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DIRECTORATE OF
INTELLIGENCE

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NIMA/DOD

Imagery Analysis Service Accomplishments During Calendar Year 1969

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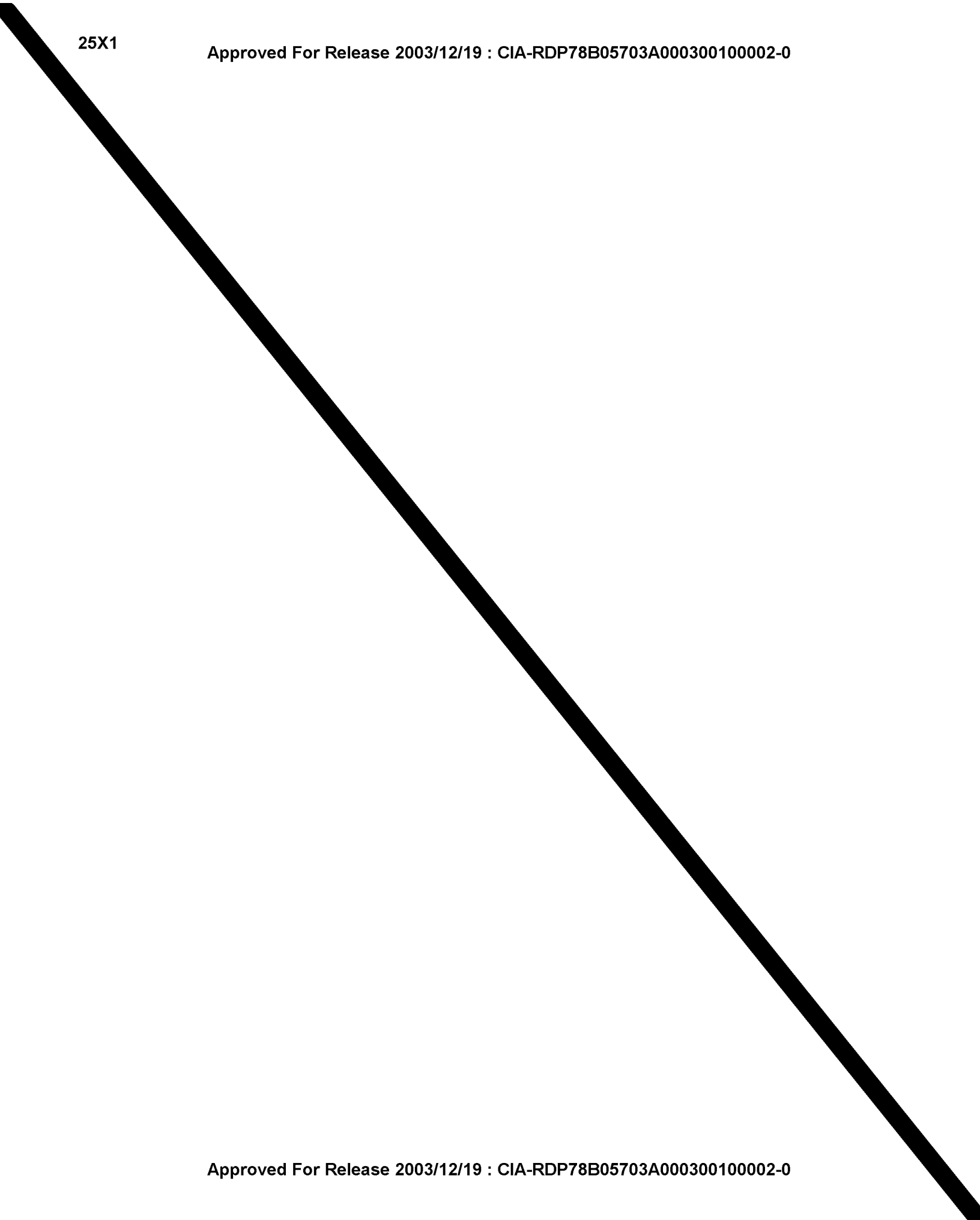

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IMAGERY ANALYSIS SERVICE ACCOMPLISHMENTS

DURING CALENDAR YEAR 1969

PREFACE

This paper, summarizing the major accomplishments of the CIA Imagery Analysis Service during CY 1969, is a part of the IAS submission for planning for the FY 1972-1976 period. It is meant for use in conjunction with the current IAS Five-Year Plan submitted in December 1969.

