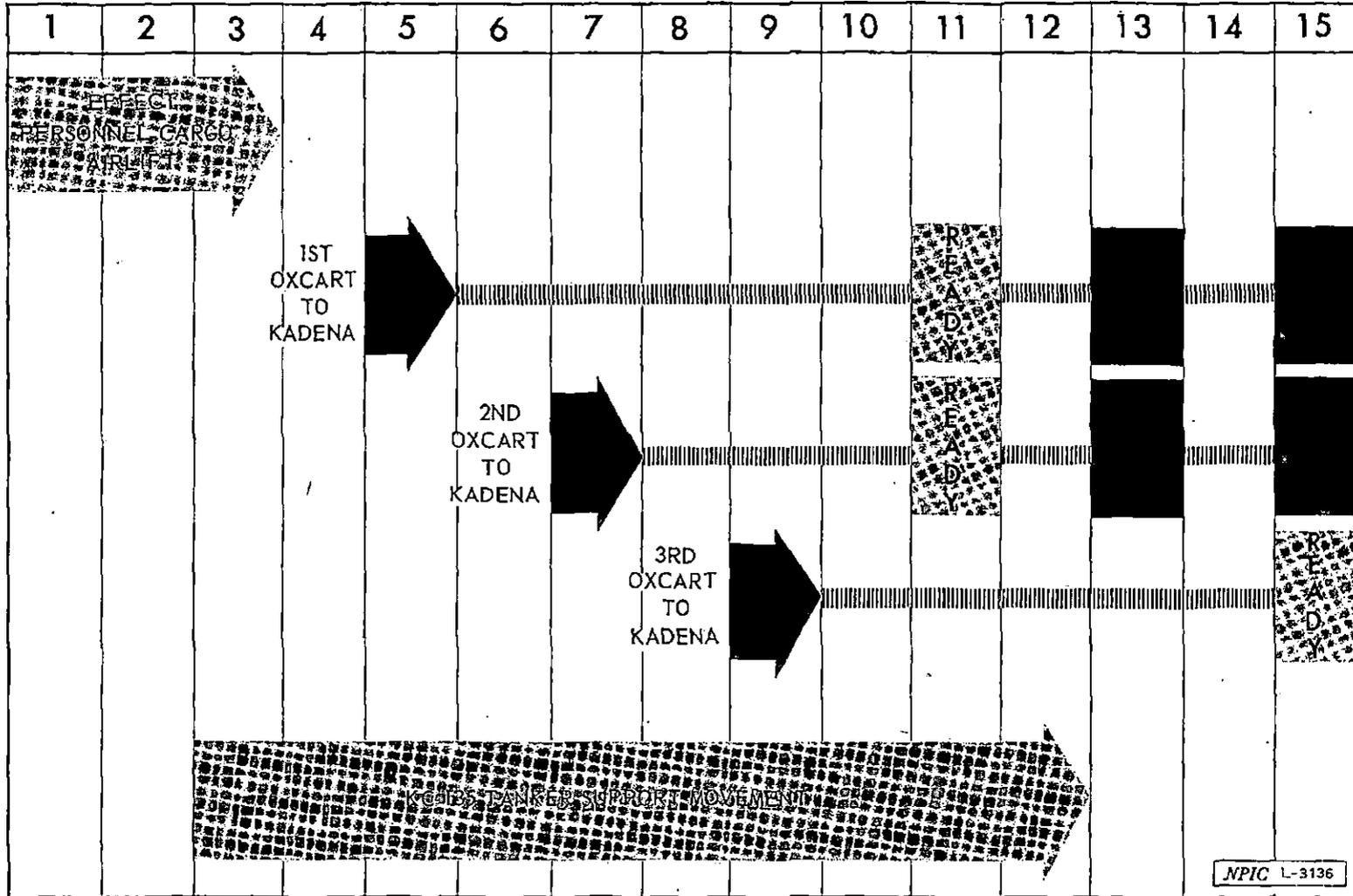
9. The OXCART vehicle is virtually invulnerable to SA-2 and other defensive systems in North Vietnam because of its high operational altitude, high speed and the Electronic Counter Measures systems installed.

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BLACK SHIELD DEPLOYMENT SCHEDULE

DAYS FROM
'GO AHEAD'



DEPLOYMENT ACTIONS

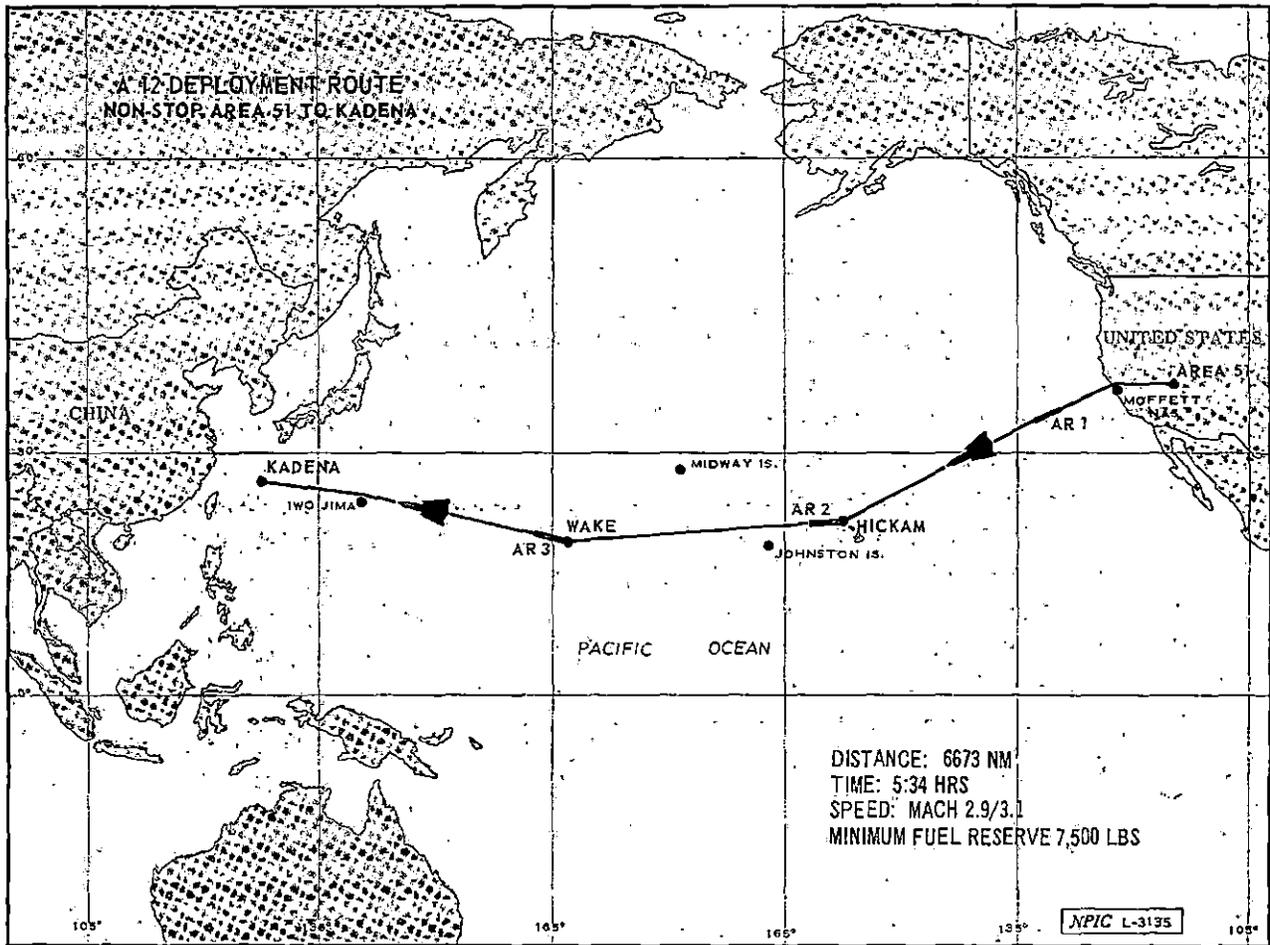
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ATTACHMENT I/PART II
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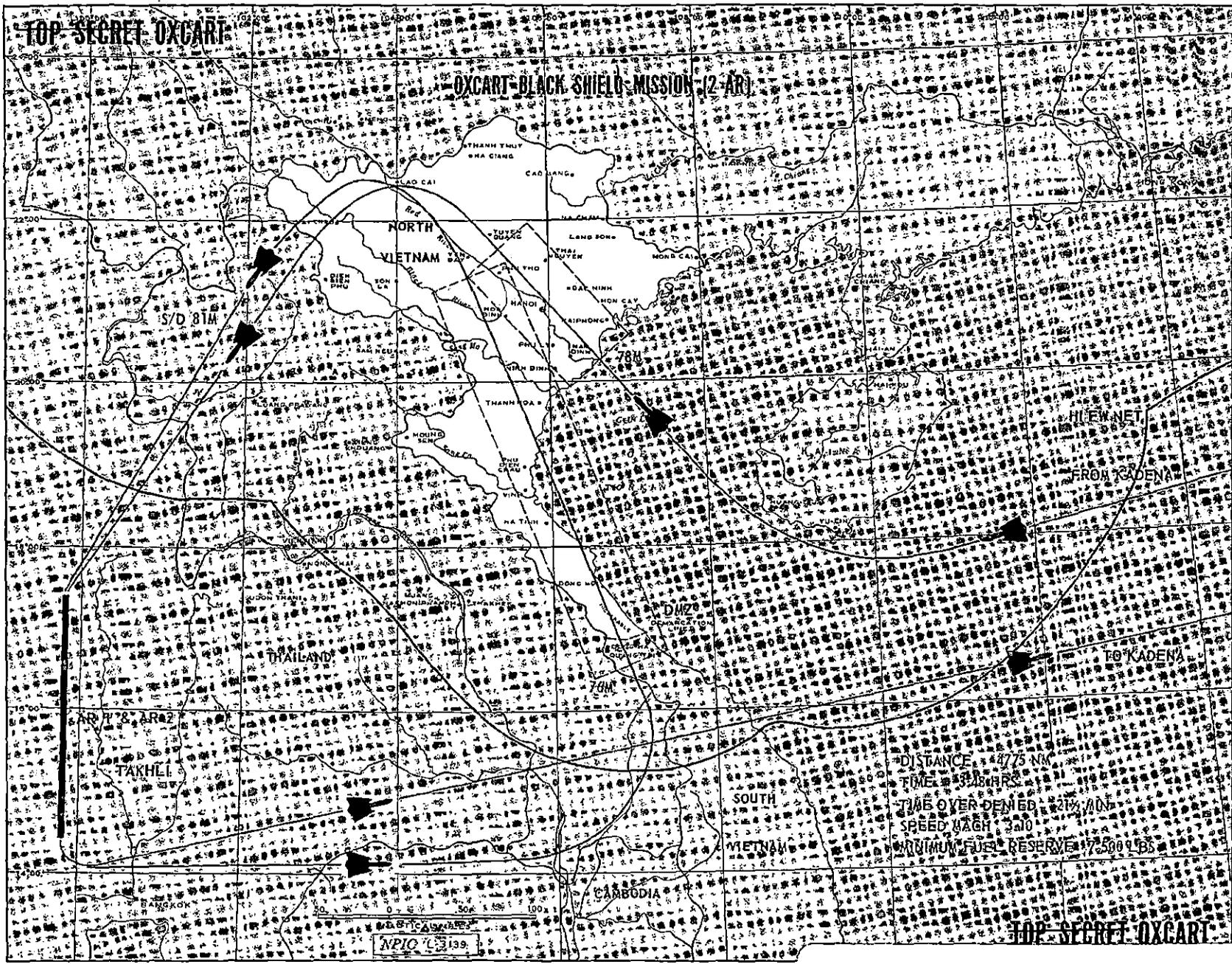
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ATTACHMENT II/PART II
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ANNEX 152

