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SP-3

September 6, 1977

MEMORANDUM FOR THE CHAIRMAN

RE: Review of National Reconnaissance Program

By directive dated June 8, 1976, the Committee requested that a review be initiated of the National Reconnaissance Program (NRP).

The review has been completed and the results are included in the attached report. The report is classified TOP SECRET - HANDLE VIA BYEMAN-TALENT-KEYHOLE-COMINT CONTROL SYSTEMS JOINTLY because it contains information so classified by the Department of Defense.

Respectfully submitted

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Surveys and Investigations Staff
House Appropriations Committee

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SUMMARY, OBSERVATIONS, AND RECOMMENDATIONS

The Investigative Staff is presenting the following summary of the study on the National Reconnaissance Program (NRP) as well as specific observations and recommendations for consideration by the Committee in its overall evaluation of the program. Further details are set forth in Chapters I through VIII of this report.

A. Summary

The NRP mission includes the development, acquisition, management, control and operation of reconnaissance satellites collecting photographic and signals intelligence (SIGINT) in response to requirements established by the intelligence community. These functions are performed by the National Reconnaissance Office (NRO) as the management agent for the NRP. The NRO is not involved in processing, dissemination and exploitation of the intelligence product from NRP satellites.

1. Background

Impetus for accelerating reconnaissance satellite development was provided by the termination of aircraft photographic reconnaissance over the Soviet Union following the downing of a U-2 aircraft in May 1960. The President ordered a National Security Council (NSC) study to determine the potential of satellite reconnaissance. This study, together with a successful, one-day photographic mission by a satellite over Russia, inspired a Presidential decision to proceed with development of a new satellite under a special management structure.

Early satellite systems evolved into the current series of imaging and SIGINT satellites. Successful missions and useful life of satellites have dramatically increased from the inception of the NRP. Under NRO management, there were 291 launches of which 238 successfully performed entire missions. Six satellites failed to achieve orbit in the past 11 years, whereas nine failures occurred during the previous 5 years. Mission life of imaging satellites, for example, has increased from an average of about 2 days in 1962 to 154 days in 1976 for one type and from less than 5 days in 1964 to 69 days in 1977 for another.

The Air Force and CIA were granted joint managerial responsibility for direction and control of the NRP and the NRO was formally established in 1961. A reorganization of the NRP in 1965 resulted in the designation of the Secretary of Defense as executive agent, establishment of NRO as a separate DOD agency, and creation of a three-man Executive Committee to guide and participate in the formulation of the NRP.

The 1965 agreement between the Secretary of Defense and the Director of Central Intelligence (DCI) effecting this reorganization constitutes the present NRO charter. This charter has not been updated despite Presidential reorganizations of the intelligence community in 1976 and 1977, which affected the NRO. The 1965 charter also contains obsolete provisions, such as NRO's responsibility for aircraft reconnaissance. A new draft charter, prepared in early 1976, has not yet been approved due to reported high-level disagreements. Absence of an updated charter could have an adverse effect on NRO operations in the future.

NSC Intelligence Directive 6, effective February 17, 1972, contains a paragraph on responsibilities of NSA and NRO concerning SIGINT satellites. While the NSA Director felt it clearly delineated respective responsibilities, other ranking intelligence officials recommended redefinition of NRO/NSA responsibilities due to its ambiguity. Concern was also expressed that good NRO/NSA working relationships might deteriorate to former levels through misinterpretation of the directive's intent.

The NRO employs the streamlined management concept, with extensive responsibilities being delegated at all levels. NRO headquarters is composed of the DNRO and his deputy, a comptroller and two assistants, and a staff of about 73 personnel on selected assignment from the three military departments, CIA, and NSA. Also, communications support is provided by about 25 personnel from the Air Force Communications Service.

Field elements consist of Program A (Air Force), Program B (CIA) and Program C (Navy), whose directors report directly to the DNRO. They have considerable autonomy in discharging full responsibilities for design through operations of their respective satellite programs.

2. Operational Systems and Affiliated Programs

NRP satellites make a major contribution to U. S. intelligence collection through frequent, worldwide access to denied areas. Imaging satellites include the HEXAGON and GAMBIT photographic reconnaissance systems and the KENNEN electro-optical system. SIGINT satellites include the [redacted] P-989, [redacted] and POPPY [redacted]

a. Imaging Satellites

HEXAGON and GAMBIT low-orbiting satellites are film return systems wherein film buckets are ejected from spacecraft when full and retrieved by aircraft over the Pacific Ocean. HEXAGON is a search and

surveillance system providing medium resolution photography. Its main contributions are monitoring Soviet adherence to SALT provisions and search for newly deployed targets. GAMBIT is a surveillance system providing high resolution photography of certain targets representing a specific intelligence problem. All 13 HEXAGON launches to date have been successful and all film buckets, with one exception, have been recovered. Out of 48 GAMBIT launches since 1966, four satellites did not perform their mission due to booster failure or complete loss of film, and two other satellites performed 50 percent of their mission as one film bucket from each was lost. The future of the HEXAGON and GAMBIT systems may be determined by an ongoing evaluation of the new KENNEN system to be completed by November 1977.

The first KENNEN was launched in December 1976 and commenced operations the next month.

KENNEN imagery to date has exceeded expectations in terms of quality.

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The KENNEN and other imaging systems are being evaluated for consideration by the Policy Review Committee (PRC) in its November 1977 decision on the proper mix of future imaging satellites. The outcome

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b. SIGINT Satellites

NRP SIGINT satellites collect COMINT, ELINT, foreign instrumentation signals, and infrared intelligence. Although optimized for a specific collection mission, they have the capability to collect other intelligence as well.

NRO officials denied the upgrade effort was tied in with the recommendation for a three-satellite system and to provide greater support to tactical commanders. They maintained that, irrespective of such benefits, modernization was required to (1) permit automatic processing of collections from new "exotic" emitters, (2) scan frequency ranges rapidly and identify signals, and (3) handle expanding requirements for technical intelligence.

P-989 SIGINT satellites provide general search, electronic order-of-battle (EOB), technical intelligence and COMINT. They are launched as passenger payloads on HEXAGON into low orbit and are tasked [redacted] These satellites were all placed into orbit between January 1972 and July 1976.

There are now six P-989 satellites on orbit, including three URSALAs, MABELI, RAQUEL and TOPHAT. Of this number, only URSALA 3 is successfully performing its full ELINT mission. URSALA 1 operations ceased a year ago due to severe degradation and it is only occasionally monitored for health or engineering tests. URSALA 2 lost its pulse receiver and can be used only for detection of [redacted] MABELI is so seriously degraded that it performs very little of its mission to collect technical intelligence on ABM radars. TOPHAT has a COMINT collection mission and is in fair condition, but it is now primarily tasked against the aforementioned special Soviet signal. RAQUEL is also severely degraded and is now being used primarily to search for emitters operating in high frequency bands.

The P-989 baseline program provides for replacements only of RAQUEL and URSALA 3 in March 1978 and March 1979, respectively. It also supports acquisition of a SIGINT experimental pallet for a 1979 HEXAGON launch to search for radars emitting in extremely high frequency bands. Total estimated cost for this effort through FY 1980 is $8 million.

The P-989 collections are transmitted to four remote tracking stations along the satellite's path and are then relayed by [redacted] forwards to NSA. Two other tracking stations are also used to control and command the spacecraft. These stations support other space programs as well.

In early 1976, processing of P-989 collections became a one-shift operation causing a large backlog. Only highest priority signals were processed and the backlog was modulated by destroying

certain data. Return to a three-shift operation in November 1976 plus an additional computer eliminated the backlog.

The P-989 system acquisition strategy recommended in a May 1976 ELINT Interaction Study is supported by NRO. It basically calls for continuance of the present P-989 program until replaced by an improved, low-orbiting system [redacted] A ranking DOD official agreed with this approach, but had recommended acceleration of the follow-on program, termination of P-989 in FY 1979 with no further procurements, and transfer [redacted] NRO officials maintained that disadvantages outweighed advantages of such a transfer and that a study indicated that it would not be cost effective. However, there is no technical reason precluding the [redacted] function regarding P-989.

A possibility for future consideration is to relay P-989 collections to a single mission ground station via a high-orbiting satellite, thus eliminating the need for remote tracking stations.

Other intelligence officials also favored P-989 retention until replaced by an advanced system on the basis it [redacted] Unique P-989 capabilities include high frequency and worldwide coverage, detection of moving target signals and of more sophisticated transmission modes, collection of [redacted] and geopositioning emitters with a single satellite. These capabilities apply to the combination of RAQUEL 1 and URSALA 3 and to their successors. TOPHAT is primarily tasked against a specific signal in lieu of COMINT, while other P-989 satellites are too degraded to perform more than a small portion of their missions.

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A POPPY plane [redacted] The last plane, launched in December 1971, is still operational although some frequency channels are lost and its power supply is deteriorating.

[redacted]

Tasking of the degraded POPPY system has been considerably reduced and processing of its collections is done on a noninterference basis [redacted] A target vessel, located with an accuracy of [redacted] could be miles away in any direction before a report is available. Therefore, POPPY's main utility is reporting continued or new ship deployments in wide ocean areas. Also, POPPY's alleged contribution of providing a comparable data base [redacted] was determined to be minimal and unnecessary.

POPPY reports almost entirely relate to naval combatants, [redacted] as well. Although producing less than one percent of the combined [redacted] POPPY reports currently average between 11 percent and 17 percent of total combatant reports. The DOD Comptroller and the DCI respectively indicated in June 1977 letters to the Chairman that POPPY produced 20 percent and 25 percent of such reports.

The Comptroller's letter also referred to "unique threat target locations which would not be available without POPPY." It was

ascertained this reference pertained to POPPY's coverage of target areas [redacted] other than for one type of emitter, POPPY does not have unique capabilities.

NRO funding estimates for POPPY are $.9 million in FY 1978 and $.1 million in FY 1979 for deinstallation of equipment. A reprogramming request for $.3 million to continue operations through the spring of 1978 was denied by the Committee.

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d. Space Shuttle Transition

In line with national policy, NRP satellites are programmed for transition to the Space Shuttle for transportation to low orbit, commencing with [redacted] The low orbiters will then be ejected, while high orbiters will be launched to their operating altitudes. The Space Shuttle will then recover unproductive low orbiters for refurbishment and reuse. Total NRP transition costs through FY 1982 are projected to be [redacted] is for backup launch vehicles.

The NRO views the Space Shuttle as offering potential for new applications in space, such as deployment of imaging satellites with larger optic systems and extension of [redacted] technology. However, certain issues require resolution before NRP transition takes place. A backup launch capability at considerable expense will be retained until transition can be effected with confidence. Security may also be a major and costly factor since other U.S. agencies and foreign governments will utilize the Space Shuttle for their satellites as well.

Reservations were expressed as to the practicality and cost effectiveness of refurbishing and reusing satellites that may be obsolescent. Technological advancements and new requirements generated by a changing intelligence environment may very well dictate the need for an entirely new system. Refurbishment or even minor repairs in orbit are also speculative due to the complexity of intelligence satellites and space limitations in the Space Shuttle's bay area for working on large systems.

The potential impact of transition technology, security requirements, and likely reluctance to terminate backup launch capability could result in substantial cost increases of presently high estimates for this program. Current efforts to minimize costs should therefore be expanded.

4. Intelligence Community

Executive branch reorganizations of the intelligence community resulted in increasing oversight of the NRP. Oversight authority, other than adherence to joint policy guidance of the Secretary of Defense and CIA, was not incorporated in original agreements forming the NRO in 1961. Pursuant to its 1965 charter, NRO operated under Secretary of Defense executive direction and Executive Committee (ExCom) review and guidance. Other elements of the intelligence community provided security policy, established collection requirements, reviewed operational plans and programs, and dictated collection policy for the NRO.

The intelligence community was reorganized in February 1976 by Executive Order 11905 and a Committee on Foreign Intelligence (CFI) assumed ExCom authority for budget and resource policy guidance and control of the NRP. The reorganization provided greater oversight responsibilities in intelligence operations, but did not change the management structure and mission of the NRO.

The intelligence community was again reorganized by Presidential direction in January 1977 and a Policy Review Committee (PRC) replaced the CFI. The present environment under which NRO operates continues to include the Secretary of Defense as executive agent. Oversight responsibilities are delegated to the President's Foreign Intelligence Advisory Board for overall guidance, the Intelligence Oversight Board for matters of impropriety and legality, and the DOD Inspector General. The PRC is responsible for NRO's budget and resource allocations; the DCI for security policy and, through the National Foreign Intelligence Board (NFIB), for intelligence requirements; and a Special Coordination Committee for review of NRO's operational plans in the context of political considerations. Finally, an expanded Intelligence Community Staff provides staff support for the DCI and PRC.

The requirements process originates with identification of intelligence needs by the military services, U.S. Commands and various national agencies. Requirements are then formulated by the NFIB, chaired by the DCI, through its committees and subcommittees. The NRO develops and operates NRP systems solely in response to requirements and priorities established by the DCI.

The NFIB Committee on Imagery Requirements and Exploitation (COMIREX) validates and approves imaging requirements. Its subcommittee (ICRS) then formulates and provides collection guidance to NRO. The Requirements Validation and Evaluation Subcommittee of the SIGINT Committee validates and lists approved requirements by priority. The

SIGINT Overhead Reconnaissance Subcommittee, using this listing as reference, transmits collection guidance to NRO and processing guidance to NSA.

NRO's responsiveness to approved requirements was praised by officials of the SIGINT Committee and COMIREX.

Some knowledgeable officials felt that requirements were too general, lacked definition for NRO tasking, and that the DCI should have a stronger role in establishing requirements based on fiscal considerations. CIA was also alleged to generate requirements and then build systems to satisfy them, with the early HEXAGON and [redacted] systems being cited as examples. While both systems were highly successful and CIA dedication and expertise were fully recognized, it was felt that parochial interests of CIA may be influencing development of requirements through its dominant role in the requirements process.

5. NRO Management

a. Staffing and Security Policy

NRO staffing, based on its charter and the streamlined management concept, consists of a minimum number of high-quality personnel selected from the military services and CIA. Current statistics reflect 1,669 authorizations for direct support personnel and 886 indirect support personnel. Indirect manpower support is computed by estimating the pro rata share of services performed for the NRP by agencies, such as the Air Weather Service, which support a number of customers.

Stringent security measures extend to every area associated with NRP activities, including contractor plants, launch sites and so forth. Disclosure of such activities would violate the internationally supported position of peaceful utilization of space and could result in a political confrontation with a foreign power. Soviet knowledge of U.S. space capabilities could also provoke offensive or defensive measures destroying or neutralizing NRP effectiveness.

Over 70,000 individuals are cleared for access to various NRP elements. Termination of clearance for cause is less than 100 annually and is due mainly to marital and financial problems or adverse behavioral patterns, usually by contractor personnel. A recent incident, however, suggests compromise of sensitive NRP data by a major contractor employee arrested for passing classified data to the Soviet Embassy in Mexico.

b. Effectiveness

Dissension and animosity among NRP personnel were prevalent during the formative period of the program. An improved environment for management effectiveness was gradually instilled following approval of the NRO charter, establishment of a strong DNRO role, and greater selectivity and retention of high-quality personnel at all levels. Simultaneously, the potential of NRP satellites for intelligence collection began to receive more recognition by the military services and the intelligence community.

Ranking officials directly or peripherally involved in NRP activities unanimously voiced favorable opinions on NRO's accomplishments and effectiveness. The only negative observations were OMB's need for additional details on the NRO budget and more direct DNRO control of program elements. However, certain managerial aspects require attention to preserve NRO's effectiveness, such as an updated charter and appointment of a permanent DNRO of recognized stature and experience to succeed a DNRO resignation without a long gap in such leadership as recently evidenced. Also, Air Force policy of evaluating personnel within specific organizations may deter quality personnel with promotion aspirations from NRO assignment where all personnel are apparently above average.

d. Contract Management

NRO program directors are delegated all contracting and contract monitoring responsibilities for their programs. Two different, yet objectively similar, contractual approaches are used in emphasizing contractor performance for system procurement. Programs A and C rely almost exclusively on specialized incentive contracts, a type of Cost Plus Incentive Fee contract, whereas Program B prefers Cost plus Award Fee (CPAF) contracts.

Specialized incentives, normally 15 percent, can be earned for on-orbit performance only. Fees earned may be offset up to 9 percent of target costs for overruns and possibly ½ percent for schedule slippages. CPAF contracts provide a base fee of up to 3 percent of estimated target costs and an award fee up to 12 percent for meeting established criteria, such as development and qualifying tests, on-orbit performance, satellite life and so forth.

Program A contends that its incentive fees for orbital performance only, with offsetting penalties, motivate contractors to attain a high level of performance. Program B maintains that CPAF contracts provide flexibility in keeping up with technology, whereas specialized incentives may commit the government unnecessarily for as much as three years. Also, CPAF contracts inspire closer attention by upper contractor management throughout the contract life.

CPAF contracts require more detailed planning, administrative control and program office involvement than specialized incentives because of variance in performance factors. CIA tradition of close, direct supervision was confirmed by contractors who alleged that Program B actually functioned as a prime contractor dealing with associate and subcontractors. Program A relies more on Air Force Plant Representative Detachments at major contractors to induce better contractor performance. The integration of these detachments with NRO program element monitors appeared to be well coordinated and effective.

Program A has recognized the need for more balanced consideration of performance and cost in its contracting approach as indicated in its study on "Program Cost Realism and Control", adopted as a guide in January 1977. This study dispelled some of the Investigative Staff's initial concern that heavy emphasis on performance had resulted in almost automatic reliance on incentive-type contracting.

It was felt contracts were possibly negotiated at maximum fee levels without assessing risks involved or considering a fixed fee for an end item. For example, the photographic payload of the proven GAMBIT system averaged about 14 percent in incentives, despite several GAMBIT block changes. Since such changes apparently had no impact on contractor performance for this end item, a fixed fee approach for its production might have been justified.

Contractor officials contend that incentives and award fees inspire better performance, permit retention of better employees even though production is limited, and that the government benefits in the long run. A ranking DOD official conceded that incentives were appropriate in high risk situations, but their continuance at maximum fee levels was questionable once a high level of performance has been reached and minimum risks are involved. For example, incentives for the continued operation of a successful ground station are debatable.

NRO is reportedly in general compliance with established procurement regulations. Minor deviations are attributed to security reasons, but are documented and are available for audit.

6. Financial Management and Related Matters

NRO Congressional Budget Justification Books provide extensive data on the NRP satellite systems and build up to the requested funding levels by system for the budget year.

The congressional practice has been to authorize the use of unobligated carryovers to partially finance the budget year requirement and to appropriate new obligation authority (NOA) for the balance of funds. For example, in acting on NRO's FY 1977 funding request, the Congress authorized the use of [redacted] of unobligated carryover funds and appropriated [redacted] thereby providing a total obligation authority (TOA) of [redacted]

[redacted]

[redacted]

The current appropriation process and related practices have resulted in unique issues regarding TOA funding level and charging of O&M costs. There is no fixed TOA limitation on the NRP for the entire fiscal year as NRO may subsequently request use of additional carryover funds, which the Committee may authorize as part of the reprogramming process. Substantial O&M contractor costs are being charged to "Other Procurement" as the NRO has not been assigned use of an O&M appropriation symbol. The technical issue is whether such charging violates the principle that appropriations are to be used solely for the purpose for which they were made.

The NRO justification books were found to be accurate, reasonable and responsive submissions. While no substantive errors or deliberate misrepresentations were detected therein, shortcomings were detected in both books that were or should be corrected. The FY 1977 book, in citing oversight responsibilities, implied that GAO conducted current, continuing reviews of NRO activities. The FY 1978 submission more properly outlines the extent of oversight activities.

The books do not contain any specifics on substantial, non-reimbursable support provided the NRP. NRO estimates it will receive approximately [redacted] of operational support (i.e.; personnel, use of facilities, and ongoing work activities) that will not be charged to the NRO budget.

a. Unusual Funding Arrangements

Unusual funding arrangements related to incremental funding, use of unobligated balances of funds, budget practices and mission support costs as summarized below.

(1) Incremental Funding

NRO uses an incremental budgeting and funding concept for most of its activities. This approach sets forth budget requirements based on one year's contractual requirements at a time, thus focusing on a "part of the whole" rather than the total procurement requirement.

