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NPIC/P&DS/D/6-725  
17 January 1966

MEMORANDUM FOR THE RECORD

SUBJECT: Precontract Visit to [REDACTED]

REFERENCE: 1. Project 99131-6

1. Messrs. [REDACTED] of P&DS and Messrs. [REDACTED] of IPD visited the prospective contractors facilities on 13 January 1966 in regard to the pending project covering an "Information Flow Analysis" of NPIC's data system.

2. [REDACTED] was represented at this meeting by the following personnel:

- Manager, Special Projects
- Consultant
- Project Engineer

3. [REDACTED] submitted a paper (Attachment 1) giving a rough outline of the approach they intend to use on this study, the personnel they plan to use on this project, and a tentative work schedule for the 5 month period. A date for the start of the project could not be definitely set because the contracting fee has not been agreed upon and the required clearances have not come through for the contractor's personnel. If these problems areas are ironed out, the project would start on either the 1st or 14th of February 1966.

DECLASS REVIEW by NIMA/DOD

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GROUP 1  
Excluded from automatic  
downgrading and  
declassification

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25X1A 4. [redacted] plans on using Top Secret material at their plant and in their monthly reports, therefore [redacted] has requested Security to run a check on the contractor's facilities. 25X1A

25X1A 5. [redacted] of IPD briefed the group on the organizational setup and general operational function of NPIC. He also gave them a general rundown on the present equipment in use in IPD.

25X1A 6. [redacted] of P&DS gave a general brief on the amount of "on-line" support that will be required in the immediate future. He also emphasized that the user be given adequate attention; the suggestion was made to work along with the analyst, P.I., and photogrammetrist to better determine their needs.

25X1A 7. Since these people only have Agency Secret clearances, many matters could not be discussed. It is expected that once they receive the appropriate clearances and observe the materials and operations, [redacted] may want to change their approach and may want more time for this study.

[redacted]  
Technical Monitor  
Development Branch, P&DS 25X1A

25X1A Enclosure: 1. [redacted] Method of Approach for Conduct of Phase I Program.

Distribution:

25X1A Orig - 99131-6  
1 - Chief, SSS [redacted]  
1 - DB Chrono

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METHOD OF APPROACH FOR CONDUCT OF  
PHASE I PROGRAM


The primary objective of the Phase I Program is to develop a data processing support system concept and corresponding functional specifications. These specifications will delineate, for example, the flow of information, performance characteristics of each system element such as computers, communications, peripheral and terminal equipment, staff, and facilities, and the input data and output products including content, form, format, frequency of generation, and period of update. Later in Phase II the functional specifications will provide the basis for test and evaluation of alternative techniques and equipment to accomplish these functions to be followed by the selection and detailed design specifications of system components.

Four steps must be executed to develop the data processing support system functional specifications. The first is for the Contractor to gather information on the organization and operational characteristics of the Center and the requirements, both current and projected, as levied on the data processing support system by the users. The second step is for the Contractor to prepare a description of the current data processing support system including a narrative presentation of the functions and responsibilities of the Information Processing Division (IPD) organizational elements and a graphical presentation of the flow of all data through the current system. The third step is for the Contractor to identify, bound, and rank design and evaluation criteria to guide both the conceptual design

and Phase II System Design. Included are such elements as response time, number of personnel permissible, size of facilities, cost, reliability, flexibility, and growth potential. Establishment of design criteria will enable decisions to be made concerning which factors should take precedence where trade-offs are required. The fourth step is to develop the data processing support system functional specifications. This is achieved by first modifying the narrative and graphical presentation of current operations as determined in Step 2 to reflect projected requirements as determined in Step 1 and then determining system elements where maximum gain can be achieved in terms of time, personnel, facilities, cost, equipment, and the use of automated techniques consistent with design criteria as defined in Step 3.

The plan for implementing these steps, which follows, describes the organization of effort, a proposed work arrangement between the IPD and Contractor, information to be requested of the IPD, and a proposed work arrangement between

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 We are hopeful that this plan will enable the IPD to compile information in advance of the contract starting date which will thereby result in rapid familiarization by the Contractor of IPD and related Center operations.