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18 May 1967

MEMORANDUM FOR THE RECORD

SUBJECT: Minutes of the Meeting of the 303 Committee, 12 May 1967

PRESENT: Mr. Rostow, Ambassador Kohler, Mr. Vance, Mr. Helms.

Admiral Taylor, General Bacalis, Mr. Carl Duckett, and Mr. Mark Wagner were also present.

OX CART Reconnaissance of North Vietnam

a. During higher authority's weekly luncheon on Thursday, 11 May, the detection of offensive missiles in North Vietnam was discussed. Higher authority asked for a proposal.

b. In response, the Agency prepared overnight a memorandum for discussion the following day, 12 May, before the 303 Committee. The memorandum was distributed at the meeting, and the discussion took the form of a briefing. Mr. Mark Wagner dealt with coverage requirements and the extent of current coverage. The second part of the briefing was an exposition by General Bacalis of a proposed use of OXCART to obtain the desired coverage. The discussion accompanied by charts, depicted a deployment schedule, priority search areas, tentative operational tracks, vulnerabilities, refueling, and kindred matters.

c. A number of detailed questions were asked. It was decided that Ambassador Kohler would address the question of political risks, and Mr. Vance stated that he would examine the intelligence background leading to any likelihood of the introduction of offensive missiles. Both principals would then refer their findings to the appropriate Secretaries.

d. While these steps were in progress, a second Tuesday luncheon was held on 16 May, and Mr. Rostow reported to the executive secretary that higher authority at that time gave his approval for immediate deployment and use. The deployment to Kadena Air Base from Site 51 was expected to take 13 to 15 days.

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e. The Interdepartmental Contingency Planning Committee is presently circulating its plan for members' approval. The Agency prepared OXCART Reconnaissance of North Vietnam (BYE 2369-67, 15 May 1967) as the basic operational document. This has been distributed to the principals.

f. The authority for photographic coverage of North Vietnam excludes any penetration of Mainland China.

(Signed)
Peter Jessup

Distribution
Ambassador Kohler
Mr. Vance
Mr. Helms

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DIRECTORATE OF
SCIENCE & TECHNOLOGY

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BLACK SHIELD Reconnaissance Missions

31 May - 15 August 1967

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BYE No. 44232/67
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22 September 1967

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WARNING

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BLACK SHIELD Reconnaissance Missions
31 May - 15 August 1967

DST-BS/BYE/67-1
22 September 1967

CENTRAL INTELLIGENCE AGENCY
Directorate of Science and Technology

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PREFACE

This report is the first of a series of resumes of the BLACK SHIELD reconnaissance missions flown over North Vietnam. This first resume spans the period from 31 May 1967 to 15 August 1967

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**BLACK SHIELD Reconnaissance Missions
31 May - 15 August 1967****SUMMARY**

Fifteen BLACK SHIELD high-altitude reconnaissance missions were alerted during the period from 31 May to 15 August 1967. Seven of the 15 missions were flown, four of which were detected and tracked; there were no mission aborts. (Appendix I lists these missions and related significant events.)

The program's success in its primary mission can be measured by the fact that the two BLACK SHIELD missions flown on 19 and 20 July provided clear photographic coverage of 80 percent of North Vietnam and nearly total clear coverage of the primary SSM search areas. This enabled NPIC to state, with 80 percent confidence, that there were no SSM sites in North Vietnam as of mid-July 1967.

The BLACK SHIELD program has also done well in obtaining baseline coverage. There is now clear, interpretable photography of all of North Vietnam except the Cao Bang - Lang Son area in the northeast adjacent to the Chinese border. (See samples of mission photography at the end of this report.) BLACK SHIELD photography has also been invaluable in providing unique order of battle information on fighter aircraft and surface-to-air missiles (SAMs). Several missions have obtained simultaneous coverage of all or nearly all the major airfields of North Vietnam and have made possible some significant refinements in the current air order of battle. The simultaneous coverage of SAM sites--more than 80 percent of the sites were covered by one mission--has given US forces in the theater of operations a quick and fairly comprehensive reading on which sites are occupied. It has also significantly supplemented communications intelligence in determining the actual number of SAM battalions in North Vietnam and the general level of SAM site occupancy.

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The program has contributed substantially to bomb damage assessment of point targets and to assessment of the interdiction effort against North Vietnamese road, rail, and water transportation. The BLACK SHIELD missions have identified new potential targets for US air strikes, and have also provided valuable information on Chinese military activity in North Vietnam and along the southern and western coasts of Hainan Island. Based on photography from back-to-back missions BX6709 and BX6710, the North Vietnamese rail inventory is now estimated to be approximately three times larger than previously believed. Photography of field artillery pieces at the Ping-hsiang, China, transshipment point has indicated the probable forward movement of these guns into North Vietnam.

