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SB

MEMORANDUM

TO: AD/Deputy Administrator

FROM: S/Associate Administrator for Space Science

SUBJECT: Reorganization of the Life Sciences Program Division

REF: 1. NMI 1120.1B, Organizational Responsibilities, Structure and Changes Thereto, dated July 5, 1974
2. NMI 1138.14 Roles and Responsibilities, NASA Director for Life Sciences

The revision to reference 2, necessitated by the transfer and consolidation of all Life Sciences within the Office of Space Science and the concomitant reorganization is submitted for your approval.

The transfer of Life Sciences from the Office of Space Flight (OSF) has required a reclarification of the support and the methods of supplying support to OSF as well as the priorities in supporting Research and Technology. The inclusion of Planetary Biology and Quarantine functions in Life Sciences has provided an opportunity to combine all biological sciences within one office. The increasing emphasis on Shuttle/Spacelab payloads has given impetus to establishing a Life Sciences Payloads and Applications Office.

The enclosures to this memo describe the changes in each of these areas and the organizational changes we feel are required to accommodate these new interrelationships. No additions to personnel ceilings are required, one Excepted Position is to be recruited to replace Dr. Jones who has accepted the position of Director of Occupational Medicine in the Personnel Office.

Noel W. Hinners

Enclosures

PREPARED BY:SBC:WHShimel:mcp:3-15-76

GENERAL

BACKGROUND

The Life Sciences Directorate as it existed in September 1975 is shown on Figure 1. The divisional structure was discipline oriented and narrowly divided between hardware development, medical research, supporting bioenvironmental research, and hard line medical support to manned space flight.

The phasedown of the manned program and the maturing of the hardware development in support of the Space Shuttle provided the opportunity to increase the emphasis on basic medical and biological problem areas and potential flight payloads in support of such research. The new organization is shown on Figure 2.

FUNDING

The Agency Wide Coding Structure has been changed to reflect the inclusion of Planetary Biology and Planetary Quarantine (UPN 192 and 193) within the new Life Sciences Budget Line Item (BLI) and Cognizant Office Codes (88-820). A new UPN (199) has been established for Life Sciences SR&T and the existing UPN (970) has been transferred from OSF and included in the new BLI (88-820)

The funding has had incremental and decremental changes in this process, the primary one being the transfer of $3M of FY 1976 NOA to the Office of Space Flight to conduct developmental programs no longer considered within the purview of Life Sciences. All other changes were in support of the changes in direction, thrust and emphasis established with Life Sciences change of venue.

