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File RFD
27 Jul 64

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23 June 1964

MEMORANDUM FOR THE RECORD

SUBJECT: Trip Report -- [redacted]
[redacted] 8-11 June 1964

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1. Six P&DS/NPIC personnel discussed a total of twenty-six projects with nine [redacted] personnel during a period of four days. To avoid the confusion which would be caused by six separate reports on one contract, the undersigned has consolidated the comments of the various project monitors into a single document.

2. [redacted]

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3. The P&DS attendees, projects discussed and dates of attendance were:

<u>NAME</u>	<u>PROJECTS</u>	<u>DATES</u>
[redacted]	202,206,207,213,214,215,224	8,9 June 1964
	212,216,217	10,11 June
	222	11 June
	225,226	11 June
	211	11 June
	<u>ALL</u>	9-11 June

4. This Trip Report is divided into four parts as follows:

- a. Enclosure 1: Status of the projects under contract [redacted]
- b. Enclosure 2: Advance copy of the Fiscal Summary, dtd 1 June 1964
- c. Enclosure 3: [redacted] list of proposed projects for FY-65
- d. Enclosure 4: Comments on [redacted] list of proposed projects for FY-65

5. As a final item, [redacted] to make briefing boards for the projects he is monitoring (see paragraph 3, above). I knew that we once had a plan to require all contractors to provide artists concepts, photographs, etc., for use as briefing aids. I therefore told [redacted] that I wanted

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[REDACTED] to make one or, if necessary, more briefing boards on all projects which lent themselves to a graphic briefing aid. These briefing boards are to be made so that they can be reproduced as 3 $\frac{1}{4}$ " x 4" slides, as Vue-Graphs or as black-and-white prints. [REDACTED] will look into this and let me know if there are any major problems. [REDACTED] PD/GAB, is preparing a set of specifications for the briefing boards, slides, etc., so they will conform with accepted NPIC standards.

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Contract [REDACTED] Admin. Monitor
Development Branch, P&DS

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23 June 1964

PROJECT

TITLE AND COMMENTS

201 Travel and Liaison:

This PAR covers only the costs incurred for travel by [] personnel to visit P&DS personnel, and for our meetings at their facility. These are costs which do not belong to any single PAR. See "Security - Guards", below.

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202 Briefing Print Enlarger:

The Contractor has started work on this project and as of 18 May 1964 about [] had been expended. The following comments were provided by the project monitor, []

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"A review of objectives on 8 June 1964 revealed no differences in concept between the contractor and the project monitor. At present a study phase is in progress to define the design parameters. Work appears to be progressing satisfactorily.

No contract action is required at this time."

203 Rapid Access Printer:

After a discussion with the contractor's technical personnel, the project monitor, [] approved the Contractor's proposal and gave an oral authorization to proceed. The oral authorization was confirmed in [] message 9046, dated 18 June 1964. The following comments were provided by []

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[] will soon start Phase I, which will be a study of commercially available continuous-tone diazo and plastic resin reproduction systems which produce a positive. Specific materials that are known and will be included are Kalcon Film, Ozalid Unit Gamma Film, and Technifax K-Tone Film. I informed [] that the Technifax Corporation now has a new continuous-tone, high-resolution diazo reproduction system capable of 200 l/mm. This material will be added to the list for investigation.

204 Contact Chip Printer:

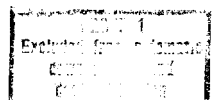
Since the monitor, [] did not attend the meetings at the Contractor's facility, this was not discussed other than to tell the Contractor that the project was still being evaluated.

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PROJECT

TITLE AND COMMENTS

205 Precision 4-X Enlarger:

Same comments as PAR-204, above.

206 Study of Reversal Processing of High-Resolution Films:

The following comments were provided by the project monitor, [redacted]

"A review of PAR-206 was made at the contractor's plant on 9 June 1964. The singular objective is to determine the method best suited to film reversal with a minimum loss of resolution. The result will be applied to the reversal processor under PAR-214. Work is just getting underway. No change is contemplated.

No contract action required at this time."

207 Study of Contact Printers:

[redacted] message 9046, dated 18 June 1964, approved the contractor's proposal dated 21 April 1964 and the new estimated total expenditure of [redacted] instead of the previously authorized [redacted]. The following comments were provided by the project monitor, [redacted]

"It was planned to review progress under PAR-207 on 9 June 1964. However, the Project Engineer was not available for discussion.

A review, however, of the objectives outlined in PAR-207A dated 21 April 1964 and the 1 May monthly report indicates that the contractor has a good understanding of the overall objectives.

No change in the contractor's plan is contemplated.

No contract action is required at this time."

208 Non-Electric Image (Enhancement):

This project was cancelled by us (see MFR for PAR-208 dated 17 April 1964). The Contractor had omitted the word "Enhancement" from the title due to a lack of space on the Fiscal Summary. The project was intended to cover enhancement of images by other than electric means (i.e. electronic dodging such as LogEtronic equipment). The project would have considered unsharp masking, processing, dye images, etc.