Initial detection and track of a mission vehicle occurred on the third mission flown--BX6705. The Chinese tracked missions BX6705, BX6706, BX6709, and BX6710. Comint did not give any indication of North Vietnamese tracking; however, the Chinese did pass a portion of the track of BX6710 to the North Vietnamese. With the exception of mission BX6710, the BLACK SHIELD vehicle was not detected by the Chinese Communists until their radars had the benefit of the vehicle's broadside radar cross section. The accuracy of tracking in general has increased with each mission tracked. (Appendix III lists the number and type of radar signals recorded by the SIP and System 6 Elint collection systems.)

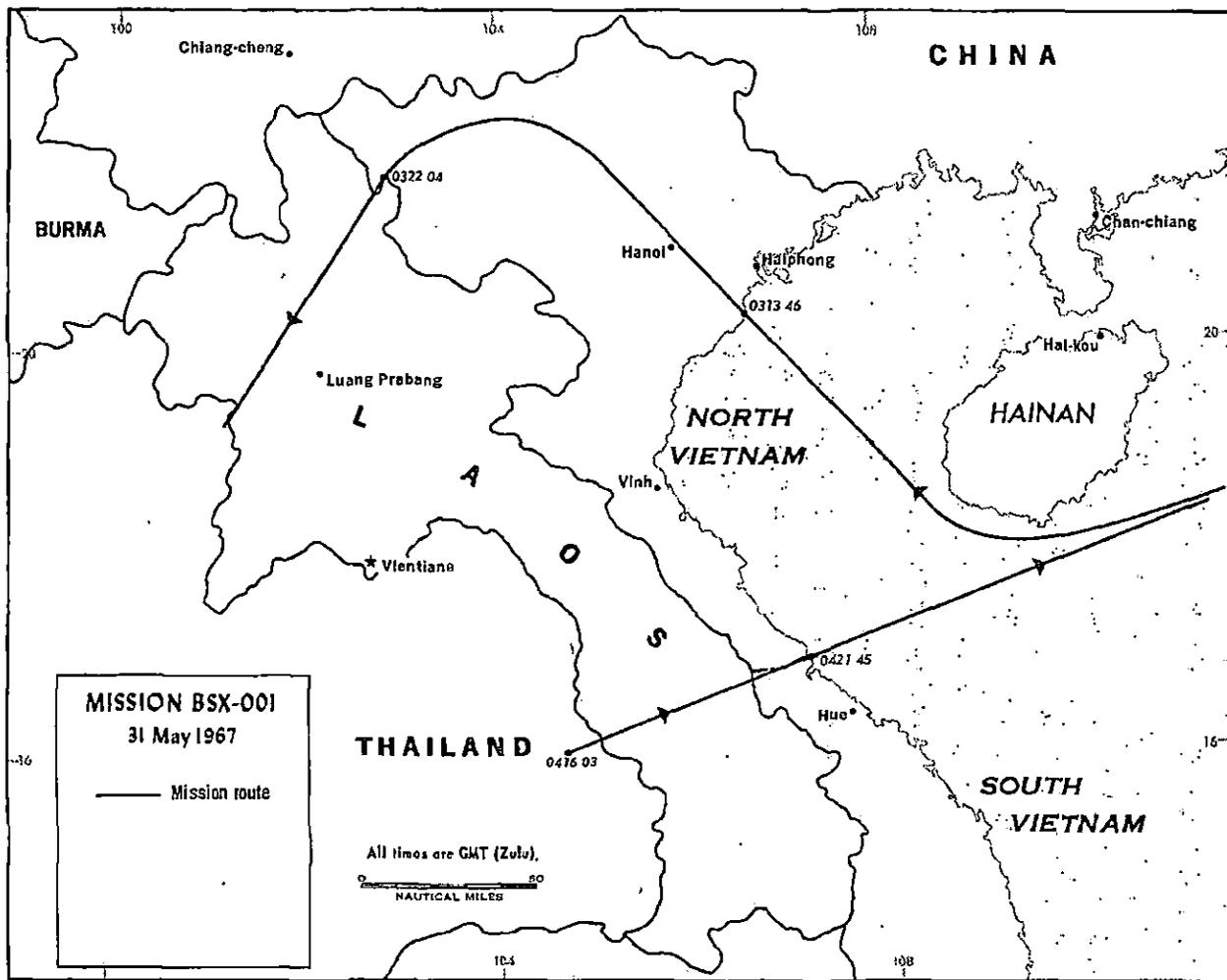
There were no known weapons reactions to any BLACK SHIELD missions despite the fact that the SAM environment overflown is known to be the densest in existence.

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MISSION ANALYSIS

BSX-001

BSX-001 was a single-pass reconnaissance mission flown over North Vietnam on 31 May 1967. The mission aircraft entered North Vietnam over Haiphong at 0313:46Z and exited over the demilitarized zone (DMZ) at 0421:45Z. Figure 1 shows the flight route.



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Figure 1

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Mission photography did not give any evidence of offensive surface-to-surface missile equipment (SSM) or facilities. There were 190 known North Vietnamese SA-2 sites before the mission. Seventy of these sites were photographed by BSX-001, as was the Chinese Naval Base at Yu-lin. Nine of the 27 COMIREX Priority I targets in North Vietnam were covered by this mission.

There was no indication of Chinese or North Vietnamese tracking. SIP, an Elint collection system, did not record any FAN SONG signals. There was no indication of a weapons reaction while the mission aircraft was over hostile territory.

The Department of Defense (DOD) strike/jamming operations during the mission flight period were light. No EB-66B or EB-66C jamming aircraft were operational during the reconnaissance mission.

BSX-003

BSX-003 was a single-pass reconnaissance mission flown over North Vietnam on 10 June 1967. The mission aircraft entered North Vietnam over Haiphong at 0410:52Z and exited at 0419:41Z. Figure 2 is a plot of the flight route.

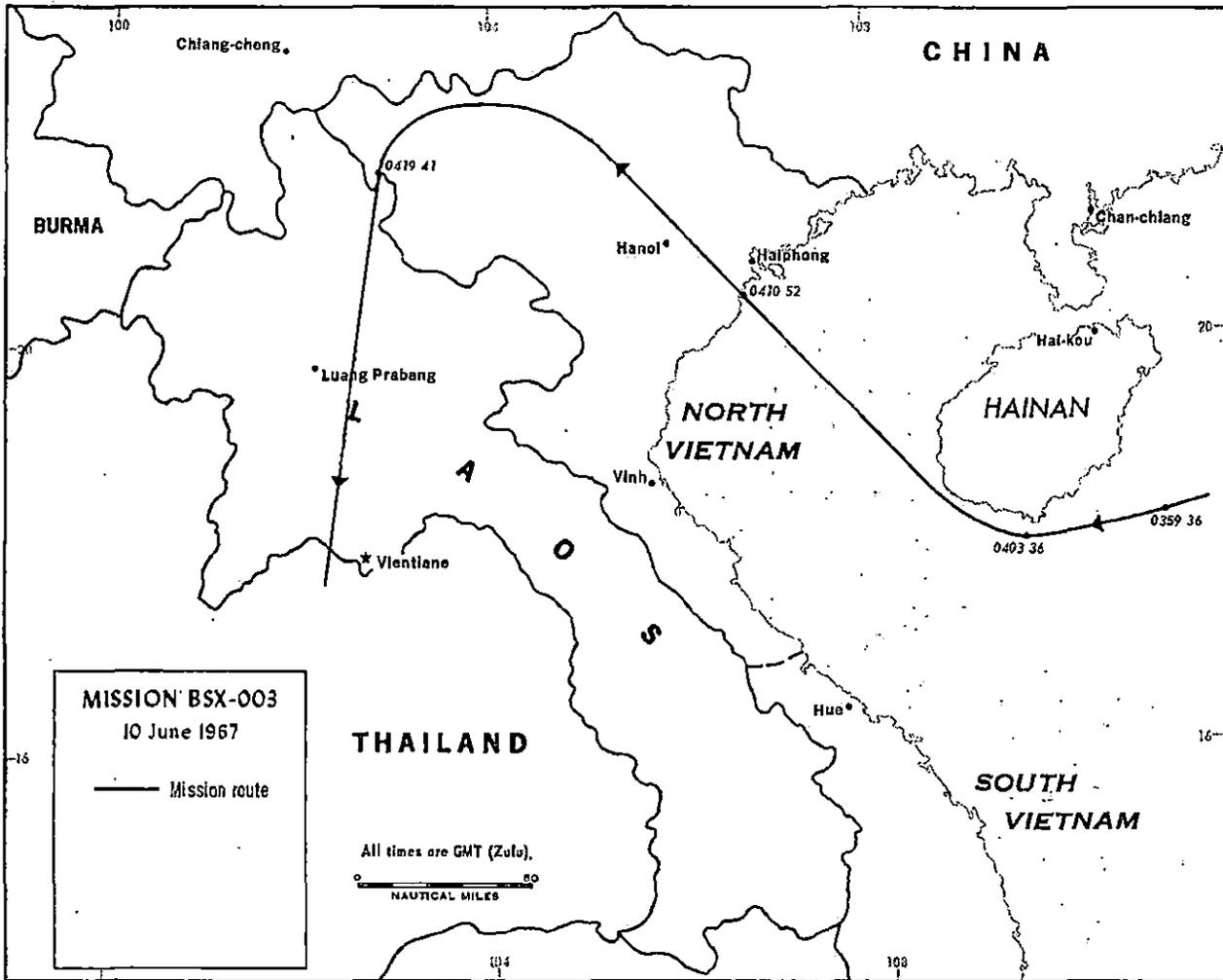
Mission photography did not give any evidence of offensive SSM equipment or facilities. There were 193 known North Vietnamese SA-2 sites before the mission. Ninety-seven of these sites were photographed by BSX-003, including four previously unidentified sites. Of the SA-2 sites photographed, 18 were occupied. Thirteen of the 27 COMIREX Priority I targets in North Vietnam were covered on this mission.

