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## EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF TELECOMMUNICATIONS POLICY WASHINGTON, D.C. 20504

Date: November 19, 1970

Subject: Meeting with DOC Representatives re Spectrum Management Support

To: Record

1. On 18 November 1970, Messrs. Kirkevold, Hailey and the undersigned met with DOC representatives (Kandoian, Richardson and Salaman) for the purpose of reviewing the support required by the Department of Commerce in the spectrum management area.

2. Results were as follows:

a. The undersigned's memorandum of November 9, 1970 to Dr. Kandoian was reviewed in detail. Each of the areas (EMC Analysis Capability, Data Base, Automatic Data Processing, Standards Affecting RF Spectrum and Monitoring) was reviewed and questions treated.

b. Guidance was given to DOC representatives on such matters as:

i. The need to ensure that the existing support program does not "run down"; transfer of personnel should permit operation to continue.

ii. The need for close contact between the OTP/DOC staffs to ensure that efforts are not undertaken which "reinvent the wheel" or are of little usefulness.

iii. The specific funding requirements for FY72 in the ADP area, it being understood that, as of the moment, it is expected that OEP will continue to support the computer services portion of OTP needs thru FY72, whereas Commerce would be called upon to provide approximately \$431 K for hardware and software support.

iv. Suggestions were made with respect to DOC possibly engaging in a small contractual effort with Sachs/ Freeman Associates (experts in EMC analysis).

c. It was emphasized that OTP personnel stand ready at any time to assist and work closely with DOC toward attaining mutual objectives.

d. The attitude of Dr. Kandoian seemed to be somewhat along the line "If we can get more money then we'll be able to give more help". The undersigned countered by pointing out that the program laid out during the meeting under report was developed primarily with inhouse capabilities and, until a better funding situation exists, a lot can be done inhouse to understand the objectives and develop courses of action responsive thereto.

e. In answer to a question from Dr. Kandoian, the undersigned estimated that to get the frequency management support program moving forward in a reasonable measure would require funding support of at least \$2 1/2 M the first year, increasing to approximately \$7 M over a five year period. This was based upon the following needs: EMC Analysis \$1 M (first year) increasing to \$5 M in five years; IRAC Secretariat support \$.4 M (\$.65 M probably more accurate); ADP support \$1 M; Standards and Measurements \$.25 M; and Monitoring/Measurement \$1 M first year, \$.25 M thereafter.

f. It was agreed at the next meeting discussion would take place with respect to the organization envisaged within the respective offices to support the frequency management area. It was also agreed that the current arrangement of IRAC representation was satisfactory to DOC.

g. The attention of DOC representatives was invited to the briefing for DTP on the Radio Interference Propagation Prediction Program scheduled for November 30, 0930.

3. The meeting under report was considered to be timely as Mr. Salaman is returning to Boulder on 11/19/70 for approximately a two-week period to reprogram that capability so as to be more responsive to OTP needs. He expressed considerable satisfaction with the OTP package which, for the first time outlines in depth the type of support required of Commerce in the frequency management area.

4. Additional meetings will be held on a regular basis.

Dean, Jr.

cc: Mr. Whitehead Dr. Mansur Mr. Hinchman Mr. Urbany



#### Statement of

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John M. Richardson, Acting Director Office of Telecommunications, Department of Commerce

#### Before

### Subcommittee on Deficiencies and Supplementals Senate Committee on Appropriations U. S. Congress

November 27, 1970

Mr. Chairman and members of the Subcommittee, I am John M. Richardson, Acting Director of the Office of Telecommunications (OT), U. S. Department of Commerce (DoC). I appreciate the opportunity to appear before you today to urge your support of a \$1,000,000 supplemental appropriation for the Office which I direct. Our need for additional funds during the remainder of fiscal 1971 is both urgent and critical. That need and its urgency derive from two important considerations which were not and could not be taken into account in connection with our regular budget submission for fiscal 1971. First, we have been directed by the President to immediately begin providing technical and economic research and analysis services to the newly created Office of Telecommunications Policy (OTP) in the White House. This is a totally new responsibility over and above those existing responsibilities for which our fiscal 1971 appropriation was made. Secondly, an important element of our Office, the Institute for Telecommunication Sciences (ITS) in Boulder, Colorado, is now confronted with a critical shortage

of funds caused by basic changes in U. S. Government fiscal policy occurring since our regular Fiscal '71 budget submission and over which we have no control. Unless additional funds are appropriated, we will be unable to effectively assume our new responsibilities and, furthermore, will be required to impose a drastic reduction in force at ITS, thereby severely crippling a unique and important national scientific and engineering resource. If we are given additional funds, we will immediately begin the discharge of our enlarged responsibilities and can preserve, uncrippled, the unique resource represented by ITS in Boulder.

Those of us in the telecommunications community who must struggle daily with critical problems that are largely the product of inadequate policy machinery enthusiastically endorsed the President's Reorganization Plan No. 1 of 1970 which authorized establishment of the new OTP. We know it is extremely urgent that OTP reach its peak of effectiveness at the earliest possible time. Our ability to provide assistance to OTP must be available if that is to be the case.

All who deal with telecommunications, both within and without the Government, also know the important contributions ITS has made over the years toward adapting the radio frequency

spectrum to dramatically increasing use, both in number and in kind. Devices such as FM radio, TV, radars, microwave relays; in fact, all devices which must radiate electromagnetic signals in free space to operate; could not have been developed without the basic competence in radio wave propagation research of the type performed by ITS.

ITS is recognized as the world leader in its field. It is unique. And, because it is unique, it is in trouble today. For, because of the unique mission and ability there, all departments and agencies of the Government have relied upon ITS to perform their basic propagation studies and to provide environmental predictions that permit radio devices to operate at peak efficiency. Indeed, it was originally established to serve as a central Federal resource in this area.

Therefore, over the years, a substantial portion of the total program at ITS has been funded by other agencies rather than by direct appropriations. During Fiscal '71, for example, the ITS program was planned upon the basis that 70 percent of its total funding would come from other agencies, as had been the case in the past.

But, due to drastic cutbacks in defense spending which could not be anticipated by ITS, its other agency program

has fallen far short of expectations. As a result, that resource is in serious financial trouble. Unless funds in the amount requested become available very soon, drastic cost cutting measures must be instituted. We have already imposed strict limitations on procurements there. But that will not be enough. Without relief, the only course left open to us at this point is to take people off the payroll. The impact of such a reduction in force could affect more than one third of our personnel in Boulder.

We do not wish to take such a drastic step for many reasons. But the single most compelling reason is that such a reduction will substantially dilute our competence. It will dilute that competence to the point where we cannot provide essential services to clients such as the Army, Navy, and Air Force, as we have done in the past. In short, a vital and unique national resource is jeopardized.

Fortunately, in our case, the two unforeseen considerations which bring us here today, can be reconciled, one with the other, if we are given funds to abate our crisis. For, the kinds of studies most urgently needed by OTP today can, for the most part, be performed by people with the very same skills that are possessed by those we will be forced to lay

off in Boulder. To the extent that new skills are required, we can acquire those out of vacancies associated with normal attrition and with minor staff adjustments. Let me turn now to the new programs we propose to undertake with those skills in the balance of the present fiscal year.

Our proposed program increase has two main thrusts, set in one-to-one correspondence with our new responsibilities. First, we propose to begin the analysis that will help the Director of OTP to address a few of the most important current national issues. Second, we propose to make a beginning on the technical task of fitting more users into the radio spectrum with less interference to all. By way of example, I will mention three issues needing analysis, and then turn to the spectrum interference problem.

It is technically feasible to bring to half the households in this country an electronic cable that can carry 50 or more television channels, can selectively direct requested information of visual or graphic form to particular individuals, can carry requests for information and responses to information back to the originating end of the cable, and can make available educational material in such variety and range as is hardly possible even now in the schools. This cable is a

"second generation" development of the familiar community antenna television, or CATV. These developments are economically feasible, as evidenced by a present aggregate investment of \$800 million in "first generation" CATV plant and a projected investment of \$8 billion in the next ten years.

It is also technically feasible to build a new nationwide network dedicated and tailored to the specialized needs of data transmission--the sending of banking, retailing, insurance, scientific, educational, medical, and industrial information from point of origin to a central computer to be processed and then back again to the original or another interested user. Again, the investment contemplated is huge--over \$600 million worth of applications are pending now before the Federal Communications Commission.

In both cases, technological feasibility is forcing precedent-setting decisions that will determine how well these technologies will serve the public, who will participate in these markets, how scarce spectrum will be conserved for higher uses, and how government's own huge communications bill may be reduced. These decisions deserve to be made from a position of informed analysis.

Turning to quite another application, today a sheriff from Utah, say, driving an offender back from a South Dakota

jail to stand trial is out of radio communication with his home base until he enters Utah again. An officer in a patrol car now makes pencil and paper notes of addresses and descriptions of disturbances, although it is technically feasible to place a radio teleprinter in his patrol car. Police, fire, and military forces at the scene of a large emergency generally have separate radio equipment and channels that are not easily coordinated. It is possible to identify and recommend policies and practices that will result in the more effective use of scarce public safety resources. For example, equipping the Detroit police with personal two-way units has already gained the annual equivalent of 150 extra police officers on duty around the clock every day of the year.

In our detailed budget estimates, we propose to develop reliable and systematic information on these issues as a basis for policy formulation by the Office of Telecommunications Policy.

As for the somewhat more technical subject of the radio spectrum, in one case, over \$5 million was spent to correct radar devices after installation to ensure their electronic compatibility with other systems. In another case, delay in a defense system was incurred until the

possibility of crippling interference by existing assignments was cleared. Still again, vital air traffic control radars have been inadvertently jammed by weather radars, with consequent danger to life.

Enough information on how to predict performance and how to test for interference exists now so that we can make a start in adding these factors into some of the 4000 federal frequency assignments that are changed every month. We propose to do this immediately and in addition to continue development of the more complicated system necessary to deal with all the frequencies. Consultation of this compatibility analysis system by both Federal and non-federal frequency managers will avoid interference, will reduce after-the-fact remedies, allow increased inter-service sharing of the spectrum, and facilitate long-range planning in the international and national arenas.

The programs we propose address vital and urgent needs. They are responsive to the direct requests of the Director of Telecommunications Policy, Dr. Clay T. Whitehead. And, what is equally as important, they have been coordinated with the Planning Director of FCC, who heartily endorses them.

Mr. Chairman, there is a basic reason why we believe that this program should not be delayed until the next budget cycle.

The continual march of decisions on these matters that must be made each month, with or without the benefit of the analysis proposed here, will be made less wisely without the analysis. The costs associated with those inferior decisions is sure to be many times greater than the cost of this program. And, by allowing us to make that beginning now, you will also permit us to retain intact the vital competence represented by ITS. Let me stress the point that we are not asking for funds to enlarge our staff. We can do what we propose at our present level of effort.

Thank you, Mr. Chairman, for your interest and attention.

EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF TELECOMMUNICATIONS POLICY WASHINGTON, D.C. 20504

Date: December 9, 1970

Subject: Report of Meeting with Dr. Kandoian (Department of Commerce)

## To: Record

On December 8, 1970, the undersigned had lunch with Dr. Kandoian for the purpose of exchanging views with respect to DOC support in the frequency management area. Results were as follows:

a. <u>Space</u> -- Space accommodation for the transfer of personnel from OTP is still being sought at 1325 G Street but competition is being experienced from another Government agency, presumably in the Executive Office. GSA will have to resolve and I have asked Frank Urbany to get into the act with a view to indicating DTP interest in an early transfer.

b. <u>Supplementary Budget</u> -- No official word yet as to decision.

c. <u>FY-72 Budget</u> -- OMB mark not yet received but expected shortly.

d. <u>Personnel Actions</u> -- Kandoian confirmed on December 2, Lathey to go on DOC payroll December 13, and papers to fill three vacancies in IRAC Secretariat being processed.

e. <u>Rumor</u> -- Candidates for Dr. Tribus vacancy include Gene Fubini and Jim Wakelin, former Assistant Secretary of the Navy.

f. <u>Program Managers</u> -- Kandoian is convinced that reprogramming of ITS personnel will not be sufficient to obtain the type of support necessary for OTP. Undersigned agreed and suggested that initially, Kirkevold, Executive Secretary of IRAC, serve as focal point in DOC for straight frequency management aspects, but that consideration be given to obtaining services of a "higher level" individual to maintain constant pressure in this area. Stan Cohn, formerly of IITRI, a recognized expert in electromagnetic compatibility area was suggested as a possible candidate. Kandoian knows of Cohn, having interviewed him and was impressed with his capabilities.

h. <u>General</u> -- Emphasized again the eagerness and willingness of OTP personnel to meet with DOC to insure that the frequency management objectives are understood and pursued in a mutually satisfactory manner. "Patience" would seem to be the password for the moment.

Will

W. Dean, Jr.

cc: Mr. C. T. Whitehead ✓ Dr. G. F. Mansur Mr. W. Hinchman Mr. S. E. Doyle Mr. F. Urbany

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EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF TELECOMMUNICATIONS POLICY WASHINGTON, D.C. 20504

Date: December 29, 1970

Subject: OTP/Commerce Staff Meeting

To: For the Record

A meeting was held in Room 742, 1800 G Street, this date, to discuss the broad problem of Electromagnetic Compatibility and certain related items.

Those in attendance were:

Leo A. Buss W. Dean, Jr. Wm. Gamble Bruce Higgins Donald Jansky C. R. Kirkevold Robert Lowe Roger Salaman

The undersigned strongly urged that those transferred to Commerce be used as a nucleus in the development of the various frequency management problems as they arise and the organizational structure, as provided in the December 11 memorandum to Mr. Kandoian, was discussed.

Frequent meetings should be held between Commerce/OTP staff members to obtain a clear understanding of the problems and agreement on the method of handling.

Three aspects of frequency management which are interrelated are Assignments, Allocation and Electromagnetic Compatibility.

The undersigned outlined the EMC problem as follows:

#### ELECTROMAGNETIC COMPATIBILITY

#### 1. Analysis

- a. Data Base
- b. ADP
- c. Standards
- d. Monitoring/Measurements
- e. Limitations Technical/Operational

- 2. Education
- 3. Equipment Processing
- 4. Guidance (Concepts and Doctrines)
- 5. Test and Evaluation

Examples were given of the types of special problems which might be treated with an EMC capability, and the following were identified for early study by the OT, DOC:

- 1. VHF follow-on study for FAA.
- 2. CATV vs air/ground and navigation aids in the band 108-136 MHz.
- 3. Altimeters vs collision avoidance systems in the band 1535-1660 MHz, as further complicated by proposals for aeronautical mobile and maritime mobile satellites and a new instrument landing system.
- 4. GE Computer Program re Orbital Satellites.

It was noted that Commerce has the potential analytical ability but OTP has the environmental data (although incomplete). The two must be melded. Also, OTP/Commerce have access to ECAC data banks through high level agreements.

Presently Commerce has only \$25,000 available for EMC. If the supplemental budget is approved in full, there will be \$350,000 available for this item during FY 71. Dale Hatfield, ITS, will be in charge of the Commerce program.

As a result of discussion, it was agreed that pertinent staff members of Commerce/OTP should begin discussions of the various problems of frequency management. It was also agreed that the most immediate requirement of an EMC capability is to deal with major problems, such as the NASA ESS, Defense Radars, Commerce Met Sats, etc. However, it was recognized that many of the EMC tools required are also fundamental to the solution of more routine day-to-day problems. Consequently, the initial development of an EMC capability should place primary emphasis on the solution of the major problems but should be constructed in a manner which would support day-to-day management activities with a minimum of modification.

Initial problems and contacts were agreed as follows:

- 1. Improvement of HF Propagation Models Haydon and Higgins
- Specific EMC Problems (as listed above) -Hatfield and Jansky
- Standards Stelzenmuller and Gamble to outline a program.
- Interface between Frequency Management and EMC -Kirkevold and Hatfield
- 5. Interface between EMC needs and the OTP Data Base -Hatfield and Higgins

It was agreed that in all phases, the above contacts will work closely with Messrs. Dean and Salaman and that, at least for the initial meetings, these two will participate.

A revised suggested work statement for possible Sachs Freeman support in the EMC area was given the Department of Commerce representative. The next meeting of this type will be held on January 19, 1971.

Man, K. W. Dean, Jr.