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Progress in Organization and Method

During the first half of 1969, IAS surveyed its non-substantive support structure in an attempt to achieve greater efficiency, a more logical alignment of functions, and, if possible, to make available both positions and points for assignment to substantive research work. As a result of this examination, it was decided that a reorganization of IAS supporting elements was warranted.

The first step in this reorganization was taken in June when the Production Branch was abolished, and those positions and functions formerly assigned to it were reassigned to two newly established components: the Publications Branch and the Requirements Management Branch. This change permitted us to consolidate resources concerned with the publication and editing of IAS reports with a centralized graphics section. The net saving from this initial reorganization was the freeing of one position in specialized services to be used where needed in imagery analysis. It also resulted in the downgrading of another position from GS-11 to GS-10.

As the second step in this reorganization, we have submitted a plan to combine all of our supporting elements into one unit under a senior manager, to achieve further efficiencies in the utilization of personnel and the performance of functions and to create a better delineation between administrative staff functions and technical support. This plan is still under consideration at higher levels.

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Progress in Recruitment and Training

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During the year IAS reviewed its recruiting and hiring practices with the Office of Personnel, and this resulted in a simplification of our applicant review system and speeded up both the review and processing activities. We compiled a new recruitment flyer for field use in support of both IAS and NPIC. Recently IAS terminated its participation in both the summer intern and cooperative education recruiting programs. Our two years' experience with these programs showed them not to be cost effective. We are now relying essentially upon the Skills Bank to meet our recruiting needs. We are maintaining close coordination with the Office of Personnel and are sharing applicant files with NPIC.

Total IAS training for the year amounted to 18,000 man-hours or 6 percent of the total time expended. Much of this time is accounted for by the training of new imagery analysts at the Strategic Air Command's 12-week P.I. course at Offutt Air Force Base, Nebraska. Eleven IAS personnel were put through the Offutt course in 1969, bringing our total attendance there to 27 since the formation of IAS in early 1967. We plan to continue our policy of sending all new professional employees to this course; six recent EOD's are scheduled for the January 1970 session.

Our program of continuing on-the-job training places emphasis on selected on-site inspection trips to military and industrial installations because we have found that such trips contribute significantly to the development of a professional analyst. We are continuing to make use of OTR-sponsored courses, and where feasible we provide financial support for those of our analysts who desire to pursue further formal education in areas related to their work.

Progress in Substantive Output

During CY 69 IAS produced 1,223 substantive reports, including 984 memoranda distributed selectively and mainly within CIA (an average of six copies), 109 published reports (mainly basic reporting) disseminated

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community-wide (125-150 copies), 99 cables, and 31 issues of "IAS Notes." These totals are about the same as those of the preceding year. As in the past, the reports, briefings and illustrations produced by IAS were contributed largely for incorporation with intelligence from other sources into the finished intelligence issuances of CIA, especially the Intelligence Reports and Memoranda prepared by the production offices.

During 1969 we endeavored to utilize a variety of reporting formats--Imagery Analysis Memoranda (IAM's), Imagery Analysis Reports (IAR's), and interoffice memoranda (IOM's)--selected according to the subject matter and the number and level of users identified. We plan to continue this approach with emphasis on the IAM format, which has great utility and flexibility and is very economical.

