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TCS-2302-65
NPIC/P&DS-101/65
11 March 1965

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MEMORANDUM FOR: Assistant for Administration, NPIC

SUBJECT: Monthly Activity Report

GENERAL STAFF OCCURRENCES

50X1 On the 17th of February [] was appointed Technical
50X1 Advisor to Mr. Lundahl and relinquished his position as Assistant
50X1 for Plans and Development. [] assumed that
position, and [] was designated as Deputy.
The position of Executive Officer was eliminated from the table of
organization.

50X1 The Plans and Development Staff was the first component within
the Center to become involved with the Inspector General's Team.
Basically, the purpose of the two sessions was to introduce the
team members, [] to the state of
technology of the photo exploitation business. In so doing an
introduction to the functions of the P&DS was achieved.

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50X1 [] attended a briefing within the
Center put on by Col. Sleeper, AFSC, on the need for ground resolutions
of less than 6".

50X1 PAG and P&DS joined forces to present to the Director a technical
briefing on the exploitation of []. The
use of the [] to gain useful information was detailed
in the presentation.

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50X1 [] transferred from TID to the Development Branch
50X1 and was assigned to the Support Systems Section under []

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NPIC/P&DS-101/65
TCS-2302/65
Page 2

DEVELOPMENT BRANCH

50X1 The most important event during the month was the visit of the Inspector General's Team. [] gave a detailed presentation of the research and development program on the 25th of February. In the process of preparing this briefing, the expanse of the program became most apparent, and it was determined that our current workload is four times that normally carried by a staff of this size. The use of the status report and detailed work analysis made a well-coordinated presentation of our program relatively easy to compile and to present convincingly. In the course of the briefing the absence of specific total exploitation systems directly keyed to acquisition systems was noted. The policy in the past has been to design devices of considerable versatility that are inherently capable of serving a number of different acquisition systems; however, we are aware that there are instances in which the specific system concept is of definite benefit, and we are currently reviewing our program in order to establish this type of development plan when it is appropriate. Another interesting observation was the surprise of the I. G. Team to learn that the acquisition and exploitation aspects of development were not more closely tied together.

During the month of February two TDC meetings were held in which [] development projects were processed, thus raising our total commitment to [] of our entire program. In order to meet our schedule we must process projects involving more funding during the month of March than we have in the entire previous portion of the fiscal year. It is still our intention to accomplish this.

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50X1 On separate occasions during the month [] organized trips for PAG and PID representatives to visit Optomechanisms, Inc. and HRB-Singer in order for them to view drawings and mock-ups of the Advanced Roll Film Viewing Tables being concurrently developed at these two facilities.

50X1 During the month [] secured two sets of motorized film brackets on loan from Richards Corporation and arranged to have them evaluated in PID and PAG. TID has also expressed an interest in testing these brackets.

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TCS-2302-65
NPIC/P&DS-101/65
Page 3

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[] continues to coordinate the Joint Procurement for the B&L High Power Stereo Viewers. The initial order totaled 54 instruments. A second order is now materializing for a quantity ranging from 35 to 45 additional instruments. In these actions [] has not only served both PAG and PID but also SAC, FTD, NRTSC, SPAD, DIA-API and

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[] As a result of this coordination the price per instrument was reduced by \$3,300, thus effecting savings in the order of \$300,000 to the Government.

The Maintenance Section services 60 requests for specific maintenance actions during the month including 19 for TAB/TID, 16 for PAG and 12 for PSD. There were also 54 instances of preventative maintenance.

Branch travel was particularly light during the month involving only 30 man days and 16 facilities visited. A considerable portion of the contract monitoring process was accomplished by conferences with commercial representatives at this building. This is a satisfactory expedient, but is obviously limited to special circumstances.

Major contractual actions for the month are as follows:

- 3 February - Contract was let with Bausch & Lomb to develop an improved version, Model II, Projected Scale Micrometer.
- 12 February - Richards Corporation delivered two Fly-a-way Light Tables which are now being operationally evaluated.
- 15 February - Contract was let with Itek to investigate and develop an exploitation system coordinated with a proposed acquisition system.