Director of Radio Frequency Management

C.C. C.T. Whitehood G.F. Monsur W. Hinohmon R. Solomon A. Kondoian

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EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF TELECOMMUNICATIONS POLICY WASHINGTON, D.C. 20504

Date: December 11, 1970

Subject: Suggested Staff Organization

#### To: Dr. A. Kandoian

1. With reference to our earlier discussions with respect to frequency management support of this Office by the Department of Commerce, please find enclosed two papers bearing on organizational aspects. Attachment 1 is a brief outline of the functions/ activities of the 5 professionals who will remain on OTP staff, after the transfer of personnel to the Department of Commerce in this area is completed. Enclosure 2 is a suggested structure for the Frequency Management Support Division in the Department of Commerce.

2. This information might serve as one of the items for discussion at our next get together.

W. Dean', Jr. Director Frequency Management

Enclosures-2

cc: Mr. Whitehead -Dr. Mansur Mr. Hinchman Frequency Management Activities Within OTP

#### W. Dean, Jr.

- A. Principal advisor to DTP on frequency management including:
  - 1. Development of national spectrum objectives and policies.
  - 2. Policy guidance and direction on frequency management matters.
  - 3. Advice to State on international telecommunication negotiations.
  - 4. Resolution and adjudication of major spectrum issues.
  - 5. Emergency Readiness Posture.
- B. Representation and liaison
  - 1. Chairman, IRAC.
  - 2. Chairman, FMAC.
  - 3. Member, Executive Committee, USA National Committee, International Scientific Radio Union.
  - 4. Member, CCIR National Committee.
  - 5. Liaison with ERMAC
  - Liaison with Committee on Radio Frequencies, National Academy of Sciences.
  - 7. Liaison with DoD Joint Frequency Panel.

#### .L. R. Raish .

- A. General frequency management policy matters.
  - 1. Congressional, departmental, and industrial correspondence.
  - 2. ITU Convention.
  - 3. Liaison with JTAC 63.1 Subcommittee on EMC.
  - 4. Liaison with Interagency Group on International Aviation.

### B. Maritime Mobile matters.

- 1. Convener, Ad Hoc 100 on Oceanography.
- 2. Member, Canada/US Committee on Implementation 1967 WARC.
- 3. Member, US Working Group on the IMCO Subcommittee on Radio Communications.
- 4. Liaison with RTCM.

C. Data Base matters.

D. Acts for Dean in his absence.

### D. M. JANSKY

- A. Technological Matters
  - 1. Assessment of technological trends.
  - 2. Standards and design objectives
  - 3. CCIR matters.
  - 4. International negotiations.
  - Liaison with JTAC 67.1 Subcommittee on Spectrum Utilization Aspects in the Use of Space Techniques.
  - 6. Contracts.
- B. Electromagnetic Compatibility Program.
  - 1. Policy development.
  - 2. Standards.
  - 3. Analytic Capability.
  - 4. Monitoring.
  - 5. Contracts.
- C. Staff support for FMAC and ERMAC.

### L. A. BUSS

- A. Spectrum Development
  - 1. Chairman, SPS.
  - 2. Long range planning.
  - 3. Allocations.
  - 4. International negotiations and implementation of international agreements.
  - 5. Contracts.
- B. System Evaluation.
  - 1. EMC analysis of equipments and systems.
  - 2. Analysis of funding for Government systems.

### L. G. HAILEY.

- A. Frequency Coordination, Assignment and Use.
  - 1. Chairman, FAS.
  - 2. FAS liaison with IRAC.
  - 3. Liaison with AFTRCC and FCWG.
  - 4. Five-Year Review Program.
  - 5. Frequency Usage Reporting Program.
  - 6. Field Engineering and Coordination Procedures.
  - 7. US/Canada Coordination Agreement.
  - 8. Notifications to IFRB.
  - 9. Data on Government reliance on the spectrum.
  - 10. Development of press releases.
  - 11. Member, Ad Hoc 113 re Proposed New England Decca Chain.
  - 12. Member, Ad Hoc 116 re AEC HF Requirements.
  - 13. Embassy radio matters.
- B. Automatic Data Processing.
- C. OTP Manual of Regulations & Procedures.

# FREQUENCY MANAGEMENT SUPPORT DIVISION

Kirkevold GS15 ..... Sterner GS 7

OPERATIONS BRANCH		ASSIGNMENT BRANCH		ENGINEERING/DEVELOPMENT BRANCH	
GS14 GS 9 GS 6	Corrado Dinkle Jahn	GS14 GS12 GS11	Higgins Gamble Garber (1)Secretary	GS14 GS13 GS13 GS 5	
rations	Frequency I Secti	ssignment on			
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CRK-12/10/70

Stelzenmiller GS15

### .C. R. Kirkevold

Frequency Management Support Division

- A. Supervision and 'coordination of FMSD activities
  - 1. Operations (Filipski)
  - 2. Assignment (Corrado)
  - 3. Engineering/Development (Higgins)
- B. Representation and Liaison
  - 1. Executive Secretary, IRAC
  - 2. Serves as Acting Chairman, IRAC (in absence of Chairman)
  - Liaison with Canadian telecommunications officials on use of radio frequencies by Government stations along the common border.
- C: Emergency Readiness Plan for the Use of the Spectrum
- D. Relocation site

# Edythe N. Sterner

A.	Secretary to the Supervisor, Frequency Management Support Division
B。	Acting Staff Assistant to the Executive Secretary, IRAC
Co ·	Time and attendance, FMSD

#### B. W. Filipski

Operations

- A. Supervision, Operations Branch
  - Administrative and machine support for processing of Government applications for frequency assignment actions to include:
    - a. Processing procedures from review and screening of applications to the preparation and distribution of agendas, minutes, assignment actions and records.
    - b. Printing and distribution of recurring publications
      in support of radio frequency management.
    - c. Recording and distribution of frequency usage date.
    - d. Retrievals of selected data.
  - 2. Non-Government Frequency List.
  - 3. Coordination in developing new techniques, programs and procedures of the refinement of existing programs or procedures.
  - 4. Implementation of modifications or new features for operational use after testing and evaluation.
  - 5. Maintenance of liaison with ECAC operational personnel for exchange of files and data, as required.
- B. Assistant to Executive Secretary, IRAC.

#### Leon G. Sarkesain

Operations\_

Technical Operations Section

- A. Chief, Technical Operations Section -
  - Retrieval of data from GMG, NGMF, Supplement File, Statistics File and related sub-files.
  - 2. Review and distribution of retrieval output.
  - 3. Administer printing and distribution of recurring publications.
  - 4. Custodian of frequency assignment statistics.
  - 5. Monitor and distribute computer print-outs.
  - Assist as appropriate in development of new capabilities for retrieval operations.
- B. Secretary, Technical Subcommittee

## Josephine M. Dhue

## Operations

Technical Operations Section

- 1. Screens, coordinates and prepares requests for retrieval of data for the Government Master File (GMF).
- 2. Reviews retrieval outputs.
- Analyzes computer-generated statistics and maintains library of such data.
- It. Reviews recurring computer outputs for accuracy and completeness prior to preparation of requisitions for printing.
- 5. Supervises the distribution of all recurring computer generated publications.
- 6. Researches files for historical and background data in support of TSC and IRAC activities.

# (Judith Diehl, being recruited)

Operations

Technical Operations Section

- 1. Types, files and performs other clerical duties.
- 2. Maintains log and files on retrieval requests.
- 3. Prepares run decks for retrievals.
- 4. Assists in distribution of publications
- 5. Maintains library of current frequency assignment

lists.

## Vacancy

Operations

Staff Assitant

- A. Acts as Secretary of the IRAC
  - 1. Prepares and maintains agenda.
  - 2. Records meetings substantially verbatim.
  - 3. Prepares draft Minutes.
  - 4. Monitors and logs documentation.

Operations

Secretary to the Supervisor, Operations Branch

Operations -

Computer Support Section

- A. Chief, Computer Support Section
  - Initial processing of Government applications for frequency assignment action.
  - Preparation of paper tape and transmission by electrical or mail means to computer site for machine processing.
  - Computer preparation of agendas, minutes, file update.
  - 4. Back-up for retrieval of data.
  - Maintenance of Government Master File and cumulative supplements thereto.
  - 6. Maintenance of non-Government Frequency File.
- B. Senior staff official of OTP Emergency Relocation Site
  - 1. Maintains site in state of readiness for operation

in an emergency.

 Tests ICS communications equipment and maintains operator capability. Operations

Computer Support Section

- 1. Supervises preparation of program tab card decks and programs for the computer system operation.
- 2. Supervises the conversion of frequency assignment applications to paper tape.
- 3. Supervises the operation of ADP equipment.
- It. Responsible for maintenance of automated record of frequency assignments and the back-up record thereto.

Operations

Computer Support Section

- 1. Prepares program tab card decks and programs for the computer system operation.
- 2. Assigns computer tape files for specific tasks.
- 3. Instructs computer operator in procedures for various outputs.
- 4. Samples computer outputs to assure program accuracy.
- 5. Directs the printer operator in the printing and assembly of computer outputs.

# Carolyn P. Lloyd

Operations

Computer Support Section

- 1. Secretary to the Supervisor, Computer Support Section.
- 2. Assists control clerk.

3.= Maintains time and attendance.
### Lesta E. Gehrmann

Operations

Computer Support Section

- Receives and time stamps incoming applications and maintains active file.
- 2. Routes applications with correctable errors for rerun when rejected by computer programs.
- Returns applications identified with major errors to originating agencies.
- 4. Purges active file after monthly meeting and forwards applications to FAS Secretariat.
- 5. Assists in operation of paper tape equipment converting applications for computer processing.

# Mathilda F. Dishong

and

### Janice E. Frazee

### Operations

Computer Support Section

- 1. Operate automatic data processing equipment in the conversion of frequency assignment applications to paper tape for computer input.
- 2. Screen and correct applications with format and mechanical errors.

3. Provide clerical and typing support.

Operations

Computer Support Section

- 1. Operate card punch machine in the preparation
  - of program and run decks.
- 2. Maintain associated card files.

3.

Perform other clerical duties as required.

# (Vacancy-Clerk Typing/GS-4)

## **Operations**

Computer Support Section

- 1. Type letters, etc.
- 2. Assist in the receipt and distribution of correspondence, frequency applications and other material.
- 3. Assist in the maintenance of files.
- 4. Perform such other clerical duties as required.

# Anthony M. Corrado

### A. Frequency Assignment

- 1. Supervision, Assignment Branch
- 2. Shares responsibility for chairing FAS.
- 3. Review of FAS agenda below 30 MHz for compliance with regulations and procedures.
- 4. Advice to Government agencies on policies.
- 5. Advice to FAS and non-members on technical matters.
- 6. Review of assignments on continuing basis.

# B. Management of Use of Spectrum

- 1. Convener, Ad Hoc 99 (Implementation of 1967 Maritime WARC)
- 2. Convener, Ad Hoc 111 (Development of VHF Maritime Mobile Plan)
- Development of regulations and policies for Manual, particularly in areas of maritime mobile, low power devices, and restricted radiation devices.
- 4. Conduct studies of Government assignments, by usage, etc.

#### C. Contracts

1. Assist in development and monitoring of contracts.

### Edwin E. Dinkle

#### A. Frequency Assignment

- 1. Member, International Notification Group (ING)
- 2. Observer, Ad Hoc 89 (Embassy Radio)
- 3. Screen monthly FAS agendas.
- 4. Review infraction reports.

#### B. Computer System

- 1. Update allocation check program.
- 2. Assist in development of application check program.
- 3. Update application check program.
- 4. Write manual of all checks made by the computer.

# William H. Jahn, III

#### A. Frequency Assignment

- Review FAS agendas for conformity with Table of Frequency Allocations and Manual of Regulations and Procedures.
- 2. Maintain list of blocked assignments.
- 3. Maintain file of record notes.
- 4. Monitor implementation of actions resulting from FAS Administrative Agenda.
- 5. Represent non-members having frequency requirements.

#### B. Computer System

- Write checks for new record notes and for changes in the Table of Frequency Allocations.
- 2. Secretary, Ad Hoc 109 (Data Standards)

#### Helen D. Barlow

#### Assignment

Frequency Assignment Section

- A. Supervisor, Frequency Assignment Section
  - a. Secretarial and clerical support of FAS.
  - b. Review of FAS agendas for accuracy and completeness.
  - c. Directive inputs to computer system.
  - d. Records
    - 1) Master Dockets
    - 2) Minutes
    - 3) Canadian Coordination
    - 4) Frequency Assignment Lists
  - e. Telephone coordination
- B. Secretary, Frequency Assignments Subcommittee (FAS)

# Evelyn L. Thrift

Assignment -

Frequency Assignment Section

- A. Assistant Secretary, FAS
- Bo Assistant Supervisor, Frequency Assignment Section.
  - 1. Responsible for security matters within Section.
  - 2. Process telephone actions.
  - 3. Prepare correspondence for signature of Secretary, FAS.

# Edward A. Butler

#### Assignment

Frequency Assignment Section

- 1. Review computer-produced FAS agenda sections to determine whether they are prepared properly, are within authorized limites, and require Canadian coordination.
- 2. Provide FAS Secretary with list of agenda items for correction or withdrawal at meeting.

3. Process U.S. and Canadian proposals for frequency assignment in the border zones.

(Gloria Hazel and

Jane Brady, being recruited)

Assignment

Frequency Assignment Section

- 1. Assist in processing of applications requiring special handling, the formulation and distribution of FAS agendas and minutes, and the authentication and distribution of frequency assignment authorizations.
- 2. Assist in the processing of telephone actions.
- Attend meetings of FAS for purposes of recording actions.
- 4. Maintain master files of FAS agendas, minutes, authorizations, dockets and correspondence.
  5. Conduct research of frequency assignments.
  6. Perform such other typing and clerical duties as required.

#### Bruce Higgins

Engineering/Development

- A. Supervision, Engineering/Development Branch
- B. Shares Responsibility for chairing FAS
  - Review FAS agenda, particularly above 420 MHz, for compliance with regulations and procedures.
    - Advise Government agencies on policies and technical matters.
    - 3. Employ and promote the use of computerized engineering support routines in frequency management.
- C. Participate in working groups of the IRAC and the IRAC/FAS and assist the OTP in the improvement of regulations,
  - standards and procedures for frequency management relating to particular radio systems and services - e.g., radar, microwave relay, aeronautical radionavigation.
- D. Plan, supervise, develop and assist in the development of programs for more effective technical support of the frequency management/assignment process and for promotion of electromagnetic compatibility, including:
  - 1. systems and EMC analysis models;
  - 2. data requirements and systems;
  - 3. EMC criteria and standards;
  - 4. monitoring/measuring facility; and
  - 5. ADP support.

#### E. Contracts

Monitor and supervise contract performance in the development of EMC capabilities.

#### George W. Garber

Engineering/Development

- A. Automatic Data Processing System Design and Development,
  - including:
  - the development of system requirements for a frequency management-oriented teleprocessing system,
  - the development of an information management system for radio frequency management records and associated information,
  - 3. the development of specifications for applications programs needed for a) EMC analysis, b) frequency assignment technical feasibility analysis, and c) frequency assignment application adherance to established policy.
- B. Automatic Data Processing System Compatibility Techniques, including:
  - the chairmanship of IRAC Ad Hoc 109, dealing with the standardization of data elements and codes for radio frequency management,
  - representation of the OTP on the Federal Telecommunications
     Program Standards Committee for Data Elements and Codes,

C. Contract Supervision, including:

- 2

- the development of requirements for ADP system operation and the translation of these requirements into program performance specifications,
- the supervision of all aspects, other than legal of contractor performance in ADP system maintenance and development.

Engineering/Development

- A. Plan, develop and assist in the implementation of programs, both contractual and in-house, in the support of the frequency management/assignment process, particularly in the areas of electromagnetic compatibility and standards including:
  - 1. Equipment characteristics and other data required for EMC.
  - 2. Models for EMC analysis and prediction.
  - 3. Criteria and standards to achieve EMC.
  - Develop and administer contractual work statements in the areas of EMC and standards.

B. Secretary, SPS

- 1. Chair the Subcommittee in the absence of the Chairman.
- 2. Prepare operating documents of the Subcommittee.
- 3. Participate in working groups of the IRAC and SPS pursuant to the development of long-range spectrum allocation plans and the achievement of EMC.
- C. Maintain cognizance of and participate in various professional advisory organizations such as the IEEE, CCIR and JTAC with respect to their activities which affect Frequency Management. Maintain close working relationship with the staff of the FCC on joint spectrum management problems. (Man Made Noise)
- D. Convener, TSC Working Group for the development of technical standards for equipment using the frequency bands allocated

for Government land mobile communications.