There was no indication of tracking or a weapons reaction by either the Chinese or the North Vietnamese. SIP, an Elint collection system, did not record any FAN SONG signals. The DOD operational strike/jamming activity was heavy during the overflight period. Four EB-66C and one EB-66B aircraft conducted barrage and spot jamming during this period, affecting numerous early warning and fire control radars.

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Figure 2

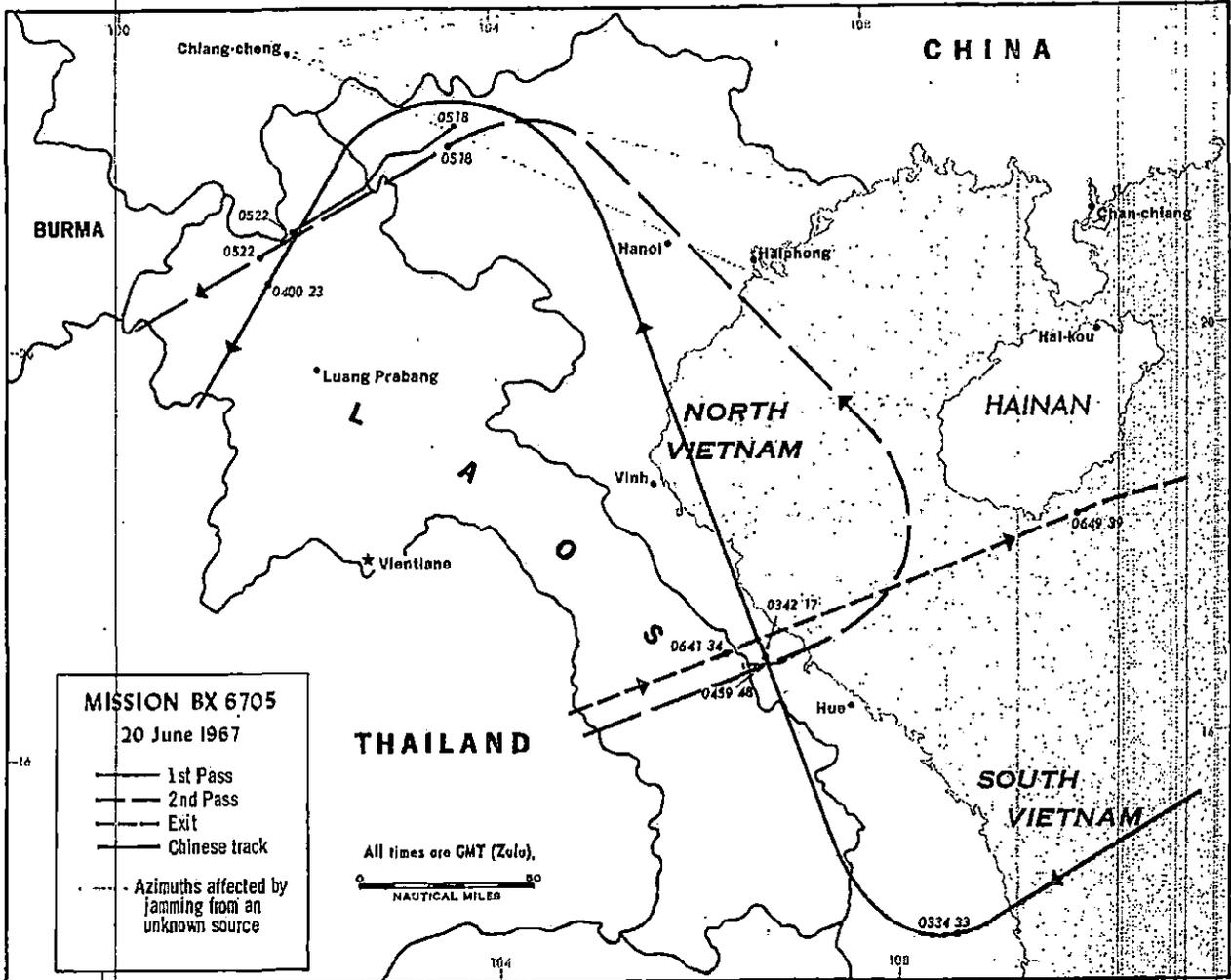
BX6705

BX6705 was a double-pass reconnaissance mission flown over North Vietnam on 20 June 1967. The mission aircraft penetrated and exited over the DMZ at 0342:17 Z and 0641:58 Z, respectively. Figure 3 shows the mission route and associated events.

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Figure 3

Mission photography did not give any evidence of SSM equipment or facilities in North Vietnam. There were 200 known North Vietnamese SA-2 sites before the mission. One hundred and thirty three sites were photographed by BX6705 including two previously unidentified sites. Of the sites covered, 20 were occupied. Seventeen of the 27 COMIREX Priority I targets in North Vietnam were covered.

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There were no known hostile weapons reactions to the mission aircraft. SIP, an Elint collection system, did not record any FAN SONG signals. The pilot did exercise the Big Blast* manual jam override while adjacent to Hainan Island on the return leg of the route.

The first known tracking of BLACK SHIELD aircraft occurred on this mission. It was reported by Chiang Cheng, a Chinese Communist radar facility located at 22°45'N, 101°50'E. This radar facility passed eight position points and eight altitudes from 0518Z to 0522Z. The initial detection range and the final radar-to-vehicle distances were respectively, 86 nautical miles and 82 nautical miles. The known equipments for this radar station consist of a MOON FACE radar and a ROCK CAKE radar. Chiang Cheng reported jamming from an unknown source on its MOON FACE radar at 0509Z on azimuth bearings from 075-080 degrees. Jamming from an unknown source also affected the ROCK CAKE heightfinder radar at 0513Z on azimuth bearings from 105-115 degrees. These azimuths, relative to the heightfinder, bracket the second leg of the mission flight path and are indicated in figure 3. The ROCK CAKE radar operator was probably influenced by this jamming activity and, in searching these azimuths to identify the originator of the activity, detected and subsequently tracked the mission aircraft. The fact that altitudes were reported with each valid plot position supports the tentative conclusion that the mission was tracked by the Chiang Cheng ROCK CAKE heightfinder radar.

No DOD operational reporting available accounts for the above jamming activity. No BLACK SHIELD aircraft jammers were operated during this period. SIP, an Elint collection package, was inoperable during the tracking period and thus it was impossible to correlate the tracking data from the radar stations and the Elint data.

*Big Blast, an on-board defense mechanism, will transmit S- and C-band noise energy for approximately 90 seconds.

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The radar facility also rebroadcast the track information to Kun-ming some 14 hours after the mission flight. There was no indication of North Vietnamese tracking or the passage of tracking data to the Vietnamese. DOD strike activity was very light during the mission overflight.