The use of incremental funding for the NRO's major systems acquisition contracts is a departure from DOD general policy of full funding for obligations under the procurement appropriations. This policy was adopted in the early 1960's to satisfy congressional

concerns over future financial requirements of incrementally funded weapons systems procurements.

NRO officials noted that cognizant committees have been fully apprised of NRP's utilization of incremental funding and have not directed a change to full funding procurement preferred by the Congress. The Air Force Deputy General Counsel does not consider the NRP's use of incremental funding as a legal issue, but more a matter of "full visibility" with the Congress on funding arrangements. He knew of no waiver from the applicable DOD directive concerning full funding, but did not view this technical violation with concern because (a) high-level DOD officials were aware of NRP's deviation from the directive, and (b) Congress had "full visibility" in the NRO approach.

There are various pros and cons on whether the NRP should continue incremental funding. Proponents (principally NRO officials) stress its practicality and flexibility in this type of program. It also helps protect the covert nature of the NRP. Opponents feel that incremental funding may be reasonable in a research and development program but not appropriate now that the NRP has moved into an operational environment with proven systems.

Looking at the NRP in broad perspective, the program could be financed under either an incremental or full funding technique. However, an incremental budgeting and funding concept requires a different type of budget presentation.

NRO budget justification books are limited to the budget year's requirement and do not indicate where it will lead to, both substantively and financially, in future years. Thus, the annual incremental budget request is presented without any indication of its long-range funding implications or plans, tentative and conditional though they may be.

These books, although comprehensive on the broad aspects of NRP systems, provide relatively few financial specifics on the proposed use of funds and little detailed justification of the specific budget needs. Since an incremental funding concept gives the operating

entity considerable flexibility, external reviewers have a legitimate concern on budgetary details and as to what will be financed in the budget year.

This concept, with its inherent flexibility, also has fairly large reprogramming implications. NRO's reprogramming arrangements with congressional committees appear to recognize the importance of this aspect.

(2) Unobligated Balance of Funds

NRO's unobligated balance of funds includes a special reserve for contract termination. A portion of the unobligated funds, called "unobligated carryover," is used to finance the following year's program. The unobligated carryover aspect is treated in its budget justification books, but no specifics are mentioned concerning the termination reserve.

The special reserve for contract termination amounted to [redacted] as of March 1977. The purpose of this reserve is to avoid potential violations of the Anti-deficiency Act.

NRO's projections of expected unobligated carryover balances have not been as close to actual balances as desirable. A zero unobligated carryover was estimated for the end of FY 1976, which was subsequently changed to [redacted]

(3) Budget Practices

The PRC has the responsibility for NRP budget and resource allocations. Thus, the principal budget decisions result from committee action.

The DNRO receives program budget guidance from the PRC, which he forwards to program directors together with his interpretations and instructions. Under NRO's streamlined management concept, the program directors have considerable latitude in the development of estimates to fund various systems and options in the guidance.

Each program director has his staff go through a detailed budget preparation process. Proposed budgets are then submitted to NRO headquarters, which examines them in a total NRP context and then forwards a recommended program to the PRC for final decision.

Operationally, streamlined management delegating an unusual amount of authority has eliminated much "red tape." However, this has meant there is less centralized review of budgetary details. Many decisions are reached in the field and summary data is forwarded to headquarters. The OMB feels that insufficient details are available at NRO headquarters to respond to its queries on budget matters.

NRO budget estimates include "fund protection," a term used to earmark certain funds for retention until required for specific systems. Controls are maintained to assure these funds do not move into the implementation stage until appropriate actions or approvals are finalized. Fund protection estimates are not used for other systems unless congressional authorization is obtained as part of the reprogramming process.

In summary, the unusual features associated with NRO's budget preparation process are (a) budget decisions by committee, i.e., the PRC, (b) limited headquarters review of budget details furnished by field elements, (c) inclusion of "fund protection" in estimates, and (d) incremental funding and use of unobligated carry-over balances.

(4) Mission Support Costs

Mission support costs refer to program support services paid for by NRO which are not readily distributable to the various satellite systems. Thus, mission support costs are, in effect, undistributed program costs.

Mission support costs in FY 1977 amounted to [redacted] These costs were principally for support provided by the Satellite Control Facility [redacted] and for photo materials and processing [redacted]. Other items included the controlled range network, propellants, and miscellaneous procurement

and operations. The NRO indicated a requirement of [redacted] for mission support in FY 1978.

The Air Force and NRO had agreed to jointly fund representative shares of the cost of continued development, operations and maintenance of the Satellite Control Facility (SCF) when it became a national range in 1963. Due to the type and complexity of the services furnished, representative shares were difficult to calculate precisely. Therefore, NRO and the Air Force agreed that NRO funding of nine functions or activities was the equivalent of paying its representative share. In FY 1976, NRP received 43.1 percent of total services provided by SCF and NRP payments for these functions came to 66.3 percent of SCF's normal operating budget.

Questions arise from time to time as to whether NRO's payment for the nine functions is a reasonable allocation, based on the use or benefits it receives from SCF. There is no simple formula that can produce a precise NRP percentage of use figure because of the diverse services SCF supplies to NRP. The arrangement is further complicated in that SCF management defers to NRO inputs on decisions affecting NRP matters, so in some respects there is informal joint management.

Photographic materials and processing funds relate to all film and chemical costs associated with photographic film production for the GAMBIT, HEXAGON, and KENNEN systems. NRO also funds equipment, utility and other costs at the primary NRP photographic processing laboratory operated by the Eastman Kodak Company in Rochester, New York.

b. Support Services Not in NRO Budget

The NRO provided the following cost estimates of nonreimbursable support services it expects to receive during FY 1977:

ITEM	MANPOWER COSTS	OTHER COSTS	TOTAL
	---------in thousands----------		
NRP Direct Support----------			
Other Support:			
Air Weather Service-----			
Defense Meteorological Satellite Program-----			
Satelitte Data System---			
NRO Airlift Support-----			
SAMSO Support to Program A----------			
Total, Other Support----			
Grand Total----------			

Military department manpower providing both direct (821 personnel) and indirect (886 personnel) is budgeted within DOD major force programs. The remaining 848 direct support personnel (521 CIA, 326 Naval Security Group, and 1 NSA) are included in the CIA budget and in the Consolidated Cryptologic Program.

The principal Air Weather Service support to NRO is provided by Air Force Global Weather Central at Offutt Air Force Base, which furnishes weather data to a number of customers. NRP's pro rata FY 1977 share of services received is a rough estimate as it cannot be precisely supported from existing records.

The Defense Meteorological Satellite Program was originally established to satisfy NRP requirements, but its success led to support of all military departments. It has two orbiting satellites collecting meteorological data, which is transmitted to Global Weather Central and is ultimately distributed to its customers. Since direct costs could not be specifically identified with NRP, the NRO concluded that $64.1 million for intelligence-related and other unseparable items was supportive of the NRP.

SAMSO support to Program A is the estimated cost of 46 personnel, most of whom are involved in launch vehicle procurement for the NRP.

c. Accounting and Fund Controls

NRO has an extensive accounting and fund control system. It involves various DOD elements, extends across interagency lines, accommodates classified and unclassified transactions, has appropriation and program accounting features, summarizes financial data over a wide geographic area, and is the major source of financial data on the NRP.

The accounting system is designed to assure that all financial transactions are recorded in the Air Force appropriation accounts in accordance with Air Force policies. Overall controls, appropriation and allotment and subsidiary accounting, are in accordance with Air Force financial management techniques and directives. Arrangements have been made to assure that all unclassified records do not breach the security sensitivity of the NRP.

The NRO comptroller is the focal point of coordination and control of NRP financial activity. Financial management personnel contacted were knowledgeable, cooperative, and responsive. The accounting and final control system appeared to be adequate and workable for the NRP's financial activity.

d. Internal Auditing

Provision has been made for internal auditing of the NRP by several sources. The Defense Contract Audit Agency (DCAA) audits the work of contractors, while cognizant audit elements of the DOD and CIA conduct audits of segments of NRP activities as part of their assigned responsibilities. The DOD and CIA Inspectors General also have an oversight responsibility which may include inspections and some auditing.

However, insufficient emphasis was being placed on management auditing to determine its effectiveness and efficiency in discharging assigned responsibilities. The size and complexity of the program suggest it be subjected to periodic internal management audits by the cognizant audit offices.

7. Tactical Use of Strategic Intelligence Satellites

The potential value of NRP satellites for tactical operational support in addition to strategic intelligence is fully recognized by Congress and the intelligence community. By congressional direction, expansion of such usage is confined to a development posture. NRO considers current or potential tactical applications as extensions of present systems that do not interfere with fulfillment of the national mission.

At present, NRP satellites provide some tactical operational support. certain P-989 satellites support the SAC in updating strike penetration routes. As previously noted, Also, NRP satellites have participated in several field exercises since 1974 to determine the value of integrating NRP data with conventional intelligence data.

Ranking intelligence officials recommended a cautious approach in effecting a national intelligence/tactical interface. A former DNRO cited various examples of the potential value of NRP satellites for tactical usage, but warned of "galloping requirements" from tactical commanders. Another recent DNRO stated NRP satellites must be tasked and operated as a national system, adding that tactical commanders would otherwise task them to excess. The previous head of the Intelligence Community Staff emphasized NRP satellites must be optimized in the national interest and their expanded use for tactical purposes should be fully evaluated. A recent NSA Director concluded a correct balance of global intelligence/tactical applications must predominate to take full advantage of the enormous potential of overhead systems, noting huge expenditures would occur by having separate tactical satellites. A former ranking DOD official recommended increased tactical support by NRP satellites to match present high level of strategic intelligence.

A November 1974 report recommended a dedicated SIGINT system for the SAC, which was denied due to cost and security considerations. SAC tasking of NRP satellites has since substantially increased. NRP imagery is also considered to be of considerable value to the SAC.

NRO and NSA expressed concern over the monetary impact of providing tactical data in less than an hour. While reporting times of [redacted] might not require excessive changes, ground station processing capabilities would have to be updated at costs in the [redacted] range to provide much more timely reports.

The nonmonetary effect of tactical applications in NRP satellites includes detraction from their national mission, potential political confrontation, and increased vulnerability to a hostile attack. While one official maintained such usage should not impact on NRO management, another noted NRP satellites may have to be dedicated to separate missions to satisfy tasking requirements.

It is conceded tactical applications of NRP satellites should be retained within NRO and that the national intelligence/tactical requirements process should remain under a central national authority. The possibility of political confrontation and/or attack makes it essential that such usage be maintained under the present covert structure for national intelligence.

8. Vulnerability of NRP Satellites

Construction of NRP satellites has stressed maximum collection capability without consideration of a hostile threat. The NRP low

orbiters are practically defenseless if attacked by current Soviet antisatellites.

Survivability options are now undergoing study in response to National Security Memorandum 333, issued in July 1976. NRO concluded that some defensive measures could be effected at a reasonable cost, but that it would be cost prohibitive to truly "harden" systems.

NRO contingency plans had always emphasized on-orbit control of damaged vehicles to preclude compromising reentry. If unsuccessful, a United Nations Treaty on outer space activities would apply regarding recovery by a foreign nation. Present policy is not to avoid a hostile intercept and to use evasive maneuvers by other low orbiters with such capabilities, if directed by the Secretary of Defense.

The Soviets consider "espionage" from space to be illegal and unacceptable, although apparently tolerating other space activities. This attitude does not prevail for Soviet satellites, which collect all types of intelligence worldwide.

CIA noted the Soviets were probably aware of U. S. development of a [redacted] imaging satellite. A Soviet antisatellite was on a launch pad when KENNEN was launched in December 1976. A contingency plan was quickly formulated in the event it should attack KENNEN. If the Soviets acknowledged destruction, command authorities would be notified and a State Department release would charge the Soviets with a hostile act, denying the satellite constituted a threat. An emergency session of the NRO Contingency Planning Group would be called to determine a future course of action. If the Soviets did not acknowledge destruction, the release would be withheld pending the Group's action.

An Emergency Reaction Reconnaissance System (ERRS) is planned to provide some coverage if primary satellite systems fail or are destroyed, thereby lessening the Soviet threat. The PRC deferred concept definition studies to FY 1978 and approved [redacted] including FY 1977 carryover funds of [redacted] to commence the ERRS program. One concept is a short duration and less costly system performing only an emergency mission. Another concept would perform HEXAGON's search mission as well, while a third concept would collect ELINT.

B. Investigative Staff's Observations and Recommendations

(1) The NRP, under NRO's management, has evolved into a highly successful program making major contributions in response to national intelligence requirements. Its effectiveness could conceivably deteriorate, however, because of an outdated NRO charter or by misinterpretation of National Security Council Intelligence Directive 6, which assigns respective responsibilities to NRO and NSA concerning the collection of SIGINT by NRP satellites.

NRO presently operates under a 1965 charter, despite Presidential reorganizations of the intelligence community and the fact that it contains obsolete provisions. A draft version of an updated charter in early 1976 has not been approved because of high-level DOD disagreements as to its wording and contents.

NSCID 6 devotes a single paragraph to the SIGINT responsibilities of NRO and NSA, which presently have a good working relationship. It is considered by some to be sufficiently ambiguous as to lend itself to possible future misinterpretation by involved parties to the detriment of NRP objectives.

It is accordingly recommended that (a) higher authority direct the immediate formulation and approval of an updated charter by appropriate DOD officials, and (b) NSCID 6 be revised to remove any possible ambiguities concerning NRO/NSA responsibilities for SIGINT.

(2) The KENNEN electro-optical imaging system, launched in December 1976, appears to have excellent potential as collection results, despite some orbital problems, have been gratifying to date. However, it cannot [redacted] nor can it match GAMBIT's high resolution photography. Also, KENNEN is incapable of producing HEXAGON's economic intelligence,

[redacted] An ongoing evaluation of KENNEN's performance will determine the future status of the GAMBIT/HEXAGON systems.

It is recommended that all of the above factors be fully assessed in light of current and projected KENNEN capabilities before positive action is taken to improve KENNEN, to upgrade its [redacted] and to replace either or both GAMBIT and HEXAGON.

(3)

(4)

(5) The P-989 baseline program calls for continued operation of six SIGINT satellites until termination of their useful life and replacement of two satellites by two almost identical satellites that have been produced. These two satellites have unique capabilities satellites. They will be replaced, in turn, by a new advanced system which is undergoing a definition study and, if approved, will satisfy long-range ELINT requirements involving low altitude satellites beyond 1985.

Three of the four other P-989 satellites on orbit are severely degraded to the point that one is incapable of performing its ELINT mission, another's collection contributions are negligible, and the third performs only a portion of its mission. The fourth P-989 collects COMINT and is in fair condition, but it is now being tasked against a special Soviet signal as are a number of other satellite systems.

It is recommended that serious consideration be given to the immediate termination of operational support for the above four satellites to effect savings in O&M and personnel costs. Additional benefits to be gained by such termination would be greater efficiency in processing SIGINT collections from remaining systems and lessening the possibility of future backlogs of unprocessed data as had been recently experienced under a one-shift operation, resulting in the return to a three-shift operation.

(6) POPPY ocean surveillance satellites have limited productivity due to their degraded condition and current tasking level.

It was accordingly recommended that an early decision be made to terminate the POPPY operation with a corresponding reduction in the POPPY budget.

(7)

(8) Programs A and C utilize specialized incentive contracts for major systems procurement that provide incentive fees only by achieving satisfactory on-orbit performance, with some offsetting penalties for cost overruns and schedule delays. Program B contracts provide award fees for both pre-orbit and on-orbit performance and assure the contractor a base fee up to 3 percent. Maximum fees earned under both types of contracts are 15 percent.

These types of contracts are normally utilized for research and development projects where there is a degree of risk involved and not for production contracts. The regularity with which some contractors for major components in proven systems earned almost maximum incentives suggests a fixed fee approach may have been justified. A recent Program A study recognized the need for a more balanced consideration of performance and cost in its contracting approach.

It is recommended that NRO continue its new "cost realism and control emphasis" in the Program A study and expand it to all programs.

It is also recommended an NRO staff study be initiated to evaluate present contract techniques, to establish the basis for the two different approaches, and to assess the potential alternate application of them between programs.

(9) The current appropriation process and related arrangements used by NRO raise two technical issues relative to (a) the absence of a fixed TOA figure or ceiling for each fiscal year, and (b) the practice of charging O&M costs to the "Other Procurement" appropriation account.

The Investigative Staff feels that the NRP budget request should be presented under a TOA program basis; that the sources of funding (either NOA or authorized unobligated carryovers) be treated solely as the financing arrangements; and that congressional approval be based on the TOA figure for each year.

It is also recommended that a "waiver" be requested from the Committee to permit continuance of NRO's practice of charging O&M costs to "Other Procurement" until a more permanent solution is developed and agreed upon.

(10) NRO's Congressional Budget Justification Books provide considerable data on NRP operations and systems, but relatively few specifics in other areas. The unique or unusual financial arrangements and the extent of nonreimbursable support services associated with NRP activities suggest that these matters receive more treatment in future presentations. The unusual funding arrangements relate to incremental instead of full funding of procurement, use of unobligated balance of funds, budget practices, and mission support costs. Nonreimbursable support services, including manpower, are in the magnitude of [redacted] for FY 1977.

An incremental budget sets forth budget requirements based on one year's needs at a time, rather than the total procurement requirement. It is therefore recommended that future budget presentations be expanded to provide further specifics on budget year requirements and show where the budget will lead to, both substantively and financially, over the next 5 years. Also, a formal waiver of DOD directive 7200.4, which establishes the full funding policy for procurement should be obtained.

NRO's unobligated balance of funds includes a special reserve for contract termination as well as an unobligated carryover balance. It was previously recommended that (a) future budget presentations show the estimated year-end unobligated balance of funds for all accounts, (b) the reserve be decreased substantially and the "savings" be used to help finance the next year's program, and (c) full particulars are furnished to the Committee, just prior to the markup, concerning the estimated amount and planned usage of such funds.

Under NRO's streamlined management concept, program directors have full responsibility for the preparation of budget estimates. These estimates are reviewed in summary form at NRO headquarters. Most of the supporting details on the estimates are retained in the field.

It is recommended that NRO program directors participate in the OMB and congressional hearings and defend their segments of the program.

Mission support costs are undistributed program costs that are not readily distributable to the various satellite systems. These costs, which amount to about [redacted] in FY 1977, are always the subject of concern and questions by external reviewers.

It is recommended that future budget presentations include a separate section on mission support. This section should contain reasonably specific justifications on the nature and amount of each budget requirement, with particular emphases on cost fluctuations between the operating and budget years.

The NRO will receive an estimated [redacted] in nonreimbursable support services from other entities during FY 1977. Budget presentation books contain only limited data concerning such services which are charged to other budgets. NRP budget requests are therefore not reviewed in the context of total program costs.

It is recommended that a separate "information section" be included in future budget presentation books, which would identify all NRP costs not reflected in NRO's budget. This section should provide expanded detail on manpower support, including (a) physical location of personnel assigned to the three program offices, (b) location and estimated number of personnel assigned to each system, and (c) some narrative on the nature of the personnel arrangements and utilization.

(11) Segments of the NRP are subjected to internal auditing by cognizant audit elements. The current audit coverage, however, does not include management audits. The nature, scope, and complexity of NRP activities suggest that such audits be periodically conducted.

It is recommended that overall management audits be periodically conducted by the cognizant DOD internal audit elements. Such audits should focus on the efficiency and effectiveness of NRO management in discharging its responsibilities.

(12) NRP strategic satellites have an inherent capability to provide tactical support to theater commanders as evidenced by current utilization of the [redacted] P-989 and [redacted] systems. Further expansion of such usage, however, must be approached with caution in light of political and financial implications associated therewith and must not detract from NRP's national intelligence mission. The NRO is

properly considering current or potential tactical applications as extensions of present systems rather than new systems.

Tactical applications of strategic satellites should be retained within the NRP organization and the national intelligence/tactical requirements process must remain under a central national authority. Moreover, tactical applications of NRP satellites must be properly monitored and controlled to ensure that requirements generated by tactical commanders are fully justified and that the systems are not being overtaxed to the detriment of their national mission.