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PROJECT

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209

Phosphor Viewer:

The project monitor, [redacted] discussed this briefly with the Contractor's personnel. In general this project is completed except for the evaluation report to be written by NPIC personnel. The following was given by [redacted] project monitor.

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"This device was delivered to P&DS several months ago for evaluation, and was demonstrated to a number of analysts in PID. These analysts found that there was virtually no enhancement observed with the device in its present configuration.

[redacted] and I briefly discussed the possibility of investigating other phosphors for this device. The ultra-violet output can probably be increased and the backlighting changed so as to allow full extinction. It was emphasized that a format size that would permit use of a microscope would be adequate. If the decision is made to pursue this means of enhancement, I recommend that a new PAR be submitted [redacted]

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210

Laminated Slides:

The contractor expects to have the final report ready by 1 July 1964. The Fiscal Summary dated 1 June 1964 lists a total expenditure on this project of [redacted] compared to the authorized total of [redacted] will tell us whether a message is necessary to approve this "overrun" or whether, being only an estimate, no action by us is required. One result of this project is that the Teleprompter projectors need modification to provide increased air flow over the slides while they are being projected.

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211

Microdensitometer Study of the Effects of Processing:

The following comments on this project were provided by the project monitor, [redacted]

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"The work on this PAR is proceeding well, and needed only a few decisions from the monitor, mostly concerned with the direction in which we wanted the program to go. They have established standardized processing and analytical techniques, and have tested several films in terms of granularity and acutance. Their inability to achieve reproducible results

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PROJECT

TITLE AND COMMENTS

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on MTF measurements caused them to discontinue them and refer the problem to us. Since such measurements are vital, they have been instructed to proceed with MTF measurements, even though it may require "farming-out" the problem to their Research Laboratories. They will also include high and low contrast AF bar targets on their measurement schedule. Item 2a of their Study Program Objective dated 6 December 1963 is, therefore, well underway.

Item 2b was the subject of much discussion the gist of which was that they did not realize the problem was so involved. I promised them some information about this, and will contact [] regarding PI targets. I agreed to send some of the [] reports on Image Evaluation, because they have a special relevance to this problem. I hope to obtain from [] some idea of the test objects used for PI evaluation, so that the [] people will not be forced to waste time in needless cut-and-try to find the same answers.

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Item 3 of their objective has not been started yet. They were not at all sure how to proceed and wished to consult with us. In order to see if there is definite need for extensive investigation, I will arrange a meeting with the [] representative and our mensuration people, to be held at our facilities. This way, the instruments which are used for measuring will be seen and the film problem given its proper perspective. It appeared at the meeting that while very little improvement can be achieved through processing changes, the problem had better be looked into. [] will begin an analytical investigation which will attempt to place the "real" edge position. The discussions considered the possibility of using Gaussian or Quadratic hyperbola spread functions as models to get the analysis started. This will begin immediately so that subsequent discussions of equipment and film precision can have a more exact frame of reference."

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212

Color Acquisition System Review Study:

The following comments on this project were provided by the monitor, []

"a. Most of the work to date has been expended on film studies. It appears that techniques are being investigated which give considerable hope that part of the color contrast lost through atmospheric attenuation of the blue spectrum

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can be compensated for in either the acquisition or exploitation stages. Additional blue may be added during the taking process, during photographic processing, during viewing or by combinations of all three.

b. Higher altitude materials are required for [] to proceed further with their studies. These should be available in about a week or two in the form of inputs from other programs.

c. Analysis of camera systems from a color standpoint are soon to be undertaken.

d. The general progress to date appears satisfactory."

213

Color Reproduction Systems Review:

The following comments were provided by the project monitor, []

"A review was made of PAR-213 at the contractor's plant on 8 June 1964.

The effort at present consists of producing many combinations of color transparencies and opaque color prints to determine which produce a final product or products most useful to the PI. All test prints were made from CF-6513 color acquisition film and a newer laboratory test color original material designated as SO-121, both flown at 12,000 ft. on a clear day. The best opaque prints were produced on Ektachrome Professional Print Paper (EPP) from #6110 color intermediates. The best print transparencies were produced on 7255 Ektachrome Commercial, 5059 Kodachrome and on SO-121, a special original color film of very high contrast. Although these tests were encouraging it was felt that more significant answers will be provided by prints made from color originals flown above 100,000 feet. These originals will be available within the next few weeks.

The contractor project engineer agreed to provide the monitor a series of briefing boards and color slides (3 $\frac{1}{4}$ x 4) to illustrate the quality obtainable and to provide a medium for group evaluation of results.

Work appears to be progressing very well and no contract action is required at this time."

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214

Roller Transport Reversal Processor (12 inch):

After discussion with the Contractor the new monitor, [redacted] approved the change of scope which added a double re-exposure station and a daylight operation capability. See [redacted] MFR on this PAR dated 16 June 1964 and [redacted] message 9046, dated 18 June 1964, which increase the authorized expenditure to [redacted] for the change in scope. The following comments were provided by the project monitor,

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[redacted]

"A review was made of PAR-214 at the contractor's plant on 8 June 1964. The effort appears to be progressing well and no change in objective is contemplated."