Listed below are statistics relevant to Branch operations for the months of January and February:

<u>PROPOSAL STATUS</u>	<u>JAN.</u>	<u>FEB.</u>
Received	3	17
Considered during Month	77	57
Rejected	20	11
Accepted	14	8
Total Carried Over	40	38

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TCS-2302-65
NPIC/P&DS-101/65
Page 4

<u>PROJECT APPROVAL REQUEST STATUS</u>	<u>JAN.</u>	<u>FEB.</u>
Completed	5	8

<u>STATUS OF PROJECTS INVOLVING R&D CONTRACTS</u>	<u>JAN.</u>	<u>FEB.</u>
Initiated	11	18
In pre-contract phase	60	70
Under contract	77	81
In test and evaluation	14	12
Completed	2	3
Cancelled	3	0

Total Projects Carried Over	145	160
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<u>STATUS OF PROJECTS NOT INVOLVING CONTRACTS</u>	<u>JAN.</u>	<u>FEB.</u>
Initiated	8	5
In work during month	74	77
Completed	1	2
Cancelled	1	1

Total Projects Carried Over	72	74
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<u>FISCAL STATUS OF R&D CONTRACTS</u>	<u>Number</u>		<u>Dollar Value</u>	
	<u>Jan.</u>	<u>Feb.</u>	<u>Jan.</u>	<u>Feb.</u>
Pending Obligations	15	15		
Contracted this month	3	3		
Contracted FY-65	17	20		
Completed this month	2	3		
Current total R&D contracts	73	76		

PLANS BRANCH

During the period of this report, several trips were made and programmed to bring the data on several systems up to-date.

made a trip to Wright/Patterson Air Force Base from 15 to 17 February 1965 and acquired latest information on the RF4C, SR-71, and 111B Reconnaissance System.

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NPIC/P&DS-101/65
Page 5

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[redacted] departed on 18 February for Barksdale, Air Force Base, La., to check on the new SAC trailer which is an air transportable, precision photo lab. [redacted] continued on to California and met [redacted] in Los Angeles on 23 February. The trip, basically orientation for [redacted] [redacted] included visits and conferences with United States Air Force Space Systems Division, Lockheed - Burbank, and Hycon Corp., all in the Los Angeles area. Continuation of this orientation trip, February 23 through 3 March, will be in the next month's report.

Arrangements have been made for a trip to Eastman Kodak on the 10th and 11th of March to update the G³ program and the Type II Camera System.

Graphic materials for the Navy RA-5C reconnaissance system were completed, and the senior NPIC officials, PAG, PID, and OPS were briefed.

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The draft manual of the NPIC Technical Development Program was completed by [redacted] and is now in the Publications Division. In addition, a draft compilation presenting the capabilities of exploitation equipment to handle systems material is being prepared.

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Initial contact with the Inspector General's Team was made on 16 February, and this was followed up by a formal briefing on 25 February 1965. [redacted] conducted the briefing for the Plans Branch.

[redacted] is continuing the evaluation of photographic material from the Type I Camera System; PID, PAG, TID, and IPD are also involved in this project. A preliminary evaluation meeting was held at the NPIC with representatives from Perkin-Elmer, TID, IPD, PID, PAG, and OSA/CIA; problems and recommendations were presented.

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[redacted] was on ten days annual leave the last week of the month.

EXPLORATORY DEVELOPMENT LABORATORY BRANCH

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In preparation for the coming visit of the Inspector General's Team, [redacted] spent considerable time in discussing and designing briefing boards. [redacted] took several photographs

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NPIC/P&DS-101/65
Page 6

and printed additional copies of stock negatives to make up a special board which demonstrated graphically the interlocking disciplines of the branch.

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In direct support of the Development Branch's efforts, [] helped in the evaluation of several proposals. These included the ultra-violet screen study by Consolidated Systems Corporation, several on unconventional photographic systems, a follow-on to Houston Fearless' HTA-5 processor, a new system of processing by the Electrada Corporation employing controlled fogging by ultra-violet light combined with reversal dye-coupling development, and a Technical Operations proposal on image restoration. [] recommended that the Technical Operations proposal be approved, and he aided in its presentation to the TDC.

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[] presented to the TDC, aided by [] the Itek proposal on adjacency effects.

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Proceedings of the Image Quality Evaluation Program meeting, which [] chaired during January, were prepared and drafted. Some delays in receiving participants' contributions were experienced, and the expected February release date was not realized. It is expected that the report will be released by 8jMarch.

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[] carried through a preliminary theoretical and experimental analysis necessary for the production of low-modulation high transmittance sine-waves. These will be used on equipment currently under development by Diffraction Limited, of Bedford, Massachusetts. An equipment breakdown prevented completion of this projection during February. The necessary repairs are being effected, and it is anticipated that the project will be continued in March.

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[] of Technical Operations visited the Center for two days in February to discuss problems in optics and photography. The results of an analysis performed by members of his staff were discussed. These will be incorporated into the program for evaluating adjacency effects. The problem of coherent vs. incoherent resolution limit, particularly as it applies to the evaluation of the Perkin-Elmer Coherent Light Enlarger, was also considered. Progress on their studies was discussed, and a proposal was solicited from them based on those results.

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TCS-2302-65
NPIC/P&DS-101/65
Page 7

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Much of [] activity during the month of February centered around the Isodensitracer and its applications to Center problems.