It is recommended that an in-depth study be conducted with NRO participation, which would consider all of the factors mentioned above and would provide guidance and make recommendations thereto.

I. INTRODUCTION

A. Directive

By directive dated June 8, 1976, the Committee requested that a study be made of the programs of the National Reconnaissance Program (NRP). The study was to consider, but not be limited to, the following matters:

1. An analysis of the validity of NRP congressional budget justifications and of NRP compliance with the 1976 House and conference classified letters on intelligence. This analysis should consider the true cost of NRP programs, and identify where these funds are budgeted in addition to the NRP budget. This analysis of alternative funding sources should consider such programs as the [redacted] the National Photographic Interpretation Center, NRP personnel costs, KENNEN [redacted] non NRP costs, and such other costs which might be related to NRP programs, but which are not carried in the NRP budget. The investigation should consider the basis upon which these costs are distributed among various budgets, and the implications of this process for congressional review of the total NRP program and budget. The analysis should also consider the impact upon NRP budgeting procedures of the incremental funding procedure and the "fund protection" procedure, the legal authorization for these procedures, and the pros and cons of continuing these procedures. The adequacy of NRP accounting and fund controls should also be considered, including an evaluation of the ability of these systems to accurately forecast unobligated balances in congressional justification books.

2. An analysis of the management effectiveness of the NRP. This analysis should include an evaluation of the general management competence of the NRP and an evaluation of the accuracy of the NRP statements in congressional testimony that there is a low-overhead management structure in the NRP as compared to other space programs. The contract management process should be evaluated as to its cost effectiveness and compliance with accepted procurement procedures. The management of mission support costs should be reviewed, including an explanation of why these mission support costs are rising so rapidly. The Executive Committee management concept, and its relationship to other agencies and the fixing of managerial responsibility should also be reviewed.

3. An analysis of the pros and cons of the tactical use of strategic intelligence satellites, and the costs thereof. The NRP, according to testimony before the Committee, is actively considering the tactical use of strategic satellites such as [redacted] The Investigative Staff should analyze the costs and benefits of this shift in intelligence strategy, including possible offsetting savings in non NRP programs. Non monetary effects, such as foreign policy considerations of such a policy change, should also be considered.

4. An analysis of the management and budgetary responsibility for ground stations supporting NRP satellites. There are a variety of managerial and budgetary arrangements for operation of ground stations for NRP satellites. The Investigative Staff should review the rationale for these various arrangements and study the benefits which might accrue from alternative arrangements. These studies should consider the cost effectiveness of the current NRP policy of depending largely upon contract personnel for the operation [redacted] The decision to proceed with [redacted] and the benefits and liabilities of a change in the current situation should also be considered. Finally, the manning levels for the [redacted] and the justification therefor, should be reviewed.

5. The Investigative Staff should review the past, current and future status of the following specific programs:

(a) The KENNEN program, including the need for the [redacted] in support thereof.

[redacted]

(c) The Space Shuttle transition program and the [redacted] should be reviewed to determine their ultimate costs, and actions which can be taken to minimize these costs.

In addition to the above five areas, the Investigative Staff should probe any additional areas of the NRP program which in the Investigative Staff's opinion deserve review.

B. Scope of Inquiry

In response to the directive, the Investigative Staff concentrated its efforts at the outset of the study toward familiarization with the organizational structure of the National Reconnaissance Office (NRO) which administers the NRP, the various systems that comprise the NRP, managerial responsibilities of program elements, budgetary processes, and interagency relationships impacting on program requirements, acquisitions, operations, and processing of intelligence data. In this connection, the key NRO officials in Washington, D.C. provided briefings and/or were interviewed.

It should be noted that this study represents the first independent and comprehensive review of the NRP. The NRO should be especially commended for its responsiveness, cooperation and support to the Investigative Staff throughout the course of the study. Other government agencies and contractors directly or peripherally associated with NRP activities also provided considerable assistance and willingly made themselves available for in-depth discussions on their knowledge of and involvement with the NRP.

In examining this program, the Investigative Staff conducted interviews and on-the-spot inspections of physical activities and records at a wide variety of locations. These included reviews of NRO headquarters activities at the Pentagon and of its Programs A, B and C, which are the field activities administered by the Air Force, Central Intelligence Agency (CIA), and the Navy, respectively, under the NRO charter. The inquiry also included the review of numerous directives, instructions, policy memoranda, studies, congressional hearings and budget justification books as well as other publications and technical data relating to the NRP.

The Program A reviews took place principally in California, [redacted] Nebraska, [redacted] as well as at the Pentagon. Briefings were furnished and interviews were conducted in California at Program A headquarters collocated with the Space and Missile Systems Organization (SAMSO), the Space and Missile Test Center at Vandenberg Air Force Base, and the Satellite Control Facility, [redacted] and mission control centers at the Satellite Test Center. [redacted]

interviewed at [redacted] In Nebraska, discussions were held with officials of the Air Force's Global Weather Central, the Defense Meteorological Satellite Program, the backup film processing facility for the NRP, and the Strategic Air Command at Offutt Air Force Base. In Europe, the Investigative Staff interviewed officials of the [redacted]

The Program B reviews were conducted primarily at CIA headquarters supplemented by a visit to the [redacted] Interviews were held with key officials at those locations as well as with Program B's west coast representative and officials of the [redacted] which is utilized by Program B.

The Program C reviews took place principally at its headquarters in the [redacted] the Naval Research Laboratory (NRL), and [redacted] Interviews were conducted with Program C headquarters personnel, with NRL officials familiar with the development of the [redacted] POPPY satellite systems by the laboratory, and with Program C personnel attached to the System Program Office for [redacted] POPPY systems at [redacted] were visited and appropriate individuals were interviewed at those locations. In addition, a representative from the Office of Naval Intelligence provided a briefing on a special Soviet signal of prime interest to the Navy.

The investigative effort also included briefings, interviews and inspections at various prime contractor plants. Contractors visited in California included Rockwell International for the Space Shuttle, and Hughes, Lockheed and TRW Corporations concerning various NRO contracts. On the east coast, the Investigative Staff visited Eastman Kodak in Rochester, New York, Itek Corporation in Lexington, Massachusetts, and Perkin-Elmer in Danbury, Connecticut, all of which were involved in optics and film return systems for NRP photographic satellites.

The following Department of Defense (DOD) officials and agencies outside the NRO were contacted and furnished data concerning their area of interest as it related to the NRP:

Secretary of the Air Force
Deputy Director of Defense Intelligence for Programs and Resources
Air Force Deputy General Counsel
Assistant to the Navy Comptroller for Special Programs
Defense Mapping Agency
Defense Intelligence Agency
Air Force Directorate of Space
Defense Contract Audit Agency
Program Manager for Navy's TASES Aircraft Program
Fiscal Analysis Branch, Office of the Air Force Comptroller

In addition, extensive discussions were held with the former Director of the NRO at the Pentagon and in California following his resignation as Under Secretary of the Air Force and with numerous officials of the National Security Agency (NSA). Interviews of NSA officials took place at Fort Meade, the [redacted] and at the [redacted]

The investigative effort further included interviews at the General Accounting Office, the Office of Management and Budget, the National Photographic Interpretation Center, and with certain ranking officials within the intelligence community. These officials included the Deputy to the Director of Central Intelligence, the Inspector General for Defense Intelligence, the Executive Secretary of the Operations Advisory Group, and ranking officials assigned to the Committee on Imagery Requirements and Exploitation and to the SIGINT Committee along with their subcommittees.

C. Study Parameters

The parameters of this study are confined to a review of execution of the NRP mission from development of systems to meet established requirements through collection of intelligence. The NRO does not determine requirements, nor is it responsible for the processing, dissemination or exploitation of the intelligence product collected by its overhead reconnaissance satellites. While the study does make some references to these interrelated activities, it must be noted that these are functions of other organizations. References thereto have been found to be necessary for full understanding of NRP activities and for completeness. These non-NRP functions and responsibilities are not, however, within the purview of the study.

The study, moreover, does not include an evaluation of the effectiveness of [redacted] as requested in the Committee's directive. The Investigative Staff determined that,

Page Denied

II. BACKGROUND

A. Mission

The National Reconnaissance Program (NRP) is a national effort administered by the National Reconnaissance Office (NRO) and designed to satisfy U. S. foreign intelligence requirements which can best be met by overhead satellite reconnaissance. Its mission includes the development, acquisition, management, control and operation of all reconnaissance satellites which collect photographic and signals intelligence (SIGINT) data through overflights of denied areas of the world. The information obtained by these satellites is used to fulfill national, political, economic, strategic and tactical military, and scientific and technological intelligence needs of the United States.

B. Chronological History

The evolution of space reconnaissance by the United States has been one of marked progress and accomplishment. Following a feasibility study on the use of space by the Rand Corporation in the early 1950's, an initial effort to develop a reconnaissance satellite (SAMOS) was sponsored by the Air Force in 1956. Two years later, the CIA and the Air Force joined forces in the covert development of a photographic reconnaissance satellite (DISCOVERER).

In May 1960, a U-2 aircraft was shot down over the Soviet Union while on a U. S. photographic mission. Consequently, further overflights of the Soviet Union on such missions were terminated, thus resulting in the loss of important intelligence data. President Eisenhower thereupon ordered a National Security Council (NSC) study to assess the potential of reconnaissance satellites. Coincidental with the completion of this study, the first DISCOVERER mission, which lasted only one day, returned photographs of the Soviet mainland. The success of this mission, together with the results of the NSC study, inspired a Presidential decision to proceed with the development of a new SAMOS satellite under a special management structure. This decision was implemented by a September 1, 1960, memorandum to the Secretary of Defense which directed the establishment of a high priority national reconnaissance program.

The SAMOS and DISCOVERER systems evolved into the early GAMBIT and CORONA/HEXAGON imaging systems, respectively. The GAMBIT photographic reconnaissance satellite was initially launched in 1963 and its improved version currently furnishes high resolution photography. The CORONA was the first successful satellite imaging system and was operational from 1960 to 1972. Its mission was taken over by the far more capable HEXAGON imaging system, which has been operational since 1971.

The initial imaging satellites had a SIGINT collection capability as well. However, there were drawbacks in such an arrangement with the result that a separate SIGINT satellite (the P-989) was developed. It was strapped on the HEXAGON vehicle for launch in 1963 and was then ejected into low orbit. Similar launching and deployment procedures were utilized for subsequent P-989 satellites and the system continues to be operational.

The Navy's POPPY satellite system preceded the P-989 as a dedicated SIGINT system. After five experimental missions in which booster failure occurred on two occasions, POPPY was launched in December 1962 and, though significantly degraded, the system in its present configuration is still considered to be operational. Its mission, however, has

The remaining NRP satellite systems currently producing SIGINT are

termination of the STRAWMAN satellite system, which collected SIGINT data from 1965 to 1971.

There have been dramatic increases in successful missions and operational life of NRP satellites. Following the establishment of the NRO in September 1961, there were 291 launches of which 238 were identified by the launching authority (Program A) as having successfully performed their missions. The inability of the satellites to perform missions was attributed to failures of the launching booster, failures to achieve the proper orbit, or to major malfunctions within the spacecraft. Research by an NRO official indicated that 15 NRP satellites either experienced booster failure or failed to get into orbit after launch during this period. Nine of these failures occurred during the first 5 years of NRO's existence.

The mission life of NRP imaging satellites has increased from an average of about two days in 1962 for the CORONA to 154 days for the HEXAGON during its last mission in 1976. The initial GAMBIT satellites experienced less than an average of five days of useful life in 1964 and 1965, whereas the advanced GAMBIT recently completed 69 days of operations.

SIGINT satellites have also exceeded expectations as to their operational usefulness. As examples, the mean mission duration for

C. National Reconnaissance Office (NRO)

1. Charter

Pursuant to the September 1, 1960, NSC directive, the Secretary of Defense and the Director of Central Intelligence (DCI) negotiated a number of agreements governing the establishment and operation of the NRP. The Air Force and CIA, both of which had been involved in satellite reconnaissance development, were given joint managerial responsibility for direction and control of the entire program. A 1961 agreement formalized this management structure within the NRO, a covert designation which has never been openly acknowledged.

A 1964 President's Foreign Intelligence Advisory Board (PFIAB) review of the NRO included recommendations to the President, which resulted in the consummation of a new agreement between the Secretary of Defense and DCI dated August 11, 1965, providing for a reorganization of the NRP. Major revisions included the designation of the Secretary of Defense as the executive agent for the NRP and its implementing office, the NRO; the establishment of NRO as a separate agency of the DOD; and the creation of a 3-man resource allocating group called the Executive Committee (ExCom) to guide and participate in the formulation of the NRP through the Director, NRO (DNRO). A full-time CIA employee is the Deputy DNRO. Subsequent Presidential reviews have reaffirmed this management concept.

The NRO continues to operate pursuant to the 1965 agreement, which constitutes the NRO charter. However, the agreement has been overtaken by several events and contains a number of obsolete provisions. For example, it gives NRO the responsibility for aircraft reconnaissance flights, such as the U-2 missions. However, this program, which was managed within NRO as Program D, was disbanded in October 1974 and all of its assets were turned over to the Air Force. Furthermore, the President's Executive Order 11905, dated February 18, 1976, which reorganized the intelligence community, dissolved the ExCom and assigned responsibility for program direction of the NRP to a newly established

Committee on Foreign Intelligence (CFI). More recently by Executive Order, the President created a Policy Review Committee for Intelligence which assumed the CFI function for NRP budget and resource allocations. These and related changes affecting the management overview of the NRP have materially impacted on the outdated NRO charter. A new draft charter was prepared following the February 18, 1976, Executive Order, but approval continues to be delayed due to reported high-level disagreements as to its wording and contents.

The absence of an updated charter has not yet jeopardized the NRO mission. However, delays of this type, or bureaucratic interpretations that such delays indicate a lack of high-level interest in the NRP, could have an adverse effect on NRO operations in the future. As viewed by the Investigative Staff, the NRO operates under a concept that is highly dependent upon a clear, strong charter carried out by a highly placed, knowledgeable administrator who can give strong leadership in technical matters, interagency relations, and a sense of mission as well as in plans and operations. There must be continued recognition within DOD and the intelligence community of the importance and priority of the NRO mission. Therefore, there should be prompt resolution within the executive branch of the bureaucratic holdups currently delaying a revised NRO charter.

2. NSC Intelligence Directive 6

The NSC Intelligence Directive 6 (NSCID 6), effective February 17, 1972, contained the following paragraph appearing only in its classified version:

> "The Director of Central Intelligence with the advice of the United States Intelligence Board shall determine the requirements and priorities for collection by SIGINT satellites that shall be developed, launched and maintained in operation by the National Reconnaissance Office. The Director of the National Security Agency, with respect to his technical and operational control of the intercept payload, and the Director of the National Reconnaissance Office, with respect to his control of spacecraft operations, shall provide for the tasking of these satellites based on guidance provided by the Director of Central Intelligence. The National Security Agency shall process the collected data."

This paragraph contains the only reference to the NRO, while NSA is mentioned throughout the directive regarding its SIGINT responsibilities.

The reference therein to tasking SIGINT satellites with respect to NSA's operational control of the intercept payload and NRO's control of spacecraft operations appears to be sufficiently ambiguous to require further clarification in order to avoid potential controversy as to respective responsibilities, thereby possibly impacting on NRO's effectiveness. Authoritative officials in both NSA and NRO were accordingly queried in this connection.

The NSA Director in late 1976 envisioned no problems with the wording in NSCID 6, maintaining it clearly delineated NRO and NSA responsibilities. On the other hand, a ranking NRO official acknowledged that NRO/NSA responsibilities were ambiguously stated in the directive and should be redefined. He expressed concern that a future NSA Director, less knowledgeable of the NRO mission than the current director, might misinterpret the intent of NSCID 6 and insist upon a greater role for NSA. Working relationships between NRO and NSA in the NRP might then very well deteriorate to the point they were a few years ago when both were at "loggerheads" with each other. His observations were supported in part by a former DCI with respect to the need for redefinition of responsibilities set out in NSCID 6 during his testimony before the Senate Select Committee on Intelligence and by another NRO official concerning jealousy and poor working relationships between the two agencies at collection sites in the past.

3. Organizational Structure

The September 1961 agreement, which implemented the Presidential decision to develop national reconnaissance satellites, provided for the use of streamlined special management procedures. NRO was established as the NRP management agent to develop, acquire and operate such satellites. Subsequent agreements and specifically the current 1965 agreement or charter brought about no changes in this managerial concept, which is unique within the DOD, or in the NRO mission. Basically, NRO relies on a very short, vertical chain of command with extensive responsibilities being delegated all along the line to the lower ranking personnel levels. On numerous occasions, the Investigative Staff observed lower ranking officers in positions of responsibility that would normally call for higher ranks elsewhere in the military services. For example, a Navy lieutenant is in charge of Program C's operation at the most active POPPY [redacted] while Air Force majors and even captains have full responsibility over certain major segments of Program A projects. At the headquarters level, a GS-16 comptroller and two Air Force lieutenant colonels are charged with the overview of a budget that has been in the neighborhood of $1 billion as prepared and submitted by field elements.

The NRO operates as a separate agency within the DOD under the overt title of Office of Space Systems, Air Force. Its director (DNRO) is chosen by the Secretary of Defense and is responsible for the management and execution of the NRP. Traditionally, the Undersecretary of the Air Force has served in this capacity. The Deputy DNRO is appointed by the DCI with the concurrence of the Deputy Secretary of Defense. In addition to the aforementioned comptroller and his two aides, a headquarters staff interfaces with NRO field elements and the intelligence community. This headquarters staff is under an Air Force brigadier general and is composed of approximately 73 personnel selected from the Air Force, Army, Navy, CIA, and NSA. Also, the Air Force Communications Service provides about 25 personnel assigned to NRO headquarters for communications support.

NRO field elements consist of three program offices which are directly responsible to the DNRO. Program A (Air Force) is headed by a major general and is overtly known as the Office of Special Projects, Office of the Secretary of the Air Force, located in Los Angeles. Program B (CIA) is under the purview of the Deputy Director of Science and Technology at CIA headquarters. Program C (Navy) is headed by a Navy captain and is located at the Crystal City Complex in Virginia within the Naval Material Command.

The Air Force and CIA were associated with the NRP prior to the creation of the NRO, while Navy participation under the NRO commenced in 1962. The directors of the three program officers operate with a great deal of autonomy and report only to the DNRO without intervening levels. They have full responsibilities for the design, acquisition, and operation of satellite systems assigned to their respective programs. In addition, Program A has the overall responsibility for booster procurement and launching of all NRP satellites.

III. OPERATIONAL SYSTEMS AND AFFILIATED PROGRAMS

The two general categories of currently deployed NRP satellites consist of imaging and SIGINT systems. Imaging systems include the Air Force's HEXAGON and GAMBIT photographic reconnaissance satellites and the CIA's KENNEN electro-optical system. The SIGINT reconnaissance systems include the Air Force's [redacted] and the P-989, the CIA's [redacted] and the Navy's POPPY [redacted] satellites.

It is generally recognized that these systems make a major contribution to the total U. S. intelligence collection effort through their frequent, worldwide access to denied areas. Without them, a large portion of intelligence community requirements could not be satisfied.

A. Imaging Satellites

1. HEXAGON and GAMBIT

The HEXAGON and GAMBIT photographic reconnaissance satellites are film return systems wherein each of the five film capsules or buckets on the HEXAGON and two on the GAMBIT are ejected from the spacecraft when full and then retrieved by aircraft over the Pacific Ocean west of Hawaii. After release of the last bucket an orbit-adjust rocket deorbits the satellite, most of which burns up on reentry although some debris does fall into the Pacific Ocean.

The HEXAGON provides broad area search, surveillance, mapping and target-positioning capabilities. It has two stereo-panoramic cameras furnishing medium resolution photography of about 1 1/2 feet at best as well as a camera for mapping, charting, and geodosy. A photograph's resolution may be defined as the minimum distance that objects are distinguishable on the ground.

Approximately 75 percent of HEXAGON's collection effort is directed at communist countries, 18 percent against Middle East and third country requirements as well as mapping and charting, and the remaining 7 percent for engineering and prelaunch film testing, and other support. Its principal contributions are the monitoring of Soviet adherence to provisions of the Strategic Arms Limitation Treaty (SALT) and search for newly deployed targets such as air defense sites. It also routinely provides intelligence concerning military forces' order-of-battle and industrial and agricultural developments, including locations of poppy fields having illicit drug implications.