PERSONNEL

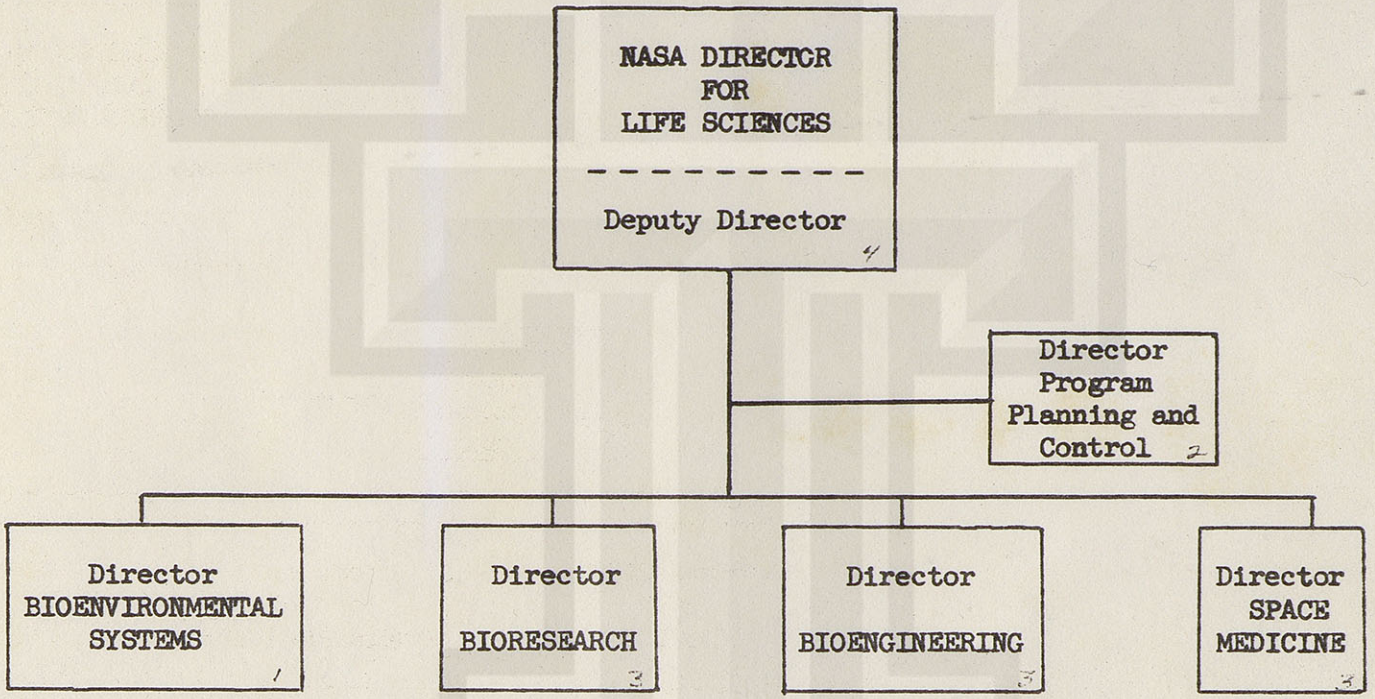
a. Compliment

No changes to compliment have been made, even though desired. One super grade position was lost through retirement prior to the assignment of Planetary Quarantine which is not reflected in the organization charts, the activities have been assumed by Biological Sciences along with those of Ecology and Wildlife Tracking without increase in personnel compliment.

b. Supergrades

Four supergrade positions have been impacted. Figure 3 is a From-To Table showing the changes. All but one are within the Life Sciences organization and no increase in quota is required. Position Descriptions for these billets are in the specific justifications which follow.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
OFFICE OF SPACE SCIENCE