(Vacancy - Secretary)

Engineering/Development

A. Secretary to the Supervisor, Engineering/Development, and his professional staff.

# G. V. STELZENMULLER

- A. Representation and Liaison
  - 1. Chairman, TSC.
  - 2. Convener, Working Group on Radar Standards.
  - 5. Member, RTCM Special Committee 65 -- Marine radar standards.
  - 4. Member, RTCM Special Committee 64 -- Data communication standards.
  - 5. Member, CCIR Committees 1, 3; 5 thru 10.
  - 6. Alternate Member, CCIR National Committee.
  - 7. Liaison with FCC engineering standards staff.
  - 8. Liaison with IRAC on standards.
  - 9. Liaison with ECAC, EIA, JTAC (spectrum engineering standards).
  - B. Engineering Standards matters
    - 1. International conference work on standards and technical regulations.
    - 2. Government agency reports on adherence to standards.
    - 5. Criteria for standards compliance.
    - 4. Engineering standards development for interference.
    - 5. Receivers improvement program.
    - 6. Evaluation of research.
    - 7. ADP data requirements.

# C. Spectrum Monitoring

- 1. Program support and technical development.
- 2. ADP data requirements.

D. Electromagnetic Wave Propagation Research program coordination.

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#### EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF TELECOMMUNICATIONS POLICY WASHINGTON, D.C. 20504

- Commerce PSD

Date: December 30, 1970

Subject:

Commerce Support Program for FY 72

To:

Mr. Clay T. Whitehead Dr. George F. Mansur

The attached draft material has been reviewed with Commerce (Robert Lowe) per our discussion. Mr. Lowe's initial reaction is generally enthusiastic, although he feels the CATV and Government communications efforts should be greater and perhaps frequency management should be less. I stressed that these are still tentative plans, and that we would appreciate further comments prior to their incorporation in a formal memo to Commerce. Am expecting some response to this by early next week. I indicated that you would be reviewing the package then, with the object of getting out a memo by late next week?

Obviously, I hope you can find time to review the complete package reasonably soon. It differs considerably from the earlier version. I am particularly interested in your reaction to Section VIII (Spectrum Management) which I prepared from scratch after reviewing the voluminous, highly-detailed material submitted by W. Dean. I feel all the significant objectives in this area are covered, but still expect a strong dissent to the rewrite.

151

Walter R. Hinchman

Attachment

cc: Subj RF

WRHinchman:clt

#### Commerce Support Program FY 72

#### I. Broadcasting, Cable Television and Related Services

1

- 1. Technological Capabilities and Costs: This study will identify existing and future (e.g., 1975) capabilities in the technology and cost of alternative systems for providing broadcast, cable television and related services to individual homes. Transmission technologies to be examined include single and multichannel VHF/UHF broadcasting; one- and two-way, switched and non-switched coaxial cables; microwave/cable combinations; and digital vs. analog transmission. Both space-division and time-division switching alternatives will be considered. Future prospects for a variety of terminal devices (e.g., slowscan and stored video display, facsimile or alternative hard copy devices) will be evaluated. The results will be presented in parametric form, i.e., with relevant technical, operational, and economic trade-offs fully explored and exposed. The identification of scalar and/or specialization economies is a prime objective of the study. \$75K
- 2. <u>Demand Projections</u>: This study will identify a representative spectrum of customer services which could be provided utilizing various broadcast and distribution capabilities in the 1975 time frame; and develop estimates of the price elasticity and

and cross-elasticity of demand, as well as the potential level of demand, for such services. Such economic determinants of demand as disposable income, substitutability for other services, etc., will be considered, as will such possible determinants as social needs and goals in health, education, welfare, ecological control, etc. To the maximum feasible extent, the fine structure of demand (i.e., by specific age, interest, social, and economic groups) will be determined, as well as gross demand. \$75K

- 3. Economics of Program Production: Develop a structural and economic model of the program production industry, including the creation, licensing, production/publication, marketing, advertiser support, etc., of all forms of entertainment and information materials for public consumption. Important factors to be determined from this study are the long-term supply curves, plus long-term demand curves for both paying consumers and advertisers, all for various classes of existing and/or potential programs. \$75K
- 4. <u>Pilot Project</u>: Provide program management support, including definition and evaluation of experimental projects, for a pilot project in broadcast and distribution services in one or more model communities to be identified by the OTP. \$100K

- 2 -

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- II. Bulk and Specialized Communications Networks
  - 1. Long-Distance Transmission/Routing Systems and Costs: Identify existing and near-term capabilities in the technology and costs of alternative systems for long-distance, point-to-point transmission and routing. Specifically, transmission systems employing microwave/millimeterwave radio techniques, coaxial cables, millimeter waveguides, and communication satellites will be examined, as will such routing systems as toll switching centers and demand-assigned satellite circuits. Potential economies of scale and/or specialization will be clearly identified, as will relevant technical, operational, and economic trade-offs. \$75K
  - 2. <u>Local, Distribution Systems and Costs</u>: Identify existing and near term systems for local distribution (i.e., two-way, narrow and/or wide-band interconnection between the individual subscriber and the local switching center), and relevant hardware and operating costs. Specifically, the study will address the twisted-pair local loop characteristic of telephone operations as well as microwave or millimeter-wave radio links, wideband analog cables, digital cables, etc. A wide

- 3 -

range of assumptions as to circuit capacity, density of subscribers, degree of urbanization, etc., will be factored into these analyses, whose output will be capable of illustrating economies of scale and/or specialization of each complete distribution system in terms of both hardware and operating costs. \$100K

- 3. Local Exchange Systems and Costs: This study will identify past, present, and near-term trends in the technology and cost of local exchange switching centers, considering any effects on inter-exchange transmission costs resulting from increased switching capacity as a part of switching cost. This study should include narrow and wide-band space division and time division switches, as well as centralized vs. distributed switching/routing techniques. A primary objective of this study is to determine the extent to which local switching services exhibit natural monopoly characteristics (e.g., large scalar economies); another objective is to determine the extent to which it may be economically attractive to substitute extra transmission capacity for some switching functions. \$50K
- 4. <u>Technical and Economic Criteria for Interconnection</u>: This study will identify for each possible interface within a comprehensive telecommunications network (e.g., terminal/local

- 4 -

loop, local loop/local exchange, local exchange/inter-exchange transmission, inter-exchange transmission/toll exchange, toll exchange/long distance transmission, etc.) the technical criteria required for compatible interconnection, and the type and degree of network degradation which would be experienced for various incompatibilities. Also, identify and evaluate the probable costs of alternative methods of ensuring and/or enforcing compatible interconnection between different entities at these interfaces. \$50K

5. <u>Market and Demand for Data Communications and Specialized</u> <u>Service:</u> Develop estimates of the future demand for various types of data communications and other specialized exchange services. Develop a range of quantitative estimates for the near-term with a more qualitative discussion of the possible services and trends in the longer run. Estimate the impact of possible prices on demand to the extent feasible. \$125K

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- III. New Technologies and Services
  - <u>Satellite Communications</u>: Identify (from existing literature to the maximum extent possible) the types and potential magnitude of new satellite telecommunication services, and the necessary and sufficient technological developments to support such services. Consider as a minimum satellite capabilities for: (a) multi-point broadband distribution;
     (b) long distance point-to-point trunking, (c) single node networks; (d) direct space broadcast; (e) public aeronautical communications; (f) community broadcast; (g) earth sciences/ resources monitoring; (h) inter-satellite relay; and (i) on-board switching. Estimate relative and absolute costs for each alternative means of accomplishing a particular function and the confidence limits associated with these estimates. \$100 K
  - 2. Operational Feasibility and Economics of Joint Switching and Teleprocessing

Evaluate the operational requirements for computer=controlled telecommunications switching and for teleprocessing, and the relative costs of multi-purpose and specialized computers, in order to determine to what extent telecommunications common carriers will be competitive with independent teleprocessing suppliers if allowed to use joint switching and teleprocessing computers. \$75 K 3. <u>Future Services and Potential Benefits</u>: Identify opportunities for significantly new information services resulting from telecommunications advances in the 1980-1990 time frame and the probable public and/or business users. The types of services to be considered would include the so-called checkless and/or moneyless society; the home information/ entertainment center; the distributed business office; etc. \$75K

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#### IV. Mobile Communications

- 1. Technological and Operational Alternatives: Identify and evaluate a number of alternative technologies and operational approaches for providing mobile communication services (land, sea, and air) for large segments of the public. Transmission technologies to be examined will include conventional AM and FM mobile radio systems (single and multi-channel); guided-wave transmission systems; microwave/millimeter wave systems; satellite systems; etc. Terminal device and signal processing technologies will include data terminals, mobile telephones, multi-channel RADA-type terminals, use of large scale integrated circuitry, etc. Operational techniques will include cellular base station networks, common-user and/or common carrier integrated networks, common-frequency repeaters, etc. In all analyses, the relative spectrum resource needs and optimum frequency assignment methods for alternative approaches will be identified. \$ 150 K
- 2. <u>Opportunities For</u>, and Benefits Of, New Mobile Communications Services:

Identify and analyze opportunities for new and expanded applications of mobile communications systems in the 1975-80 time frame. Estimate the sensitivity of alternative service offerings to spectrum availability and cost, industry structure and regulation, etc. Develop quantitative estimates of demand, including consideration of equipment costs and possible spectrum charges (e.g., through license fees). \$150K

- 8 -

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### 3. Communications for Law Enforcement and Public Safety:

Examine the requirements and opportunities for improved mobile communications to support law enforcement and public safety services; and evaluate the potential benefits and costs of alternative apporaches for providing such services (e.g. greater integration of local systems, use of common-user distributed basic station networks, joint Federal/State development and operational arrangements, etc.)\$100K

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#### V. International Communications

1. Economics of Reliability:

Develop quantitative criteria for measuring the communication system effects of outages, considering both degraded capacity (i. e., increased probability of lost calls) and degraded service (i. e., interruption of calls in progress). Compare the costs of alternative means of achieving parametric levels of reliability for alternative transmission facilities and systems, including quality improvement and control, redundancy, network topology and diversity of routes, etc. 50 K

2. Demand Projections and Methodology:

Identify the parameters which are valid predictors of demand for international telecommunications, and perform econometric analyses of selected geographic areas to evaluate price elasticity of demand. Estimate the effects of the introduction of new procedures and equipment (direct dialing, direct routing via satellite, etc.) on significant traffic engineering parameters (holding time, peak loading, etc.). Derive from these data estimated ranges of trunking requirements for selected years and areas. 30 K

3. Facilities Mix and Timing:

Develop an iterative dynamic programming model of the international transmission industry capable of determining the optimum mix and timing of international transmission facilities deployment

Cg 12/18

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under varying assumptions as to technological development and cost, failure modes and reliabilities, service requirements, traffic routing, etc.

70 K

- VI. International Conferences and Cooperative Programs
  - 1. <u>CCIR Review and Consolidation:</u> Compile, review, and consolidate the studies and findings of U. S. Preparatory Committees for the CCIR, in order to produce a single comprehensive, integrated report for consideration by the OTP, FCC, and State Department. A major feature of this effort will be to identify and fill important gaps in the analysis and documentation, where possible, to identify work programs when necessary, and to eliminate discrepancies among the various documents. \$50K
  - 2. International Cooperative Organizations: Provide technical support for U. S. participation in telecommunications activities of such organizations as the International Civil Aviation Organization (ICAO), World Meteorological Organization(IOC), Intergovernmental Maritime Consultative Organization (IMCO), etc. \$50K

#### VII. Federal Government Communications

#### 1. Teleprocessing Systems:

Analyze in depth one or more areas in which several agencies are involved in the collection, processing, dissemination and use of specific types of information; e.g., weather data. Identify the existing data processing and transmission methods used, and determine the options for improving the efficiency and effectiveness of the process. Determine what changes in system structure, standards, operations, and management arrangements would be needed to achieve feasible improvements.

\$125 K

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## 2. Research and Development Planning:

Develop, and apply on a pilot basis, a methodology for reviewing research and development sponsored by the Federal Government in the telecommunications area to identify duplication within Federal Government programs, and between Federal Government programs and programs supported by other governmental levels and by private industry.

\$75 K

3. <u>Budgeting for Common User Telecommunications Networks:</u> Develop alternative means of allocating costs to users of common user communications networks serving the Federal Government, and of reflecting such costs in the budgetary process. Analyze these options in terms of technical feasibility, cost of implementation, •

the incentives associated with use of the network, and the capability provided for appropriate tradeoffs between telecommunications costs and other resource costs.

\$50 K

VIII.Federal Spectrum Management \$1.850 M

- 1. Frequency Management Support and Improvement: Provide administrative and technical support required for the processing of Federal frequency assignment applications. This includes advice and assistance to Federal agencies in the preparation of applications, review of applications for compliance with regulations and procedures, support of the Frequency Assignment Subcommittee of IRAC, recording of frequency assignment actimns, and publication and distribution of relevant documents. This task includes maintenance and operation of the current ADP system, plus maintenance of facilities for emergency relocation of the OTP spectrum management staff. \$1.0 M
- 2. <u>Electromagnetic Compatibility Analysis</u>: Modify and enhance the limited engineering support routines currently available in the OTP automatic data processing facilitý; provide engineering support in solving current EMC problems. Develop plans and programs for improved EMC analysis, within available resources. Improve the existing data base for spectrum management and EMC analysis, including development of appropriate files on supplementary equipment characteristics (covering receivers, transmitters, and systems) needed for spectrum engineering.

- 3. <u>Spectrum Engineering Criteria:</u> Review technical standards and criteria affecting usage of the radio spectrum by Federal agencies, and evaluate alternatives as necessary, with particular emphasis on standards now under development for high-powered radars and Government land mobile systems.
- 4. <u>Spectrum Occupancy Monitoring</u>: Review prior studies and proposals for mobile spectrum monitoring facilities, and existing techniques and capabilities (e.g. SRI and ITS facilities). Develop plans for alternative monitoring systems, including techniques for measuring the occupancy of spectrum resource dimensions other than frequency (e.g. direction of arrival, polarization, signal duration, etc.) Summarize the technical, operational, and cost characteristics of alternative monitoring systems of varying sophistication, as well as possible implementation schedules.
- 5. <u>ADP Development</u>: Continue development and improvement of the time-shared computer system initiated by the OTP, as well as present batch-processing capabilities. Evaluate the applicability and potential benefits of computer graphics terminal equipment to various frequency management functions including EMC analysis. Frovide ADP planning assistance for the spectrum occupancy monitoring task.

### IX Special Projects

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> Undertake such special, short-term analytic tasks as the OTP may from time to time request to support its evaluation of particular policy issues not contained within the scope of specific plans and programs. \$100 K

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### Spectrum Policy and Allocation

 <u>Technology Impact</u>: Identify significant developments (past, present and future) in technologies and techniques which affect the amount of spectrum resource used by radio systems, the associated costs, and evaluate the operational and spectrum usage advantages and disadvantages which might accrue from each. Particular emphasis should be given to these techniques whose adoption would significantly affect spectrum requirements in the 100-1,000 MHz range. \$50 K

2. <u>Spectrum Resource "Rights"</u>: Examine the basic processes of radio signal transmission and reception to identify the nature and dimensions of the spectrum "resources," and develop a system of units capable of specifying both the use of this resource and usage rights of reasonable expectation, in comprehensive and quantifiable terms. \$50 K

3. <u>Frequency Sharing Techniques</u>: Conduct studies of particular frequency sharing options (e.g., satellite/radio relay, satellite/ITFS, satellite/mobile, mobile/broadcast) in order to identify necessary and sufficient design and/or operating conditions on both services which will permit effective sharing, and identify the economic costs and benefits associated with each option. \$50 K
Commerce por

November 24, 1969

#### MEMORANDUM FOR

Dr. Myron Tribus Assistant Secretary of Commerce for Science and Technology

Attached are copies of memoranda I sent to NASA and DOD regarding contributions to your interdepartmental study on Alaska telecommunications. I also attach a copy of a reply (?) that I received from DOD.

I would like to know as soon as you have talked to the Governor so that we can expedite the public announcement of this activity in an appropriate way.