The orbital HEXAGON is about 60 feet in length, 10 feet in diameter, and weighs approximately 26,000 pounds. It is launched by a TITAN IIID booster from the Western Test Range at Vandenberg Air Force Base into a low elliptical orbit with a perigee of 80 and an apogee of 160 nautical miles. Launches have been occurring in recent years at a rate of two per year, which are now being reduced to one per year with [redacted] HEXAGON's mission life also is being projected to increase to 180 days and even possibly 220 days in the future. All of the 13 launches to date have been successful and all of the film buckets, with one exception, have been recovered and the film processed. On-orbit support as well as health status checks for both the HEXAGON and GAMBIT vehicles are provided by the Air Force Satellite Control Facility (AFSCF) network.

In contrast to HEXAGON, the GAMBIT spacecraft provides high resolution photography ([redacted] of specific targets representing a particular intelligence problem. It is therefore capable of providing more detailed technical intelligence data on weapon systems, Soviet silo modernization and conversion programs to determine SALT conformance, and a wide range of intelligence needs where high resolution photography is essential. Significantly, GAMBIT also provides high resolution detail with respect to targets initially detected by HEXAGON. However, since bucket retrievals from both systems are normally made after about three or more weeks on orbit, the intelligence data collected lacks the timeliness deemed necessary to support indications and warning, crises reconnaissance, and tactical requirements.

The GAMBIT satellite is about 48 feet in length and weighs approximately 9,000 pounds after launch by a TITAN IIIB booster at the Western Test Range. It achieves an elliptical orbit at altitudes ranging from 69 to 220 nautical miles by the AGENA control vehicle which controls the spacecraft throughout its mission life. GAMBIT's mission duration has progressively increased to 69 days on its latest mission and 90 days of useful life is now considered a distinct possibility for future GAMBITs. Two satellites per year have been launched since 1975, but this launch rate is expected to be reduced to one per year or even be entirely eliminated depending on the ongoing evaluation of KENNEN's capability to perform the GAMBIT mission.

There have been one TITAN and two AGENA failures in the 48 advanced GAMBITs launched since 1966, thus resulting in the inability of three GAMBITs to attain orbit and perform their mission. In addition, a fourth GAMBIT failed to perform its mission after being on orbit since

the film was not recovered, while the film in the second bucket of two other GAMBITs was lost due to (1) malfunction in the command system, and (2) failure of the bucket's parachute to deploy. To date, therefore, four GAMBITs failed to perform their mission and two other GAMBITs accomplished 50 percent of their mission.

2. KENNEN

a. Description and Status

The KENNEN electro-optical imaging satellite program was approved in late 1971, culminating in separate launches of two relay satellites [redacted] and of the imaging satellite in December 1976. The KENNEN methodology used in acquiring imagery is unique and stems from tremendous advances made in the solid state, electro-optical field. [redacted]

The first KENNEN satellite achieved its initial operational capability (IOC) on January 20, 1977, following its launch on December 19, 1976. This launch had been originally scheduled to take place on October 15, 1976, but had to be rescheduled on three separate occasions principally because of operational software problems.

[redacted]

c. Potential Replacement of GAMBIT and HEXAGON

[redacted] and instructed NRO, after gaining sufficient operational experience from the first KENNEN, to advise the Committee of the pros and cons of a two versus one vehicle system. By memorandum dated May 11, 1976, the DCI directed an evaluation be made of the proper mix of imaging systems to support major CFI (now PRC) decisions in the fall of 1977. Specific data on KENNEN required for the CFI included (1) the extent to which one KENNEN can [redacted] in the context of KENNEN performance, (2) the need for and nature of data required beyond KENNEN's capability, and (3) the need for [redacted] capabilities and how they fit into the overall national imaging system mix.

In response to this memorandum, an NRO review group was established to evaluate the KENNEN, HEXAGON, GAMBIT, [redacted] systems mix for the future and to provide the DNRO data upon which he can base his program recommendations. The PRC's consideration of this matter and its decision thereon is scheduled for November 1977.

Dependent on the outcome of this evaluation of KENNEN's orbital performance, two basic assumptions currently exist with

respect to future GAMBIT and HEXAGON launches. The first assumption is that a single KENNEN satellite on orbit will provide sufficient quantity and quality of intelligence to permit a 50 percent reduction in the GAMBIT launch rate. The HEXAGON launch rate would then have to be increased to one every eight months. [redacted] the potential exists to replace both the GAMBIT and HEXAGON systems in the mid-1980's.

There are four possible imaging mix alternatives that may result from the KENNEN evaluation as follows:

(1) [redacted] capability and termination of the GAMBIT program. Continue HEXAGON at a launch rate of one per year. The annual recurring cost of this imaging mix would be approximately [redacted] per year.

(2) Continue launch rates of HEXAGON and GAMBIT at one per year and retain KENNEN in its single satellite configuration pending implementation of changes required to replace GAMBIT. The annual recurring cost for this mix, exclusive of development costs to improve KENNEN, would be about [redacted]

(3) [redacted]

(4)

The NRO considered option (3) to be the best in terms of long-range cost effectiveness in meeting national imagery requirements. An additional $50 million would be required in FY 1978 to commence improvements in KENNEN and reprogramming of FY 1978 funds for this effort would be requested, if this option is approved.

Intelligence community officials generally conceded that the KENNEN system has great potential in the field of overhead imagery collection and that the results to date have been gratifying. KENNEN furnishes a finished product to the intelligence community in near-real-time

However, there are some negative aspects associated with KENNEN's capabilities to replace the GAMBIT and HEXAGON, which are recognized as being outstanding systems. The high resolution of recent GAMBIT photography is expected to increase even further because of advancements being made in the field of photography, including film quality and processing.

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B. SIGINT Satellites

NRP SIGINT satellite systems collect communications intelligence (COMINT), electronics intelligence (ELINT), foreign instrumentation signals (i.e., telemetry, command and control

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[redacted]

2. P-989

a. Mission and Status

The P-989 SIGINT program consists of several independently operating satellites providing general search and electronic order-of-battle (EOB) data, technical intelligence and COMINT. They are launched as passenger payloads on the HEXAGON vehicle into a low orbit of about 275 nautical miles. While significant cost savings are realized by this technique, P-989 launches are time restricted as they have to correspond to those of the HEXAGON.

A total of 32 P-989 satellites have been placed into orbit to date. At the present time, there are six systems on orbit which are tasked by the [redacted] The missions and status of these six satellites are as follows:

(1) URSALA's 1, 2, and 3 were launched, respectively, in July 1972, November 1973, and July 1976. They conduct an ELINT search mission, provide EOB data and detect [redacted] URSALA 1 operations were terminated in December 1975 as the satellite was in poor health, but it was reactivated in February 1976 due to a partial failure in URSALA 2. Operations were again suspended in July 1976 and the satellite is so severely degraded that [redacted] it only for health monitoring and occasional engineering tests. Consideration is being given to its reactivation, however, to support a forthcoming Army exercise in Europe.

URSALA 2 is also severely degraded and is currently being tasked only for detection of [redacted] since its [redacted] failed in February 1976. On the other hand, URSALA 3's performance on orbit is considered by NRO to be excellent and all components are operating in accordance with specifications. Its mean mission duration has been extended to 24 months from 15 months established for its predecessors.

(2) MABELI has a search mission directed only at collecting technical intelligence on the Soviet ABM radar systems, including those that operate at high frequencies. It was placed in orbit in January 1972 with a mean mission duration of 12 months. MABELI is seriously degraded, primarily because of failure in lower frequency bands, loss of predetection capabilities and restricted use of on-board tape recorders, which store collected data that is later transmitted to the ground. As of October 1976, the satellite was being tasked in its mission for about 10 minutes daily. Data loss is estimated to be 85 percent, while spacecraft attempts to read out data are successful only 5 percent of the time.

(3) TOPHAT 2 has a general search mission and is directed at tropospheric scatter communications at low frequency ranges. It is now being primarily tasked to collect a special Soviet signal of prime importance. TOPHAT 2 was placed into orbit in April 1974 with a mean mission duration of 24 months. Its condition is judged to be fair primarily because only one of its three tape recorders is fully operational. As a result, it accomplishes about one-third of a full mission tasking on a daily basis.

(4) RAQUEL 1 intercepts radar signals and performs technical intelligence and general search for [redacted] emitters up to very high frequency ranges. It was placed into orbit in October 1974 with a mean mission duration of 24 months. It is in a degraded condition due to loss of a frequency band, failure of the technical intelligence [redacted] and restricted use of two of its three tape recorders. It is now being used primarily to search for emitters operating in high frequency bands.

The P-989 baseline program provides for continuing operations and replacements of RAQUEL 1 and URSALA 3 by RAQUEL 1A and URSALA 4. The remaining satellites on orbit will not be replaced following termination of their useful life. RAQUEL 1A has been produced and was recently rescheduled for launch in March 1978 to conform to HEXAGON's scheduled launch. URSALA 4, which has been available as a backup to URSALA 3, will then undergo a 9-month refurbishment of life-limited components and be ready for a planned HEXAGON launch in March 1979.

The baseline program also supports the acquisition of a SIGINT extremely high frequency pallet experiment which is planned to be aboard a HEXAGON launch in 1979. This program was initiated in FY 1977 at a total estimated cost of $8 million through FY 1980. Tasking for this payload, which will have a search mission, will be parallel to that for the P-989.

RAQUEL 1A and URSALA 4 have basically the same technology as the satellites they will be replacing. While RAQUEL 1A is practically a carbon copy, URSALA 4 is a slightly improved version and may also incorporate encryption of its downlink communications if approved. Tape recorders have been replaced with the result that the projected mission life has been extended by six months. As indicated above, failures of tape recorders in P-989 satellites have been a major cause for mission degradation.

P-989 satellites are tasked by [redacted] to cover predetermined segments of each revolution. Signals collected from these segments are stored on tape recorders and are later transmitted to remote tracking stations along the satellites' paths. The tracking stations send the data through Defense communications satellites to [redacted] for processing other than COMINT collections from TOPHAT, which are forwarded directly from [redacted] to NSA for processing. All commands to the spacecraft are generated at Sunnyvale and are relayed to P-989 satellites by the tracking stations, which support a number of other space programs as well.

There are six remote tracking stations associated with P-989 operations. They are located at Vandenberg Air Force Base; New Boston, New Hampshire; Guam; Hawaii; Mahe Islands in the Indian Ocean; and Thule, Greenland. The Vandenberg and New Boston stations receive and forward the bulk of P-989 collections. Thule and Mahe are used only to relay an occasional command to the satellites.

A large backlog of unprocessed P-989 data was accumulated at [redacted] by the summer of 1976. Due to budgetary limitations, the

processing operation had been cut back from three shifts to one shift a day in early 1976. As a result, only highest priority signals were processed and the remainder was placed in storage. Inasmuch as there was insufficient storage space to accommodate the mass of data received from the remote sites, a heavy backlog was modulated by destroying certain data. In November 1976, the backlog was eliminated through the installation of another computer and the return to a 3-shift processing operation.

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5. POPPY/[redacted] Systems

a. Description and Status

The Naval Research Laboratory (NRL) developed and built the POPPY [redacted] for the purpose of responding rapidly to crises situations and providing ELINT support to Navy commanders. The POPPY system was designed to accomplish a general search mission in locating new radars with emphasis on shipboard emitters. However, POPPY demonstrated a capability for ocean surveillance by intercepting known shipboard emitters, thereby

determining the location and identity of Soviet vessels. It is now performing that mission almost exclusively. [redacted]

The mission concept had its origin in the late 1950's, followed by launches of experimental satellites in 1960 and 1961. The POPPY program officially began with the launch of a 2-satellite cluster ELINT mission in December 1962, after the Navy's overhead reconnaissance program was placed under the NRO. Since March 1965, there have been four launches of POPPY planes, each of which consisted of four satellites [redacted] The last plane launched in December 1971 is still performing an ocean surveillance mission, although it has lost some of its frequency channels and its power supply has deteriorated.

The POPPY system was launched and placed into a circular orbit at an altitude of about 500 nautical miles by a THOR/AGENA booster. [redacted]

POPPY's mean mission duration on orbit was established as 2 years, but the last POPPY launched is still operational after 5 1/2 years. [redacted]

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D. Space Shuttle Transition

The Space Shuttle is programmed to transport and eject low altitude satellites into their proper orbits. High altitude satellites will be carried to lower orbits and will then be launched from the Space Shuttle to their operating altitude. After placing both types of satellites in orbit, the Space Shuttle will recover low orbiters, whose productive life had ceased because of some premature malfunction in the spacecraft or because of termination of its useful life. If the problem is minor and can be corrected in space, the necessary repairs will be made on the recovered vehicle and the spacecraft will be ejected from the Space Shuttle to resume its orbital mission. Otherwise, the satellite will be returned to earth on the Space Shuttle for refurbishment.

Pursuant to congressional direction in the June 8, 1976, House classified letter on intelligence, NRO policy has evolved to transition NRP satellites from expendable launch vehicles (ELV's) to the Space Shuttle, called the Space Transportation System (STS), as early as practical. NRO has, however, repeatedly emphasized that this transition must be accomplished without degrading the NRP mission; that stringent security requirements be maintained; and that an ELV backup capability be continued until an acceptable level of confidence in the STS has been reached. The long-range implications of required security, by NRO's own admission, will be difficult and costly. Further, the confidence level in the STS deemed necessary to terminate the ELV backup capability could significantly impact on program funding in the 1980's. The first launch of an NRP satellite on the Space Shuttle is scheduled

In its FY 1977 response to the House Appropriations Committee inquiry, NRO projected STS transition costs from FY 1975 through FY 1981 as $322.7 million. A subsequent transition plan resulted in a revised cost projection through FY 1981 of $292.7 million. Transition costs included STS studies, payload transition and ELV backup.

NRO now estimates its FY 1982 transition requirement will be $174.4 million of which $154 million represents ELV backup. The cumulative projection through FY 1982 is then $467.1 million, of which $266.9 million is for ELV backup.

The STS will offer NRO the potential of increased capabilities. Possible new applications include the deployment in space of satellites with larger optic systems providing better resolution

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the STS itself to accommodate strap-on reconnaissance packages for both imagery and SIGINT missions; and the recovery and refurbishment of satellites for reuse.

While NRO is dedicated to implement the national policy of transitioning to the STS, some knowledgeable officials have expressed reservations concerning the feasibility of optimizing intelligence payloads for the STS. The concept of recovering, refurbishing and reusing intelligence satellites was viewed as most questionable. Concern was expressed that the age and approaching obsolescence of recovered hardware, new requirements brought about by a changing intelligence environment, and existence of new technology would make refurbishment of high performance intelligence satellites, which require a complex level of component testing and evaluation, uneconomical and impractical. The alternate possibility of refurbishment or even minor repairs in orbit is also speculative because of the complexity of intelligence satellites and space limitations in the STS bay area for working on large systems. According to some contractors, the cost effectiveness of this technique will depend on the establishment of refurbishment standards. Until this is done, a difference of opinion on the feasibility of system reuse will prevail.

The foregoing transition cost estimates disclose that ELV backup capability represents more than one-half the total projected costs. NRO will understandably be reluctant to terminate this capability without an extremely high confidence level in the STS. NRO has, however, developed a backup ELV plan designed to minimize expenditures for backup commitments and still maintain sufficient flexibility to exercise options dependent on STS progress. In view of the high cost of ELV backup, it is essential that NRO continually review this backup plan to insure that backup requirements are realistic and not overstated.

Security is also a major consideration in the transition of intelligence satellites to the STS. In addition to NRO, the NASA, DOD and other U. S. agencies and foreign governments will have payloads in the STS. NRP satellites constitute between 30-35 percent of the total DOD payload designated for the STS. The nonintelligence international application will complicate security arrangements and necessary safeguards could impact on the cost effectiveness of the transition of NRO satellites to the STS.

The DNRO had established Program A as the focal point for transition to the STS. A payload accommodations group was established at Program A in January 1976 to minimize transition costs and to insure that NRO transition requirements were considered. Members of this group included representatives from Programs A and B, NASA, and SAMSO. As of September 1976, this group met on four occasions which resulted in some savings in planning estimates regarding STS flights and payload reductions as well as a better understanding of safety factors.

The extremely high costs estimated for NRP transition to the STS warrant even closer, continuous scrutiny by involved agencies in an effort to minimize costs. The potential impact of transition technology, security requirements, and the likely reluctance to terminate ELV backup capability could very well result in substantial increases in the estimated 5-year costs in this program. It is accordingly recommended that the authority and complement of the above group be expanded to explore every possible area where cost savings might be realized without affecting program accomplishment.

IV. INTELLIGENCE COMMUNITY

A. Organizational Environment

While the basic mission of the NRO has not changed since its formation in 1961, the intelligence community environment in which it operates has been the subject of several organizational changes. These changes, which have been dictated by Presidential directed reorganizations of the intelligence community, have resulted in an increasing degree of oversight of the NRO.

1. Early History

The original agreements between the Secretary of Defense and the Director of Central Intelligence (DCI) vested management authority for the NRP within the Air Force and CIA. Oversight authority, other than adherence to joint policy guidance of the Secretary of Defense and the DCI, was not incorporated into the agreements.

The latest agreement or charter in 1965 established an NRP Executive Committee (ExCom), in accordance with recommendations of the President's Foreign Intelligence Advisory Board (PFIAB). The ExCom was originally composed of the Deputy Secretary of Defense, the DCI and the Assistant to the President for Science and Technology. Subsequent executive branch reorganizations resulted in a change in ExCom composition to include only the DCI and the Assistant Secretary of Defense for Intelligence. The ExCom was given responsibility to guide and participate in the formulation of the NRP, including approval of the NRO budget and resource allocations. Thus, the ExCom acted as the principal policy and decision-making authority for the NRP.

Pursuant to its 1965 charter and continuing to February 18, 1976, the NRO operated under Secretary of Defense executive direction and control and ExCom review and guidance. In addition, NRO operated within the security policy guidance of the DCI and responded to the intelligence collection requirements and priorities established by the United States Intelligence Board (USIB). The PFIAB continued to review NRO operational plans and programs while the 40 Committee of the National Security Council (NSC) dictated policy regarding intelligence collection over denied areas. Close liaison was maintained with NSA which was responsible for processing, analyses and dissemination of SIGINT data and for providing technical guidance. Operational coordination was also effected with the Joint Chiefs of Staff (JCS).

2. Impact of Recent Presidential Directives

On February 18, 1976, Presidential Executive Order 11905, entitled "U.S. Foreign Intelligence Activities," directed a reorganization of the intelligence community. A Committee on Foreign Intelligence (CFI), composed of the DCI, Deputy Secretary of Defense and Deputy Assistant to the President for National Security Affairs, was created to provide budget and resource policy guidance and control. The ExCom was abolished and its functions were absorbed by the CFI. An Operations Advisory Group (OAG), composed of the Assistant to the President for National Security Affairs, the Secretaries of State and Defense, the DCI and the Chairman of the JCS, was created to review covert operations and specific sensitive intelligence operations. This new group absorbed the functions of the 40 Committee. An Intelligence Oversight Board, composed of three members appointed by the President, was formed to review intelligence community matters related to legality and propriety. The responsibility of the NSC for overall policy control of the foreign intelligence community, the oversight guidance of the PFIAB, and the DCI's role as the President's primary advisor on foreign intelligence were reaffirmed. Pursuant to authority given the DCI, the USIB, which functioned in behalf of the DCI in developing national intelligence requirements and priorities, was restructured by the DCI as the National Foreign Intelligence Board (NFIB). The management structure and mission of the NRO, within the context of the Executive Order, remained unchanged.

In January 1977, the President created a Policy Review Committee which assumed the prior role of the CFI in making policy decisions regarding intelligence community budget and resource allocations. Members of this Committee include the DCI, Deputy Secretary of Defense, Deputy Assistant to the President for National Security Affairs and the Under Secretary of State for Political Affairs. In addition, a Special Coordination Committee was formed to assume the functions of the OAG, and its predecessor, the 40 Committee. This Committee was constituted as an NSC Committee comprised of the President's National Security Advisor, the Secretaries of State and Defense, the DCI and the Chairman of the JCS. All of the above committees are functional at the present time.