BX6706

BX6706 was a double-pass reconnaissance mission flown over North Vietnam on 30 June 1967. The mission aircraft entered Vietnam north of Haiphong at 0415:45Z and exited over the DMZ at 0644:41Z. Figure 4 shows the flight route and associated events.

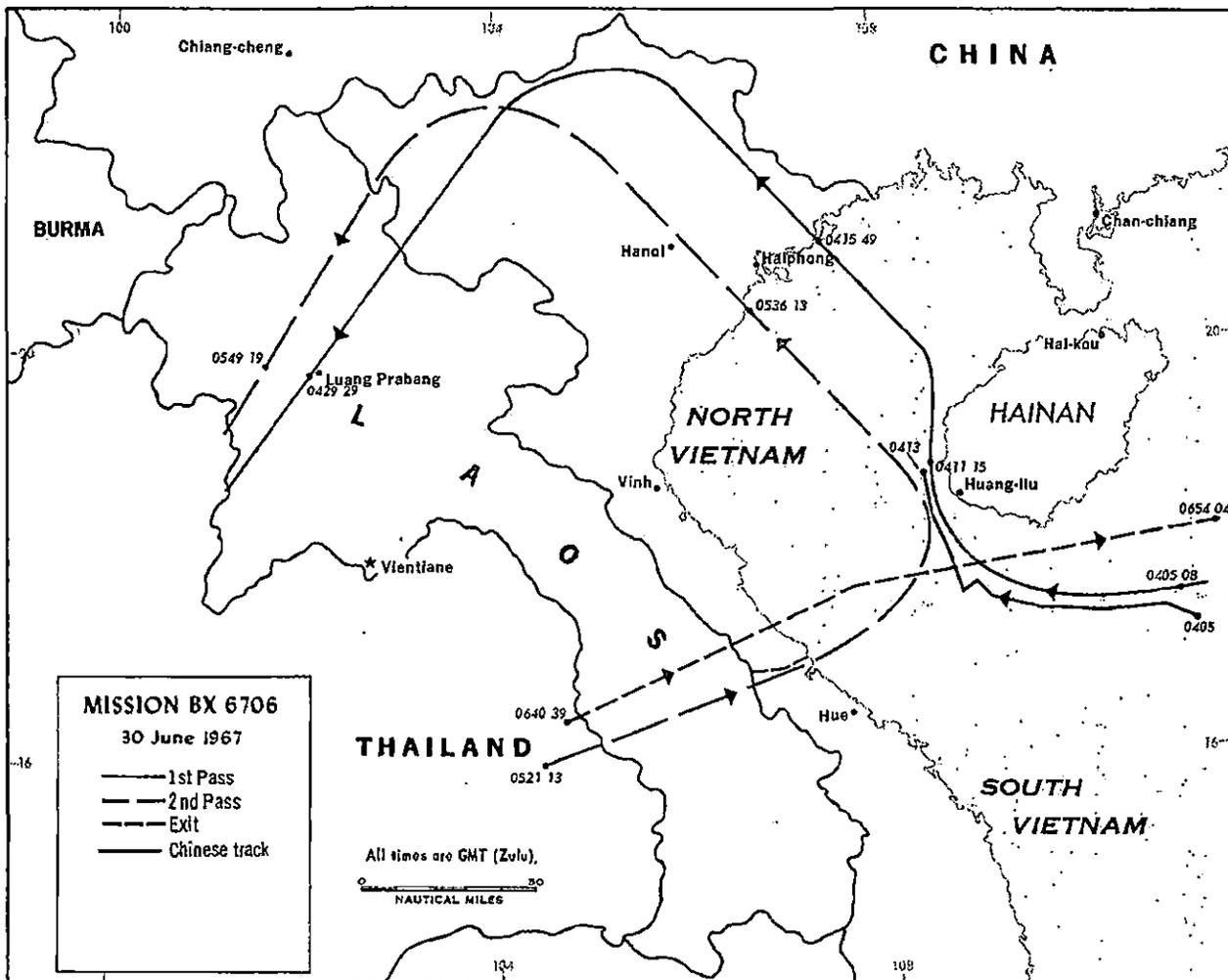
Mission photography did not give any evidence of SSM equipment or facilities. There were 205 known North Vietnamese SA-2 sites before the mission. One hundred and nine sites of these were photographed by BX6706 including three previously unidentified sites. Sixteen of the sites which were photographed were occupied. Twenty-one of the 27 COMIREX Priority I targets in North Vietnam were covered.

There was no indication of a hostile weapon reaction. System 6, an Elint collection package replacing SIP, recorded six FAN SONG signals during the mission overflight. None of these signals suggested tracking of the mission aircraft. No defensive systems were activated as a result of this activity. Haikou, a Chinese air defense zone facility located on Hainan Island at 20°02'N, 110°17'E, reported mission track information thirteen and a half hours late. The reported aircraft track times were from 0405Z to 0413Z as shown in figure 4. No altitudes were reported and the tracking radar station(s) were unidentified. Considering the region in which the mission was tracked and the fact that all radar tracks on Hainan Island report information to Haikou for rebroadcast, it seems most probable that the tracking radar was located on Hainan Island. There is no indication that this track information was passed to the North Vietnamese. An EA3B, Elint collection platform, in orbit during the overflight period, did intercept ROCK CAKE signals emanating from the Huang-liu area of Hainan Island. The time frame and duration of the intercept signals compared favorably with those of

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the track period. This may have been the radar station tracking the mission aircraft. In the time period from 0530Z to 0540Z, System 6, an Elint collection device, recorded a probable BIG MESH V-beam S-band radar changing scan modes from circular to steady to circular. This may be an indication of possible radar operator interest in the mission aircraft or interest in the volume of space in which the mission aircraft happened to be. Comint does not give any indication of North Vietnamese tracking during this period.

There were no known DOD strike/jamming operations being conducted during the mission overflight period.



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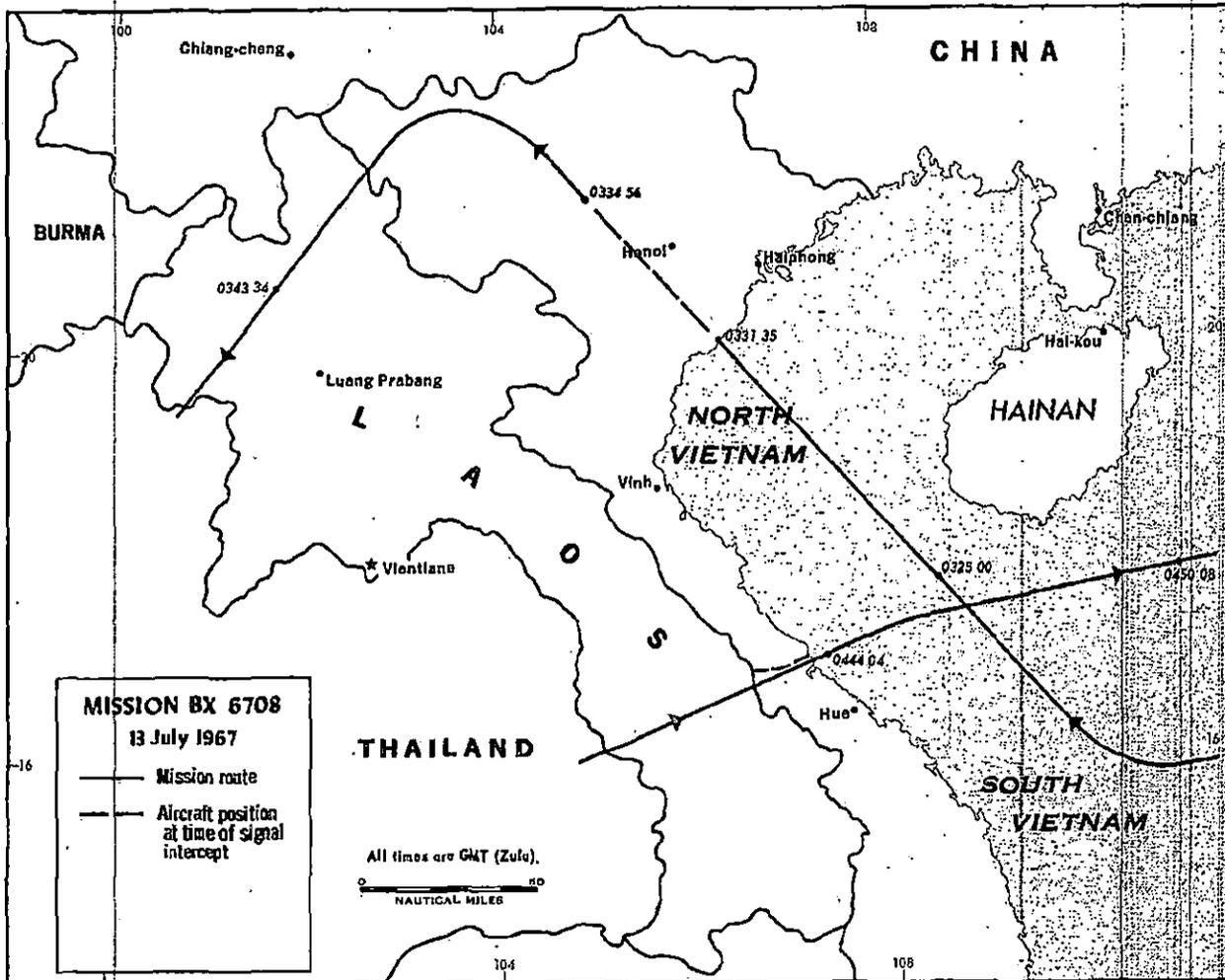
9 Figure 4.