> Clay T. Whitehead Staff Assistant

Attachments

cc: Mr. Flanigan Mr. Whitehead Central Files

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#### ASSISTANT SECRETARY OF DEFENSE WASHINGTON, D.C. 20301

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INSTALLATIONS AND LOGISTICS

Dr. Clay T. Whitehead Staff Assistant The White House Washington, DC

Dear Dr. Whitehead:

Please refer to your memorandum of November 10, 1969 regarding opportunities and costs for telecommunications in Alaska.

The Department of Defense, which has a vested interest in the development of telecommunications for Alaska, is prepared to assist in the interdepartmental study of Alaska telecommunications. We believe, however, that the Federal Field Committee for Development Planning in Alaska (hereinafter referred to as "Committee") has developed considerable information toward meeting the stated objectives. The enclosed letter from the Chairman of the Committee, in our opinion, focuses on the issues involved and proposes what appears to be a logical approach to the problem. We also believe that the Radio Corporation of America (RCA), which was recently awarded the purchase of the Alaska Communications System, has an inherent responsibility to assist the Committee in identifying current and future telecommunications requirements and designing an economically viable system for the State of Alaska. It is our opinion that the communications common carriers and the Committee, rather than a US Government Interdepartmental Group, are the most knowledgeable activities to develop a viable telecommunications system for Alaska.

Accordingly, we recommend that the Committee request RCA and other Alaska-based communications common carriers to assist it in developing much of the information outlined in the enclosed letter. This assistance should be provided by the carriers on a customer service basis. Any policy issues which may arise from this approach and which cannot be handled by the Committee or the State of Alaska should be referred to an interdepartmental ad hoc group for resolution. The foregoing recommendation, which is basically consistent with the enclosed letter, and which we believe would meet the desires of the White House, should achieve the objectives in the most advantageous and economical manner.

Sincerely,

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Glenn V. Gibson Depaty Assistant Secretary of Defense

Enclosure Sep 4, 69 Ltr fm Federal Field Cmte for Development Planning in Alaska FEDERAL FIELD COMMITTEE FOR DEVELOPMENT PLANNING IN ALASKA SUITE 400, 632 SIXTH AVENUE ANCHORAGE, ALASKA 99501

September 4, 1969

Honorable Myron Tribus
Assistant Secretary of Commerce for Science and Technology
Room 5884, Main Building
U. S. Department of Commerce
Washington, D. C. 20230

Dear Mr. Tribus:

Discussions at the just-concluded Alaska Conference on Satellite Telecommunications have underscored what the Field Committee's Communications Working Group and the Governor's Communications Satellite Task Force had earlier concluded: there is an urgent need for the immediate initiation of planning for communications development in Alaska.

The report prepared earlier this year by the Communications Working Group, which sets out the need for communications planning, is enclosed. Its arguments are still valid, with one amendment. The sale of the Alaska Communication System has been announced. The successful bidder, RCA, has pledged to make certain improvements to the system soon after it becomes the owner in July, 1970; but RCA has also indicated an interest in obtaining further expert advice such as would be produced by the proposed study.

Based upon the information made available at the recent conference, and upon the advice of the chairmen of the Communications Working Group and the Governor's Communications Satellite Task Force, I now seek your assistance in obtaining funding for communications planning that would:

- study the existing communications environment of the state to assess the worth of each segment to an integrated space and terrestrial complex;
- 2) translate economic and population growth trends in the state along with the needs of government agencies (such as the Department of Defense, Environmental Sciences Services Administration, and the Federal Aviation Administration) into predictions of communications requirements in fiveyear increments, starting with July, 1970, and extending forward into time as far as available trend estimates will permit;

#### Honorable Myron Tribus

- 3) identify unmet public service type communication needs in Native villages as projected by federal agencies (such as the Bureau of Indian Affairs of the Department of the Interior and the Department of Health, Education, and Welfare) and state agencies (such as the Department of Education, the Department of Health and Welfare, and the Department of Public Safety). This would include educational television, medical support, civil defense, and other emergency communications;
- determine the makeup of an optimum system to satisfy the needs of all users in the state from July, 1970, as far as practicable out into the long-range planning period;
- estimate the revenue requirements of the recommended system and identify the revenue resources expected to support those requirements;
- 6) develop and recommend the fundamental concept for traffic flow, switching and control, inter and intrastate, upon which the system recommendation was based.
- 7) study and recommend the administrative apparatus, the statutory authority, and the expertise which must be established by the State of Alaska so that it can effectively guide the development of communications in the state along the lines of the fundamental plan;
- 8) develop and recommend a concept for rate structuring to meet the state's objectives of providing adequate service to the whole population, and of promoting economic development of the bush through promotional rate scales to key industries such as tourist promotion, air travel, news and weather dissemination, etc.;
- 9) recommend revenue sharing and other arrangements which should be developed between the common carrier in Alaska and the common carriers in the Lower 48 to provide Alaskans with the full advantages of direct distance dialing and low-rate, offhour calling and reduce to a minimum the economic penalty imposed by the geographical separation between Alaska and the other states.

We are very much overdue in having this study inaugurated. It should be begun no later than October 1 of this year, and completed by April of 1970. However, because current planning is being carried on by the successful bidder for the Alaska Communication System, it is necessary to obtain by December of this year preliminary findings of the consultant with respect Honorable Myron Tribus

to 1) identification of routes that should plainly be served by microwave installations, and 2) comparison of rates that could be offered for service. to selected locations by space versus terrestrial links. The purpose of the first of these is to avoid unnecessary delay in the engineering and procurement of prime equipment.

Cost of the plan is estimated to be about \$250,000. In our view the work should be performed by an independent communications consultant. My office would assume responsibility for overall supervision of the consultant's analysis and plan, drawing upon advice from the state director of communications, the executive director of the Public Service Commission, the chairman of the Governor's Communications Satellite Task Force, and the chairman of the Communications Working Group--the communications staff officer of the Alaskan Command. This group, as may be seen, is representative of state, industry, federal civilian and military interests.

Believing that it would be your wish, I am furnishing information copies of this letter to the persons identified below.

I will be in Washington next week. While there I would welcome an opportunity to discuss this proposal further with you.

Chairman

Sincerely yours, hanock George 0. Sharrock

Enclosure

CC: J. D. O'Connell Dr. Walt Radius William Ellis Congressman Howard W. Pollock Senator Ted Stevens Senator Mike Gravel James Hawkins L. Ralph Mecham Don Hall Charles Buck Governor Keith Miller Augie Hiebert General Robert G. Ruegg Dr. Clifford Hartman Charles Northrip

## THE NEED FOR A LONG-RANGE COMMUNICATIONS DEVELOPMENT PLAN FOR ALASKA

## Prepared by

The Communications Working Group Federal Field Committee for Development Planning in Alaska Robert A. Breitweiser, Lt General USAF, Chalrman

A long-range communications development plan for Alaska is urgently required because of the present status of communications capability, presently unmet needs, and current developments that have important consequences for communications. More specifically,

# 1. The present communications system is inadequate.

a. The system is generally filled to capacity and is unable to satisfy a number of current outstanding requirements. The "White Alice" system, a broadband network connecting the Ballistic Early Warning System and the Air Defense complex with their control centers and headquarters, and which provides most of the point-to-point capacity in use today, was planned and installed to meet operational requirements of the US Air Force. The only excess channel capacity built into the system was that which could be justified by the estimated growth of military requirements. It was not until after White Alice was installed and operational that it began to be looked upon as a vehicle for carrying public offering channels of the Alaska Communication System - and finally came to be incorporated into the Defense Communications System. In other words, the backbone system of communications in Alaska was not planned to meet the requirements of both the military and the public. The military demand for service has grown gradually, but public needs for communications services, reflecting Alaska's burgeoning growth since accession to statehood, have grown rapidly. Some needs, such as inter and intrastate TV transmission and computer data channels have never been capable of being satisfied, but economic pressure is beginning to develop behind the demands for those services. Long distance calling to the 48 contiguous states is delayed seriously during peak hours for lack of sufficient channels to carry the load - and for lack of sufficient switchboard and operator capacity to cope with peak demand.

b. The basic communications system throughout the state is aging and obsolescent. The tropospheric scatter and line-ofsight micro-wave it uses are of 1950 technology. They were installed in the mid-fifties, and have been denied the benefits of capital investment for purposes of modernization or expansion since 1959.

c. The White Alice system, depending largely upon tropospheric scatter for transmission across virtually inaccessible terrain is capable of only limited expansion. Traffic estimates . indicate that by the time expansion projects could be completed, growing demand will again have outstripped system capacity.

d. The basic communications system throughout the state does not serve the entire "Alaskan Community." The communications system of Alaska, as it now exists, generally services only those areas of military importance or high population density (i.e., Anchorage, Fairbanks and the Aleutian Chain). There are many communities which are not in close proximity to military installations or areas of dense population, that have no communications facilities at all. Examples are those communities in the Second Judicial Division and the Yukon River area. The increase in activity in remote areas during the past year has emphasized the real lack of adequate communications in the state beyond the large population centers and areas of military importance. With the exception of one or two radio schedules per working day, many construction camps, field crews and even sizeable villages have no contact whatscever with the rest of the world. After office hours or on Sundays or holidays it is virtually impossible for the residents of these areas to secure medical aid, call for emergency transportation, or even talk with a doctor who might be able to suggest emergency steps. In the longer view, the inability to extend normal communications into many of the villages deprives them of the opportunity to receive educational programming in their home environment under a program of the University of Alaska. The alternative of bringing native students out of the villages for education is extremely disruptive to their living patterns and reaches only a fragment of the people. Constant, daily exposure to information, ideas and the English language can be of inestimable value to the development of Alaskan natives. The need for communications to the remote areas is urgent.

2. It is desirable to have a single long-haul system, but pending developments may work against its establishment. It is important that the long-haul system be kept intact within one franchice. Communications demand and revenue potential are either lumped in point locations, such as Anchorage, Fairbanks, Kenai and Juneau, or else are scattered thinly over wide areas end among many very small villages. The total revenue potential within the state is not great, but the expense involved in providing service to outlying areas is by far the greater proportion of overall operating expense. The burden of supporting communications to the sparsely settled areas cannot readily be shared by the urban areas unless the whole system is one economic unit. Two factors tend to fractionalize the system in direct contradiction to the need, recognized by the state and strongly supported by the military, to maintain system integrity.

a. The Alaskan Communications System is to be sold by the Air Force to a private concern. The desire of the commercial owner of ACS, actual or prospective, may be to want to be responsible for only the economically attractive areas and to leave systems in the fringe areas to the military. Once there is a commercial long haul carrier in Alaska, the military cannot expect to get government funding to support the communications requirements of civil populations. It is likely that the trend will be for military communications requirements to transition to military or civilian satellite systems to take advantage of their superior quality and security and the great savings in prospect, as compared to ground-based systems. That circumstance would put service to the remote villages in serious jeopardy.

b. North Slope developments require communication capability now. The second factor tending to break up the unity of the statewide system is the urgent need of the North Slope oil developers to immediately obtain inter and intra-Alaska communications for business purposes and for operation of the planned pipeline to the Gulf of Alaska. If their requirements are not satisfied by the statewide system, they are likely to exercise financial power and great influence to proceed with installing their own communications support system. Communications service to the oil industry is an important source of revenue for the statewide system and should be within the charter of the new owner of the ACS.

3. Expensive communications inhibit economic development particularly in Alaska where other forms of communications such as road, rail, ship or air, are either limited, difficult, or very expensive. In such circumstances more reliance tends to be placed on electrical communication, given its availability and reasonable economy. There is little prospect for much further reduction in costs for long distance calling through the system in Alaska. Economical operation is a direct result of massive traffic flow and high density utilization of equipment. Present rates are probably as good as can be expected from the present saturated system. The sizable capital investment required to expand it to its limit would work against the prospect of any further economies.

4. Many requirements exist for communications services to the nearly 200 native villages in Alaska. Most prominent is the need, shared by a group of interests, for establishing reliable and adequate communications to and from the villages where most of the 53,000 Alaskan Natives live. The services which are needed include telephone, telegraph, and TV/radio programming, and the purposes to be served include: normal personal and commercial phone and message service; distribution of alarm or warning messages regarding sea waves, weather or national emergency; support to the programs of a variety of federal and state agencies such as the Bureau of Indian Affairs, Bureau of Land Management, Public Health Service, Fish and Wildlife Service, Forest Service, and others; distress or emergency calls to summon rescue or medical aid for ill or injured persons; distribution of news, weather and other commercial programming; and extension of audio or visual programming from National or State Educational Networks to all Native schools and villages. In the main, these are low potential revenue services, but they carry a great level of importance at the federal and state level and, consequently, reflect a demand for the most efficient and economical communications technology.

5. Alaska is approaching a turning point in the development of its communications structure. The factors and influences cited above all point in the direction of great change in Alaskan communications. The pressing need for expansion of communications in capacity, and into new areas, is certain to lead to planning decisions within the next year for construction of facilities within the following two years. There are two general courses that the overall

development may take. One would be to develop and expand the present system. Some aspects of this appropach do not seem to be desirable.

a. A substantial expansion of present facilities could raise the overall capital investment so high that conversion to medern technology would not be economically feasible for many years. Estimates have been made on expansion projects totaling up to thirty million dollars, and even that much investment would not medernize the technology in use to the point that it would accommodate highly desirable services such as educational television.

b. The cost of extending the present system into the nearly 200 native villages would be prohibitive. Even if funding were available for such a venture, the effect of the capital outlay on the total telecommunications tariff structure in the state would be highly undesirable. Economical calling rates could not be expected in the foreseeable future. The other general direction which development may take is to retire the obsolescent equipment presently in use before making any sizeable further investment in it. A complete new replacement system would have to be engineered and installed to take over the services being provided by the old facilities and to meet the many new demands. A survey of studies on how to provide similar improvements in other parts of the world indicates that application of modern technologies may be very practical and desirable in Alaska and is certainly worthy of study.

6. The extent and the nature of communications development in Alaska can be guided in desirable directions if action is taken scon enough. The time to prepare to influence the development of Alaskan communities is growing critical. The time schedule for the turn over of the Alaska Communication System to a commercial owner is July 1970. Some two million dollars worth of improvement projects, under the recently authorized industrial fund, must be completed by that date. New projects may be planned beforehand by the new owners, but they cannot be started before the date of transfer. Major projects will then be two years or more in implementation. Decisions made in 1969 will determine whether the new facilities of 1972 indicate that Alaska is to be tied for many years to the telecommunications system of its Territorial past,

or whether Alaska is taking advantage of a unique opportunity to move into the medern communications era in one great stride.

In order for the State of Alaska to know what it wants to do in regard to communications development, and to be able to establish the requisite policies and the regulatory apparatus to implement them, it must have the contempleted master plan in hand before the end of 1969. That will provide six or more months for assessment of the compatibility between the plans of the new commercial carrier and the goals of the State, and for any corrective coordination or negotiation found necessary before system cutover. On the basis of an estimate that the study period required for the production of a long range plan is six to nine months, it can be seen that urgent action is required to authorize, fund for, and award the appropriate contract.

# Working Group Members

Lt Gen R. A. Breitweiser, Hq ALCOM Chairman Asst Chairman Colonel Amos H. Ross, Jr., Hq ALCOM (J6) Mr. Jack Edwards, Federal Aviation Administration, Member Member Mr. Andrew Clark, Alaska Railroad Member Mr. Donald L. Stichler, Bureau of Indian Affairs Alternate Member Mr. William Woosley, Bureau of Indian Affairs Mr. Wayne Gilbert, Bureau of Land Management Member Mr. Harold DeVoe, Federal Communications Commission, Member Member Mr. Charles L. Buck, State of Alaska Mr. Charles C. Culp, U. S.' Public Health Service Member Member Mr. Gus Norwood, Alaska Power Commission Mr. Harry L. Rietze, Department of the Interior Member Lt Cmdr J. G. Williams, U. S. Coast Guard Member

#### Advisors to Working Group

Mr. Augle Hiebert, Broadcasting Industry Brig Gen James Isbell, Director Alaska Disaster Office Mr. Emil Notti, Alaska Federation of Natives

#### MEMORANDUM FOR

Dr. Myron Tribus Assistant Secretary for Science and Technology Department of Commerce

I see no objections to the Department of Commerce providing whatever technical assistance to the State of Alaska would be useful to them. However, I think we should be aware of two caveats.