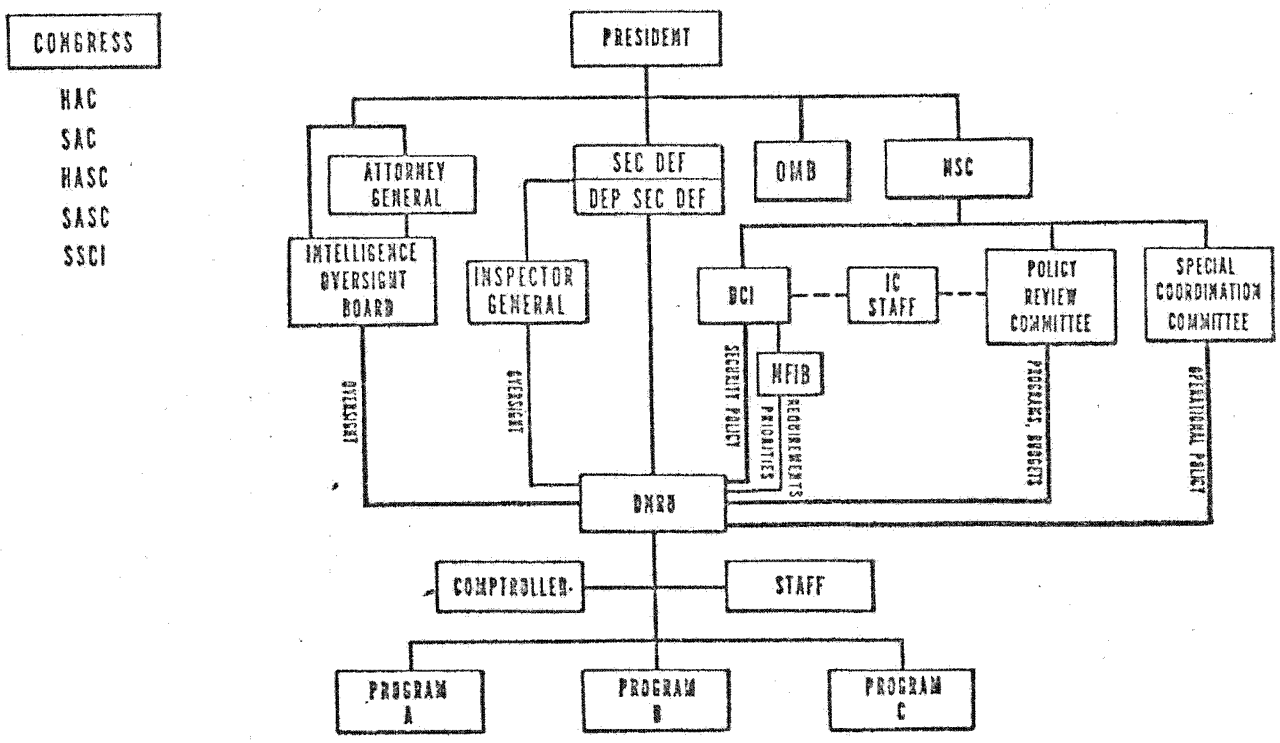
3. Present Environment

NRO's mission and management structure have not been affected by changes in the intelligence community. However, executive branch reorganizations and interpretation of Executive orders have resulted in an increasing level of oversight involvement concerning the NRP mission.

Present and former top officials of the NRP and the NRO have expressed concern that this expanding involvement, both congressional and executive, could be disruptive of program security and the effectiveness of NRO's streamlined management concept. This matter will be dealt with more fully in a later section of this report regarding NRO management.

The following organizational chart depicts the current intelligence community environment in which NRO operates:

THE NRP ORGANIZATIONAL ENVIRONMENT



In brief, the roles played by the above organizational components with respect to the NRP are as follows:

The Secretary of Defense, as executive agent, is responsible for the overall conduct of the NRP and reports directly to the Presidential level. The DNRO, assisted by headquarters and field elements, is charged with the fulfillment of the NRP mission.

Oversight responsibilities are delegated to the PFIAB, the Intelligence Oversight Board (IOB) and the DOD Inspector General. The PFIAB has provided oversight guidance of the NRP from its inception and played a leading role in the formulation of the NRO charter. The IOB reports directly to the President on matters of impropriety and to the President and Attorney General on matters of legality. No substantive matters regarding impropriety or legality have been submitted to date by NRO, which reports quarterly on its activities to the IOB and to the DOD Inspector General. Questions of legality would be resolved by the Attorney General.

The Policy Review Committee is responsible for NRO's budget and resource allocations. The Office of Management and Budget has conducted some reviews of the NRO budget, but not to the extent it desired as discussed in a subsequent section of this report.

The DCI is responsible for NRO security policy and, through the NFIB and its subcommittees, establishes intelligence collection requirements and priorities. The Special Coordination Committee reviews the NRO operational plans in the context of political considerations. The Intelligence Community Staff provides staff support for both the DCI and Policy Review Committee. With its substantial increase in personnel, this Staff will be exercising a more active role in intelligence community affairs. The NSC, of course, is the ultimate authority under the President for intelligence community activities.

Finally, congressional review of the NRO includes the House and Senate Appropriations and Armed Services Committees and the Senate Select Committee on Intelligence.

B. Development of Requirements

The NRO develops and operates reconnaissance satellite systems solely in response to requirements and priorities established by the DCI. Requirements are formulated by the NFIB, chaired by the DCI, through its SIGINT and Imagery Committees and Subcommittees. In a sense, NRO functions may be likened to those of a middle man. The DCI evaluates intelligence needs and establishes priorities; the NRO builds and operates satellites to best meet these needs; and members of the intelligence community other than NRO process and exploit the collection. Thus, NRO does not have direct involvement in establishing requirements nor in the processing and exploitation of its collection product.

The requirements process consists of two distinct categories: (1) imaging requirements related to the HEXAGON, GAMBIT and KENNEN missions, and (2) SIGINT requirements related to the [redacted] POPPY [redacted] P-989 missions. In both categories, intelligence needs are originally identified by the military services, U.S. Commands and various national agencies, and are then channeled to a central tasking authority.

In the case of imagery, the NFIB Committee on Imagery Requirements and Exploitation (COMIREX), coordinates, validates and approves requirements. The Imagery Collection Requirements Subcommittee (ICRS) of COMIREX then formulates and provides the actual collection guidance for approved requirements to the NRO. ICRS is composed of members from CIA, DIA, State, NSA, Air Force, Army, Navy and consultants from NRO, the Defense Mapping Agency (DMA) and the National Photographic Interpretation Center. It is the principal interface with NRO in coordination of requirements guidance with system development and operation. Significantly, ICRS members generate requirements and receive the exploited product.

DMA, in behalf of JCS, validates mapping, charting and geodesy requirements. The Committee for Civil Applications of Classified Overhead Photography, chaired by the Department of Interior, approves any domestic requirements for photographic coverage of soil erosion, crop output, floods, and so forth. In each case, however, these requirements must be processed and approved by COMIREX before any resources can be allocated.

SIGINT requirements flow through the SIGINT Committee of NFIB. Within this committee structure, a SIGINT Requirements Validation and Evaluation Subcommittee validates submitted requirements and enters those approved in the National SIGINT Requirements List (NSRL). This

list contains all NFIB approved standing requirements by priorities. Using the NSRL as a basic reference, the SIGINT Overhead Reconnaissance Subcommittee (SORS) under the SIGINT Committee develops detailed mission guidance for the SIGINT satellite systems. SORS transmits collection guidance to the NRO and processing guidance to NSA. The NRO and NSA then submit properly coordinated tasking instructions to the NRP mission ground stations to fulfill collection requirements.

In practice, the requirements process is designed to assure that nothing is missed and that customer needs are being satisfied within technological constraints in operational systems as well as in systems being developed. It is, therefore, paramount that the establishment of both long-range requirements, which guide the development of new systems, and short-term requirements, which guide the tasking of existing systems, be carefully formulated to insure the optimum satisfaction of national intelligence priorities. While the Investigative Staff supports this philosophy and the basic mechanism set up to implement it, some knowledgeable, ranking officials expressed concern that requirements are much too general; that they lack definition for NRO tasking; and that the DCI should take a stronger role in establishing requirements based on fiscal considerations.

One authority identified CIA as an agency with an extremely strong team which, if given a degree of autonomy, was capable of generating a requirement and then getting a "jump" on the field to satisfy it. The [redacted] Knowledgeable officials also expressed concern that in some cases systems may be dictating requirements rather than requirements dictating systems. For example, it was alleged that CIA had written requirements to fit the early HEXAGON program, which proved to be highly successful, and had slightly misused the requirements process in the KENNEN program. In this regard, it was felt that parochial interests, particularly those of CIA which has more personnel representation on the requirements committees and their staffs, may be too influential in the establishment of requirements. This influence is illustrated by the fact that the CIA chairman of COMIREX has an overriding vote on imagery requirements, which he frequently exercises. It should be noted, however, that the expertise and dedication of CIA personnel with respect to space reconnaissance was fully recognized during the course of this study. Nevertheless, the factors cited above could adversely impact on national intelligence collection interests unless properly controlled by higher authorities.

While there were some reservations concerning the development of requirements, NRO's responsiveness to them was praised by officials of the SIGINT Committee and COMIREX. The chairman of COMIREX assessed NRO's operation of satellites as exceptional, pointing out that the systems were operated with optimum use of technology involved. The chairman of the SIGINT Committee advised the NRO was seeking more and more to interface with the SIGINT Committee for interpretation of guidance and that a close working relationship existed with the DNRO. He noted that this same relationship did not exist as recently as 1973 when NRO was inclined to work on its own. A recent DNRO generally supported this view.

V. NRO MANAGEMENT

An earlier section of this report, captioned "Organizational Structure", contains an overview of NRO's internal management relationships. This section includes specifics concerning staffing policy, manpower, security, effectiveness of streamlined management, contract management, [redacted]

A. Staffing Policy

The existing NRO charter provides that NRO shall be jointly staffed in such a fashion to reflect the best talent available from the CIA, the three military departments and other government agencies and that personnel will not maintain allegiance to their original departments or agencies. In line with this authority and the organizational streamlined management concept, NRO policy provides for the selection of a minimum number of exceptionally well-qualified personnel.

In furtherance of this policy, emphasis centers on the selection of experienced, reliable personnel with technical qualifications both at headquarters and field levels. At NRO headquarters, there is some balance of military and agency personnel who work side by side in carrying out NRP mission objectives. The turnover of civilian personnel is exceptionally low, while military personnel are normally retained for 4 years on NRO duty with the possibility of extension to 5 years.

A high level of expertise and dedication to the NRP mission was noted as a result of almost daily contacts with NRO personnel during the course of this study. Contractor officials interviewed in this study were also complimentary of the professionalism and dedication of NRO personnel.

B. Manpower

NRO receives two types of manpower support -- direct and indirect. Direct manpower includes personnel assigned and fully dedicated to the NRO. Indirect manpower represents the level of manpower effort within related support organizations which can be associated with NRP activities.

Direct manpower statistics are set forth in the NRO Congressional Budget Justification Books. The manpower chart in the FY 1977 book sets out a staffing level of 1,615 personnel in FY 1976, while the FY 1978 book reports 1,787 personnel for that period. NRO officials attributed the addition of 172 personnel in the FY 1978 submission to a detailed analysis of the staffing level, whereas time limitations precluded such analysis for the FY 1977 presentation with the result

all NRO personnel were not accounted for and the staffing level was accordingly understated. No indirect manpower totals are reported in these books; however, in his FY 1977 prepared statement to the Committee, the DNRO reported there were approximately 2,400 military and government civilian personnel directly or indirectly supporting the NRO.

In response to the Investigative Staff's request for more complete and reconcilable manpower statistics than appear in the above books, the NRO furnished the following:

Direct Manpower

	Authorizations	Source
	151	Headquarters, Air Force
	267	Air Force Systems Command
	265	Air Force Communications Service
	70	Air Force Logistics Command
	2	Air Weather Service
	46	Naval Electronics Systems Command
	326	Naval Security Group
	20	Headquarters, Army
	1	NSA
	521	CIA
Total	1,669	

Indirect Manpower

	Number	Type Support
	435	Air Weather Service
	363	DMSP
	32	SDS
	10	Airlift
	46	SAMSO Assistance to Program A
Total	886	

Total Direct and Indirect Manpower 2,555

Direct support manpower statistics are readily determinable from NRO rosters as such manpower is provided to the NRO from functional support activities within the three military departments, CIA and NSA.

Indirect support manpower computations, however, are based on the level of manpower effort within programs covering a broad range of support which can be associated with NRP activities. For example, the manpower complement of about 1,153 personnelin the Air Weather Service supports numerous customers in addition to the NRO. On a pro rata sharing basis, it was estimated that the services of about 435 of its personnel were utilized in providing indirect support to the NRP.

A subsequent section of this report captioned "Support Services Not in NRO Budget" sets out estimated costs and budgetary arrangements with respect to direct and indirect manpower support of the NRP.

C. Security

The DCI provides security policy guidance and security support to the NRP in accordance with the NRO charter and his statutory authority to protect sensitive sources and methods. Stringent security measures are employed throughout the NRO and extend to every area associated with NRP activities, such as at contractor plants, launch locations, operational sites and so forth. Emphasis is placed on compartmentalization and only information on a strict "need-to-know" basis is made available to personnel for assistance in performing assigned duties.

It is essential that such security measures be employed to protect against any disclosures of intelligence reconnaissance activities which would violate the internationally supported position of peaceful use of space. While the existence and purpose of the NRO have been receiving increased publicity in the news media and periodicals, these reports do not receive official confirmation or denial in accordance with U.S. policy.

An incident or disclosure forcing the United States to admit the existence of NRO and its use of space for intelligence collection could result in a political confrontation with a hostile or friendly foreign government. The Soviet Union and the Peoples Republic of China would then very likely accuse the United States of using space for espionage purposes. Knowledge of U.S. space capabilities could provoke the Soviets to take offensive action and destroy some NRP spacecraft with their antisatellite system or to render them ineffective. Also, several defensive measures could be employed which would limit or deny mission accomplishment by NRP satellites. For example, defensive measures against SIGINT collection include lowering transmission volume or changing frequencies, while greater use of camouflage or concealment would degrade imagery collection.

Background investigations on all individuals involved in the NRP, including contractor personnel, are conducted primarily by either the Defense Investigative Service or CIA and are updated every 5 years. Over 70,000 individuals are currently cleared for access to various elements of the NRP.

NRP clearance termination for cause was estimated to average less than 100 annually and to apply principally to contractor personnel, since NRO's selection process had established beforehand the reliability of its personnel. Termination of clearance is largely due to marital or financial difficulties and adverse behavioral patterns. There is one incident in recent years, however, which suggests the possible compromise of NRP data by a contractor employee in contact with a hostile intelligence agency. Newspaper accounts in early 1977 disclosed that an employee of the TRW Corporation was arrested together with an associate for having passed classified information to the Soviet Embassy in Mexico City. Details on this matter were not obtained as it was under litigation. However, it was ascertained that the TRW employee had access to incoming [redacted] as well as other NRP information. It is noted TRW is the [redacted]

D. Effectiveness of Streamlined Management

NRO's streamlined management structure, as outlined in a previous section of this report, is unique within DOD. It evolved over a period of time as top management's answer to the difficulties of administering a wide-ranging, complex program, which cuts across agency, service and intelligence community lines and which relies heavily on interagency cooperation.

In the formative period of the program there were many internal dissensions. Interagency rivalry was high, program directors were openly competing with each other, and there was considerable animosity among personnel. Actions taken over a span of several years to meet these problems gradually served to create an improved environment for management effectiveness. The substance of these actions included:

(1) Approval of Interagency Agreements-Charter: This action set forth the overall mission and established the framework of the NRO. It helped to reduce both internal and external tensions by providing operational guidelines and delineating responsibilities.

(2) Strong DNRO Leadership Role: As the stature of the DNRO increased, greater management emphasis was focused on the need for harmony in working relationships between

program managers and the elimination of bias involving Air Force, CIA and other personnel. The result was a better understanding among high-ranking NRO and intelligence community officials, which fostered a better attitude and teamwork in meeting NRP objectives.

(3) Personnel Selection: Steps were taken to permit a very selective approach in the assignment of personnel for NRO positions, both at headquarters and in the field. High-quality technical and managerial personnel and longer tours of duty were emphasized. Also, efforts were often made to retain qualified personnel after completion of their tour by transferring them to other assignments within the organization.

Simultaneously, the thinking of the intelligence community and the military services began to change. As emphasis in intelligence collection shifted from aircraft to satellites, it came to be recognized that greater use of satellites might be made by collecting intelligence for tactical as well as national interests. The high cost of satellite systems made it clear that duplication of effort in intelligence collection had to be minimized. The advent of the costly KENNEN system and its potential of providing intelligence applicable to both national and tactical interests further advanced this view.

Opinions on NRO's effectiveness in accomplishing its mission were solicited during this study from a variety of knowledgeable individuals. Among those contacted were cleared senior DOD officials directly or peripherally involved with the NRP, ranking officials in various elements of the intelligence community, and high-level officials in regulatory agencies of the Government and in industry. While a few of these officials identified some areas requiring improvement, such as OMB's need for more details on NRO's budget, they were unanimous in voicing a favorable opinion on NRO's accomplishments and its overall effectiveness.

A former DNRO, in speaking of NRO's streamlined management, contended that the Air Force's Defense Support Program (DSP) has a 5 to 1 ratio in manning over the GAMBIT system, which has relatively the same complexity. It is noted the primary mission of the DSP is the detection and observation of ballistic missiles during powered flight, using synchronous altitude satellites with infrared scanning telescopes. A secondary mission is the provision of nuclear detonation information from the detection and observation of bursts on or near the earth's

surface as well as in space. The former DNRO felt that part of NRO's success related to keeping its staff at a minimum level, handpicked personnel, longer tours of duty, and high esprit de corps within the organization.

A former senior DOD intelligence official expressed the view that the NRO management technique was an excellent way to administer the NRP mission. In his opinion, the unique nature of NRO operations and responsibilities justified this management approach, which would not be practical for application in other DOD organizations.

A Deputy Director of the OMB advised that, although differences existed between OMB and NRO on budget reviews, he was impressed with the leadership of the NRO. Although he could not make a judgment on its overall effectiveness, the quality, dedication and motivation of its top leadership indicated to him that NRO must be an efficient organization.

The efficiency of the NRO was also mentioned in a staff memorandum captioned "Organizational Subordination of the NSA and NRO", which was submitted by the Assistant Secretary of Defense for Intelligence (ASD/I) to the Deputy Secretary of Defense (Intelligence) in December 1975. This memorandum concluded that, while some improvements could be made in the internal organization of the NRO to permit more direct control of program elements by the DNRO, the management mechanism was relatively efficient and worked well.

In general, the Investigative Staff shares the same views expressed above and particularly supports the conclusion in the ASD/I memorandum. As a result of constant contacts with NRO personnel at all levels for about one year, it too has concluded that the streamlined management concept has been effective for this unique type of program. Nevertheless, since management is not static, there are certain managerial aspects that may need attention to preclude deterioration of NRO's effectiveness, as follows:

(1) NRO Charter: As previously noted, the absence of an updated charter could jeopardize NRO operations. A current charter expressing the present administration's position on the program's mission and on organizational and other arrangements is essential to NRO's continued success.

(2) The DNRO Position: The appointment of a permanent DNRO has lagged since the resignation of the last DNRO

in July 1976 and assumption of his operational responsibilities by the Deputy DNRO. A strong DNRO of recognized technical and managerial stature is essential under the streamlined management concept.

(3) Personnel: The streamlined management structure relies heavily on high-quality personnel, who generally consider an NRO assignment to be desirable. Some aspects of the Air Force ranking system, however, may deter quality personnel from NRO tours in the context of their promotion aspirations. The present Air Force policy is to evaluate personnel in the same grade within a specific organization rather than in comparison with all eligible Air Force personnel having the same rank. Thus, assignment to NRO may diminish their chances for promotion since NRO personnel are selected on an "above-average" basis.