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On 9 February, [] visited Itek at Burlington, Massachusetts, to assist an Air Force check-out team in evaluating the Itek rear-projection film-viewer by Isodensitracer techniques. Photographs of the viewer screen made under operating conditions, were density-mapped to show the distribution of luminance over the screen. The results of the test were useful from the points of view of both the Air Force and the Center.

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The principal drawback in interpreting isodensity maps of infra-red images is the requirement for coloring the map by hand to increase the interpreter's perception of the patterns the image contains. [] has now completed a preliminary design for an apparatus which will perform the transformation from a density image to a colored image automatically. The same concept may also be used to alter the contrast structure of an image and enhance edge definition as well as for other aspects of density interpreter's perception of the patterns the image contains. [] has now completed a preliminary design for an apparatus which will perform the transformation from a density image to a colored image automatically. The same concept may also be used to alter the contrast structure of an image and enhance edge definition as well as for other aspects of density-image manipulation. A breadboard model of the apparatus will be built as soon as possible after the delivery of the Laboratory's Isodensitracer.

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A comprehensive briefing for the Director on the Isodensitracer and its role in the interpretation of recent infra-red mission material was presented on 26 February by [] of DIA. The briefing will be repeated for several other Center and DIA groups.

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[] continued work on the glass etched phase gratings. He also conducted a literature survey of all available material covering the preparation and etching of glass by hydrofluoric acid. A safety hazard was discovered after [] had become ill several different days as a result of prolonged exposure to the fumes of the photo resist and other organic thinning agents employed in this system. To overcome this exposure, [] fabricated a cardboard and tape fume hood which is coupled to the main laboratory hood by a blower-duct system to remove the fumes of the photo resist during application. Twenty

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TCS-2302-65
NPIC/P&DS-101/65
Page 8

acid-vapor etched plates of improved quality were produced during this reporting period.

A purchase order was placed for the Ronchi ruling necessary for the production of phase gratings. The expected delivery is on or before 22 March, so that there is a good probability that the Laboratory will have its first finished grating by 15 April.

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During the month of February [] fabricated two items of laboratory equipment, provided consulting service to the Production Services Division, completed a design layout for the wide field scanning photometer, and began producing detailed parts drawings of this photometer. The consulting service to PSD/PLB consisted of an examination of their present 14-inch wide print flattener and a recommendation regarding procurement of a unit for 24-inch wide material. They were advised to arrange for some engineering firm to produce a larger unit by simply copying the design of their small one.

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[] completed a mounting plate for attaching an existing 70mm camera back to any Ealing optical benchcarrier. The engineering work on the scanning photometer project should be completed during the forthcoming month. Approximately 20 detail drawings will be required.

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[] continued work on the project on focus determination as well as other necessary photographic assignments. He completed more photographs in continuing support of the Plans Branch requirements for equipment illustrations in the Technical Development Manual.

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During the month of February, [] activities fell into four categories: on the job training; investigation of analytical methods; analyzing a technique for measuring adjacency effects; and making a preliminary study for a research project.

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[] continued his training in laboratory procedures and the photographic process; he also studied mathematical concepts which have proven to be valuable in the field of optics. He reviewed an analysis made by Technical Operations for P&DS. As a result of the above activities, he was prompted to make a preliminary study to determine whether abstract algebraic concepts have applications to optics and related concepts.

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[] attended a day's seminar given by the Millipore Filter Corporation in Richmond, Virginia, on 1 February. As a direct result of this trip, he was able to aid [] in the suggested procurement of a filtration system for taking the fine particles out of the photo resist which was causing trouble in the manufacture of the vapor-etched

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TCS-2302-65
NPIC/P&DS-101/65
Page 9

phase gratings. After attending several meetings with various members of the Agency and the consulting engineers from G. S. A. regarding the improvements to be made in the ventilation system in Building 213, he recommended to the SS/LB suitable procedures for measuring airborne contaminations in clean room areas.

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[redacted] visited NSA on 18 February to attend the "Modern Optics Course."

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[redacted] visited [redacted] to interview a prospective employee. This is the first instance of a new arrangement with [redacted] whereby a thorough technical assessment of the applicant's capabilities and interest may be obtained early in the personnel processing. It will enable a more critical evaluation of mutual interest prior to the submission of the required PHS and lengthy security check.

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[redacted] attended a meeting of operators and users of the Controlled Range Network at SPPL on 18 and 19 February. They reviewed the progress achieved in predicting contrast reduction from meteorological data and in measuring the optical environment of the ground targets. The contrast reduction problem is now fairly well understood, and analyses are being made routinely by Air Weather Service to support the Perkin-Elmer evaluations of

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for:

Assistant for Plans and Development

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