First is, as you note, the difficulty in financing a substantially expanded activity. The second is that we should not become too deeply involved in the quasi-judicial aspects of the RCA certification. I am not at all sure what the legal problems might be there, but it would be wise to ask Jim Lynn or someone in the Justice Department to advise on that matter. And from a purely political standpoint, I think it would be undesirable for the Department to be cast in the role of antagonist against RCA's plans.

> Clay T. Whitehead Special Assistant to the President

cc: Mr. Whitehead Central Files

CTWhitehead:jm



### THE ASSISTANT SECRETARY OF COMMERCE WASHINGTON, D.C. 20230

MAY 15 1970

#### MEMORANDUM FOR

Dr. Clay T. Whitehead Staff Assistant The White House

You should be aware of the enclosed correspondence. Despite a reasonably explicit statement of our Alaskan communications study plan, the state government now envisages a substantial expansion of the DoC role. We agree that assistance is required in the RCA certification proceeding. But note the reservation on additional financing.

I will be seeing Governor Miller this coming weekend and plan to discuss this among other matters.

Julii myron

Myron Tribus Assistant Secretary for Science & Technology

12

Encl.

KEITH H. MILLER, GOVERNOR

DEPAINTNEENT OF LAW /

ALASK

360 K STREET — SUITE 105 ANCHORAGE 99501

May 6, 1970

ctor Edgar Hayden fice of Tele-Communications epartment of Commerce 14th and E Street N.W. Mashington, D.C. 20230

Re: RCA Certification Proceedings

Dear Dr. Hayden:

TATE OF

Pursuant to our conversations of last week 1 an formally asking the Office of Tule-Communications, Teparties of Commerce, to assist the State of Alaska in the presentation of questions involving the public interest in the coding waring before the Alaska Public Service Commission. It is understanding that your office will be able to provide technical and other advisory assistance covering those save which will be heard before the Commission. Such assistance will be in the form of pre-filed testimony and oral testimony, as well as assistance in the cross examination of F.A witnesses. Of course, any assistance your office may fer will be subject to the Attorney General's approval. his office must have complete control over every aspect of the proceeding.

It is also my understanding that the State of Alaska s under no obligation to provide any further financial assitance for these services. If financial contributions must hade by the State, this office must know at this time exact the extent of that contribution. However, it is in underanding that no such contributions are to be note at this line. If you have any other uncerstanding please inform me to once. Dr. Edgar Hayden Page 2 May 6, 1970

. . .

Thank you for all your assistance and suggestions during my stay in Washington. I would appreciate your comments concerning the above matter.

Very/truly yours, Sanford M. Gibbs Assistant Attorney General

Encls. cc: Tom Wardell SNG/mo MELIORADIDUM -

TO: T

Phile ...

Sanford Gibbs Assistant Attorney General Anchorage

DATE : May 4, 1970

State of Alaska

FROM: G. Kent Edwards Attorney General SUBJECT: RCA-PSC

By: Thomas M. Wardell' Deputy Attorney General .

I am enclosing herein a copy of a letter this date addressed to Edgar C. Hayden, Director, Alaska Telecommunications Program, Office of the Assistant Secretary of Commerce, Washington, D.C.

Per our previous telephone conversations, I trust that you will write Mr. Hayden directly confirming your meeting last week; specifying those areas wherein his office will be of assistance to you in presenting the public interest in the subject proceeding; and confirming that the State of Alaska will not be financially obligated in any way for the services to be rendered. I would appreciate a copy of said letter.

When time permits, I would appreciate receiving a report of your meeting last week so that I can forward a copy of same to the Secretary of State. I trust the Attorney General will be kept up-to-date on your proposed strategy in this case.

Encl.

GKE: TMW: em

Pay 4, 1970

Edgar C. Hayden, Director Alaska Telecommunications Program Office of the Assistant Secretary. . of Commerce Washington, D.C. 20230

Dear Mr. Hayden:

5.

I wish to thank you for your letter of April 17, 1970.

On receipt of your aforementioned letter, I arranged with Mr. Sanford Gibbs, Assistant Attorney General, for Mr. Gibbs to confer directly with you in Washington, D.C. Mr. Gibbs informed me by telephone conversation last week that the subject meeting has been most fruitful and that he will be corresponding with you this week.

. Very truly yours,

G. KENT EDVARDS ATTORNEY CENERAL

This

By: Thomas M. Wardell Deputy Attorney General

OKE: THW: em

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America

### EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF TELECOMMUNICATIONS MANAGEMENT WASHINGTON, D.C. 20504

#### Date: July 28, 1970

Subject: Recommendations Regarding Department of Commerce (DOC) Support of DTP in the Radio Frequency Area

To: Dr. C. T. Whitehead

In response to your request of July 24, it is recommended that the following constitute the initial course of action with respect to bringing about DOC support of DTP in the radio frequency area:

a. Decide in OTP the areas (Analysis, Research, Standards, Records, etc) wherein DOC support is required. Enclosure (1) is submitted to meet this need.

- b. Meet with Dr. Tribus to:
  - apprise him of support needed based on (a) above;
  - o (ii) determine what Department of Commerce resources are available/projected to support OTP;
  - o (iii) establish a concept for implementation
     of DOC support as follows:
    - Support by DOC shall be based on priorities established by OTP and phased so as to be compatible with the degree of DOC support available, NECAF being the first area to be treated.
    - An over-all OTP letter will set forth the DOC functions envisaged. (Enclosure (2) pertains).

- o Annual review will be made of DOC budget proposals to support OTP.
- Activate a Steering Committee of Dean/Richardson to effect the implementation of DOC support, bringing unresolved problems to the Assistant Secretary of Commerce/DTP level for resolution.
- O Charge the Steering Committee, as a first order of business, with the development of a recommended modus operandi of daily work with respect to such things as the location of personnel, movement of documents, performance ratings, etc.

c. Hold further actions in abeyance pending results of (a) & (b).

W. Dean,

Enclosures

2.

### DEPARTMENT OF COMMERCE (DOC) SUPPORT OF THE DTP IN THE RADIO FREQUENCY AREA

The DOC should a) provide a centralized research; engineering and analysis capability in support of spectrum management and such other areas as may be required, and b) conduct research and analysis in the general field of telecommunication sciences in support of other Government agencies or in response to specific directives from the Office of Telecommunications Policy (OTP). Specifically, the DOC should be responsive to policy guidance and direction from the DTP with respect to:

- a) the development and operation of the National Electromagnetic Compatibility Analysis Facility (NECAF) in the Washington area.
- b) a National Electromagnetic Compatibility Program.
- c) the conduct of research programs in such areas as radio propagation, radio systems characteristics, operating techniques, and signal design, looking toward the implementation of techniques for improving the information content of emitted spectrum bandwidth and overall utilization of the radio frequency resource.
- d) the formulation of technical standards, minimum performance requirements, design objectives, and other technical criteria including necessary definitions and measurement techniques for promulgation as Federal Standards for improving radio frequency use.
- e) the preparation of type-approval performance tests of radio equipments with a view toward improved frequency usage.
- f) the development of recommended technical limitations and criteria applicable to equipments and devices incidentally or unintentionally radiating radio energy while designed and used for other than communications-electronic purposes.
- g) the development of recommendations on standards for measuring and specifying radio interference in the several radio services.

- h) the development of recommended standards or technical guidelines for stipulating the minimum radio power required for the various categories of radio use and for various grades of service.
- i) the provision of administrative and technical support required for the processing of Government frequency assignment applications, including:
  - the provision of advice and assistance to Government agencies in the preparation of applications;
  - (2) the review of applications for compliance with regulations and procedures;
  - (3) the preparation and support for meetings of the Frequency Assignment Subcommittee of the Interdepartment Radio Advisory Committee; and
  - (4) the recording of frequency assignment actions and the timely production, publication, and distribution of records pertaining thereto.
- j) the development, maintenance, and operation of an ADP system that will serve the needs of the OTP and other Government agencies in the field of radio frequency management, including the provision of hardware and software required for:
  - (1) engineering analyses of proposed frequency uses;
    - (2) selecting and assigning frequencies;
    - (3) screening and processing frequency applications;
    - (4) preparing agendas, minutes, and assignment actions;
  - (5) preparing lists of assignments;

- (6) recording and analyzing frequency usage data; and -
- (7) producing, publishing, and distributing, in a timely manner statistics, data, and analyses needed in support of frequency management.
- k) the development and maintenance of a data base that will serve the needs of OTP and other Government agencies in the areas of frequency allocation, assignment, and use; electromagnetic compatibility; and the social and economic aspects of spectrum usage.
- 1) the provision of:
  - (1) an annual printing capability of some 1,000,000 pages, classified up to and including secret, by high speed printer; and
  - (2) a computer capability comparable to and compatible with UNIVAC 1108 in EXEC VIII Mode with a remote terminal capability operable in a classified and unclassified mode.
- m) the analysis of current and projected spectrum needs bearing upon Government and non-Government radio frequency allocations.
- n) the conduct of technical, economic, social, and systems analyses bearing on the use of the radio spectrum.
- o) the development of recommended inputs to the International Radio Consultative Committee (CCIR).
- p) the maintenance of facilities for emergency relocation of OTP staff.
- q) such other tasks as the DTP may direct or assign.

#### DRAFT

EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF TELECOMMUNICATIONS POLICY WASHINGTON, D.C. 20504

10

OFFICE OF THE DIRECTOR

· · · · · ·

Honorable Maurice H. Stans Secretary of Commerce Washington, D. C. 20230

Dear Mr. Secretary:

Pursuant to the President's Reorganization Plan No. 1 of 1970, Executive Order assigns telecommunications policy responsibilities to the Director of the Office of Telecommunications Policy, with support to be provided by the Department of Commerce.

This is the first of a series of letters intended to provide guidance to assist the Department in developing support for the Office of Telecommunications Policy. Specifically, this letter addresses the Radio Frequency Area. Letters in other areas will follow.

Enclosure (1) sets forth support functions in the radio frequency area for accomplishment by the Department of Commerce. These functions are recognized as being of considerable magnitude, capable of being undertaken only in a manner commensurate with available budgetary and personnel support. In this regard, it is considered that assumption of the enclosed list of functions should be undertaken in the priority given in order to be most responsive to pressing and expanding needs without jeopardizing existing frequency management capabilities which are coping successfully with the satisfaction of daily operational requirements of the Government agencies.

The most critical area, wherein the Federal Government has no civil capability, lies in the need for the early establishment of a National Electromagnetic Compatibility Analysis Facility (NECAF). The NECAF concept presented to the Congress by this office is set forth in Enclosure (2). A first year organization plan for the NECAF is contained in Enclosure (3). The Appropriations Committees of the Congress are currently considering whether to provide budgetary support to meet this need.

Enclosure (2)

In view of the urgent need for the availability of an analytical capability to treat problems of the type set forth in Enclosure (2), it is considered that the primary emphasis of the Department of Commerce in the initial phase of supporting this office should be directed toward the establishment of a National Electromagnetic Compatibility Analysis Facility. It is requested that as a matter of priority, and using the material contained in the enclosures hereto, the Department of Commerce develop the necessary actions to obtain the early establishment of this facility, making the maximum use of current capabilities within the Department.

Representatives of this office are prepared to assist in the attainment of the foregoing objective and, at the appropriate time, with the remainder of the functions set forth in Enclosure (1).

Sincerely,

C. T. Whitehead

Enclosures-3

. . . . .

TELECOMMUNICATIONS MEETING

July 31, 1970

C.T. Whitehead M. Tribus J.M. Richardson

#### Proposed Agenda

- 1. Matters that C.T. Whitehead may wish to raise.
- Functions to be undertaken by Commerce, per Executive Order.
- Proposed program of Commerce, deriving from these functions in combination with existing functions.
- 4. OTP-DoC working relationships Our desire for informality Process of program formulation Arrangements for intensive joint planning
- 5. Transfers from OTP -- functions, personnel, funds
- Proposed organization within Commerce --National Bureau of Telecommunications Initial internal organization Timing
- 7. DoC plans for funding FY 71 supplemental FY 72
- Recruiting possibilities for OTP or NBT staff--Niskanen, Gabel, others.

#### DEPARTMENT OF COMMERCE

Proposed Functions to be Undertaken by the Department of Commerce

- o Federal frequency assignment support
- o Compatibility
   Electromagnetic
   Systems (that is, standards)
- Telecommunications resource utilization, including the spectrum
- o Technological forecasts in telecommunications
- o State and local government advisory services
- Education for telecommunications management and policy
- o Central Federal program in telecommunications sciences

Agenda Item 3 7/31/70

#### DEPARTMENT OF COMMERCE

Proposed Program of The Department of Commerce in Telecommunications FY 1971 and FY 1972

- I Federal Frequency Assignment Support IRAC support NECAF (Resubmit in FY 1972)
- II Analysis for Policy Formulation Information base and analysis support to OTP\* Standards policy State and local government advisory services Education for telecommunications management and policy
- III Systems Telecommunications systems analysis Electrospace resource sharing and utilization Standards development
  - IV Electromagnetic Wave Propagation Electromagnetic wave research and engineering

\* Some current issues:

Frequency sharing between defense ground forces
 and public safety services (per R. Lowe)
Federal data communications
Federal performance standards
Urban communications
Federal procurement policies

Agenda Item 5 7/31/70

## Proposed Reallocation of DTM Functions between OTP and DoC

| OTP   | DOC   |
|---|---|
|   |   |
| Executive Direction<br>Legal Counsel<br>Executive Assistance  |   |
|   |   |
| International Policy  | Technological Forecasting   |
|   |   |
| National Policy<br>National Communication Syst.<br>Telecommunication Policy<br>Emergency Preparedness | State-Local Advisory  |
| Teleprocessing  | Compacibility (Systems)   |
|   |   |
| Spectrum Management   | Radio Frequency Usage<br>Resource Utilization   |
| IRAC Liaison  | Frequency Assignment Records<br>Compatibility (Electromagnetic  |
|   | OTP<br>Executive Direction<br>Legal Counsel<br>Executive Assistance<br>International Policy<br>National Policy<br>National Communication Syst.<br>Teleprocessing<br>Spectrum Management<br>IRAC Liaison |

Agenda Item 5 (Conf). 7/31/70

# Proposed Reallocation of DTM Positions Between

OTP and DoC

|                                  | Existing |     | Reallo |    | cated |    |
|----------------------------------|----------|-----|--------|----|-------|----|
|                                  | DT       | M   | 01     | TP | D     | oC |
| DTM Functions                    | P*       | C*  | P      | C  | P     | C  |
|                                  |          |     |        |    |       |    |
| Office of the Director           |          |     |        |    |       |    |
| Executive Direction              | 2        | 2   | 2      | 2  | 0     | 0  |
| Legal Counsel                    | 1        | 1   | 1      | 1  | 0     | 0  |
| Executive Assistance             | 1        | 2   | 1      | 2  | 0     | 0  |
| International Telecommunications |          |     |        |    |       |    |
| Associate Director               | 1        | 1   | 1      | 1  | 0     | 0  |
| Advanced Technology              | 2        | 2   | 0      | 0  | 2     | 2  |
| National Telecommunications      |          |     |        |    |       |    |
| Associate Director               | 1        | 1   | 1      | 1  | 0     | 0  |
| National Communication System    | 1 1/     | 2 0 | 1      | 0  | 0     | 0  |
| Domestic Telecommunications      | 1 1/     | 2 0 | 2      | 0  | 0     | 0  |
| Telecommunication Readiness      | 1 1/     | 2 2 | 1      | 2  | 0     | 0  |
| Federal-State Telecommunications | . 1,     | 2 1 | 0      | 0  | 1     | 1  |
| Standards                        | 1        | 0   | 0      | 0  | 1     | 0  |
| Teleprocessing                   | 1        | 0   | 1      | 0  | 0     | 0  |
| Enequency Management             |          |     |        |    |       |    |
| Associate Director               | 1        | 2   | 1      | 0  | 0     | 2  |
| Frequency Usage                  | 5        | 2   | 0      | 0  | 5     | 2  |
| Enequency Engineering            | 1        | 0   | 0      | 0  | 1     | 0  |
| IRAC Secretariat                 | 3        | 18  | 1      | 0  | 2     | 18 |
| Spectrum Development             | 2        | 2   | 0      | 0  | 2     | 2  |
| Total                            | 27       | 36  | 13     | 9  | 14    | 27 |