Page Denied

F. Contract Management

1. Background

The heavy preponderance of NRP technical activity is carried out through contract arrangements. This includes (a) the development, construction, testing and launching of satellites, (b) the provision of ground station support for command and control functions including personnel, computers and related hardware and software, and (c) other engineering and backup support including research and development requirements. Relatively few contractors have the overall expertise, technical capacity and resources to function as prime contractors in this specialized, high performance, technical field.

Consistent with the streamlined management concept, NRO program directors have been delegated all contracting and contract monitoring responsibilities relating to their respective programs. While the DNRO may be briefed on some contract matters, the NRO headquarters staff does not become involved in the award, execution or monitoring of contracts. The program directors have the autonomy to perform these functions within the general guidance set forth in the Armed Services Procurement Regulations (ASPR).

NRO actually contracts for relatively few spacecraft but at a very high cost per vehicle. The total cost is much higher when all the related activities such as launching and ground station support are included. In view of the high level of technology and accompanying high costs involved in this type of satellite system development, contractor performance in NRO's estimation is paramount. Although all NRO program directors emphasize this concept for system procurement, they use two different, yet objectively similar, contractual approaches.

Programs A and C rely almost exclusively on specialized incentive contracts, a type of Cost Plus Incentive Fee (CPIF) contract, whereas Program B prefers to use a Cost Plus Award Fee contract approach.

2. Specialized Incentive Contracts

Program A has utilized specialized incentive contracts for procurement in major programs since 1966. It adopts a cost plus incentive fee approach which places maximum incentives on achievement of flight performance. The overall objective is satisfactory orbital performance while insuring responsible fiscal and schedule management. Incentives, normally 15 percent, can be earned for on-orbit performance only and are based on a critical events list which measures performance by the number of satisfactorily completed orbital revolutions. Cost overruns and schedule delays offset any performance incentive fees earned, up to 9 percent of target costs for overruns and a lesser penalty of possibly ½ percent for failure to meet the schedule.

Originally, Program A handled Program C's contracting due to Program C's inexperience. With Program A guidance, Program C assumed responsibility about 1 year ago for its own contracting; however, Program A will continue to monitor some contracts negotiated before the transfer. Like Program A, Program C will utilize specialized incentive contracts for its major systems procurement. [redacted] Program A also contracts for the procurement of launch boosters for Programs A, B and C.

3. Cost Plus Award Fee Contracts

Program B prefers Cost Plus Award Fee (CPAF) contracts for systems procurement. This contracting procedure also emphasizes contractor performance; however, the technique used in measuring and awarding performance differs in some respects from the specialized incentive contract technique used by Program A.

As negotiated by Program B, CPAF contracts provide a base fee of up to 3 percent plus an award fee of up to 12 percent. These percentages can be varied, although they represent maximum limits. Fees are based on estimated target costs, not actual costs, and the award fee determinations are dependent upon contractors meeting established criteria. Some of the more measurable criteria might include costs, development tests, scheduling, qualifying tests, on-orbit performance and satellite life. Decisions regarding criteria satisfaction are made unilaterally by the government.

4. Evaluation of Principal NRO Contracting Techniques

There are two basic differences between CPAF contracts used by Program B and specialized incentive contracts used by Programs A and C: (1) CPAF contracts assure the contractor a base fee of up to 3 percent with up to 12 percent awardable for meeting specific performance criteria, whereas specialized incentive contracts provide the entire amount up to 15 percent as an incentive for performance, and (2) CPAF contracts provide award fees for both pre-orbit and on-orbit performance, whereas specialized incentive contracts provide incentives for on-orbit performance only.

It is apparent that Program A has become enamoured with specialized incentive contracts as the "cure all" for everything. Program A contends that incentive fees, generally 15 percent for attaining satisfactory, measurable performance with offset penalties for cost overruns and schedule failures, motivate contractors to a very high level of performance, often above standards or expectations, in a very complex and difficult field. Program A equates this contracting technique with successful performance of its systems and feels that the record speaks for itself.

Program B defended its CPAF contract approach. It pointed out that technological expertise which may be good today may not be novel 6 months from now. An award fee contract would be flexible to this type of change, whereas a strict incentive-type contract might commit the government unnecessarily for as much as 3 years. It was claimed that award fee contracts can take cognizance of contractor strengths and weaknesses and establish and weigh performance criteria accordingly. Also Program B contends that such contracts inspire closer upper management contractor attention throughout the life of the contract.

It was observed that Program B exercises much greater supervisory involvement with contractors in monitoring its contracts. Although award fee contracts require more detailed planning, administrative control and program office involvement than specialized incentive contracts because of variance in performance factors, such an approach seems consistent with CIA tradition of direct, close supervision. Contractors readily confirmed this difference in Programs A and B involvement, it being alleged that Program B actually functions as though it were a prime contractor dealing with associate and subcontractors. Program A is more reliant on Air Force Contract Management Plant Representative Detachments collocated at major contractors with responsibility for inducing better contractor performance. These detachments include "BYEMAN" cleared personnel who exercise DOD plant cognizance over NRO contracts in coordination with NRO program

and contract officers. This integration of Air Force Plant Representative Detachment cognizance with NRO program element monitors at contractor facilities was observed to be well coordinated and effective.

While it must be conceded that NRO has been very successful in its mission and that incentive and award fee performance contracts have undoubtedly contributed to systems performance, there are some possible pitfalls that should be guarded against. Only recently has there been Program A recognition of the need for more balanced consideration of performance and cost in its contracting approach. This recognition emerges in a timely, provocative study on "Program Cost Realism and Control" conducted pursuant to instructions of the director of Program A. The study report, which was adopted on January 19, 1977 as a guide for use by Program A personnel, should (in light of congressional and DOD interest in conservative budgeting) assure greater recognition of costs without sacrificing performance objectives.

The above study has dispelled some of the Investigative Staff's initial concern that the heavy emphasis on performance had resulted in an almost automatic reliance on incentive-type contracting. This concern extended to the possible negotiation of incentive or award fees at maximum levels without an adequate evaluation of the degree of risk being encountered and whether production of the end item involved had progressed from a research and development stage to a production stage, thus justifying a fixed price contract approach. It is recognized that these are matters of subjective judgment on which officials may differ, so it is very important that the government's negotiating stance be carefully considered in each case.

This issue emerges most clearly on highly successful programs that continue over a period of time. For example, GAMBIT is a proven and generally successful program. It has a number of vehicles under each block change. One of the identifiable end items of GAMBIT is the Eastman Kodak photographic payload. The average cumulative incentive fee earned for this end item for each mission is approximately 14 percent. The consistency in the level of incentive fees (ranging from a little over 13 percent to an almost perfect 15 percent) seems to indicate that the block changes initiated with satellites (numbers 23, 32 and 42) did not have any material impact on contractor performance in producing this end item. Thus, a production rather than development stage might have been entered justifying a fixed fee approach.

As expected, contractor officials commented most favorably regarding incentive contract arrangements. They contended that incentives and award fees inspired better performance, permitted them to

retain their better employees even though production was limited, and that the government benefited in the long run. On the other hand, a ranking DOD official noted that, while incentives are appropriate in high risk situations (such as the first block of a system), their continuance at maximum incentive fee levels is questionable once (a) a high level of performance has been reached, and (b) minimum risks are involved in less than major modifications. For example, the need for incentives on a follow-on contract for the continued operation of a successful ground station is debatable.

The Investigative Staff recommends that the NRO continue its new "cost realism and control emphasis", expand it to all programs, and be careful to negotiate its incentive and award fee arrangements consistent with contractor risks and over realistic periods so that the government does not prematurely contract away its negotiating position or pay too high a performance percentage. Innovative thinking with regard to new formulas, "narrowing the gap" on production uncertainties, and improved cost estimating (all of which are within the thrust of NRO expertise) are essential to effective incentive and award fee contracting.

In addition, an NRO Staff study should be initiated to evaluate Program A and Program B contract techniques, to establish any basis for the different approaches, and to assess the potential alternate application of them between programs.

Although Programs A and B strongly supported their respective contract approaches, it was apparent that the potential application of alternative techniques or modifications of them had not been considered. Considering the degree of autonomy given program directors, variances such as those involving Programs A and B contracting should be a matter of concern and study by the DNRO Staff to insure that the most cost effective approach was being followed and that any differing approaches were fully documented.

5. Compliance With Procurement Regulations

Officials of the Defense Contract Audit Agency, the NRO Comptroller and NRO contract officers have confirmed that NRO is in general compliance with the Armed Services Procurement Regulations (ASPR). Some minor deviations, normally involving exclusion of ASPR clauses in some covert contracts and/or failure to submit ASPR reports, are necessary for security reasons. These deviations have been documented in NRO files and are subject to DCAA audit.

VI. FINANCIAL MANAGEMENT AND RELATED MATTERS

A. Funding Levels; Overall Use of Funds

The NRP is budgeted and funded as a separate element of the intelligence community budgets which are submitted by the executive branch to the Congress each year. For the purpose of this section it is necessary to look at the NRP's financing levels from both a classified and unclassified viewpoint.

In compliance with congressional direction, as described hereinafter, NRO submitted comprehensive classified budget justification books for FY 1977 and FY 1978. In broad terms, each justification book (a) sets forth the overall mission, (b) provides historical background, (c) describes the organization, the various imaging and SIGINT systems, and the support activities, (d) recapitulates major activities for both the current and budget years, (e) summarizes performance highlights, performance indicators, and performance evaluations, and (f) sets forth the budgetary requirements.

In these submissions, the budget or financial requirements are set forth for each system and for support activities. The FY 1978 presentation shows the following funding levels:

PROGRAM TOTAL OBLIGATION AUTHORITY (TOA)
(In Millions)

Activity	FY 1976 (Actual)	FY 19TQ (Actual)	FY 1977 (Estimated)	FY 1978 (Requested)
1. Imaging Systems:				
GAMBIT	$ 137.1	$ 26.3	$115.8	$ 85.4
HEXAGON	152.0	40.9	133.1	150.8
KENNEN				
2. SIGINT Systems:				
P-989	18.8	4.8	17.3	25.1
3. Other:				
R&D Support	26.4	8.5	30.4	38.6
Mission Support	114.1	31.2	134.6	135.8
Shuttle Activities	3.9	2.4	6.4	10.2
ERRS Definition	0	0	0	8.7
TOTAL (TOA)				

The congressional practice has been to authorize the use of unobligated carryovers to partially finance the budget year requirement. Therefore, the new obligation authority (NOA) appropriated by the Congress is less than the TOA by the amount of the authorized carryover. The presentation book includes further tables regarding carryovers for the purpose of showing both TOA and NOA requirements. The amounts appropriated (NOA) for each of the years shown in the preceding table are:

FISCAL YEAR	NOA AMOUNT (In Millions)
1976	
19TQ (Transition Quarter)	
1977	
1978 (Requested)	

A special technique is used so that the funds requested and appropriated can pass through unclassified channels as part of the total DOD appropriation package. For this purpose, NRO's practice is to recast its NOA requirement by DOD appropriation category. In this way, NOA funds required by the NRP are included in the overall DOD appropriation request, by appropriation, but without attribution to the NRP.

As a specific example, for FY 1977 the Congress appropriated [redacted] (NOA) for the NRP. This is the [redacted] TOA figure shown in the FY 1977 column of the preceding table, less a carryover of [redacted] The following table shows how this NOA appears within the Air Force appropriation accounts:

APPROPRIATION TITLE	FY 1977 AMOUNT (In Millions)
Procurement:	
Missile	
Other	
RDT&E	
TOTAL NOA	

In overall terms, the Investigative Staff has no criticism of the conceptual approach. However, this approach has resulted in two unique issues which should be brought to the attention of the Committee. These two items are treated in some detail in the following two subsections.

1. NRP Funding Ceiling

There is a basic question as to whether there is any ceiling on NRP's annual funding level. While there is no issue regarding the inviolability of the NOA figures appropriated by the Congress, there are some problems of interpretation in discussing TOA. Ordinarily, it might seem that the ceiling for NRP obligations in any one year would be the TOA figure obtained by adding the approved NOA figure and the unobligated carryover figure acted upon by the Congress. However, in practice, a different approach is actually used and there is not a fixed TOA limitation.

For example, the following table clearly indicates that the FY 1977 TOA figure in the preceding table does not remain constant throughout the fiscal year:

TIME PERIOD	NOA FIGURE	UNOBLIGATED CARRYOVER	TOA FIGURE
	--------in millions----------		
(a) September 1976--when Congress acted on the FY 1977 appropriation			
(b) January 1977--FY 1977 column at time FY 1978 congressional presentation book was printed			
(c) February 1977--FY 1977 column at time of revision of FY 1978 congressional presentation book			

The NRO contends that the TOA figure used at the time of congressional action may later be exceeded by NRO through congressional approval of a reprogramming request. NRO sees no problem in using unobligated balance carryovers in excess of the amount considered by the Congress since (1) these unobligated balances are in multiyear appropriation accounts which are legally available for obligation, and (2) their proposed use shows in the reprogramming letter submitted to the Committees.

This technicality is being brought to the attention of the Committee in the event it has not made a prior ruling with respect thereto. There are reasonable grounds for varying interpretations and NRO has not sought to "brush over" or conceal any aspect of this matter.

In any event, the Investigative Staff favors a more conservative approach in establishing the funding level. It feels that the NRP budget request should be presented under a total program requirements concept (a TOA program basis); that the sources of funding (either NOA or authorized unobligated carryovers) be treated solely as the financing arrangements; and that congressional approval be based on a fixed maximum program (the TOA figure) for each year.

Stated in another way, the program requirements should be thought of as quite separate from the means of financing such requirements. In this manner the details of the justification would directly support the total requirements figure. This would eliminate (a) any possible confusion between the total program requirements (the requested TOA) and the means of financing, and (b) any changes in the TOA figure during the fiscal year.

Under this concept, the conference letter reporting congressional action on the NRO's budget request would approve a fixed amount of funds (TOA) available for the year. On the financing side, the conference letter would show the makeup of the approved TOA; i.e., the amount of the approved carryover of unobligated funds and the amount of approved NOA. The TOA ceiling could not be exceeded except through a supplemental appropriation process.

There should be no problem with reprogramming within the approved TOA figure when required by program changes occurring during the budget year. The current practice of submitting all reprogramming proposals to the Committee for approval would continue.

2. Operations and Maintenance Charges

The NRO uses a variety of budget, allotment, accounting, and disbursement arrangements to be sure the classified nature of the program is fully protected. The system used is designed in such a way that all the NRO's financial transactions (both classified and unclassified obligations and expenditures) get recorded in program accounts, segregated by reconnaissance systems, as well as in the Air Force's official appropriation accounting records.

In the early years, the program was funded largely from the RDT&E account with a lesser amount appropriated under procurement. As the program progressed, its character changed from a development activity to an operational activity. Thus, research and development funding decreased, while charges to the procurement accounts increased, largely due to operations and maintenance costs. To avoid an over-dominant position of the NRO figures in the above two accounts, informal agreement with the congressional committees subsequently resulted in use of the following three Air Force appropriation accounts, starting with FY 1971:

(a) Procurement, Missile

(b) Procurement, Other

(c) Research, Development, Test and Evaluation (RDT&E)

Since the NRO was not assigned use of the official Operations and Maintenance Account (O&M), a technical question now arises with respect to where O&M expenses should be charged. At the present time, the NRO is incurring substantial contractor costs which are of an O&M character. These are being charged to the account titled, "Procurement, Other." The technical issue is whether such charging violates the principle that appropriations are to be used solely for the purpose for which they are made.

In accordance with national policy, the existence of the NRO, or its budget, has not been publicly recognized or admitted. Thus, a technique had to be worked out to get the NRP financial transactions into the unclassified accounting structure without attribution to the NRP. The above-referenced three Air Force appropriation accounts were designated to be used for this purpose.

The NRO's classified Congressional Budget Justification Book is presented with a program or system emphasis rather than an appropriation emphasis. Also, from a decisionmaking and operational viewpoint, the program or "systems" accounts, which coincide with the congressional emphasis, are of much greater need and use than the appropriation accounts.

Therefore, the technical violation of using the procurement appropriation for recording contractor O&M costs may not be as serious an issue as it first appears. It is, however, an item the Committee should be aware of so that the matter can be reviewed and regularized as appropriate.

It is accordingly recommended that the NRO write the Committee explaining the nature of the problem and NRO's reasons for its current approach. NRO might request a "waiver" from the Committee to permit continuance of its present practice until a more permanent solution is developed and agreed upon.

B. Validity of the Congressional Justification

The classified House Appropriations Committee letter of September 25, 1975, on intelligence matters directed agencies within the intelligence community to prepare complete budget justification books for FY 1977 and future years. For FY 1977, the NRO submitted a comprehensive budget justification of 186 pages plus 101 pages of annexes. As indicated previously, this justification book provided a wealth of data on the program, its systems, major activities, performance aspects, and budgetary requirements. The FY 1978 book covers more ground and is even more informative than the FY 1977 presentation (the FY 1978 book contains 344 pages plus 294 pages of annexes).

On June 8, 1976, the Committee complimented NRO on a particularly outstanding FY 1977 justification book. In general, the Investigative Staff found NRO's FY 1977 and FY 1978 Congressional Budget Justification Books to be accurate, reasonable, and responsive submissions. They are good, lucid presentations of a highly technical, far-reaching, complex program which provides a very important national intelligence product.

More specifically, the Investigative Staff did not encounter any evidence of deliberate attempts by NRO to withhold information from or to mislead the Committee. No substantive errors or misrepresentations were detected in the presentation books. A few minor items giving rise to questions of interpretation were noted in the FY 1977 submission and were brought to NRO's attention. The FY 1978 budget justification provided clarifications or improvements on many such matters.

Three presentation matters requiring comment are as follows:

1. Oversight Activities Overstated

The FY 1977 justification book (page 11) contains several sentences on audit and oversight. Included therein is a reference to the General Accounting Office (GAO) which implies that GAO conducts current, continuing reviews of NRO activities. It was determined that GAO received limited briefings on the NRP sometime

ago but, as of May 1977, had not conducted a comprehensive audit or management review of the NRP. The FY 1978 justification book, however, (page 13) more properly outlines the extent of oversight reviews of NRO activities.

2. Certain Support Services Not in NRO Budget

The NRO has a relatively small headquarters office plus three program offices to administer its assigned mission. Its operational activities are such that they cut across various organizational elements of the DOD as well as other U. S. Government agencies.

Under current arrangements, the NRP receives significant operational support (personnel, use of facilities, and ongoing work activities) from other entities which are not charged to the NRO's budget. These nonreimbursable support arrangements are the result of both historical and practical considerations. For FY 1977 the NRO estimates these "free" services will approximate $212.9 million.

In light of the above financing arrangements, it is recommended that future Congressional Budget Justification Books include a special information section, or addendum, which would identify all NRP costs not reflected in NRO's budget. This "information section" should show estimates of such costs in the various major cost categories for the past year, the current or operating year, and the budget year. Appropriate descriptions of the cost categories should be provided together with (a) some details on the nature of the estimates, and (b) comments on any significant changes occurring in the budget year. This additional section would permit the Committee to review the NRO's budget request in the context of total program costs.

3. Other Matters Affecting Justification

The scope, complexity and unusual nature of the NRP's activities have resulted in certain unique financial arrangements that affect the budget estimates and impact on the congressional presentation. Specifically, these arrangements relate to incremental funding, unobligated balances of funds, budget practices and mission support costs. All of these matters are treated separately in ensuing sections of this report.

C. Incremental Funding

The NRO uses an incremental budgeting and funding concept for most of its activities. This approach sets forth budget requirements based on one year's contractual needs at a time, thus focusing on a "part of the whole," rather than the total procurement requirement.

The incremental funding concept has been used since the inception of the NRP. Originally, it was used because of the research and development nature of the program. It was retained, however, even though the program has assumed operational characteristics. It is currently applied to all NRP major system acquisition contracts. This is a departure from normal DOD standards which require full funding for obligations under the procurement appropriations.

The DOD's general policy of full funding of procurement was first adopted in the early 1960's due to congressional concern over future financial requirements of incrementally funded weapon systems procurements. This policy was formalized in DOD Directive 7200.4 to assure that Congress would be given more complete information of the full dimensions and total costs of an item when it is first presented for an appropriation of funds.