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BX6708

BX6708 was a single-pass, high-altitude reconnaissance mission flown over North Vietnam on 13 July 1967. The mission aircraft entered North Vietnam south of Haiphong at 0331:35Z and exited over the DMZ at 0442:03Z. Figure 5 is a map of the mission route and shows associated events.



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Figure 5

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Mission photography did not show any evidence of SSM equipment or facilities. There were 214 known North Vietnamese SA-2 sites before the mission. Seventy-one were photographed by BX6708 including one previously unidentified site. Of the 71 sites covered, five were occupied. Eight of the 27 COMIREX Priority I targets in North Vietnam were covered.

There was no indication of a hostile weapons reaction. System 6 recorded four FAN SONG signals during this mission. These signals did not appear to be tracking the mission aircraft. None of the defensive systems were activated as a result of these signals. There was no Comint intercept evidence of mission tracking by either Chinese or North Vietnamese radar facilities. Analysis of System 6 records indicate that two probable BIG MESH, V-beam, S-band radars changed scan modes from circular to manual to circular. Although these changes in scan mode may indicate an interest in that volume in space in which the mission aircraft was located, there is no Comint evidence that would indicate tracking by either the North Vietnamese or the Chinese. Figure 5 indicates aircraft position at time of intercept.

There was little or no DOD strike/jamming activity while the mission aircraft was over North Vietnam. One EB-66C, an Elint collection active jamming platform, was orbiting the area during the mission overflight period. Overall signal density was light.

BX6709

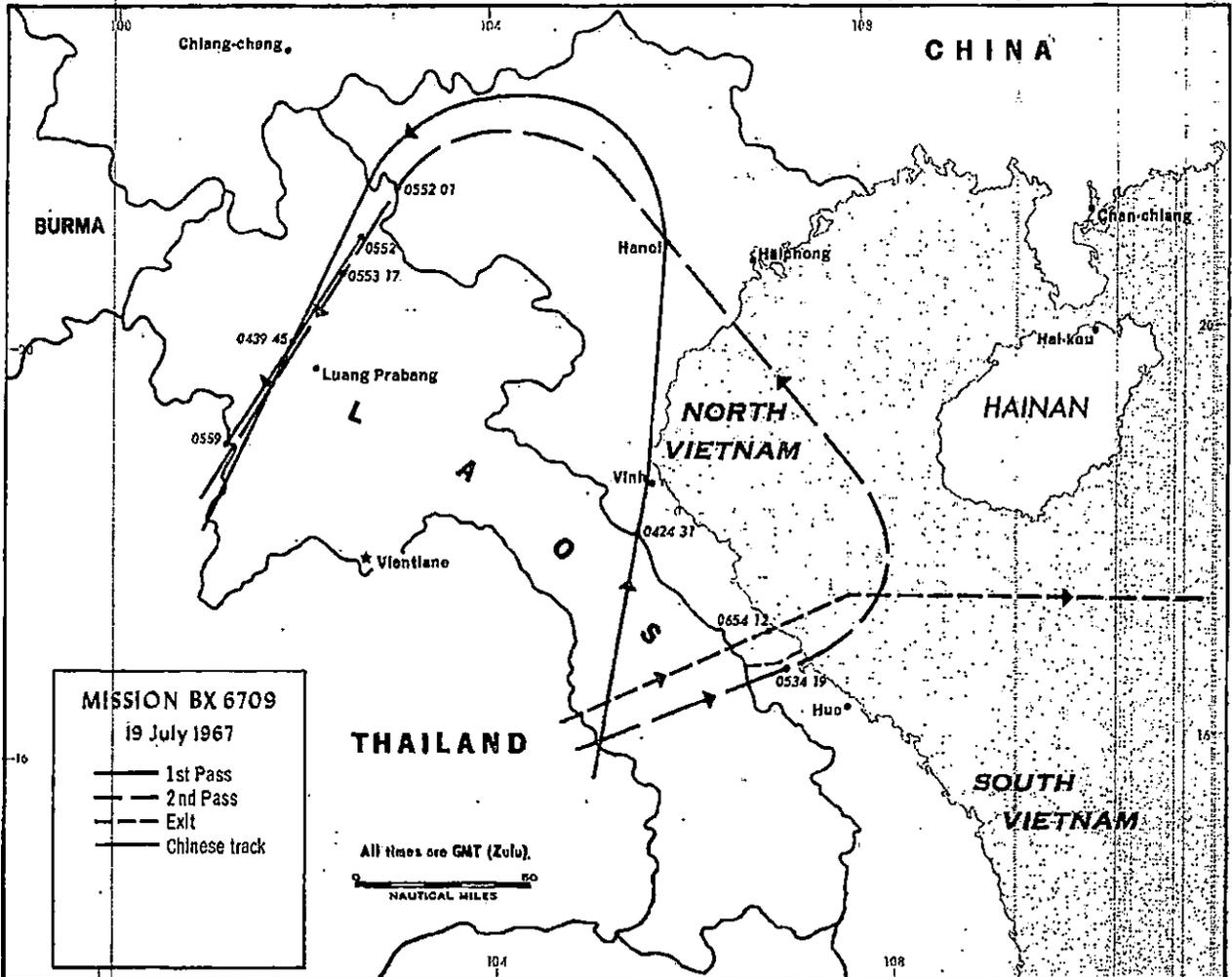
BX6709 was a double-pass, high-altitude reconnaissance mission flown over North Vietnam on 19 July 1967. The mission aircraft entered North Vietnam over Vinh at 0424:31Z and exited over the DMZ at 0654:12Z. Figure 6 shows the mission flight route and notes significant events.

Mission photography did not give any evidence of SSM equipment or facilities. There were 215 known SA-2 sites in North Vietnam before the mission. One hundred and sixty-six sites were photographed by BX6709 including two previously unidentified sites. Of the 166 sites photographed, 12 were occupied. Twelve of the 27 COMIREX Priority I targets in North Vietnam were covered.

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Figure 6

There was no indication of a hostile weapons reaction. System 6 recorded nine FAN SONG radar signals during this mission. These signals did not appear to be tracking the mission aircraft. None of the defensive systems were activated as a result of these signals. Chiang Cheng, a Chinese radar station located at 22°45'N/101°50'E, was reflected reporting track information on the mission aircraft. The initial and final plot distances to the

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radar station were 110 and 230 nautical miles, respectively. Initial and final plot times were respectively 0552Z and 0559Z resulting in seven minutes of continuous tracking. The track plot is compatible with the mission flight route, but reported altitudes ranged from 8,000 to 11,000 feet higher than the actual mission aircraft altitude. The type of radar generating these errors was not identified. There was no indication that this track information was provided to the North Vietnamese.

DOD strike/jamming activity was moderately heavy during the mission overflight time period. United States ECM aircraft in operation in the area during the mission overflight period were: two EA3B's, three EALF's, one EB-66C, and one EB-66B.

BX6710

BX6710 was a double-pass, high-altitude reconnaissance mission flown over North Vietnam on 20 July 1967. The mission aircraft entered North Vietnam north of Haiphong at 0367:00Z and exited over the demilitarized zone at 0628:33Z. Figure 7 shows the mission route and associated events.