CIB and PQR. In addition to the above, IAS has recently been called upon to support two other Agency activities: the Central Intelligence Bulletin (CIB) and the President's Quarterly Report (PQR). With respect to the CIB, IAS was directed by the Assistant DDI in October to review drafts of CIB Black Book items containing imagery-derived information and to advise the originator promptly on any problems related to this information. This practice is useful as an additional guarantee that production office submissions incorporate the most accurate, up-to-date imagery-derived information available. It is comparable to the IAS review of draft NIE's performed since 1967.

The PQR is a quarterly report managed by OSR on the status of Soviet strategic attack forces. Our role in this effort, as established in December 1969, is to verify the accuracy of imagery-derived information and to recommend and prepare appropriate illustrations.

Preliminary Assessments. During the last half of 1969, the preliminary assessment of satellite reconnaissance missions was streamlined in order to meet a shorter schedule and to focus these assessments on only those subjects of major interest or importance to the DDI and DCI. To accomplish this, IAS now concentrates its initial analysis of the imagery on a list of topics of importance prepared by the production offices in advance of each satellite mission. If it becomes apparent from NPIC's first-phase readout or IAS's initial review of the imagery that there are other items of particular significance, these also are included. This streamlining of the preliminary assessment activity makes it possible in most cases to deliver the finished report within two working days of receipt of the film rather than three as before.

During CY 69 IAS participated in 18 preliminary assessments of satellite reconnaissance missions, working with production office teams chaired by OSR. In addition, IAS unilaterally prepared assessments of 43 aircraft missions for the DDI. About 70 "miniboard" illustrations were prepared to visually highlight selected items from both types of missions. Significant findings from each satellite mission were also presented orally by an IAS briefing team, in one or more sessions, to 125-150 personnel at Headquarters, including ONE Board and Staff members. Foreign liaison representatives received separate mission briefings on a more restrictive basis.

Detailed Analysis. Detailed imagery analysis support to the intelligence production offices of CIA continues to be our major task. During CY 69 considerable progress has been made with respect to our stated goals of a year ago--to upgrade the quality and presentation of analysis, to cut down on non-essential projects, and to improve the timeliness of our response to requirements.

The following items are highlights among the IAS projects which resulted in the production of significant intelligence information during the year:

1. Imagery-derived information on the deployment of the Soviet SS-9, SS-11, and SS-13 ICBM single-silos was provided by IAS in the spring of 1969 for analysis by the production offices in connection with the ICBM debates taking place in Congress. Much of this information was incorporated in special assessments for the DCI to use in discussions with high-level government officials and the legislative body. It also served in part as the basis for developing the current NIE 11-8-69 on this subject.

2. A study of Soviet Y-Class SSBN production at Severodvinsk revealed significant information about that submarine's configuration, composition, and construction patterns and led to the development of a methodology for determining the number of units under construction and launched. This methodology not only permitted the Agency to arrive at an exact figure for Y-Class production through June 1969, which is reflected in the NIE, but also provides indicators useful for following subsequent production as new imagery is acquired.

3. During the year, IAS undertook very detailed studies of the electric power distribution [redacted] 25X
X1 in China, [redacted] these studies

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provided information essential to refining the estimate of the amount of Uranium-235 produced in China and had a major impact on NIE 13-8-69. Similar studies are now being produced on Soviet gaseous diffusion plants.

4. Our program of monitoring photographic coverage of the Sino-Soviet border area increased in magnitude and importance during the year, with the escalation of tension in that area. Our experience in supporting the production offices on this problem resulted in a more effective approach to exploiting incoming imagery in crisis-monitoring situations of this type. Also of potential value with respect to monitoring future developments along the Sino-Soviet border are IAS studies of the traffic along the Trans-Siberian Railroad, done in support of an OER analysis of the line's capacities and norms.

5. IAS continued to make a major contribution to the CIA analysis of the North Vietnamese logistic network through Laos. Determining the status of lines of communication in the North Vietnamese and Laotian panhandles has been a continuing effort over the year. Analysis of road conditions through Mu Gia and Ban Karai passes during the past rainy season has been of particular importance to OER as well as DDP. We also continue to follow North Vietnamese efforts at economic reconstruction.