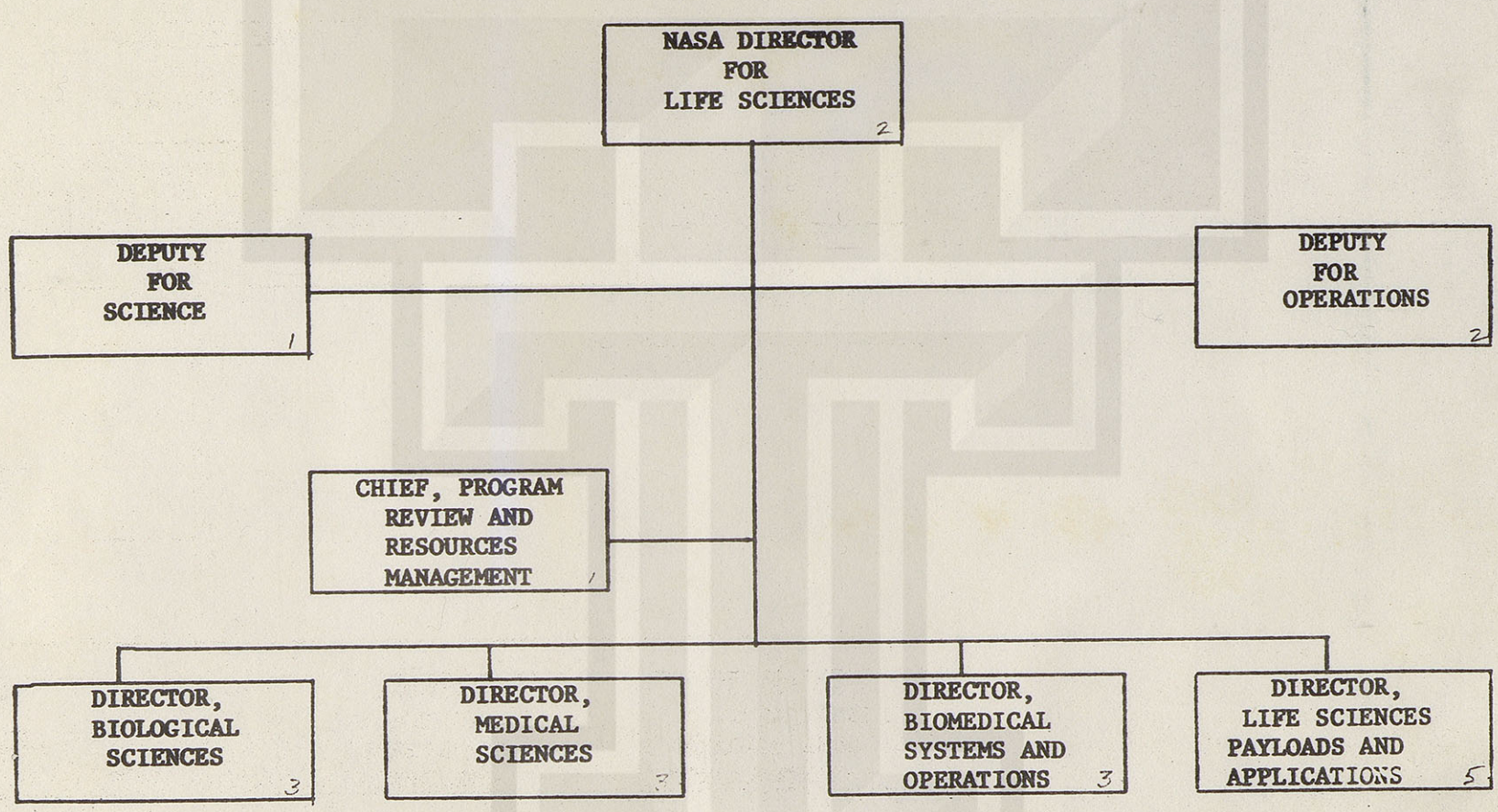


APPROVED: _____

DATE: _____

FIGURE 1

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
OFFICE OF SPACE SCIENCE



APPROVED: _____

DATE: _____

FIGURE 2

FIGURE 3

GS16 AND EXCEPTED
PERSONNEL CHANGES

FROM		TO	
NASA DEPUTY DIRECTOR FOR LIFE SCIENCES	x	DEPUTY DIRECTOR FOR SCIENCE	x
DIRECTOR, SPACE MEDICINE	x	DEPUTY DIRECTOR FOR OPERATIONS	x
Personnel		Personnel	
GS15-1			
GS7 -1		GS7 -1	
DIRECTOR, BIORESEARCH	16	DIRECTOR, MEDICAL SCIENCE	16
Personnel		Personnel	
GS15-0		GS15-1	
GS13-1		GS6 -1	
GS6 -1			
DIRECTOR, BIOENGINEERING	16	DIRECTOR, LIFE SCIENCES PAYLOADS & APPLICATIONS	16
Personnel		Personnel	
GS15-1		GS15-2	
GS13-1		GS14-1	
GS7 -1		GS7 -1	
CHIEF, PLANETARY BIOLOGY	16	DIRECTOR, BIOLOGICAL SCIENCES	16
Personnel		Personnel	
GS12-1		GS14-1	
GS7 -1		GS12-1	
		GS7 -1	

c. Life Sciences Division Staff

The Life Sciences staff consists of three positions; Deputy for Sciences, Deputy for Operations and Chief of Program Review and Resources Management. These functionally oriented positions provide the scientific, operational and administrative oversight of the Life Sciences Programs and between them are responsible for an integrated and cost effective long range program.

The position descriptions are enclosed and the delineation of their responsibilities are established in their individual texts.

d. Biological Sciences

This new office combines the functions of Planetary Biology and Planetary Quarantine, originally under the Planetary Programs Office of OSS, and the Space Biology responsibilities of the existing Bioresearch Division. This change places all Agency biological research under one director, allowing a more coordinated program, a single interface with the scientific community and a more efficient utilization of personnel.

The office will be staffed by two biologists and a technical assistant, all onboard presently. A brief listing of functional responsibilities is shown on Figure 4. This consolidation increases the responsibilities, both scientific and administrative, of the Chief, Planetary Biology who will be named as the Director of this office. This is a GS-16 position presently and these additional assignments make it mandatory that it remain at least at this level.

Position descriptions reflecting these new assignments are enclosed.

e. Medical Sciences

The Medical Sciences Program Office has been assigned the science and supporting bioinstrumentation research previously directed from the Bioresearch and the Bioengineering directorates. The rationale for the amalgam was the closer interface of the medical research and the instrumentation required for its conduct. Combination of these interacting efforts should provide more cost effective approaches toward the solution of our medical problems.

The office will be staffed by a physician and a bioinstrumentation engineer, both on-board presently. Their position descriptions are enclosed. A brief listing of functional responsibilities is shown on Figure 5.