The question of legality of incremental funding was discussed with appropriate officials of DOD and other agencies. These officials did not regard it as a legal issue nor foresee any legal implications.

With respect to the congressional preference for full funding of procurement, the Air Force's Deputy General Counsel pointed out that an incremental funding arrangement is primarily a matter of "full visibility" with the Congress. He sees no problem regarding incremental funding if the congressional committees are made aware of, and do not object to, such a funding arrangement. NRO officials pointed out that the cognizant committees have been fully apprised of the utilization of incremental funding for the NRP, and have not directed any change.

With regard to the NRO's deviation from the DOD directive, the Deputy General Counsel knew of no waiver. He did not, however, view this technical violation with concern because (1) high level DOD officials were aware of the technique being used, and (2) the Congress had "full visibility" of the NRP approach. It is the opinion of the Investigative Staff, however, that a waiver from Directive 7200.4 should be formally documented for the record to avoid any conflicts or misunderstandings in the future.

1. Pros and Cons of Incremental Funding

A number of knowledgeable officials expressed various views with respect to the use of an incremental funding concept for the NRP activities. NRO officials indicated to the Committee that either incremental or full funding could be utilized, but that incremental funding was preferred. Their reasons are summarized as follows:

(a) It allows for a more even annual appropriation level and helps protect the covert nature of the program. It also results in more concurrency between obligations and expenditures than full funding (largely due to the long-lead time procurement involved).

(b) It more directly supports the NRP's "life cycle" systems responsibility and permits a continuous contract for systems development, production and operation. It also fosters a closer System Program Office relationship with the contractor by periodic application of funds.

(c) It permits starting a new system, or component, with relatively low initial fund requirements. It provides flexibility to accommodate delays in decisionmaking, funding, launch rates, and deliveries as well as to delays occasioned by technical problems such as launch failures. It also permits acquisition of larger quantities of common components, when consistent with requirements, at lower unit costs.

Opponents pointed out that the NRP has largely advanced from a research and development to an operational environment, where full funding is more appropriate for the procurement of proven systems. They noted that, while incremental funding is applicable in a research and development program, it does not focus on and fund the longer range or full procurement requirements. Further, incremental funding permits keeping options open and commits only partial funding without facing up to necessary longer range decisions and costs.

Looking at the NRP in broad perspective, the program could be financed under either an incremental or full funding technique.

Clearly, the incremental funding concept provides greater flexibility and permits better cover from a security viewpoint. Nevertheless, NRO's current use of the incremental funding concept lessens the amount of control that can be exercised by regulatory groups.

In the Investigative Staff's opinion an incremental budgeting and funding concept requires a different type of budget presentation. A series of presentation changes might alleviate most of the major concerns expressed by opponents.

2. Suggested Changes in the Budget Presentation

The big question on any incremental budget is where it will lead to, both substantively and financially. From time to time, NRO's testimony has provided some insights on the future of a system. However, the main thrust of its congressional budget presentation is limited to the budget year. There is no concerted effort to show the budget year in the context of future year planning.

Therefore, it is recommended that future budget presentation books include a section providing highlights on 5-year trends and planning. The Congress could then act on the annual incremental budget requests in the perspective of long-range plans, tentative and conditional though they may be.

This new section should include a financial summary which would show the budget year requirements, by system or activity, in the context of tentative financial requirements over a 5-year period. Congressional committees could then see how expensive a particular system might become, as well as the future costs of all systems. For example, the NRP's current FY 1977 TOA funding level of [redacted] is projected by NRO in its presentation to the CFI to reach [redacted] in FY 1982. The Investigative Staff feels that such data is germane in considering an incremental budget request, even though out-year figures cannot be considered firm and are subject to change.

In addition, the financial summary should be supported by highlights on substantive changes expected to occur over the next few years; i.e. the political environment, changing intelligence requirements, and contemplated systems changes. This could be a capsule narrative presentation which would explain the financial trends in a substantive context.

Another recommended change in budget presentation relates to the amount of detail provided in support of each system's budget requirement. The FY 1977 and FY 1978 Budget Justification Books, although comprehensive on the broad aspects of the systems, provide relatively few financial specifics concerning the proposed use of funds, and little detailed justification of the specific budget need.

For example, the absence of detail is illustrated in the HEXAGON sections of both the FY 1977 and FY 1978 presentations. These sections contain numerous pages but only a few lines are devoted to the specific budget needs. This lack of "specifics" on the planned use of funds is also a significant cause for a strain in relations between the Office of Management and Budget (OMB) and the NRO. OMB, which apparently receives more extensive detail than the Committee, considers the level of data it receives from NRO concerning systems, components and related budget specifics, as incomplete and insufficient for its review.

A further example is the budget requirement of [redacted] for the [redacted] in the FY 1978 book. There is very little shown as to what the [redacted] will be used for in the event the full amount is approved. In an incremental budget, program reviewers have a very legitimate concern as to what will be financed in the budget year. For example, it seems reasonable to question what portion of the request will be spent on (a) [redacted] (b) launch costs by vehicle, and (c) command and control equipment as well as contractor O&M costs for each of the two ground stations. In showing projected cost by vehicle, there might be breakouts by major cost components or by special items [redacted] as reported in the FY 1978 Congressional Budget Justification Book). However, these breakdowns should be treated as planning estimates and not as control figures if the requested "systems total" is approved.

In the opinion of the Investigative Staff, the addition of (a) the above-described special section showing the budget year in the perspective of five-year planning, and (b) expanded detail on the planned use of the requested funding, are essential ingredients of an improved incremental budgeting presentation.

3. Incremental Budgeting and Reprogramming

Since incremental budgeting deals with requirements on an annual basis, it provides considerable flexibility to the user.

The flexibility is present even within a fiscal year's financial activity. In NRO's case, this flexibility may be desirable in order to meet unforeseen changes, program slippages, and technical problems.

In any event, program changes and built-in flexibility may lead to reprogramming of funds. Thus, an incremental budget approach should be recognized as having some fairly large reprogramming implications. The NRO follows a policy of accumulating all reprogramming plans and periodically submitting a proposed reprogramming letter to the Committees for approval. The reprogramming letters clearly show where planned program implementation is different from program levels approved by the Congress.

D. Unobligated Balance of Funds

NRO's unobligated balance of funds is an important consideration inasmuch as (1) the unobligated balance includes a special reserve for contract termination, and (2) a portion of the unobligated balance called the "unobligated carryover" is used each year to finance the following year's program. The unobligated carryover aspect is treated in the Congressional Budget Justification Books, but no specifics are mentioned on the reserve for contract termination.

1. Unobligated Carryover

The NRO submits budget requests which show requirements for total obligation authority (TOA) for the budget year. A financing schedule (page 183 of the FY 1977 presentation book, and page 341 of the FY 1978 book) is provided to show how much of the requirements might be met from prior year carryovers of the unobligated balance and how much from new obligation authority (NOA). In addition, the books include tables (pages 170 and 319, respectively) showing the source of unobligated funds available for obligation. The use of the unobligated carryover is approved in the appropriation process.

2. The Reserve for Contract Termination

A special reserve for contract termination is included in the unobligated balance. NRO notified the Committee in November 1975 that this reserve amounted to [redacted] and that it had remained unchanged for three years. In March 1977, NRO furnished additional details to the Committee in justification of the

reserve and advised that it had been used only once recently to pay [redacted] termination costs. Therefore, [redacted] remains in the reserve.

The Investigative Staff found the special reserve for contract termination to be a highly technical issue. The NRO Comptroller indicated the reserve was needed to avoid potential violations of the Antideficiency Act, adding that he could legally obligate the funds included therein. The GAO, in a letter dated June 4, 1974, to the Chairman, Senate Armed Services Committee, recognized that availability of funds to cover potential contract terminations was a problem and suggested the possibility of legislation to provide additional funds, where needed, or to exempt such costs from the Antideficiency Act.

3. NRO's Presentation of the Unobligated Balances

In the budget books, the tables on unobligated balances are limited to the unobligated carryover; i.e., the funds that NRO estimates to be available for funding of subsequent year activities. The NRO's recent estimates of year-end unobligated carryover have not been sufficiently close to actual unobligated carryover. For example, the FY 1977 presentation book estimated zero unobligated carryover as of the end of FY 1976. Subsequently, this estimate was changed to [redacted] NRO tends to make very conservative estimates of the expected year-end unobligated carryover due to its optimism regarding program accomplishments. Also, its congressional estimates are made about nine months before the end of the operating year.

The unobligated balances, both unobligated carryovers and termination reserves, have resulted in considerable dialogue between the Committee and NRO. To improve the NRO presentation and minimize any misunderstanding, the following recommendations were made:

(a) That future presentations show the estimated year-end total unobligated balance of funds for all accounts, including the reserve for contract termination.

(b) That the reserve be decreased substantially and the "savings" be used to help finance the next year's program. Since the reserve for special contract termination costs is difficult to estimate, a practical approach would be to set the reserve at a considerably

smaller arbitrary figure and for the Committees to instruct NRO that they will favorably entertain justifiable requests for funding special contract termination costs if the reserve proves insufficient.

(c) That NRO provide the Committee, just prior to the markup, an updated estimate of the expected total unobligated balance of funds at the end of the operating year, the amount it wishes to establish as a reserve for contract termination, and the amount that is available for use as a carryover to finance the next year's program.

E. Budget Practices

The Policy Review Committee (PRC) has the responsibility for NRP budget and resource allocations, which was previously held by the CFI. In effect, the PRC functions as the NRO's "board of directors." Thus, the principal budget decisions are the result of committee action.

1. Overview of Budget Preparation

At the start of a budget cycle, the DNRO, operating within overall DOD budget parameters, receives program budget guidance, including options and alternatives on specific elements, from the PRC. This guidance, together with DNRO interpretations and instructions, is forwarded to the three program directors for their preparation of a proposed budget. There is an established format for budget submissions from the field, but the program directors have considerable latitude in the development of estimates to fund the various systems and options identified in the guidance.

Each program director has his staff go through a detailed budget preparation process. This involves considerable interchange of information among the people responsible for each system, its various components and its support activities, at a variety of locations. The estimating efforts also include inputs by contractors, which are reviewed and acted upon by U. S. Government officials.

Each program director then submits to NRO headquarters a proposed budget, by system, priced at figures he considers necessary to carry out the program and options set out in the guidance. The program director may add, as a recommendation or comment, any

observations he considers appropriate based on his technical knowledge of the various systems, or his general knowledge as an administrator of a significant portion of the NRP activities.

Upon receipt of the budget estimates, NRO headquarters examines them in a total NRP context as they relate to continuing programs and various alternatives. A recommended program is then submitted to the PRC.

Upon receipt of the DNRO's recommended program, the PRC meets to consider it, together with any inputs or observations by other elements of the intelligence community. Ultimately, the PRC makes the final decisions on the program, usually toward the end of the calendar year. The budget is then submitted to the President as part of the DOD budget package. Thus the budget, which ultimately goes to the Congress, stems essentially from the PRC decisions, plus any subsequent inputs by the OMB and the President.

2. Limited Headquarters Review of Details

A key feature of NRO's streamlined management concept is the unusual high delegation of authority to the three program directors in the field. Operationally, this concept has eliminated much "red tape" and appears to be working quite well. However, this has meant that there is less centralized review of the details of the budget estimates than is generally done elsewhere in the Government.

As indicated earlier, NRO headquarters pulls together the overall NRP budget and recommends a total program. It gets into correspondence with the field on budget matters but it does not normally challenge the validity of field estimates. Heavy reliance is placed on the budgetary estimates made by each of the three program directors in the field.

Most of the supporting detail of the budget is in the program offices in the field. Dialog with the contractors, a large source of data, occurs at this level. Decisions are reached in the field and summary data is forwarded to headquarters.

The OMB feels that insufficient budget data is available at headquarters. It has been concerned about getting satisfactory detail and answers on certain budget matters it has questioned during its reviews. As noted earlier, this is one of the main sources of differences between the OMB and NRO.

A logical extension of the present system of delegation of authority to program directors would be to have them participate in the OMB and congressional hearings and defend their segments of the program. In this way, they could provide such detail as the regulatory agencies and the Congress may require to assist them in discharging their responsibilities.

3. Inclusion of Fund Protection in Estimates

The terminology "fund protection" has been used in NRO as a sort of "flag" to indicate that a certain portion of the activity covered by the budget estimates is not free to move into an implementation stage prior to the accomplishment of specific milestones or concurrence by an approval authority.

Conceptually, NRO goes about its detailed budget estimates much like other agencies. Based on approved preliminary program planning, the estimated costs are calculated for the various components of the planned effort for each of the various systems. In certain instances, it is known that the preliminary planning is subject to some confirmation of possible change based on program decisions which cannot be finalized until the budget year is well underway. In NRO's budget process, this portion of an estimate is often referred to internally as "fund protection"; i.e., the expected and requested program (or a portion thereof) which is subject to subsequent policy decisions to be made based on developments occurring during the budget year.

The NRO does have a control technique for assuring that the fund protection portions of its estimates are not approved for implementation until the appropriate actions or approvals are finalized. It is also clear that this portion of the estimates are for identified requirements and are not a "cover" for a contingency fund arrangement.

A possible issue with this fund protection aspect of the budget is the question of what happens to a fund protection estimate that is later found to be not needed due to subsequent program decisions. This point was pursued by reviewing actions taken by NRO with respect to the [redacted] GAMBIT systems.

The record shows that the FY 1977 budget request included [redacted] and $7.6 million for GAMBIT. The Congress reduced this amount by $5.0 million. The

NRO took this deduction out of the GAMBIT program. The overall picture may be summarized as follows:

ITEM	GAMBIT (Millions)--
(a) Total systems request per FY 1977 Budget Justification Book	$132.3
(b) Congressional Cut	5.0
Adjusted Program Beginning of the Fiscal Year	127.3
(c) Revised Program per NRO's Reprogramming Memorandum of March 8, 1977	115.8
Difference	$+11.5 (Saving)

NRO, in its reprogramming letter of March 8, 1977, to the Committee, explained the reasons for program changes. The reprogramming approach on these items confirms that the NRO's policy is to come back to the Congress for approval before using substantive fund protection "savings" derived from one system to finance additional costs in another system.

4. General Observations

The review of the budget process was limited to an examination of the system and practices used in assembling budget estimates. It did not go into the validity or accuracy of specific estimates contained in the budget document.

In many respects, the NRO's budget preparation process is pursued much in accord with generally accepted U. S. Government budgetary techniques. Clearly, it is accomplished in a systematic, orderly and professional manner. However, as indicated previously in this report, there are special or unusual arrangements associated with NRO's budgetary practices. To recapitulate, the PRC is

responsible for NRP budget and resource allocations. The NRO employs certain funding techniques that are not customarily utilized by other Government agencies, such as incremental funding, use of unobligated carryover balances, and "fund protection." Finally, there is limited headquarters review of details of budget estimates submitted by field elements.

F. Mission Support Costs

As used by NRO, the term "mission support costs" refers to program support services paid for by NRO which are not readily distributable to the various satellite systems. Thus, mission support costs are, in effect, undistributed program costs.

The FY 1977 Budget Justification Book contains a separate section (pages 137-146) on mission support costs. It identifies five major categories of such costs and provides summary data on requirements. The total request for FY 1977 was [redacted] which was subsequently reduced to [redacted] due to congressional action.

The FY 1978 book does not have a similar section, but a financial summary (page 341) indicates a requirement [redacted] for mission support. Initially, this book provided narrative justifications only on photo material and processing (pages 281-284) and the Satellite Control Facility (pages 293-298). When the Investigative Staff brought this to NRO's attention, it was acknowledged that an error of omission had been made. This book was subsequently revised (pages 284a and 284b) to include data on the remaining items associated with mission support.

Mission support includes the following major categories of costs:

CATEGORY	FY 1977	FY 1978
	---(In Millions)---	
Satellite Control Facility		
Photo Materials and Processing		
Controlled Range Network		
Propellants		
Miscellaneous Procurement and Operations		
Totals		

*Commencing in FY 1978, these line items are included within the applicable major program accounts receiving the support. Control range network applies to the procurement and services associated with calibration tests of the systems.

1. The Satellite Control Facility

The Air Force Satellite Control Facility (AFSCF) under the Air Force Systems Command furnishes on-orbit tracking, telemetry, and command support to NRO, DOD, and other Government-sponsored satellite systems. It initially supported the CORONA program and later became an operating element of the NRP with the formal establishment of the NRO. The increase in nonreconnaissance military space programs led to the designation of the AFSCF as a national range in 1963, and its resources and capabilities were expanded and standardized. The AFSCF currently has a worldwide network of nine remote tracking stations at six locations, a control center at Sunnyvale, California, and a film bucket recovery operation in Hawaii.

When the AFSCF became a national range, the Air Force and NRO agreed that they would jointly fund representative shares of the cost of continued development, operations and maintenance of the AFSCF. Due to the type and complexity of the services, representative shares were difficult to calculate precisely. Therefore, NRO and the Air Force agreed that NRO funding of nine functions or activities was the equivalent of paying its representative share. The functions selected were those that most affected the operation of the NRP systems and thus put NRO in a good position in protecting its interests and in budgetary discussions.

A variety of diverse considerations exists in determining a representative share. Periodically, NRO and the Air Force engage in serious discussions with respect thereto. For its own protection and for internal review purposes, NRO has at various times analyzed the service and cost sharing. In one exercise for FY 1976, NRO examined the three categories of AFSCF services and estimated the amount of service received by NRP in each category. The categories consisted of (a) on-line orbital work, (b) off-line data processing, and (c) the film bucket recovery operation. On the funding side, the cost base used in the NRO analysis included both AFSCF's normal operating budget and pay of assigned military personnel. As a result of this exercise, NRO concluded it was receiving about 67 percent of the composite services and paying about 57.5 percent of the costs for FY 1976.

The above "composite" approach is in contrast with more simplified analyses sometimes used; that is, a pro rata sharing based on hours spent on the tracking, telemetry, and command functions at AFSCF's remote stations. For this portion of the on-line orbital work, AFSCF records revealed that it provided customers 54,892 hours of service in FY 1976. NRP received 23,660 hours or 43.1 percent of the total. For the same period, NRP payments for agreed-upon functions came to 66.3 percent of the AFSCF's normal operating budget. This percentage drops to 54.9 percent if pay of military personnel assigned to the AFSCF were added to its normal operating budget.

It is clear that there is no ready or simple formula that could produce a precise NRP "percentage of use" figure. For some parts of the AFSCF operation, such as remote tracking, the hours of support services provided the NRP are readily ascertainable. However, there are a number of other activities or considerations that are not measurable in the same way. For example, at times NRP exercises its priorities at the expense of other users. Also, NRP satellites require more personnel for on-line work than other satellites, while more work in off-line data processing is done for the NRP than for other programs. Furthermore, aerial recovery of film buckets from imaging satellites is done entirely in behalf of the NRP.

The AFSCF's normal operating budget and the NRP's representative share have increased over the period FY 1975 through FY 1978. For the most part, these increases stem from inflation and/or facility expansion or improvement. The following table shows NRP costs in relation to the AFSCF budget, exclusive of military pay:

YEAR	AFSCF BUDGET TOTAL	NRP COSTS
	------(In Millions) ------	
FY 1975	[redacted]	
FY 1976		
FY 19TQ (Transition Quarter)		
FY 1977		
FY 1978		

Discussion on the NRP figures indicated the rise in the NRP costs resulted from a number of plus and minus factors. For example, NRO's FY 1975 cost of [redacted] in the above table included an excess of funding of [redacted] It was decided to count this as an offset in FY 1976. Therefore, FY 1976's budget requirement of [redacted] as reduced to [redacted] The FY 1977 increase [redacted] over the "true" FY 1976 figure of [redacted] was mostly due to the first year O&M cost for a needed wideband communications capability, changes in contract labor rates, overhead increases, and other rate changes.

The increase of [redacted] from FY 1977 to FY 1978 occurs primarily in three areas. First, those contracts which are financed by NRO are labor intensive. Inflationary increases here total [redacted] or about 6.6 percent. Second, an increase of $1 million for logistics is mainly due to providing an additional capability at the Guam tracking station. Third, a [redacted] increase in data processing costs includes [redacted] in computer lease costs and $1 million for a computer fault detection system, computer conversions, and increased computer storage capability.

