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27 March 1970

MEMORANDUM FOR: Mr. Inlow

SUBJECT : OSP Meeting for EOI System Contractor  
Personnel, 27 March 1970

1. This morning's meeting at OSP produced a substantial haul of useful information that seemed worthy of writing down.

2. The purpose of the session was to bring prospective contractors up to speed on the rationale behind the EOI system performance requirements levied by the Intelligence Community, to describe some of the important image quality design considerations, and to define the program plan as it now stands. Each of the seven companies in the running for handling either the imaging satellite or the ground facility was permitted to send six men. The four imaging system contractors are [redacted] Boeing, [redacted] [redacted] the three ground facility contractors are LTV, [redacted] General Dynamics. [redacted] has the optics design, although [redacted] is in competition with them on the fabrication of the mirror; [redacted] and [redacted] as the two solid-state-array fabricators, also were present, and [redacted] were mentioned as the guys trying to develop the [redacted] Perkin-Elmer is doing some work in image quality analysis and evaluation, but apparently is not in the running to build anything major.

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3. Les Dirks led off with a history of EOI-related needs, making the point that past studies had focused on single uses, such as crisis-collection or strategic warning, and for this reason had bogged down. He then used the Czech crisis as an example of how there is a simultaneous need for several different types of information and wound up classifying the nature of EOI-related needs into three categories:

Target class surveillance: To illustrate this he used the ISG-report map showing daily accesses to the COMIREX target distribution, saying that working against this required [ ] looks per day and [ ] per pass (this second figure was new to me).

Facility oriented, activity monitoring: The TT map from the ISG report was shown here and the example was used to highlight the need for system agility. Figure given was 15-20 looks per target cluster.

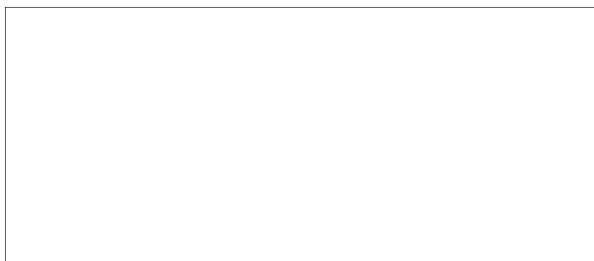
Event oriented, directed coverage: This was defined into what one might roughly call current intelligence needs. To service them requires daily access; studies show that better than daily access generally does not do much good, for if the weather is bad for part of the day, chances are that it will be bad the whole day. Les showed the Sino-Soviet cloud-cover record for August to illustrate the severity of the weather problem and said that analysis has shown that on the average over the year the bloc is only cloud-free 30 percent of the time (I could not tell whether this figure was based on total area or on the weather over the COMIREX targets).

4. At the end of his presentation, Dirks showed the following chart:

System Functional Requirements

World-wide daily access

Continuous system availability



Less than [ ] acquisition to viewing delay

"Surveillance" quality imagery

5. [ ] then talked about image quality design considerations, coming down very hard on the thesis that from a technical point of view the character of EOI-derived images differs from that of photos obtained by film return systems and, therefore, the contractors should not apply photo system experiences to this problem. The reasons for the differences had something to do with spectral ranges, photons and things like that and, quite frankly, were way over my head. I have not the slightest notion what these differences mean to the PI's, if anything. [ ] gave a list of image system parameters, of which the following are of interest to us:

Frame size	2-3 nm	Limited by requirements
Frame time	≤ 10 sec	"
Ground sample dimension	[ ]	"
Altitude of satellite	200-300 nm	Limited by technology
Optical diameter	[ ]	"

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6.        During the coffee break I learned that the [ ] does not equate to ground resolution, whose range is about [ ] that of the "dimension". This is still very stringent on the low end, but I got the impression the designers consider resolution to be negotiable.

7.        The program schedule was described by Charlie Roth, who showed a chart that showed OSP running the whole show with the exception of the development of relay satellites, which is being handled by the Air Force.

8.        Roth's presentation revealed the following timetable:

April-August 70: All four imagery system contractors-to-be still in the running; period used to develop systems level parametric design data, identify major system alternatives, and define sub-system performance requirements.

August-December 70: All four contractors. Phase I system definition. Define total system configuration, conduct baseline preliminary design and alternative configuration design (these represent last chance to change system configuration), prepare Phase II proposal.

December 70-July 71: Two contractors. Phase II system definition. Conduct detailed design of selected configuration, develop acquisition phase program plan, prepare acquisition phase work statement and cost proposal.

July-September 71: Selection of imagery satellite contractor.

September 71-on: Development phase tapers off and hardware acquisition gets under way.

June-July 74: Relay satellites launched. Chart showed two relay satellites; speaker said it is presently unclear whether they will be launched by same booster or by separate ones.

July 74: IOC for processing facility, whose design and development schedule was not defined clearly but appears to be parallel to that of the imaging satellite.

October 74: First imaging satellite launched.

Odds and Ends

9. Development under way on digital tape recorder. Roth stated flatly that storage and dump system not contemplated but tape recorder needed in event of relay satellite failure or in event that final configuration is such that imaging satellite is not within sight of relay satellite 100 percent of the time. Recorder development needed not just for imaging satellite, but also for ground facility.

10. Critical factor in optical subsystem development is time needed to fabricate mirror. Unclear whether "time" connected with figuring out how to do it or to the actual grinding and polishing.  apparently working to same end by different paths.

11. During the break Dirks singled me out to two representatives of one of the processing facility contractors-to-be, who started out asking how long it took a PI to evaluate a frame of photography and wound up trying to pin me down on how many PI stations I thought the processing facility should have. I came away with the impression that these guys were not up to speed on how the analytical community uses photography.

GC

Garrett Cochran