#### Step 1

This is a two month fact finding activity consisting of three parts with major effort during the first month in which the Contractors must obtain general information on Center organization and operations and comprehensive detailed data

on IPD organization, responsibilities, procedures, files, facilities, equipment, data flow, input and output products, internal security, decision points, internal and external interfaces, planned modifications, and IPD thoughts about desired objectives and constraints for an improved data processing support system.

It is proposed that the above information be obtained as follows:

1. Short informal "blackboard" briefings to be given by Center managerial personnel and attended by the full complement of contractor program personnel (approximately 15 personnel including [REDACTED]). These briefings STATINTL should be provided during the initial two or three days and include the following content:

- a. General description of Center organizational structure including functions and locations of organizational units.
- b. General description of input and output products identified with each Center organizational element. Define type, preparation, processing time, use, and flow through Center.
- c. General description for each Center organizational unit of files, equipment, and communication facilities.
- d. Describe any modifications to Center functions, products, equipment, procedures or product use now planned but not yet implemented.
- e. General comments on Center and IPD problem areas, desired data processing support system performance objectives, and constraints on cost, size of Center staff and facilities. These comments should pertain to both

current and projected activities.

2. IPD should endeavor to segregate its total function into four or five convenient logical groupings, perhaps for example, by major problem areas, or by reporting requirements (routine/special), or organizational elements, or technical disciplines. For each grouping, an IPD individual should be designated as the source of information. A Contractor counterpart will be designated to correspond. For each grouping, the IPD designee should provide detailed information to his contractor counterpart through a series of discussions of number and duration to be determined. Information sought by the Contractor will include, but not necessarily be limited to the following:

- a. Detailed description of IPD functions (who does what?).
- b. Detailed description of equipment. What processors, storage devices, input/output terminals, communications, etc. are employed? What is their configuration, physical and performance specifications, and function in the system?
- c. Detailed description of files. What is the type, physical size, volume of data, code, format, content, organization, accuracy requirements, utility, and frequency of updating.
- d. What are the procedures for arithmetic computations, data conversion, data storage, file updating, file purging, file indexing, file processing file search, extraction and consolidation or correlation of data? Where are the bottlenecks? What are waiting times? How many personnel are involved in carrying out each activity?

- e. Detailed descriptions of data flow. What is the sequence and path of events. What is the elapsed time for the performance of each event? What flexibility is required to process special or emergency requests?
  - f. Detailed description of computer programs operating or in preparation. On what computer does the program operate? What is number of instructions; running time; frequency of use; percentage of total computer use required by program; volume, form, and format of input data base; volume, form, and format of output; utilization of peripheral equipment? What programming languages are used? What documentation is available on program description, flow diagrams, operating instructions?
  - g. Detailed description of internal security constraints. What data, techniques, equipment, and products must be secure within IPD? What techniques are now used to maintain information security during flow into, through, and out of IPD?
  - h. Detailed description of backup procedures, equipment, and techniques.
3. IPD should assemble documentation for review by the Contractor. This should be done by contract start date to maximum possible degree. Contractor personnel not designated for discussion with Center personnel will be assigned to review this material in parallel with discussion groups. In general, any material (textual, graphical, pictorial, numerical) which supports or amplifies the information sought through briefings and discussions above is desirable.

Typical examples are as follows:

- Procedure Manuals
- Security Manual
- Target Brief(s)
- Target Folder(s)
- Computer Running Log(s) - 1 month period
- Computer Program Descriptions, Flow Diagrams, Program Operating Instructions
- File Description(s), Organization, Content, Format, Codes, Indexing
- Equipment and Facility Layouts
- Organization Charts
- Line Plot(s) and Drawings
- Program Language(s)
- Management Reports (Cost/Performance Data, Time Study Analyses)
- Equipment Performance Characteristics
- Flight Log(s) or Other Photo Identification Media
- Information Awareness (if any)

Step 2

Written descriptions of the functions and responsibilities of IPD organizational elements, flow diagrams of IPD current operations, and a tabulation of projected requirements will be accomplished by the same Contractor personnel assigned to step 1. This effort will proceed in parallel with step 1 with major activity during the second month. Contributors to this effort will prepare flow



data in accordance with a systematized reporting form. The output of step 2 will be reviewed in draft form with appropriate IPD personnel for accuracy and completeness before publication as a contractually required report. A substantial proportion of the work for step 2 will be undertaken at [REDACTED] and it is STATINTL desirable that [REDACTED] be available for consultation for several days during the second month at that location.