The Air Force/NRO arrangements regarding the AFSCF budget are somewhat unusual in that the NRO budgets for specific facility functions which significantly affect its interests while the Air Force Systems Command, which has management responsibility for the facility, budgets for the balance. However, the AFSCF's management defers to NRO inputs on decisions affecting NRP matters, so in that respect there is some "informal" joint management.

Even though the total financing is within the DOD budget, the arrangement is one that should be given continuing review and analyses to be sure that the NRP payments approximate its representative share. Of specific interest is the fact that there

may be changes in use of the facility in the future. It appears that the AFSCF's role in non-NRP areas (page 296 of the FY 1978 Budget Justification Book) is expanding and there is a possibility of future reductions in the numbers of NRP satellites, depending on decisions to be made after the KENNEN evaluation. These factors make it very important that the NRO, as changes in services occur, review whether its interests warrant continuation or change of the financing arrangements in the future.

2. Photographic Materials and Processing

NRO funds all film and chemical costs associated with photographic film production for the GAMBIT, the HEXAGON, and the KENNEN systems. It also funds equipment, utility and other costs at the primary NRP photographic processing facility operated under contract by the Eastman Kodak Company in Rochester, New York.

A backup photographic processing capability at Westover Air Force Base, Massachusetts, was phased out due to deactivation of the base. A new NRP backup facility, with limited capability, was established at the Strategic Air Command (SAC) at Offutt Air Force Base, Nebraska. This facility was completed with military construction funds of [redacted] and became operational in November 1976. Its primary mission is to provide a capability in the event of an emergency. The facility currently performs 10 percent of the NRP processing workload to assure maintenance of its level of expertise. It also performs independent support functions for the SAC.

The following table shows cost trends on photographic materials and processing:

YEAR	BUDGETED AMOUNT (In Millions)
FY 1976	[redacted]
FY 19TQ	
FY 1977	
FY 1978	

The primary causes of the cost increases for FY 1977 are in film, chemicals, and film processing. They result from

(a) GAMBIT's use of the improved dual platen camera system, which was added starting with GAMBIT vehicle 48, (b) the use of film and chemicals in connection with the new KENNEN system, and (c) price increases.

3. Miscellaneous Procurement and Operations

This category includes several line items as follows:

Miscellaneous operations include a series of small items not readily identifiable with specific systems, such as certain TDY costs, studies, administrative support, consultant services, and minor procurement. Some of these items are in support of the NRO [redacted], such as maintenance of its heavy equipment and special contractual actions initiated by the [redacted] at NRO's request.

4. Summary Recommendation

The Investigative Staff recommends that future Congressional Budget Justification Books include a separate section on mission support. This section should include a summary tabulation showing all cost categories as well as a breakout of the items under "Miscellaneous Procurement and Operations." The nature of each cost category should be explained briefly and the amount of the requirement should be justified with particular emphasis on cost fluctuations between the operating and budget years.

G. Support Services Not in NRO Budget

The NRO provided the following cost estimates of nonreimbursable support services it expects to receive during FY 1977:

[redacted]

1. Manpower Costs

As previously noted in this report, there are 1,669 direct support manpower authorizations for NRO in FY 1977, while an estimated

886 personnel provide indirect support to the NRP. The cost estimate of [redacted] in the above table for these 2,555 personnel comes to an average of about $16,270 per person.

Military department manpower providing direct support (755 Air Force, 20 Army and 46 Navy personnel) and indirect support (886 Air Force personnel) is justified and budgeted under appropriate functional areas of the DOD major force programs in accordance with established policy. The remaining 848 direct support personnel (521 CIA, 326 Naval Security Group, and 1 NSA) are justified within the Consolidated Defense Intelligence Program for covert reasons. CIA personnel are included in the CIA budget, however, while the Naval Security Group and NSA personnel fall within the Consolidated Cryptologic Program. Thus, the NRO receives considerable manpower support, direct and indirect, which is reflected in other budgets.

The Investigative Staff believes that manpower requirements of such magnitude are an important budgetary consideration in congressional deliberations on the NRO budget. In a letter dated September 25, 1975, the Committee directed that the FY 1977 budget presentations include manpower and dollar amounts for intelligence, direct support and intelligence-related activities. NRO's FY 1977 and FY 1978 Congressional Budget Justification Books each devote a single page with a table on direct support manpower which shows little more than the source and number of such personnel for the past, current and next fiscal year. It is therefore recommended that this data be set out in the suggested information section on "extra budgetary" costs in future books (see section B-2 above) along with more specifics on the allocation and use of direct support manpower. These specifics might include (a) physical location of personnel assigned to the three program offices, (b) location and estimated number of personnel assigned to each system, and (c) some narrative on the nature of the personnel arrangements and utilization.

Indirect support manpower warrants somewhat different treatment inasmuch as it is not under the NRO's administrative control. Nevertheless, the estimated man-years or value of such manpower should also be reflected in the above information section. It could be treated as an addendum to the direct support manpower data or as part of the support costs of the various supporting services described below under "Other Support Costs."

2. NRP Direct Support

The foregoing table indicates that, in addition to manpower costs, other direct support costs not charged to the NRO budget are

[redacted]

3. Other Support Costs

a. Air Weather Service (AWS)

The Air Force AWS collects, processes, and disseminates specialized aerospace environmental support data to the NRO and other DOD customers. It does not distribute costs of these services to its customers.

The principal AWS support to NRO is provided by the Air Force Global Weather Central (AFGWC) located at Offutt Air Force Base, Nebraska. It is an automated operational data production facility which provides required weather information to the NRO and other customers. The AFGWC utilizes data from worldwide balloon, radar, aircraft, solar and geophysical reports and from Defense Meteorological Satellite Program spacecraft.

In FY 1977 the AWS estimated that $16.7 million of its material resources plus 1,153 manpower positions would be shared by its customers. Although a precise allocation of the NRP's share is not obtainable from existing records, it was roughly estimated that the NRP's pro rata FY 1977 share would approximate [redacted] plus 435 manpower positions for a total of [redacted] This manpower includes 29 staff meteorologists collocated with NRO personnel at various sites. Of this number, 6 are located at CIA and the [redacted] 2 at NRO headquarters, 2 at the [redacted] 2 at Program A in Los Angeles, and 17 at the Satellite Control Facility in Sunnyvale where they support other space programs as well.

b. Defense Meteorological Satellite Program (DMSP)

The DMSP presently provides two orbiting satellites which collect meteorological data. This information flows to

receiving sites which relay the information to the Air Force Global Weather Central for processing and dissemination to the NRO and other DOD agencies.

The DMSP satellites were developed and procured by the DMSP Management Office of the Air Force Space and Missile Organization, U.S. Air Force Systems Command. Command and control of the satellites is maintained by the 4000th Aerospace Applications Group of the Air Force Strategic Air Command.

While the DMSP was originally established to satisfy NRP requirements, it has evolved into a successful program capable of supplying necessary data to all military departments. In practice, satisfaction of NRP requirements is more than adequate to support the needs of other customers. Due to the multiplicity of users and overlap of requirements, any attempt to allocate a specific percentage of DMSP costs to the NRP is seriously complicated. In FY 1977 the total DMSP mission amounted to $71.8 million, of which $7.7 million is identified as specialized tactical support for the military services. The remaining [redacted] consists of intelligence-related and other nonseparable items. Since direct costs could not be specifically identified with the NRP, it was concluded by NRO officials that the entire [redacted] was supportive of the NRP.

e. SAMSO Support to Program A

SAMSO support to Program A, in the estimated amount of $1.0 million, is for personnel costs of 46 SAMSO employees. Most of these personnel are involved with the acquisition of all launch vehicles for the NRP. The balance of personnel costs are in various base support functions; e.g., financial services, general services, procurement, legal, civil engineering, etc.

H. Accounting and Fund Controls

NRO has an extensive accounting and fund control system in that it involves various DOD elements, extends across inter-agency lines, accommodates classified and unclassified transactions, has appropriation and program accounting features, summarizes financial activity over a wide geographical area (stateside and abroad), and is the major source of financial data on the NRP.

1. The System

In broad terms, NRO's programming and budget cycle is organized to fit into the DOD's overall programming cycle and budget requirements. The accounting operation is designed to assure that all financial transactions are recorded in the Air Force appropriation accounts in accordance with Air Force prescribed policies. Program and allotment accounting is also in accordance with Air Force financial management techniques. The procedures and the subsidiary accounts are of somewhat special design to meet NRO's accounting needs. Overall financial reporting is based on the Air Force appropriation accounting reports. A series of more detailed financial reports are prepared within NRP to meet NRO's needs for financial data.

The NRO comptroller is the focal point for authorizing the use of funds for both new appropriations and authorized

reprogramming. He acts pursuant to budget approval actions by both the Policy Review Committee and the Congress. The comptroller exercises two types of control--one through the allotment and obligating authority processes; another, through a program approval process. Both control mechanisms are synchronized.

The Air Force budget directorate notifies NRO of the receipt of new funds appropriated by Congress. Periodically, the NRO comptroller indicates to the directorate how these funds should be allotted. Allotments may go through a classified channel or an unclassified channel as directed by the comptroller. The classified channel is used for covert arrangements which conceal the specifics of the transactions from uncleared personnel.

Allotments for unclassified transactions go from the Air Force budget headquarters through the Air Force Systems Command to SAMSO, which has accounting and finance responsibility. SAMSO may later direct the transfer of some of these funds to other agencies. The transferred funds may also move into classified channels upon receipt by the receiving agency.

For classified transactions, the Air Force budget office allots NRP funds to a special accounting office at Air Force headquarters which has the responsibility for maintaining the official accounting records. Further guidance on the specific movements of such funds comes from the NRO comptroller.

As the obligations and expenditure transactions occur, they are recorded in the official accounts that service the various implementing offices. Ultimately, all financial activity is recorded in the Air Force official accounting records.

2. Overall Observations

On the basis of extensive inquiries and some examinations of supporting data, the Investigative Staff concluded that (a) the financial management personnel contacted (headquarters and field) were knowledgeable, cooperative, and responsive, and (b) the accounting and fund control system is adequate and workable in accounting for the NRP's financial activity.

I. Internal Auditing of NRP

The internal auditing of NRP is effected through several sources. The Defense Contract Audit Agency (DCAA) has a special group of cleared auditors who conduct audits of NRP contracts. This type of audit examines the work of the contractors. In addition, the cognizant audit elements of DOD and the CIA conduct audits of segments of NRP activities as part of their assigned responsibilities. The cognizant DOD and CIA Inspectors General also have an "oversight" responsibility which may include inspections and auditing.

From an overall viewpoint, however, one element of the oversight activity--i.e., management auditing--does not appear to be receiving sufficient emphasis. This is a type of auditing which examines whether management (administrative and program) is carrying out its assigned responsibilities efficiently and effectively. The importance of a management audit approach by internal audit organizations has been emphasized in the Federal Government in recent years.

The nature and scope of the DOD's internal audit program is outside the scope of the study. Like other agencies, its coverage is determined by many considerations. As it moves forward in its management auditing work, however, such an audit of the NRP might be considered. In the Investigative Staff's opinion the broad scope of the NRP, its financial level, its complexities, its interagency activities, and its covert nature, all suggest that it be subjected to periodic internal "management audits." Such audits, which would take into consideration other oversight reviews in order to minimize the workload, would be helpful to senior DOD officials in connection with their operating responsibilities as well as their GAO and congressional relations.

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VII. TACTICAL USE OF STRATEGIC INTELLIGENCE SATELLITES

A. Current and Planned Utilization

The 1977 House letter on intelligence directed that no increase in the use of strategic intelligence satellites be initiated without congressional approval. This direction was coupled with NRO's FY 1977 testimony which assured that no 1977 funds requested would commit the Congress to approval of routine tactical use of strategic intelligence satellites without prior approval. Within these limitations, the Committee encouraged continued experimentation in the area citing the potential benefits of tactical use, but cautioned that major financial and foreign policy implications were involved.

NRO has operated in general conformance with this policy. The provision of operational support to tactical commanders has been confined to a development posture with the following exceptions:

(3) NRO participates in field exercises designed to determine the feasibility of tactical applications of intelligence satellites. Consistent with the Committee's direction and JCS endorsement, several exercises have developed an awareness and active interest by the military services in the value of integrating NRP data with conventional intelligence data. These exercises include the Army's BRAVE CREW exercise in 1974, the Army/Air Force GALLANT SHIELD and BOLD EAGLE exercises in 1975 and 1976, and the Air Force's COLD FIRE exercise in 1976. NRO is continuing to work with the JCS, the three military

departments and the Defense Advanced Research Projects Agency to evaluate this type of potential NRP support to tactical commanders.

The above tactical applications demonstrated the feasibility of the tactical utility of NRP satellite systems. However, NRO is at present properly treating any current or potential tactical applications as extensions of the present systems rather than new systems development by first assessing the tactical data fallout from the national intelligence mission. According to NRO, tactical application of NRP satellites will depend in large part on reporting time requirements which directly affect ground support processing and costs.

B. Pros and Cons of Tactical Use

General agreement exists among high-level, knowledgeable officials concerning the potential value of intelligence satellite data to operational commanders. At the same time, these officials exhibit an understandably cautious attitude regarding the proper approach and speed to facilitate such a national intelligence/tactical interface.

Another recent DNRO viewed the dissemination of intelligence in real time to tactical commanders as highly desirable but felt there must be satisfaction that movement in this area was in the right direction. He acknowledged that reconnaissance satellites were national

assets and must be tasked by a central authority from a national point of view and operated as a national system. He also expressed concern that NRP systems would be tasked to excess if taken over by the tactical commanders.

The former head of the Intelligence Community Staff was somewhat emphatic in his view that the issue should not be whether the mission of a satellite was for tactical or national intelligence; rather, the real issue is whether the satellite is being optimized in the national interest. In other words, it does not matter as long as the country is getting the product it wants for the money it spends. This official said it is very difficult to sort out tactical versus national intelligence priorities and, in the end result, the CFI (now PRC) must decide any tradeoffs. He felt that when a program is contributing to both tactical and national intelligence requirements and not solely serving a tactical commander, the program belongs in the national intelligence arena. Thus, any expanded use of NRP satellites for tactical purposes must be fully evaluated and consideration must be given to the optimization of the satellite to perform such functions.

A former NSA Director observed that views on the tactical versus strategic use of intelligence satellites were mixed. The issue is not black and white and the optimum solution would be a balance between the two extremes. He cautioned that the enormous potential of overhead systems could be missed if emphasis were placed in one direction only, noting also that it would be extremely expensive to utilize satellites solely for tactical missions. He further mentioned the concern of some that, despite the growing tactical uses of ELINT data, the NFIB requirements process was being unfairly burdened. Thus, he concluded that the correct balance of global intelligence/tactical applications must predominate.

A former ranking DOD official, who was closely involved with the NRP, contended that tactical use of a national asset was a natural thing. He claimed that NRP satellites did a good job in collecting national intelligence, a fair job in indications and warning, and a poor job in the tactical support area. Therefore, tactical support requires more emphasis in the next 10 years and must be elevated to the strategic level. He added that tactical use of national assets was particularly applicable in the SIGINT world. For example, SR-71 aircraft detection of electronic order-of-battle in the recent Mid-East

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The NSA expressed similar concern regarding the impact of tactical applications of intelligence satellites. Although NSA conceded that meaningful real-time data can be provided to tactical commanders, the difficulties and expense involved in processing data of tactical interest must not be understated. NSA also is concerned that too many hands are presently involved in the evaluation of the tactical issue.

D. Non-Monetary Effect

A high-level DOD official conceded that increased tactical use of NRP satellites will detract from their strategic mission, but that such use should not impact on NRP management. He emphasized that NRO had demonstrated the ability to work with all services, the Navy being cited as an example in connection with POPPY [redacted] operations.

NRO seems reconciled to a fate which will utlimately include tactical missions in the NRP. A top NRO official expressed the view that overhead reconnaissance, whether it involves a national intelligence or tactical mission, should be one entity and not be separated. However, within this entity it might be desirable to have satellites dedicated to separate missions if specific needs had sufficient priorities to justify such missions. Under the present system, where tasking originates with NFIB and where satellites share tasking priorities, battlefield commanders will never be satisfied their needs are being met.

Concerning foreign policy implications, the above DOD official maintained that any political concern regarding tactical use of strategic satellites was a "red herring". He alleged that intercepts disclosed that the Soviets have similar capabilities and that the Soviets would be stupid to think the United States was not engaged in such activities.

Since this type of satellite intelligence collection could fall outside the accepted use of satellites for national technical means of verification pursuant to the 1972 SALT accords, it would be essential that any tactical applications be operable within the same or similar covert structure presently used for national intelligence missions. Tactical missions would likewise increase the vulnerability of involved satellites because of the inherent danger of a political confrontation with the Soviets concerning their use and providing an excuse to take hostile action against these satellites.

E. Investigative Staff Observations/Recommendations

The issue of strategic versus tactical use of NRP satellites is one destined to provoke wide ranging views within the intelligence community.

The final result must be an educated one based on national interests by reflecting the most beneficial and cost effective balance between national intelligence and tactical requirements. It is obvious there will be tradeoffs and some duplication, but national intelligence and tactical interests are believed fully compatible and potentially complementary if good judgment and an unbiased requirements process prevail. The following observations/recommendations appear pertinent to this important issue:

(1) The approach to tactical applications of NRP satellites must be very cautious. A clear cut, workable methodology must be worked out. There is an obvious crescendo of interest by tactical commanders for this type of operational support which, if not properly monitored and controlled, could influence a hodgepodge of ineffective and costly operational support. Before proceeding further, it is desirable that a study be made with the potential result of providing responsible guidance and recommendations in this important area. While this study should be conducted outside the NRO, NRO should participate and have an influential role. This study must address the interrelationship between NRP satellite systems and non-NRP tactical support systems.

(2) Tactical applications of satellites should be retained within the NRP organization. NRO has the experience and capability to interface national intelligence/tactical operational requirements within its present management structure. While the end result might include some dedicated tactical satellites, any consideration to remove the management or operation of them from the NRP would be unwise and undoubtedly lack cost effectiveness.

(3) The national intelligence/tactical requirements process must remain under a central national authority. With the extreme diversity and varying priorities of operational command interests, tactical tasking will require close control and must be properly interfaced with national intelligence tasking.

VIII. VULNERABILITY OF NRP SATELLITES

A. Soviet Threat and Contingency Plans

The vulnerability of NRP satellites has become a matter of primary concern in view of the increasing Soviet antisatellite capabilities. In a recent test, a Soviet antisatellite successfully intercepted its spacecraft target. This capability, therefore, could be directed at low orbiting NRP satellites that pass over the Soviet Union. High altitude NRP satellites are stationed over ocean areas removed from the Soviet Union and an antisatellite capability against them is currently doubtful both from a technical and political point of view.

In line with national guidance, the construction of NRP satellites had always been geared to maximize collection of intelligence without any consideration being given to a hostile threat. Although a few low orbiters have some evasive maneuvering capabilities, for all practical purposes they are defenseless against a hostile attack. Therefore, any survivability requirements must be based on a new national policy assessment concerning the collection of intelligence by spacecraft over denied areas together with the threat involved in such operations.

Pursuant to National Security Decision Memorandum (NSDM) 333, issued in July 1976, NRO and other members of the DOD intelligence community submitted recommendations to the NSDM 333 Working Group which is studying survivability options. NRO's submission, which is summarized on page 321 of the FY 1978 Budget Justification Book, appears to be a very knowledgeable and cost conscious approach to the survivability problem. The NRO concluded that, while some short-term and long-term measures could be effected at a reasonable cost, it would be very costly and increasingly ineffective [redacted] Thus, NRO cautioned that any meaningful cost/survivability tradeoff analysis was dependent upon a higher authority definition of operational objectives and options.

The vulnerability/survivability issue also impacts on contingency planning. While an NRP Satellite Contingency Planning Group, chaired by the DNRO, has been formulating satellite contingency guidance since the early 1960's, it has been principally concerned with nonhostile related on-orbit control of damaged or malfunctioning satellites. This group has never met under stress. In general, the policy is to do everything possible to maintain on-orbit control of satellites to preclude any compromising reentry. In the event of an uncontrolled reentry resulting in possession of a satellite or its debris by a foreign nation, the provisions of a United Nations Treaty governing activities in outer space would apply.

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