Mission photography did not give any evidence of SSM equipment or facilities. There were 219 known SA-2 sites in North Vietnam before the mission. Eighty sites were photographed by BX6710 including one previously unidentified site. Of the 80 sites covered, five were occupied. Nineteen of the 27 COMIREX Priority I targets in North Vietnam were covered.

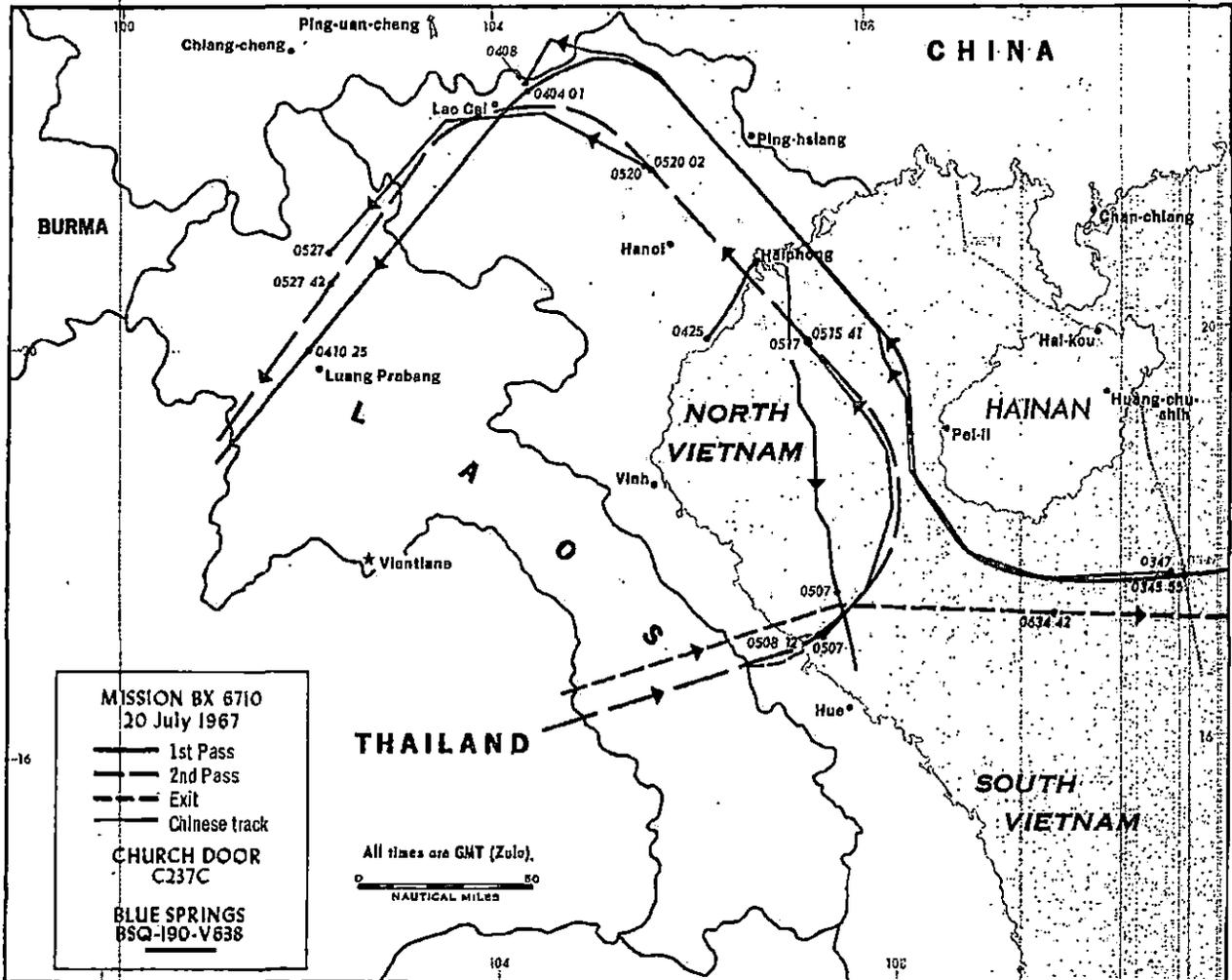
A reassessment of North Vietnam's rail inventory from the photography of back-to-back missions BX6709 and BX6710 indicates that the Vietnamese have a rail inventory approximately three times larger than previously believed. On the basis of this photography North Vietnam is now estimated to have 2,000 to 3,000 freight cars and 100 to 120 locomotives. Photography of the Ping-hsiang, China (22°06'N, 106°44'E) transshipment point from missions BX6709 and BX6710 showed that approximately 100 to 130 field artillery pieces of unknown caliber were on a nearby railroad siding. These artillery pieces are enough to equip two to three regiments and are most probably destined for use in North Vietnam.

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Figure 7.

There was no indication of a hostile weapons reaction to the mission aircraft. System 6 did not record any FAN SONG signals during this overflight. Two other high-altitude reconnaissance missions were operational during the BX6710 overflight. The flight routes of Church Door C237C and Blue Springs BSQ-190-V638 are shown in figure 7. Mission C237C was tracked almost continuously while in the South China area. BSQ-190 was tracked continuously

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while over North Vietnam and the Gulf of Tonkin. Chinese air defense facilities reported track plot times on BX6710 of 0347Z to 0410Z, 0507Z to 0518Z and 0520Z to 0527Z. The reported altitudes were compatible with those of the BLACK SHIELD aircraft. Two Chinese radar stations reported track information. Huang-chu-shih's (19°29'N, 110°22'E) initial plot occurred at 0349Z at a range of 120 nautical miles and the final plot occurred at 0351Z at a range of 130 nautical miles. Ping-uan-cheng's (23°42'N, 103°50'E) initial plot occurred at 0524Z at a range of 110 nautical miles and the final plot at 0527Z at a range of 210 nautical miles.

At approximately 0346Z the BX6710 mission path crossed the path of the continuously tracked C237C flight. The Chinese broadcast facilities reported an initial plot point of the BX6710 vehicle at 0347Z. A similar phenomenon appears to have occurred over the Gulf of Tonkin where the Chinese Pei-li radar station (19°08'N, 108°43'E) was reflected reporting track information on Blue Springs Mission BSQ-190. At 0507Z, BX6710 appears to have entered the radar region in which the Blue Springs vehicle was being tracked. The initial plot point of the second pass was reported by Chinese facilities to have occurred at 0507Z. It appears at least in these two instances that a path crossing with an identified tracked vehicle enhanced the initial detection capability of the radar operator. In the past, initial radar detection appears to have occurred at about the time the radar station has had the benefit of the vehicle's broadside radar cross-section. Hanoi Bac Mai (21°02'N/105°53'E) reported track plot times of 0455Z to 0511Z on the receding vehicle of mission C237C. The Chinese passed BX6710 track plot time data of 0507Z to 0518Z to the North Vietnamese via the Kuang-chou-DRV liaison link. Hanoi Bac Mai reported BX6710 track plot time data of 0511Z to 0518Z. Considering the sequence of events it seems unlikely that the Hanoi Bac Mai hostile broadcast was a reflection of Vietnamese radar tracking, but rather that the broadcast was a rebroadcast of Chinese BX6710 tracking. In any event, this is the first known instance of actual North Vietnamese knowledge of a mission vehicle flight.

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DOD strike/jamming operations were light during the mission overflight period.

Cancelled flights

During the period 31 May to 15 August 1967, the following BLACK SHIELD reconnaissance missions were alerted but cancelled because of the poor weather in the target area: BSX-002, 6 June; BX6704, 10 June; BX6707, 30 June; BX6711, 29 July; BX6712, 30 July; BX6713, 13 August; and BX6714 and BX6715, both on 14 August.