\* P = Professional

C = Clerical

Agenda Item 6 7/31/70

#### U. S. Department of Commerce

Initial Organization of the National Bureau of Telecommunications



Office of Telecommunications 7/30/70

#### DEPARTMENT OF COMMERCE

Proposed DoC Funding Plan Summary\* FY 1971 Supplemental and FY 1972 (Program Memorandum Draft of June 10, 1970)

| Pro | ogram Subcategory                       | FY 71<br>Budget | FY 71<br>Supp. | FY 71<br>Total | FY 72<br>Request |
|-----|---|-----------------|----------------|----------------|------------------|
| I.  | Federal Frequency<br>Assignment Support | 478             | 1,432          | 1,910          | 3,500            |
| II. | Analysis for Policy<br>Formulation      | 0               | 2,090          | 2,090          | 3,720            |
| III | Systems                                 | 920             | 1,680          | 2,600          | 2,690            |
| IV. | Electromagnetic Wave<br>Propagation     | 913             | -(143)         | 770            | 840              |
|     | Total Direct Financing                  | 2,311           | 5,059          | 7,370          | 10,750           |
|     | Other Federal Financing                 | 3,500           | 0              | 3,500          | 4,000            |
|     | Total Funding                           | 7,811           | 5,059          | 10,870         | 14,750           |

\* Dollars in thousands

Estimated Distribution of OTD Budget Request

| Present level of operating (63 position<br>Present level of contracting<br>Present level  | ons)                   | 1,315<br>480      | 1,795          |
|---|------------------------|-------------------|----------------|
| NECAF<br>New Positions (14 @ 14k)<br>Increased level of contracting<br>Requested increase |                        | 906<br>199<br>400 | 1,505          |
| Total requested   |                        |                   | 3,300          |
| Allowed<br>Required reduction from requested le   | evel                   |                   | 2,000<br>1,300 |
| Detail of reductions<br>NECAF<br>New positions (-10)<br>Contracts                         | - 906<br>- 94<br>- 300 |                   |                |

Total reductions 1,300

PROPOSED REALLOCATION OF OTP FUNDS\*

|      |                   | 0.0010   |  |  | ander fordet van de gewene de sense des   |
|------|-------------------|--|--|--|---|
| Pos. | \$ .              | Pos.   | \$   | Pos.   | Ş   |
| 63   | 1315              | 22   | 440  | 41   | 875   |
|      | 480               |  | 480  |  | 0   |
|      | .0                |  | 0  |  | 0   |
|      | 105               | 3  | 105  |  |   |
|      | 100               |  | 0  |  | 100   |
|      | 2,000             | 25   | 1025   | 41   | 975   |
|      | DTM<br>Pos.<br>63 | DTM<br>Pos. \$<br>63 1315<br>480<br>0<br>105<br>100<br>2,000 | DTM         OTP           Pos.         \$         Pos.           63         1315         22           480         0         0           105         3         100           2,000         25 | DTM         OTP           Pos.         \$         Pos.         \$           63         1315         22         440           480         480         480           0         0         0           105         3         105           100         0         0           2,000         25         1025 | DTM         OTP         DoC           Pos.         \$         Pos.         \$         Pos.           63         1315         22         440         41           480         480         480         41           0         0         0         105           105         3         105         105         1025           2,000         25         1025         41 |

\*Dollars in Thousands

\*\*At an actual cost per position of approximately \$30 K in accordance with DTM and OT experience, these funds will support respectively:

| DTM<br>OTP | $\frac{44}{15}$ | positions |
|------------|-----------------|-----------|
| DoC        | 29              |           |

The required reductions are respectively:

| OTP | -  | 7 | positions |
|-----|----|---|-----------|
| DoC | -1 | 2 | positions |

# 15 OCT 1970

Honorable Maurice H. Stans Secretary of Commerce Washington, D. C. 20239

Dear Mr. Secretary:

In line with earlier discussions concerning telecommunications activities, I am enclosing a Memorandum of Agreement for your signature to accomplish the transfer of the Interdepartment Radio Advisory Committee Secretariat, together with appropriate personnel, property, and funds from the Office of Telecommunications Policy to the Department of Commerce.

The Momorandum of Agreement has been coordinated by my staff with your Office of Telecommunications. I have already signed the Agreement, and if you will similarly execute the document and return a copy to me, it will then be possible to proceed with the transfor.

Sincerely,

Clay T. Whitehead

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Attachment

FSUrbany:lmc:10/15/70

cc: Mr. Whitehead (2) Subject file Reading file
# MEMORANDUM OF AGREEMENT BETWEEN THE OFFICE OF TELECOMMUNICATIONS POLICY AND THE DEPARTMENT OF COMMERCE

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Reorganization Plan No. 1 of 1970, Executive Order 11556, "Assigning Telecommunications Functions," and the Office of Management and Budget Determination Order, effective 1 October 1970, authorize the transfer of certain functions, personnel, funds, records, and resources from the Office of Emergency Preparedness to the Office of Telecommunications Policy.

In consonance with these directives, the Office of Telecommunications Policy and the Department of Commerce hereby enter into an agreement as follows:

1. The Interdepartment Radio Advisory Committee (IRAC) will continue as an advisory body to the Office of Telecommunications Policy. The IRAC Secretariat in the Office of Telecommunications Policy, however, shall be transferred to the Department of Commerce effective 18 October 1970. A total of 21 personnel (see attached schedule) performing various duties relating to the functions of IRAC and funds for salaries in the amount of \$208,000 will be transferred to support such personnel and activities.

2. The IRAC Secretariat shall continue to occupy space in the Office of Telecommunications Policy pending the preparation of adequate facilities within the Department of Commerce. Physical transfer of the IRAC Secretariat personnel, property, and records to the Department of Commerce, however, shall take place on or about 1 January 1971.

3. Computer support for the IRAC Secretariat will be furnished without charge for the remainder of FY 1971 by the Office of Emergency Preparedness pursuant to a prior agreement arrived at between the Office of Telecommunications Policy and the Office of Emergency Preparedness. 4. Coordination of specific details relative to the above transfer will be accomplished by the administrative staffs of the respective agencies.

This Agreement will be effective 18 October 1970.

Accepted:

.....

Clay T. Whitehead Director, Office of Telecommunications Policy Maurice H. Stans Secretary of Commerce

Date:

Dates

. . .

Attachment

# ATTACHMENT

| Kirkevold, Chester R.         |     | GS-15       |
|-------------------------------|-----|-------------|
| Stelsenmuller, George V., Jr. |     | GS-15       |
| Filinski, Benjamin W.         |     | GS-14       |
| Payrode, Elmer C.             |     | GS-13       |
| Dinbla Edwin K.               |     | GS-12       |
| Dealaw Halan D.               |     | GS-11       |
| The Billiam IJ III            |     | GS-11       |
| Jamm, Willight in , and       | 4 5 | GS-11       |
| Sarkesain, Leon 4.            |     | 65.9        |
| Dhue, Josephine               |     | CS_0        |
| Thrift, Evelyn L.             |     | 00-7 .<br>  |
| Sears, Arthur L.              |     | GD=7        |
| Butler, Edward A.             |     | GS-7        |
| Sterner, Edythe N.            |     | GS-7        |
| Sweitzer. Robert F., Jr.      |     | GS-7        |
| Burns, Elizabeth              |     | GS-6        |
| Lloyd, Carolyn P.             |     | GS-6        |
| Diehong Mathilda F.           |     | GS-5        |
| Desere Janico E.              |     | <b>GS-5</b> |
| Frezes, vance w               |     | GS-5        |
| Cienrinann, Liebta Lie        |     | GS-5        |
| Stoops, Adene D.              |     | Active - A  |
| 1 vacancy                     |     |             |

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#### EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF TELECOMMUNICATIONS POLICY

WASHINGTON, D.C. 20504

Date: October 23, 1970

Subject: Guidance for Commerce

To: Mr. C. T. Whitehead Via: Dr. G. F. Mansur

> 1. This is in response to your query of October 21, as to what measures might be taken to exercise adequate supervision over the support functions of the Department of Commerce.

2. It is recommended that:

a. A series of guidance letters be furnished to the Department setting forth guidelines which will permit them to conduct planning (personnel, budgetary, organization, etc.) in those areas wherein OTP considers that support should be rendered by the Department. In the Frequency Management area, letters on the following subjects are envisaged:

- i. IRAC Support (See October 14 letter attached)
- ii. EMC Analysis Capability (Submitted for transmittal on October 20)
- iii. Data Base Support
- iv. ADP Support
- v. Standards affecting RF Spectrum
- vi. Monitoring
- vii. Propagation

It is submitted that these letters should be forwarded on a "gradual" basis, since Commerce will not be able to cope with them simultaneously and different organizations within the Commerce structure will undoubtedly be called upon to provide support depending upon the issues involved. b. Kandoian/Richardson and Dean conduct monthly meetings in frequency area to review the guidelines set forth in a. above and report status to the principals (two meetings have already been held with respect to the reaccommodation of the IRAC Secretariat). Similar meetings should be held in other areas.

Note: Have coordinated concept of (a) and (b) above with Kandoian, who is in complete agreement.

c. A mechanism be established to ensure that the coordination arrangements forwarded by your memorandum to Tribus of August 19, 1970 (copy attached) are understood and complied with.

d. A procedure be established for the orderly development and coordination of budgets. In the opinion of the undersigned this budgetary item, is of sufficient importance to warrant the Office obtaining the services of someone imminently well qualified in the budgetary process. The FCC currently has two ex-BOB FCC budget examiners working on their Planning Committee. Unless OTP has similar capability, it is submitted that we will have difficulty "keeping up". With respect to the FY73 budget, it is recommended that monthly meetings be held, starting now, on a formal and regular basis with both the Commission and the Department of Commerce to ensure adequate coordination and, in the case of the latter, to provide positive guidance.

3. The foregoing is submitted to stimulate thinking and further discussions among the senior staff would seem appropriate to bring the issues into clearer focus.

W. Dean, Jr.

Attachments

EXECUTIVE OFFICE OF THE PRESIDENT **OFFICE OF TELECOMMUNICATIONS POLICY** WASHINGTON, D.C. 20504

OFFICE OF THE DIRECTOR

mer Dean

· October 14, 1970

Honorable Myron Tribus Assistant Secretary for Science

and Technology Department of Commerce Washington, D. C. 20320

Dear Dr. Tribus:

O Guelonal 5 Werdunated Willi Ridiandian frin Thanking (letters, O General approach (letters, muchly frutings, the) muchly frutings, the) an 10/22/70 Pursuant to the President's Reorganization Plan No. 1 of 1970, Executive Order 11556 assigns telecommunications policy responsibilities to the Director of the Office of Telecommunications Policy and certain support functions to the Department of Commerce. This letter provides guidance to the Department in assisting the Office in the radio frequency area and deals-primarily with support of the Interdepartment Radio Advisory Committee (IRAC).

It is planned to continue the IRAC in an advisory capacity to this Office. The Committee is supported by a Secretariat, structured as set forth in enclosure 1, which is scheduled to be transferred to the Department of Commerce.

One of the vital tools to effective frequency management is the availability of a file of current frequency assignment records with the capability of ready access for rapid retrieval. Such a file has evolved over the years and now contains some 122,000 records, being maintained by means of automatic data processing, using an UNIVAC 1108 in the EXEC VIII Mode, under the control of the National Resources Analysis Center, Office of Emergency Preparedness. Input to, maintenance of and retrieval from the files are performed by personnel of the Secretariat using procedures in enclosures 2 and 3.

The activities in the preceding paragraph include the processing of applications on a continuing day-to-day basis averaging some 4500 a month, special retrievals of about

500 a year, and the production of some 30 recurring publications totaling over 5 million pages a year (see enclosure 4). The transfer of these functions to your Department will require close coordination between our staffs to prevent interruption to or degradation of the service which is relied upon heavily by the Executive Branch Departments and Agencies.

Additional background is provided in the Manual of Regulations and Procedures for Radio Frequency Management as promulgated by the Director of Telecommunications Policy.

To facilitate future planning, enclosure 5 sets forth a 7 general outline of support functions envisaged for the Department of Commerce in the radio frequency area. These functions are recognized as being of considerable magnitude, capable of being undertaken only in a gradual manner commensurate with available budgetary and personnel support. At the appropriate time, guidance will be forwarded with respect to the remainder of the functions therein.

Rest assured that this office is prepared to lend every practicable assistance toward the attainment of improved radio frequency management at the national level.

Sincerely,

George J. Mansur

George F. Mansur

Enclosures

| SUBJECT   | ENC, NO. |
|---|----------|
| Staffing of IRAC Secretariat  | . 1      |
|   |          |
| Frequency Assignment Subcommittee Processing<br>Procedures                            | 2        |
| Frequency Management and Records System - Opera-<br>tions Manual (Volumes I thru III) | 33       |
| Recurring Publications Related to Radio Frequency<br>Records                          | 4        |
| Department of Commerce (DOC) Support of the DTP<br>in the Radio Frequency Area        | 5        |
|   |          |

DEPARTMENT OF COMMERCE (DOC) SUPPORT OF THE DTP IN THE RADIO FREQUENCY AREA

The DOC shall provide a research, engineering, analysis, and administrative capability in support of spectrum management. Specifically, the DOC shall be responsive to policy guidance and direction from the DTP with respect to:

- a) the provision of administrative and technical support required for the processing of Government frequency assignment applications, including:
- the provision of advice and assistance to Government agencies in the preparation of applications;
  - (2) the review of applications for compliance with regulations and procedures;
  - (3) the preparation and support for meetings of the Frequency Assignment Subcommittee of the Interdepartment Radio Advisory Committee; and
  - (4) the recording of frequency assignment actions and the timely production, publication, and distribution of records pertaining thereto.
- b) the development, maintenance, and operation of an ADP system that will serve the needs of the OTP and other Government agencies in the field of radio frequency management, including the provision of hardware and software required for:
  - (1) engineering analyses of proposed frequency uses;
  - (2) selecting and assigning frequencies;
  - screening and processing frequency applications;
  - (4) preparing agendas, minutes, and assignment actions;
  - (5) preparing lists of assignments;
  - (6) recording and analyzing frequency usage. data; and
  - (7) producing, publishing, and distributing, in a timely manner statistics, data, and analyses needed in support of frequency management.

- c) the development and maintenance of a data base that will serve the needs of OTP and other Government agencies in the areas of frequency allocation, assignment, and use; electromagnetic compatibility; and the social and economic aspects of spectrum usage.
- d) the provision of:
  - (1) an annual printing capability of some 2,000,000 pages, classified up to and including secret, by high speed printer, an additional 3,000,000 by conventional printing; and
  - (2) a computer capability comparable to and compatible with UNIVAC 1108 in EXEC VIII Mode with remote terminal capability operable in a classified and unclassified mode.
- e) the analysis of current and projected spectrum needs bearing upon Government and non-Government radio freguency allocations.
- f) the conduct of technical, economic, social, and systems analyses bearing on the use of the radio spectrum.
- g) the development of a comprehensive electromagnetic compatibility program, including analysis capabilities.
- h) the conduct of research programs in such areas as radio propagation, radio systems characteristics, operating techniques, and signal design, looking toward the implementation of techniques for improving the information content of emitted spectrum bandwidth and overall utilization of the radio frequency resource.
- i) the formulation of technical standards, minimum performance requirements, design objectives, and other technical criteria including necessary definitions and measurement techniques for promulgation as Federal Standards/criteria for improving radio frequency use.
- j) the preparation of type-approval performance tests of radio equipments with a view toward improved frequency usage.

k) the development of recommended technical limitations and criteria applicable to equipments and devices incidentally or unintentionally radiating radio energy while designed and used for other than communications-electronics purposes.

-3-

- the development of recommendations on standards for measuring and specifying radio interference in the several radio services.
- m) the development of recommended standards or technical guidelines for stipulating the minimum radio power required for the various categories of radio use and for various grades of service.
- n) the development of recommended inputs to International Radio Consultative Committee (CCIR).
- o) the maintenance of facilities for emergency relocation of OTP staff.
- p) such other tasks as the DTP may direct or assign.

#### THE WHITE HOUSE

WASHINGTON

August 19, 1970

#### MEMORANDUM FOR

Dr. Myron Tribus Assistant Secretary of Commerce for Science and Technology

Until now, our discussions of telecommunications have focused primarily on two areas: (1) the functions of the OTP and the DOC, and (2) the scope and size of the DOC supplemental appropriations for FY 71. In order to make sense of these, however, it seems that we should also address at this time a broader range of related issues: (3) rationale for the supplemental, (4) future plans for DOC program and organization, (5) management procedures to assure effective support of OTP objectives by DOC and related OTP support of DOC plans and programs, and (6) administrative arrangements for transfer of frequency assignment personnel to DOC.