Step 3

Design and Evaluation Criteria will be based on information obtained during step 1 and further discussions with senior IPD personnel at the policy making level. A draft of criteria will be prepared and submitted to IPD technical and management personnel for review and concurrence. The agreed upon criteria will be distributed to IPD and Contractor personnel as guidance in the technical work.

Step 4

Based on data resulting from the preceding steps concerning requirements, current Center operations and design criteria, a data processing support conceptual system design incorporating all necessary security features will be generated. Functional specifications for the data processing support system then will be prepared based on this conceptual design. The procedure involved is as follows:

- a. The current data processing support system will be evaluated against projected requirements on the basis of the agreed upon design and evaluation criteria, and deficiencies of the current system will be identified.

- b. The previously developed flow diagrams will be modified to provide the proper information flow to meet projected requirements.
- c. Each element of the revised flow diagrams will be analyzed to identify the areas where significant gains can be achieved. Major effort will be concentrated on those areas where significant savings in response time, cost or other design criteria, can be achieved.
- d. Elements of the system will be analyzed to determine which can best be performed manually or on a fully or semi-automated basis. Latest state-of-the-art in techniques, procedures, and equipment will be applied to determine how technology can improve the system. Alternative system concepts which may require revisions to items b and c above will be evaluated.
- e. The most promising system concept will be selected and functional specifications will be prepared. These functional specifications will include the following:
  - (1) A narrative description and flow diagrams of the data processing support system concept.
  - (2) Description of system files, input data, and output products including content, form, format, frequency of generation, and period of update.
  - (3) The required performance characteristics of each element in the system concept. For example, for computers the storage capacity

and throughput rates; for communications, the type and capacity; for peripheral and terminal equipment, the type and input/output capabilities; for personnel, the approximate staff size and skills; for facilities, the size and special features.

Working Arrangement Between [REDACTED]

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The [REDACTED] program to develop a model and simulate Center

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operations will require, in part, the same information concerning Center organi-

zation and operations required by [REDACTED] in the preparation of data processing

support system functional specifications. To minimize duplication of effort in

obtaining this information, it is proposed that the two Contractors participate

jointly in the data gathering. Specifically in step 1, it is suggested that

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representatives of [REDACTED] attend the initial general briefings,

and then participate in the group meetings during the two months which follow by

handling one of the logical groupings of functions in parallel with other groupings

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handled by [REDACTED]. Information acquired by each contractor would then be pooled

and available to both for their respective programs.

We do not foresee a requirement for joint effort during the remainder of the program; however, both Contractors should continue to exchange information concerning developments in their respective programs. Every opportunity to accurately determine data processing support system requirements and the interfaces with other Center operations must be exercised during the 5 month period in which data processing support system functional specifications are established. This must

be done in order to preclude major subsequent revisions to data processing support system requirements and to assure that the model of Center operations reflects the projected requirements.

1. Determine total requirements (current and projected) for IPD system as levied by other Divisions. Do this through interviews, briefings by NPIC and review of available documentation.
2. Prepare description of current IPD operational system and interfaces with NPIC Divisions.
  - a. Provide narrative description of functions and responsibilities of organizational elements within IPD.
  - b. Provide flow diagrams showing origination and destination of all data including types, volume, frequency, format, security, and processing.

(Report on tasks 1 and 2)

3. Establish design evaluation criteria such as constraints on time, personnel, facilities, and cost and their priority ranking.
4. Prepare IPD functional specifications based on a conceptual IPD system design by:
  - a. Modifying flow diagrams of current operations to meet requirements developed in item (1) above.
  - b. Determining system elements where maximum gain can be achieved in terms of time, personnel, facilities, cost, and available equipment.
  - c. Identifying elements where automation will improve system efficiency.
  - d. Select system concept and prepare functional specifications.