DDP Support. The amount of imagery analysis support provided to DDP in CY 69 dropped to 6 percent of our over-all total, as compared with 10 percent last year. Part of the decline in chargeable support can be attributed to the fact that IAS maintained only one imagery analyst in an overseas TDY status during CY 69. It should be noted, however, that IAS continues to have nine analysts on PCS duty with DDP overseas, and to provide trained replacements when tours are over. Roughly 60 percent of the chargeable IAS support was in response to requirements from Headquarters components, but the level of this support also declined as DDP retrenched. Considerable IAS activity this year was helping to determine best locations and methods for emplacing technical intelligence collection devices.

Basic Reporting. By July 1969 IAS had successfully completed its portion of the National Tasking Plan (NTP) for FY 1969. Within that fiscal year a total of 276 non-military industrial installations were studied. The majority of these are located in China with the remainder in the USSR

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and North Korea. These studies resulted in the production of 51 Basic Imagery Interpretation Reports (BIIR's) and 124 Briefs (BIIB's). Industries analyzed included: electric power, iron and steel, cement, petroleum, copper, aluminum, chemical, and fertilizer. For reasons of economy and usability, in the second half of FY 69 we started producing consolidated basic reports in which the analysis of as many as 40 installations in a given category (e.g. the cement industry) was presented in a single document. The trend toward consolidated reports has continued through the remainder of CY 69. Work is progressing almost on schedule, and we expect to fully meet our FY-70 commitment for production assigned under the NTP.

IAS has also produced three interim BIIR's during 1969 on topics which are the NTP responsibility of either DIA or NPIC. Since much of the imagery analysis work necessary for the production of these reports had been completed by IAS in response to CIA direct support requirements, we published the information as BIIR's with the concurrence of the responsible organizations, in order to conserve community imagery analysis resources. In the interests of avoiding unnecessary duplication, IAS also made available to DIA and NPIC our studies prepared for OSR on more than 500 Soviet, Chinese, and Polish ground force and logistical installations.

Experimental Imagery Analysis. IAS experimentation early in 1969 resulted in the development of techniques for the identification of standard Soviet housing facilities and standard Soviet support structures. Both of these techniques are contributing to a better understanding as to the size and make-up of worker populations at Soviet strategic installations.

In June 1969 an Unidentified Targets Group was established in IAS for the purpose of establishing procedures and creating conditions conducive to the accurate identification of significant unidentified installations at the earliest possible point in time. Since then, more than 200 installations have been reviewed, a list of priority installations has been prepared, and large-scale imagery has been requested where especially needed. This experimental effort on the part of IAS appears to show promise as a means of assuring that adequate coverage of these facilities will be acquired and examined by imagery specialists.

At the end of the year, we had 7 experimental projects under way in addition to the above. Some of the more ambitious were: The development of an imagery analysis technique for determining manning levels for Soviet ground forces; an investigation of possible indicators for identifying a mobile missile system on satellite photography; and the measurement of U.S. domestic facilities for field verification and evaluation of our mensuration techniques.

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Quantitative Summary. During CY 69, IAS expended 162,500 man-hours (including some overtime) on discrete, measurable imagery analysis projects. The following table shows distribution of effort, by percentage.

IAS TIME EXPENDED ON IMAGERY ANALYSIS AND REPORTING 1/
January - December* 1969
(by percentages)

Subject	Percent	Country	Percent	Requester	Percent
Clandestine Ops Support	6	USSR	39	DDI	57
Ground Forces	17	China	25	DDS&T	20
Nuclear Energy Weapons, CW, BW	9	Vietnam	7	DDP	6
Strategic Attack Missiles & Space	11	Sino-Soviet	2	COMIREX	7
Naval Forces	6	Laos	6	DCI	1
Non-Military Industries	11	Cambodia	1	Other 2/	9
Strategic Defense Missiles & Electronics	9	E. Europe	3		100%
Transportation and Logistics	9	N. Korea	3		
Air Forces	4	Other 2/	14		
War Damage & Reconstruction	1		100%		
Geographic Studies	4				
Other 2/	13				
	100%				

1/ Personnel involved are imagery analysts and their Branch Chiefs as well as illustrators and intelligence assistants who support them directly on imagery analysis projects.