I think it is clear from our previous discussion that we cannot arrive at an appropriate supplemental figure without considering the rationale to be developed for OMB and Congress. Further, OTP support of the DOC proposals before OMB and Congress has to be contingent on this broader perspective. I have set out below our views on these six areas as a basis for our discussions.

 We are agreed that the statement of the functions of DOC in this area is to be broad to permit whatever studies and support efforts in telecommunications might subsequently be agreed to by OTP and DOC.

OMB-feels that a supplemental for DOC of \$1 - 2 million is appropriate. We have not yet had the opportunity to review the DOC plans in detail, but feel that something between the OMB concept and the tentative \$5 million DOC figure is -----desirable.

3. The rationale for the supplemental is that DOC has been tasked with new responsibilities as a result of the executive order and that several studies in support of OTP are urgently needed. We believe that we can convince OMB to agree to something in the range of \$2 - 3 million, and that this is consistent-with a final Congressional approval of \$2 million or so that should be adequate for our most important objectives.

-2-

Major changes in the organization or expenditures of DOC in connection with telecommunications may meet with significant resistance in Congress as is evidenced by the deletion of funding for NECAF in FY 71. Legislation may be required to establish the kind of operation DOC and OTP would like. Accordingly, planning to support a Bureau of Telecommunications must be extensive and rigorous, and the matter should be thoroughly coordinated with both Executive and Congressional branches of Government. This topic should be the subject of a continuing dialogue between OTP and the DOC.

5. See attached sheet.

4.

6. Previous discussions between Lowe and Richardson of DOC and Mansur have led to a tentative agreement that the functions and personnel of the IRAC Secretariat should be transferred to DOC at the earliest practicable date. Since the function of the IRAC Secretariat is currently being performed with twenty-one people, it was also agreed that 21 organizational positions and funding corresponding to the salaries of the Secretariat (approximately \$300,000) would be transferred to DOC. Administrative arrangements remain to be completed and it is recommended that Commerce work with Ray O'Connell to plan space\_ and facilities so that the transfer can be effected within sixty to ninety days.

> Clay T. Whitehead --Special Assistant to the President

Attachment.

#### COORDINATION ARRANGEMENTS BETWEEN OTP AND DOC

1. The Director, OTP, should approve the work statements for all major contract studies executed in support of OTP responsibilities.

2. The Director, OTP, should be provided at least 15 days in advance of any public release, the results of all studies undertaken by DOC in support of OTP responsibilities.

<u>3. Requests from the Director, OTP</u>, for information or analyses will receive priority over other tasks undertaken by DOC in the spectrum management area.

4. The Director, OTP, shall keep the Secretary of Commerce fully informed on current and planned programs and activities, and the Secretary shall afford the Director the opportunity to review in advance DOC submissions to OMB and the Congress that are to be undertaken in support of OTP.

5. There should be free and frequent informal contact between the staff of OTP and the staff of DOC in the telecommunications area, except that any changes in the scope and activities of either office shall be coordinated only by the Director of OTP and an appropriate official of the Department.

6. The Director, OTP, and the senior DOC official in the telecommunications areas should meet frequently and periodically to assure that the programs and activities of the two offices are in accord. Office of Telecommunications Policy Route Slip

Wed

| . 5 NOV 1970 |                   | To                                       |
|--------------|-------------------|--|
|              | Clay T. Whitchead | - ~                                      |
|              | George F. Mansur  |  |
|              | William Plummer   |  |
|              | Wilfrid Dean      |  |
|              | Store Doyic       | C.T.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S.S. |
|              | Walt Hinchman     |  |
| -            | Charles Joyce     |  |
|              | William Lyons     |  |
|              |                   |  |

Eva Daughtrey Timmie White Judy Morton

REMARKS

Tom -

I um la suggest waking copies of this for circulation and holding a meeting on the subject best week. Attending : Whitehead Mansur Dean

Dayle I think there are one excellent suggestions & possibilities here. SCA P.N.

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If inclinen

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# EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF TELECOMMUNICATIONS POLICY WASHINGTON, D.C. 20504

Date: November 4, 1970

Subject: Possible Detail of Personnel from Other Agencies

To: Mr. C. T. Whitehead

1. This is in response to our discussion of the above subject at the October 23 and 29 staff meetings.

2. An outline of some ideas follows:

| E. O. 11556<br>Paragraph<br>(See Attached) | Agency   | Subject  |
|--|--|--|
| 2(1)                                       | Justice -<br>Law Enforcement<br>Assistance<br>Administration | Telecom assistance to<br>State and local police  |
| 2(d)                                       | State  | Preparation for Plenipotentiary<br>Conference, September 1973  |
| 2(d)                                       | Transportation or<br>Commerce (Maritime<br>Administration)   | Preparation for Maritime Mobile<br>WARC, 1st quarter 1974  |
| 2(h), 2(f)<br>7, 8                         | Defense  | National security, emergency<br>preparedness, mobilization,<br>NCS (Already Underway)                            |
| 2(g)                                       | GSA  | Review R&D and telecom systems<br>for duplication, inefficiency,<br>etc., and make recommendations<br>on funding |
| 9  | NASA   | Space communications   |
| 2(k)                                       | Commerce 2<br>NB5 2  | Teleprocessing   |

E. O. 11556 Paragraph (See Attached)

#### Subject

Justice

Agency

Complete update and revision of Communications Act of 1934

All have been

Wired city concept

HUD (Asst. Secretary for Model Cities)

-2-

The foregoing are arranged (roughly) in the order of desirability/ probability. The first one has some interesting and unique features, e.g.:

1. Para 2(1) in E. O. 11556 is a new function, i.e. OTM did not have it. Therefore, nothing is currently being done in this area.

2. There is a real need to provide national telecom assistance to State and local police. It can be provided as one specialized function of the overall mission of LEAA.

3. There would be substantial appeal with the public, the press, and the White House.

4. LEAA carries out its function primarily through the provision of funds, and they are always looking for ways to spend money.

5. With the exception of one graduate EE, LEAA has no one they could detail. But since they do have money, we would be in a better position to pick the man.

6. A man could be picked who knows both the frequency game and the police requirements, since such people already work in the APCO setup. In fact, APCO could be asked to recommend someone (additional propaganda value). APCO is Associated Public-Safety Communications Officers, the national communications association for police, fire, etc.

3. The foregoing is to stimulate thinking in this regard and perhaps to be the subject for further consideration at a future staff meeting. I would appreciate your guidance before proceeding further.

Dean, Jr.

Attachment

C.C. G.F. Mansor

#### ASSIGNING TELECOMMUNICATIONS FUNCTIONS

By virtue of the authority vested in me by section 301 of title 3 of the United States Code, and as President of the United States, and in consonance with the intention expressed in my message to the Congress transmitting Reorganization Plan No. 1 of 1970, it is hereby ordered as follows:

SECTION 1. Amended and superseded orders. Executive Orders Nos. 10705 of April 17, 1957, 11051 of September 27, 1962, 11191 of January 4, 1965, and 11490 of October 28, 1969, and the President's Memorandum of August 21, 1963, headed "Establishment of the National Communications System" (28 F.R. 9413) are amended as provided herein. Executive Orders Nos. 10695-A of January 16, 1957, 10995 of February 16, 1962, and 11054 of February 15, 1963, to the extent not heretofore made inapplicable, are hereby revoked.

SEC. 2. General functions. Subject to the authority and control of the President, the Director of the Office of Telecommunications Policy (hereinafter referred to as the Director) shall:

(a) Serve as the President's principal adviser on telecommunications.

(b) Develop and set forth plans, policies, and programs with respect to telecommunications that will promote the public interest, support national security, sustain and contribute to the full development of the economy and world trade, strengthen the position and serve the best interests of the United States in negotiations with forcign nations, and promote effective and innovative use of telecommunications technology, resources, and services. A gencies shall consult with the Director to insure that their conduct of telecommunications activities is consistent with the Director's policies and standards.

(c) Assure that the executive branch views are effectively presented to the Congress and the Federal Communications Commission on telecommunications policy matters.

(d) Coordinate those interdepartmental and national activities which are conducted in preparation for U.S. participation in international telecommunications conferences and negotiations, and provide to the Secretary of State advice and assistance with respect to telecommunications in support of the Secretary's responsibilities for the conduct of foreign affairs.

(e) Coordinate the telecommunications activities of the executive branch and formulate policies and standards therefor, including but no! limited to considerations of interoperability, privacy, security, spectrum use and emergency readiness.

(f) Evaluate by appropriate means, including suitable tests, the capability of existing and planned telecommunications systems to meet national security and emergency preparedness requirements, and report the results and any recommended remedial actions to the President and the National Security Council.

(g) Review telecommunications research and development, system improvement and expansion programs, and programs for the testing, operation, and use of telecommunications systems by Federal agencies. Identify competing, overlapping, duplicative or inefficient programs, and make recommendations to appropriate agency officials and to the Director of the Office of Management and Budget concerning the scope and funding of telecommunications programs.

(h) Coordinate the development of policy, plans, programs, and standards for the mobilization and use of the Nation's telecommunications resources in any emergency, and be prepared to administer such resources in any emergency under the overall policy direction and planning assumptions of the Director of the Office of Emergency Preparedness. 14194

(i)-Develop, in cooperation with the Federal Communications Commission, a comprehensive long-range plan for improved management of all electromagnetic spectrum resources.

(j) Conduct and coordinate economic, technical, and systems analyses of telecommunications policies, activities, and opportunities in support of assigned responsibilities.

 $\sim$  (k) Conduct studies and analyses to evaluate the impact of the convergence of computer and communications technologies, and recommend needed actions to the President and to the departments and agencies.

 (1) Coordinate Federal assistance to State and local governments in the telecommunications area.

(m) Contract for studies and reports related to any aspect of his responsibilities.

SEC. 3. Frequency assignments. The functions transferred to the Director by section 1 of Reorganization Plan No. 1 of 1970 include the functions of amending, modifying, and revoking frequency assignments for radio stations belonging to and operated by the United States, or to classes thereof, which have heretofore been made or which may be made hereafter.

SEC. 4. War powers. Executive Order No. 10705 of April 17, 1957, headed "Delegating Certain Authority of the President Relating to Radio Stations and Communications", as amended, is further amended by:

(a) Substituting for subsection (a) of section 1 the following: "(a) Subject to the provisions of this order, the authority vested in the President by subsections 606 (a), (c), and (d), of the Communications Act of 1934, as amended (47 U.S.C. 606 (a), (c) and (d)), is delegated to the Director of the Office of Telecommunications Policy (hereinafter referred to as the Director). That authority shall be exercised under the overall policy direction of the Director of the Office of Emergency Preparedness."

(b) Substituting for the text "subsections 305(a) and 606(a)" in \_ subsection (b) of section 1 the following: "subsection 606(a)".

SEC. 5. Foreign government radio stations. The authority to authorize a foreign government to construct and operate a radio station at the seat of government vested in the President by subsection 305(d) of the Communications Act of 1934, as amended (47 U.S.C. 305(d)), is hereby delegated to the Director. Authorization for the construction and operation of a radio station pursuant to this subsection and the assignment of a frequency for its use shall be made only upon recommendation of the Secretary of State and after consultation with the Attorney General and the Chairman of the Federal Communications Commission.

SEC. 6. Office of Emergency Preparedness. (a) Executive Order No. 11051 of September 27, 1962, headed "Prescribing Responsibilities of the Office of Emergency Planning in the Executive Office of the President", as amended, is further amended by:

(1) Deleting subsection 301(4) and renumbering subsection 301(5) as subsection 301(4).

(2) Substituting for section 306 the following:

"SEC. 306. Emergency telecommunication.-The Director shall be responsible for providing overall policy guidance to the Director of the Office of Telecommunications Policy in planning for the mobilization of the Nation's telecommunications resources in time of national emergency." (3) Deleting tion 406.

SEC. 7. Emergency preparedness. Executive Order No. 11490 of October 28, 1969, headed "Assigning emergency preparedness functions to Federal departments and agencies," as amended, is hereby further amended (1) by substituting "Policy (35 F.R. 6421)" for "Management (OEP)" in section 401(27), and (2) by substituting the number of this order for "10995" in section 1802 and in section 2002(3).

SEC. 8. National Communications System. The President's Memorandum of August 21, 1963, headed "Establishment of the National Communications System" (28 F.R. 9413), is amended by:

- (a) Substituting the following for the first paragraph after the heading "Executive Office Responsibilities":

"The Director of the Office of Telecommunications Policy shall be responsible for policy direction of the development and operation of the National Communications System and shall:"

(b) Substituting the term "Director of the Office of Telecommunications Policy" for the term "Special Assistant to the President for Telecommunications" wherever it appears in said memorandum.

SEC. 9. Communications Satellite Act of 1962. Executive Order No. 11191 of January 4, 1965, headed "Providing for the Carrying Out of Certain Provisions of the Communications Satellite Act of 1962", is amended by:

(a) Substituting the following for subsection (c) of section 1:

"(c) The term 'the Director' means the Director of the Office of Telecommunications Policy.", and

(b) Substituting the following for the eatchline of section 2: "Director of the Office of Telecommunications Policy."

SEC. 10. Advisory committees. As may be permitted by law, the Director shall establish such interagency advisory committees and working groups composed of representatives of interested agencies and consult with such departments and agencies as may be necessary for the most effective performance of his functions. To the extent he deems it necessary to continue the Interdepartment Radio Advisory Committee, that Committee shall serve in an advisory capacity to the Director. As may be permitted by law, the Director also shall establish one or more telecommunications advisory committees composed of experts in the telecommunications area outside the Government.

SEC. 11. Rules and regulations. The Director shall issue such rules and regulations as may be necessary to carry out the duties and responsibilities delegated to or vested in him by this order.

SEC. 12. Agency assistance. All executive departments and agencies of the Federal Government are authorized and directed to cooperate with the Director and to furnish him such information, support and assistance, not inconsistent with law, as he may require in the performance of his duties.

Suc. 13. Functions of the Scoretary of Commerce. The Secretary of Commerce shall support the Director in the performance of his functions, shall be a primary source of technical research and analysis and, operating under the policy guidance and direction of the Director, shall:

(a) Perform analysis, engineering and administrative functions, including the maintenance of necessary files and data bases, responsive to the needs of the Director in the performance of his responsibilities for the management of the radio spectrum.

(b) Conduct technical and economic research upon request to provide information and alternatives required by the Director.

• (c) Conduct research and analysis on radio propagation, radio systems characteristics, and operating techniques affecting the utilization of the radio spectrum in coordination with specialized, related research and analysis performed by other Federal agencies in their areas of responsibility.



### THE PRESIDENT

(d) Conduct research and analysis in the general field of telecommunication sciences in support of other Government agencies as required and in response to specific requests from the Director.

(c) Conduct such other activities as may be required by the Director to support him in the performance of his functions.

Suc. 14. Retention of cristing authority. (a) Nothing contained in this order shall be deemed to impair any existing authority or jurisdiction of the Federal Communications Commission. In carrying out his functions under this order, the Director shall coordinate his activities as appropriate with the Federal Communications Commission and make appropriate recommendations to it as the regulator of the private sector.

(b) Except as specifically provided herein, nothing in this order shall be deemed to derogate from any existing assignment of functions to any other department or agency or officer thereof made by statute, Executive order, or other Presidential directives.

Richard Wigen

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Тив WHITE House, September 4, 1970. [F.R. Doc. 70-12017; Filed, Sept. 4, 1970; 4:55 р.m.]



FEDERAL REGISTER, VOL. 35, NO. 175-WEDNESDAY, SEPTEMBER 9, 1970

### EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF TELECOMMUNICATIONS POLICY WASHINGTON, D.C. 20504

marc

Date: November 25, 1970

Subject: Budget Estimate for Fiscal Year 1972

To:

Mr. C. T. Whitehead Dr. G. F. Mansur Mr. Frank Urbany Mr. Walter Hinchman

Attachment is forwarded for information.

Objective is to provide guidance to Department of Commerce re FY 72 Budget for the frequency management area.

W. Jr. Dean,

Att.

# EXECUTIVE OFFICE OF THE PRESIDENT, OFFICE OF TELECOMMUNICATIONS POLICY WASHINGTON, D.C. 20504

Date: November 25, 1970

Subject: Budget Estimate for Fiscal Year 1972

5

To: Mr. A. Kandoian

Pursuant to our discussion on November 18, enclosed is my estimate of the budgetary requirement for the frequency management support to be provided by the Department of Commerce during Fiscal Year 1972.