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PROJECT

TITLE AND COMMENTS

215

Roller Transport Processor (24 inch):

The following comments were provided by the project monitor,

[REDACTED]

"A review was made of PAR-215 at the contractor's plant on 9 June 1964. The effort appears to be progressing well.

On pages 5 and 6 of the 2 March 1964 Quarterly Report the contractor requested an increase in funds to cover a 24" feed cassette and a 24" take-up. These two items were deleted during the above review because it is not contemplated that prints will be produced in roll form at this size. Concurrence has been unanimous (Contractor, [REDACTED] PSD/PLB/NPIC, and the monitor). It is felt that only cut sheets will be processed on this machine. The processor is being designed for paper. It is contemplated that most prints will be on waterproof stock or stable base opaque film. Other prints such as single weight Kodabromide will require attachment of a stiff lead edge to the sheet to assure proper transport through the processor. The lead device will be provided by the contractor. The dryer will remain as a necessary module of the processor to assure feed into the dryer when the dryer is attached.

The contractor will submit a revised specification reflecting the above changes, together with a revised estimate of costs. Appropriate contract action will be taken after review of the contractor's submission."

216

Exposure of Photographic Material with Lasers:

The following comments were provided by the monitor, [REDACTED]

"a. This PAR is moving rather slowly. The experimentation to date has been confined to attempting to get a reasonable photographic exposure with a laser. They are running into many of the same problem areas that [REDACTED] encountered during the development of the laser enlarger.

b. Like [REDACTED] they are considering inserting a diffusion screen into the laser beam. They claim that this does not completely destroy the coherence of the laser illumination -- we need more information on this subject. ←

c. [REDACTED] feels they must go through this experimentation stage until they can produce a picture of sufficient quality to properly evaluate their film materials; however, they must be monitored closely on this point since much of this work duplicates studies by [REDACTED]. Another month's work should take them past this point

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216 cont'd and into the desired film studies. If not, considerable redirection of the project will be required from the monitor.

d. Breadboarding and lens demonstrations were observed and were very interesting; however, no new knowledge was obtained to advance the current state-of-the-art."

217 Optimization of the Laser:

The following comments were provided by the monitor,

[REDACTED]

"a. [REDACTED] was able to demonstrate their frequency doubling experiments with a Potassium Dihydrogen Phosphate (KDP) birefringent crystal. When this crystal is placed in the beam of neodymium doped glass laser, a 5300 Å (blue-green) second harmonic component is produced.

b. [REDACTED] is investigating a plasma pinch pump developed by [REDACTED]. They hope to use this as a flash lamp for pumping the laser to reduce radiative heating of the laser rod and consequently obtain a high pulse repetition rate.

c. General progress is quite satisfactory for this PAR."

218 Auto-Focus System:

Contractor would not submit a proposal.

219 Optical (1:1) vs Contact Printing:

Contractor would not submit a proposal.

220 Use of Static Electricity for Film Hold Down:

We did not accept the Contractor's Proposal. No further action at this time.

221 Illustrated Manual for Lens Evaluation:

Contractor would not submit a proposal.

222 Stereo Registration System:

The following comments were provided by the project monitor,

[REDACTED]

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222 cont'd

"The mechanical-optical breadboard is being assembled and [] plans to have this complete by 15 July. A preliminary signal study has been completed in which an optical in-line breadboard was used for evaluation. Spot size was studied by scanning across a grid pattern and the minimum spot used was close to 0.002 inch projected on the film. It was attained with only a very low intensity beam.

On the breadboard, a single CRT will generate the scan trace so as to eliminate the problem of balancing two traces. Film will be held between glass plates, one film is fixed and the other mounted in a "Leitz" mechanical stage, which has 2 x 2 inch coordinates and 360 degree rotation. Micrometers adjust the x and y axis to 0.0001 inch and rotation can be read to one minute."

223

Monochromatic Lens System:

The Contractor expects to submit a proposal late this month or early in July.

224

3x-15x Fluid Gate Enlarger:

The Contractor has started work on this project and, as of 18 May 1964, about [] had been expended. The following comments were provided by the monitor, []

"A review of progress towards accomplishment of objectives under PAR-224 was made on 8 June 1964. The contractor appears to have an excellent understanding of the requirements. No changes in concept are required at this time. A study is underway at present to establish detailed design parameters. Work appears to be progressing satisfactorily.

No contract action required at this time."

225

Microdensitometer Training Program:

The Fiscal Summary dated 1 June 1964 is in error. The correct authorized expenditures, for course preparation and three training periods, is []

226

Microdensitometers Edge-Trace Measurements:

As of 18 May 1964 the total expended on this project was [] this is a final total since we are no longer funding this project.

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Security - Guards

This item is mis-named because it includes costs which are not related to security or guards. As used now it also includes the costs for the monthly and quarterly reports and our portion of the special guards. The latter are those stationed inside the building to control access to special areas. The normal guards at a gate or patrolling the grounds are charged under the General and Administrative costs. The cost for the period 19 April - 18 May is about will devise a more appropriate title for this part of the Fiscal Summary.

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