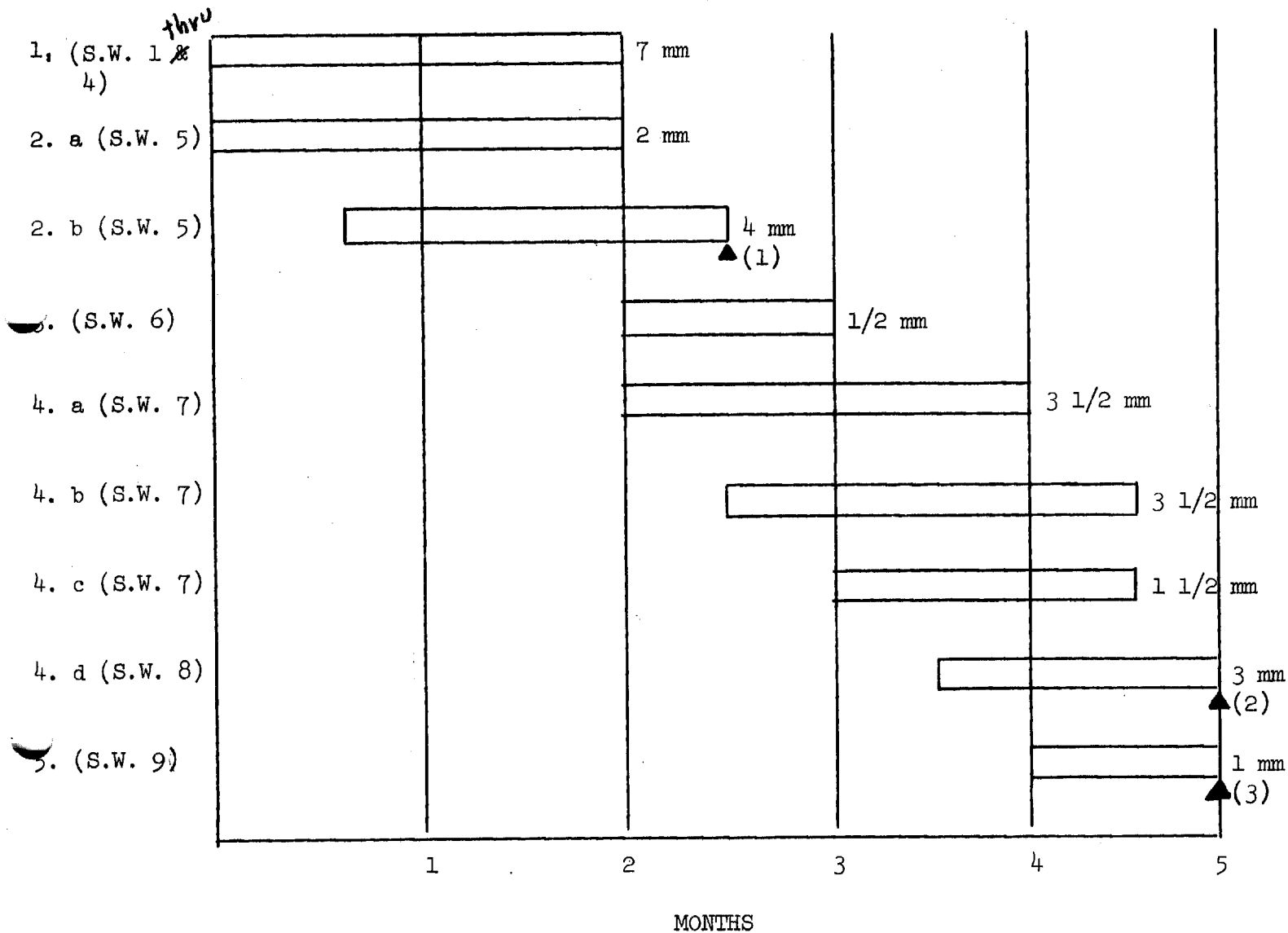
(Report on tasks 3 and 4)

5. Prepare program plan for Phase II, design.

(Report on task 5)

PHASE I SCHEDULE

TASK



▲ Reports

- (1) NPIC Review and Functional Flow Diagrams
- (2) Functional Specifications
- (3) Program Plan for Phase II, Design

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