Dean,

Enclosure

#### DRAFT BUDGET FOR FISCAL YEAR 1972 FOR COMMERCE SUPPORT OF FREQUENCY MANAGEMENT 3

- I. Introduction
- Commerce. Support to OTP II.
  - A. Current Capabilities
  - B. Development and Improvement of Frequency Management Support Programs
    - 1. Electromagnetic Compatibility (EMC) Analysis
    - 2. Data Base
    - 3. Automatic Data Processing (ADP) Development
    - 4. Technical Standards and Requirements
    - 5. Measurement and Monitoring Capability

main a

III. Cost

- A. Costs Associated with Current Activity (Commerce/OTP) · · · ·
- B. Costs Associated with Development and Improvement of Frequency Management Support Programs

- -----

#### I. Introduction

The following sections provide a general discussion of the funds necessary to continue the day-to-day operation currently underway and to provide for further development and improvement of the Frequency Management Support Systems. Additional details for the development and improvement sections can be found in OTP memorandum, Subject: Commerce Support to OTP, dated November 10, 1970.

The cost sections do not include any funds for "Rent, Communications, Utilities" or any "Administrative Costs for Services Provided by Other Agencies." "Computer Support" funding of \$415,000 is shown as being budgeted by OTP for payment to NRAC through FY-72 (details of these costs are provided in Section IIIA). This item is still under consideration by OMB.

#### II. Commerce Support to OTP

A. Current Capabilities

With the transfer of 24 personnel from the Office of Telecommunications Policy (OTP), the filling of five vacancies, and assuming that adequate funding is available, the Department of Commerce (DOC) will have the capability to accomplish the following:

- the provision of administrative and technical support required for the processing of Government frequency assignment applications, including:
  - a. the provision of advice and assistance to Government agencies in the preparation of applications;
  - b. the review of applications for compliance with regulations and procedures;
  - c. the preparation and support for meetings of the Frequency Assignment Subcommittee of the Interdepartment Radio Advisory Committee; and
  - d. the recording of frequency assignment actions and the timely production, publication, and distribution of records pertaining thereto.
- the maintenance, and operation of an ADP system that will serve the needs of the OTP and other Government agencies in the field of radio frequency management, including:
  - a. limited engineering analyses of proposed frequency uses;

b. a limited capability for selecting frequencies;

- 'c. screening and processing frequency applications;
- d. preparing agendas, minutes, and assignment records;
- e. recording frequency usage data; and
- f. producing, publishing, and distributing, in a timely manner statistics, data, and analyses needed in support of frequency management.
- 3. the provision of:
  - a. an annual printing capability of some 2,000,000 pages, classified up to and including secret, by high speed printer, an additional 3,000,000 by conventional printing; and
  - b. a computer capability (UNIVAC 1108 in EXEC VIII Mode) through FY-72.

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- 4. the limited analysis of current spectrum needs bearing upon Government and non-Government radio frequency allocations.
- 5. a limited capability for the formulation of technical standards, minimum performance requirements, design objectives, and other technical criteria including necessary definitions for promulgation as Federal Standards/criteria for improving radio frequency use.
- 6. the maintenance of facilities for emergency relocation of OTP staff.
- 7. such other tasks consistent with the above capabilities as the DTP may direct or assign.
- B. <u>Development and Improvement of Frequency Management Support</u> Programs

In addition to the continuation of current support activities described above, new and enhanced capabilities are clearly required for improved management of the radio frequency spectrum. A number of areas requiring developmental activity were identified by OTP memo, Subject: Commerce Support to OTP, dated November 10, 1970. The following activities are responsive to requirements stated in that memo and are referenced to the appropriate enclosures thereto:

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#### 1. EMC Analysis

Research will be accomplished and action taken to modify and enhance the capability of the limited engineering support routines currently available in the OTP system. In addition, new facilities and capabilities will be developed for analysis of Government communications-electronics systems for assessment of their potential for electromagnetic compatibility with existing facilities. This capability will provide necessary guidance prior to systems procurement and will be structured in a manner to furnish support for the day-to-day decisions that must be made in the assignment of frequencies to Federal agencies and stations, and in the solution of interference problems. Attachments 1 and 2 to Enclosure 1 of the referenced OTP memo will be used as general guidelines in the structuring of these activities while recognizing the importance of the following factors in this endeavor:

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- a. the transfer of certain responsibilities from the OTP to the DOC; '
- b. current resources within the DOC that may be applicable to these tasks;
- c. the close inter-relationship between EMC analysis and areas identified in the other enclosures of the OTP memorandum;
- d. the likelihood that further guidance from the OTP may be imminent upon conclusion of certain contractual studies; and
- e. the necessity for according an absolute priority to those functions that will "keep the system running."

#### 2. Data Base

A "guide plan" for the evolutionary development of a data base required to meet the current and future needs of spectrum management is presented by the attachment to Enclosure 2 of the referenced OTP memo. This plan is based on the concept of a centralized "Basic Frequency Management Data Base" of a format and content paralleling that of the current OTP frequency assignment data base but recognizes the necessity for improvement and augmentation of the data now available. Supplementary data files, needed to support more rigorous technical analysis for EMC predictions for selected radio services, frequency bands and geographic areas are also envisioned in the "guide plan."

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A program will be initiated in FY-72 to establish and maintain a supplementary equipment characteristics file that will provide transmitter, receiver and systems parameters needed to supplement those available for spectrum engineering. This activity will involve the following tasks among others:

 a. determination of the requirements for specifics of equipment data;

b. establishment of an optimum format;

- c. provision for appropriate cross-reference between the equipment file and the basic frequency assignment-file;
- d. arrangements through and with the assistance of the OTP, for study of equipment data already collected by the DOD/ECAC with the view toward selective procurement of some or all of those data to serve as a starting base for the new file;
- e. development of procedures for updating of the file for approval of the OTP and implementation with participating agencies; and
- f. development of means for accessing equipment data for use in interference models, for selective display for manual engineering of specific problems, and for display in support of more generalized spectrum planning.

Another program will be initiated to provide for the consideration of terrain characteristics in EMC calculations and spectrum management decisions. The relative near-term advantages and costs of a digitized terrain file such as the geographically-limited one now in being at the DOD/ECAC as opposed to further development of the "terrain characterization" approach described in ESSA Tech Report ERL 79-ITS 67 will be evaluated. Both a short and a long-term program will be established in this vital area. The foregoing activities are in close support of the EMC Analysis program described under IIB1, above. Funding will therefore be derived from the figure shown with that activity. Further, the storage, manipulation and display of data in connection with these tasks will require ADP development and adjustments and therefore must be closely coordinated with activities described under IIB3, below.

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#### 3. ADP Development

During FY-72, it will be necessary to continue the support of the batch-oriented data processing system now operational until such time as the time-shared system initiated in FY-71 has been tested in a pilot operation. In addition, the time-shared system will require continued development and improvement. The data file structure study performed during FY-71, will require implementation. Programming services will be required to support the functions of the OTP represented in the accompanying paragraphs, specifically those involving the development and/or acquisition of additional data files, e.g., Terrain, and those requiring the development and/or acquisition of computer programs or models needed to utilize or analyze the data files.

The applicability of computer graphics terminal equipment to the solution of EMC problems should be investigated. The utilization of the various EMC analysis models in the conversational mode will require the development of imaginative techniques for the solicitation of appropriate input data from the user and the storage and presentation of output. The development and implementation of a spectrum monitoring facility will require the development of computer programs for the reduction and analysis of the monitoring data collected.

Implicit in the development of all the capabilities listed above is the successful development and implementation of a computer operating system that will permit the intermixing of programs accessing classified and unclassified data files in the same operating environment, utilizing both secure and open terminal equipment simultaneously.

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#### 4. Technical Standards and Requirements

The need for improved technical standards and related criteria affecting spectrum management is emphasized in Enclosure 4 of the OTP memorandum of November 10, 1970. Characteristics that are of prime importance to radio spectrum management are identified and certain radio systems and services are listed as requiring standardization of those characteristics.

In this connection, a study program will be initiated to:

- 6 -

- a. review technical standards and criteria affecting usage of the radio spectrum now in effect under the auspices of the OTP and the Federal Government agencies who are major users of the radio spectrum;
- b. revise current standards and develop new standards and criteria as appropriate for those communicationselectronics systems and services listed in the cited enclosure to the OTP memorandúm; and
- c. in connection with b., above, support the continuance and completion of standards now under development for high-powered radars and Government land mobile systems including the development of standardized measurement criteria and procedures to supplement other spectrum-related Federal standards, as appropriate.

The existing capabilities and experience of the Department of Commerce in the development of standards in related areas will be employed to the maximum extent feasible in the development of standards and criteria for spectrum conservation.

#### 5. Measurement and Monitoring Capability

A general statement of the requirement for development of a monitoring/measurement facility is contained in Enclosure 5 of the referenced OTP memorandum. A program will be initiated in FY-72 to provide a capability to ascertain the actual level of the use of the radio frequency spectrum in relation to time, space (location), and frequency. A capability will also be developed to measure the technical characteristics of radio signals for assessment of the interactions of such signals in the present environment and as a basis for optimization of the future use of the radio spectrum.

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This facility will provide the OTP, the DOC and cognizant agencies of the Federal Government with necessary data on:

a. levels of spectrum occupancy;

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 b. degree of compliance with existing regulations, standards and the terms of radio frequency assignments on the part of Federal users of the spectrum; and

c. technical measurements for solution of electromagnetic compatibility problems and the validation of models for EMC analyses.

The results of the current OTP study contract referenced in Enclosure 5 of the cited memorandum will be employed, as appropriate, in establishing the short and long-term configuration of this facility: Particular attention will be given to the cost/benefit analysis which is to be provided thereby and to the question of structuring the monitoring/measurement facility to fit properly among the various tools now available or under development for improved management of the radio spectrum.

Initial development will be in the cost-conscious initiation of a limited facility for monitoring levels of spectrum occupancy up to 18 GHz and the provision of a limited but selective capability for technical measurements for certain frequency bands and radio services. This capability will be designed for future expansion with a minimum degree of necessary modification. Funding for the initial equipment configuration, for software adaptation between the monitoring facility and the basic spectrum management data base and for testing of the facility are included. Decisions as to whether funds allocated for equipment procurement will be expended on a buy or lease basis will be deferred pending receipt of the results of OTP's study contract.

# III. Cost

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| Costs Associated with Current Activity (Con | merce)     |
|---|------------|
| Personnel Compensation                      | \$361,033* |
| Personnel Benefits                          | 28,833*    |
| Printing (Contrací)                         | 110,750**  |
| XEROX Rental (including paper, etc.)        | 12,425***  |
| Equipment Rental (includes UNIVAC 9300      |            |
| Computer Terminal Rental, Frostburg)        | 57,692     |
| Equipment Site Preparation, Frostburg       | 20,000     |
| Subscription Costs (ITU tapes, FCC tapes,   | ,          |
| IFL, etc.)                                  | 2,900      |
| Supplies (29 personnel @ \$100)             | 2,900      |
| Travel (including \$4000 for CSS)           | 7,000      |
| Furniture                                   | 2,000      |
| Other Objects                               | 1,000      |
|   |            |

Costs Associated with Current Activity (OTP)

| Computer time (360 hours' CPU)             | \$260,000 |
|--|-----------|
| Computer operators (5 1/4 people)          | 70,000    |
| Printed page output (1,275,000)            | 64,000    |
| Computer programmer (1 GS12 Mathematician) | 21,000    |

Sub-total

Sub-total

Grand total \$1,021,533

\$606,533

\$415,000\*\*\*\*

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\*See Attachment 1 for details.

\*\*See Attachment 2 for details. This does not include the cost of tabulations produced on the NRAC high speed printer, which will be borne by OTP during FY-72.

\*\*\*See Attachment 3.

\*\*\*\*NRAC support funded by OTP through FY-72. (Subject to change)

| 1   | 1     | EMC Analysis                             | \$1,000,000                    |
|-----|-------|--|--------------------------------|
| -   |       | bito mility 515                          | 1-9                            |
| 2   | 2.    | Data Base                                | (Cost included<br>in 1. above) |
| 3   | 3.    | ADP                                      | 350,000                        |
| . 4 | 4.    | Technical Standards and Requirements     | 100,000                        |
| 5   | 5.    | Measurement and Monitoring Capability    | ·,                             |
|     |       | a. Equipment Procurement                 | 750,000                        |
|     |       | b. Personnel/Software/Testing Expenses   | s 250,000                      |
| 5   | Staf: | f travel associated with the above items | 10,000                         |
|     |       | Total                                    | \$2,460,000                    |

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# FREQUENCY MANAGEMENT SUPPORT DIVISION Personnel Cost FY-72

| Name          | Date of In-Grade | Grade   | Salary           |
|---------------|------------------|---------|------------------|
| Kirkevold     | 12/9/69          | 15 7    | 27/(2            |
| Sterner       | 7/28/71          | . 75    | 2/403            |
|               |                  | 1.5     | . 91/8           |
| Filipski      | 7/13/71          | 14.5    | 22263            |
| Sarkesain     | 7/1/71           | 12.1    | 1/102            |
| Dhue          | 1/30/71          | 9.6     | 11526            |
| Staff Ass't   |                  | 9.5     | 11197            |
| Burns         | 3/10/71          | 6.8     | 8995             |
| Clerk (Diehl) | 1/1/72           | 5.1     | 6548             |
|               |                  |         | 0.70             |
| Rexrode       | 8/23/71          | - 13.2  | 17319            |
| Sears         | 7/1/71           | - 9.2   | 11905            |
| Sweitzer      | 12/1/71          | 7.4     | 8908             |
| Lloyd         | .7/1/71          | 7.5     | 917.8            |
| Gehrmann      | 7/31/71          | 5.10    | 8510             |
| Dishong       | 10/20/69         | - 5.8   | 8074             |
| Frazee        | 3/22/72          | 5.6     | 7638             |
| Stoops ,      | 5/31/69          | 5.4     | 7202             |
| Clerk         |                  | 4.5     | 6633             |
| Corrado       | 5/01/20          | w       |                  |
| Dinklo        | 5/31//2 · >      | 14.4    | 21608            |
| Barlow        | 1/25/72          | 12.3    | 15138            |
| Jahn          | 1/1//1           | 12.3    | 15138            |
| Thrift        | 1/20/71          | 11.3    | 12699            |
| Butlor        | 9720771          | 9.5     | 11197            |
| Clerk (Hazol) | 1/1/70           | 7.7     | 9718             |
| Clerk (Brady) | 1/1/70           | 5.1     | 6548             |
| offic (brady) | 1/1//2           | 5.1     | 6548             |
| Higgins .     | 6/28/71          | 1/ 0    | 00000            |
| Gamble        | 1/25/72          | 12 5    | 20298            |
| Garber        | 12/28/71         | 12 5    | 18996            |
| Secy          |                  | T7 ' 7  | 18996            |
|               |                  | <u></u> |                  |
|               | Totals           | 29      | <b>\$3</b> 61033 |
|               | Plus 8%          |         | 28883            |
| 5             | Grand Total      |         | \$389916         |

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Attachment 2

# Printing (Contract)

Detailed Breakdown for FY-72

| Della                   |                     |            |          |
|-------------------------|---------------------|------------|----------|
| Publication             | <u>Copies</u> Pages | Times/Year | Cost     |
| Vols I thru XX (Jan)    | 120 13,500          | 1          | \$24,000 |
| Vols I thru XX (Jul)    | 120 13,500          | 1          | 24,000   |
| Supplements             | 51 900              | 8          | 9,600    |
| Non-Government List     | 25 24,400           | 2          | 38,000   |
| Joint Military Overseas | 25 1,500            | 2 .        | 2,600    |
| Border Zone, Canada     | 22 322              | 4          | 550      |
| FAS Minutes             | 12 1,500            | 12         | 9,000    |
| AAG Minutes             | 15. 100             | 12         | 5,000    |
| MAG Minutes             | 16- 100             | 12         | 500      |
| Miscellaneous           | * • • •             | 12         | 500      |
|                         |                     |            | 2,000    |

Total \$110,750

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# XEROX Rental

Based on 375,000 copies a year at 1.875 cents a copy.

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| Copies | \$5,625  |
|--------|----------|
| Rent   | 4,800    |
| Paper  | 2,000    |
| Total  | \$12,425 |

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