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APPENDIX I

BLACK SHIELD Operational Missions Alerted Between
31 May and 15 August 1967

<u>Mission No.</u>	<u>Date (1967)</u>	<u>Remarks</u>
BSX-001	31 May	Flown (Rt. 4)
BSX-002	6 June	Cancelled due to weather (Rt. 4)
BSX-003	10 June	Flown (Rt. 10)
BX6704	10 June	Cancelled due to weather (Rt. 11)
BX6705	20 June	Flown (Rt. 8)
BX6706	30 June	Flown (Rt. 14)
BX6707	30 June	Cancelled due to weather (Rt. 19)
BX6708	13 July	Flown (Rt. 19, modified)
BX6709	19 July	Flown (Rt. 9, modified)
BX6710	20 July	Flown (Rt. 14, modified)
BX6711	29 July	Cancelled due to weather (Rt. 14)
BX6712	30 July	Cancelled due to weather (Rt. 19)
BX6713	13 August	Cancelled due to weather (Rt. 20 A+B)
BX6714	14 August	Cancelled due to weather (Rt. 20 C+D)
BX6715	14 August	Cancelled due to weather (Rt. 20 A+B)

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APPENDIX II

Date and Mission Number

Item No.	COMIREX No.	31	10	20	30	13	19	20
		May 01	Jun 03	Jun 05	Jun 06	Jul 08	Jul 09	Jul 10
1	1J37		X					
2*	2C184	X	X	X	X			X
3* **	2C185	X	X	X	X		X	X
4*	2C186	X	X	X	X	X	X	
5*	2C187	X	X	X	X	X	X	X
6* **	2C190		X	X	X	X	X	X
7*	2C221				X			X
8*	2C367		X	X	X		X	X
9	2C954			X		X		
10*	2C967	X	X	X	X	X	X	
11	2C968			X				
12* **	4C28	X	X	X	X			X
13*	4C110				X			X
14*	4C111A				X			
15	4C111B				X			
16*	4C112			X			X	
17	5E09			X				
18	7A1473				X			X
19	7A1486			X				
20	7A1596				X			X
21	7A1602							X
22	7A1603		X	X	X		X	X
23	7A1605						X	X
24	7A1606		X	X	X		X	
25	7C3		X	X		X	X	
26	7C4	X	X	X	X	X	X	X
27	7C5	X		X		X	X	
28	7C6				X			X
29	7C7				X			X
30	7C8			X	X		X	X

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APPENDIX II (continued)

Item No.	COMIREX No.	31	10	20	30	13	19	20
		May 01	Jun 03	Jun 05	Jun 06	Jul 08	Jul 09	Jul 10
31	7C9	X	X	X	X	X	X	
32	7C10	X	X	X	X	X	X	
33*	7C12			X	X			X
34* **	8A46				X			X
35*	8A48		X	X	X		X	X
36*	8A49				X			X
37*	8A50		X	X	X			X
38*	8A51				X			X
39*	8A52							
40*	8A407				X			X
41*	8A414		X	X		X	X	
42*	8A415			X		X		
43*	8A416	X		X	X			X
44* **	8B353	X	X	X	X		X	X
45* **	8B366				X			X
46* **	8B367			X	X	X	X	
47* **	8B368	X	X	X		X	X	
48* **	8A423							X

*Indicates Priority I Targets in North Vietnam.

**Indicates SSM Indicator Targets

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APPENDIX III

Radars Signals Recorded by BLACK SHIELD Missions
31 May - 15 August 1967

Mission	No. of Signals	Radar Type
SIP recorded radar signals		
BSX-001	0	FAN SONG
31 May 1967	6	Possible SPOON REST. A
	5	Possible TOKEN/BIG MESH

BSX-003	0	FAN SONG
10 June 1967	3	Possible TOKEN/BIG MESH

BX6705	0	FAN SONG
20 June 1967	1	Possible CROSS SLOT
	1	Possible TOKEN/BIG MESH

System 6 recorded radar signals		
BX6706	6	FAN SONG
30 June 1967	6	BIG MESH
	10	ROCK CAKE
	2	TOKEN/V-BEAM
	7	CROSS SLOT
	1	FIRE CAN
	2	FLAT FACE

BX6708	4	FAN SONG
13 July 1967	4	BIG MESH
	4	TOKEN/V-BEAM
	3	SPOON REST A
	4	FLAT FACE
	1	MOON CONE
	1	ROCK CAKE
	1	FIRE CAN

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APPENDIX III (continued)

<u>Mission</u>	<u>No. of Signals</u>	<u>Radar Type</u>
BX6709 19 July 1967	9	FAN SONG
	1	BIG MESH
	3	TOKEN/V-BEAM
	9	ROCK CAKE
	4	MOON CONE
	7	FLAT FACE
	2	MOON FACE
	5	FIRE CAN
	1	CROSS LEGS
	4	CROSS SLOT
BX6710 20 July 1967	0	FAN SONG
	0	BIG MESH
	4	TOKEN/V-BEAM
	11	ROCK CAKE
	9	FLAT FACE
	6	MOON CONE
	16	MOON FACE
	7	CROSS SLOT
	4	FIRE CAN
	4	WHIFF

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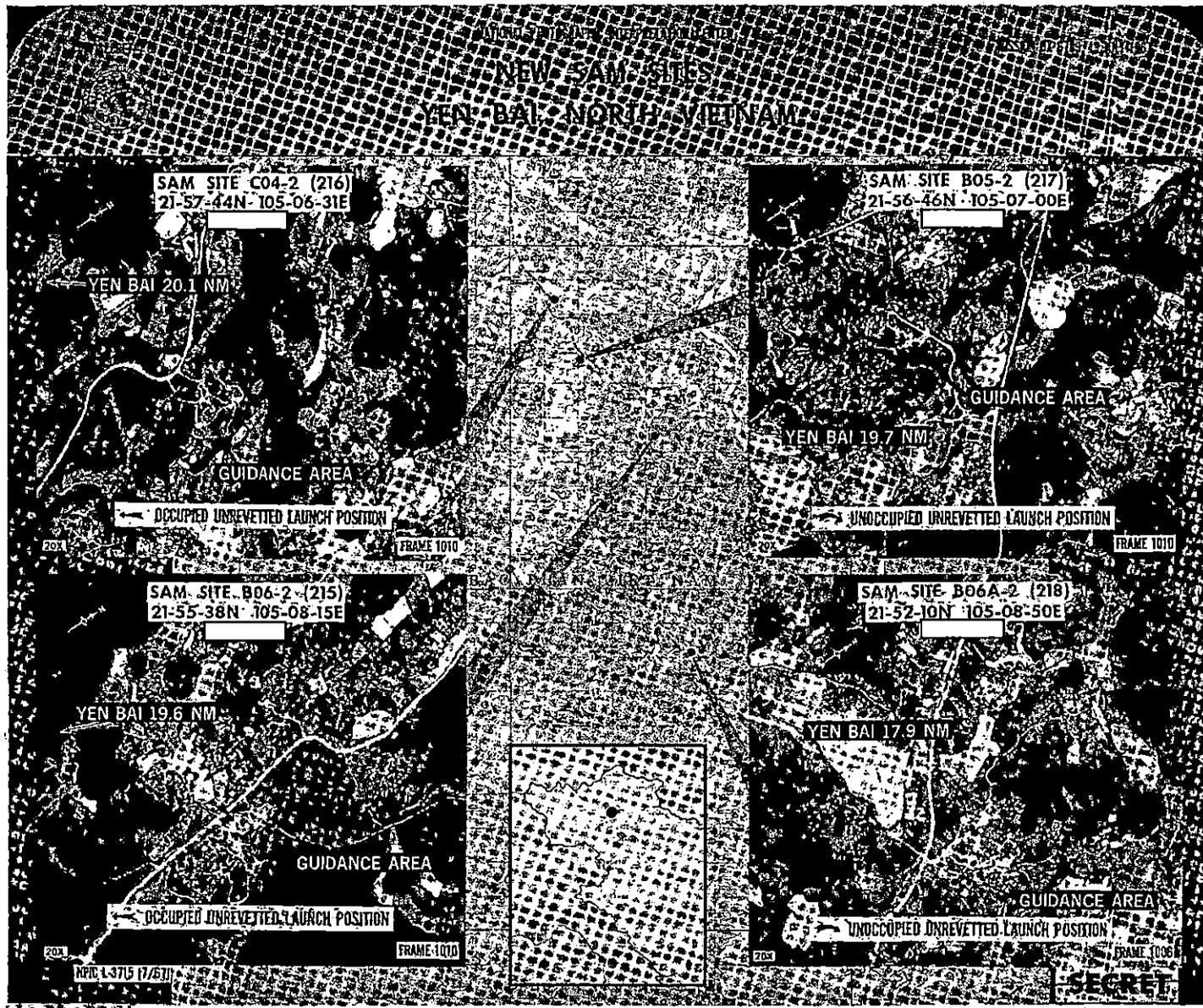


Figure 10





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