2/ Includes projects covering more than one subject, country, or requester where no breakdown can conveniently be made or the percentage expended is less than one. Also includes brief consultations and general file maintenance.

* Percentages are based on a 12-month projection of actual figures for January through November 1969.

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A comparison of these figures with those of 1968 reveals a decrease in support to the clandestine services, and significant increases with respect to ground forces, transportation, and non-military industries. There was also a drop in the imagery analysis of war damage and reconstruction in Vietnam, and increases in work on Laos and North Korea.

Overtime. IAS achieved a reduction of 28 percent in the amount of overtime expended by its personnel during the past year (11,000 man-hours in CY 1969 vs. 15,400 man-hours in CY 1968). Average annual overtime per professional imagery analyst dropped from 142 man-hours in CY 1968 to 86 in CY 1969.

Progress in Specialized Services

In CY 69, an estimated 35 man-years were expended on providing specialized services to IAS--14 by IAS supporting elements and 21 by NPIC (as compared with 27 by NPIC in CY 68). The services provided within IAS are mainly information control and storage, photoreproduction, preventive maintenance of equipment, requirements handling, and publication support. During this year we expanded our equipment inventory, but we were able to meet most of our needs for preventive maintenance on exploitation equipment with in-house resources. We also realized savings in analytical time during assessments of new missions by obtaining improved, more specialized predicted target listings from NPIC. IAS continues to rely on NPIC for supporting services which would be costly and inefficient to duplicate, such as photo and lithographic reproduction, computer services, complex photogrammetry, the maintenance of complex electro-optical equipment, and R&D related to imagery exploitation.

NPIC has met our needs in most cases on a timely and satisfactory basis, but there are currently three areas which give us concern: computer services, mensuration support, and the maintenance of complex equipment.

We recognize that NPIC computer services already have a large workload, and we accept delays with understanding; but we can foresee that additional support, including computer programming, will be required to meet our future needs for on-line equipment and ADP services.

NPIC's capability to meet IAS priority needs for complex mensuration support during peak workload periods was at times severely strained. We consider it imperative that IAS continue to receive the equivalent of four man-years of mensuration support from NPIC, including the agreed minimum of

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350 man-hours in any month. At the same time, we will continue to maximize use of in-house equipment, which has been expanded during this year, to meet CIA needs for less complex solutions.

We continue to rely on NPIC for the maintenance and repair of complex equipment, such as our on-line comparators and forthcoming devices for use with NPIC's Integrated Information System. As more new equipment of this type is installed in IAS, as well as in other locations within [redacted] we are concerned that NPIC's small group of qualified electronics maintenance personnel might become critically overburdened and unable to provide IAS with adequate support in this vital area.

Progress in Equipment

Three [redacted] Comparators are now in the process of being installed and tested. Like our [redacted] Chip Comparator, these instruments operating on-line to NPIC's computer will considerably increase our capability to perform precise mensuration on high-resolution satellite imagery in house.

Procurement of eight [redacted] MIM-3 light tables, which have an improved microscope carriage, has permitted us to put our [redacted] Versatile Microscopes into service. Although these high-quality instruments have been on hand for some time, they were unusable before due to the lack of an adequate light table.

Leasing of a Xerox Telecopier for use in conjunction with the gray/green telephone systems has given us a secure in-house means of exchanging messages of substantive importance with Agency Production Offices. Although not completely satisfactory, we expect to make continued use of the Telecopier until a better facsimile transmission system, the LDX, is made available to NPIC as a common-use item for occupants of [redacted] and is proven satisfactory.

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