BIOLOGICAL SCIENCES

FUNCTIONAL RESPONSIBILITIES

PLANETARY BIOLOGY

- Life Detection, origins, evolution and environment
- Bioinstrumentation
- Organic geochemistry

PLANETARY QUARANTINE

- Microbial Analysis
- Contamination Control
- Back contamination control

SPACE BIOLOGY

- Biological Effects in Space
- Biological Adaptation in space

UTILIZATION OF SPACE OBSERVATIONS TO TRACK WILDLIFE

ECOLOGY AND ENVIRONMENT

- Biospheric effects of atmospheric modifications

Figure 4

MEDICAL SCIENCES FUNCTIONAL RESPONSIBILITIES

CARDIOVASCULAR DECONDITIONING

SPACE MOTION SICKNESS

BONE ALTERATIONS

MUSCLE ALTERATIONS

BLOOD ALTERATIONS

FLUID & ELECTROLYTE CHANGES

PERFORMANCE AND BEHAVIOR

METABOLIC EFFECTS

RADIATION EFFECTS

PREFLIGHT DETECTION OF DISEASE

FIGURE 5

f. Biomedical Systems and Operations

This new office will assume the responsibilities of the Bioengineering, Bioenvironmental Systems and Space Medicine Divisions of the existing organization. All Life Sciences support to the Office of Space Flight will be directed from this office.

The office will be staffed by a Biomedical Engineer and a Flight Surgeon, both of whom are on-board at this time. The Flight Surgeon will be colocated in the Space Transportation System Operations Office in OSF, but will report hardline to the Director of Biomedical Systems and Operations.

Position descriptions for these positions are enclosed. A brief listing of functional responsibilities is shown on Figure 6.

g. Life Sciences Payloads and Applications

The functions of this office are almost totally new. The purpose in establishing this organization is to locate, under one director, coordination of all Life Sciences payloads activities and applications. The work initiated to develop Common Operational Research Equipment (CORE) begun in 1974, the flight experiments on the US/USSR Kosmos Program, the Biomedical Experiments Scientific Satellite (BESS) planning, the Vestibular Function Research (VFR) payloads and all planning for development and integration of Life Sciences payloads for Spacelab/Shuttle and future space systems will be directed from this office. This consolidation of functions into a single organization will permit more effective utilization of resources, reduce costs, provide for a single interface with the Principal Investigators, and will result in a more orderly, logical sequence of activities from the planning and development of experiments into an integrated long term Life Sciences Payloads Program.

Office staffing will include bioinstrumentation engineers, payload integration management specialists, flight systems program management specialists and biomedical systems design specialists. A brief listing of functional responsibilities is shown in Figure 7.

LONG RANGE PLANNING

This reorganization is required to implement that portion of the Agency Long Range Plan that consolidates all scientific research and flight payload activity within one major program office.

The establishment of Payloads and Applications within the Life Sciences Division is in consonance with the increasing emphasis on Life Sciences flight research in support of a continuing long range ground based search for the origins, development and improvement of Life on Earth.

BIOMEDICAL SYSTEMS AND OPERATIONS FUNCTIONAL RESPONSIBILITIES

STS SUPPORT

- Habitability Requirements
- Life Support Requirements
- Flight Line Medical Operations
- Medical Selection Criteria
- ~~Preflight Detection of Disease~~
- Maintenance of Crew Health
- Food logistic Systems

SR&T

- Advanced Life Support Systems
- Extravehicular Systems
- Man/Machine Design Requirements
- Advanced Teleoperator Technology

Aeronautics Support

FIGURE 6

LIFE SCIENCES PAYLOADS AND APPLICATIONS FUNCTIONAL RESPONSIBILITIES

FLIGHT PAYLOADS

- Short and Long Range Program Plans/Goals and Objectives
- Flight Experiment Management
- Life Sciences Addendum to Announcements of Opportunities
- Payload Planning and Development
- US/USSR International Experiments
- Common Operational Research Equipment (CORE)
- Biological Specimen Holding Facilities
- Principal Investigator Coordination

FLIGHT SYSTEMS AND OPERATIONS

- STS Operations
- Payload Carriers and Support
- Biological Experimental Space Satellite (BESS)
- Vestibular Flight Response (VFR)
- Teleoperator Orbital Bay Experiment (TOBE)
- Level III and IV Integration
- Ground Support, Payload Operations Control Center, Mission Control Center
- Payload Specialist Operations and Training Requirements
- Flight Mission Simulation
- Data Acquisition and Management

LIFE SCIENCES APPLICATIONS

- Applications of SRT to Payload Development and Operations
- Applications of Life Sciences SRT and Flight Experiments Information to Life On Earth

FUTURE STUDIES

- Life Sciences Data for Advanced System Studies

FIGURE 7

Proposed NMI
1138-14

NMI _____

Month/day/year

_____

Effective date

Management Instruction

SUBJECT: ROLE AND RESPONSIBILITIES, NASA DIRECTOR FOR LIFE SCIENCES

1. OBJECTIVE OF POSITION

   a. To develop an integrated life sciences research program for all of NASA, working with the Program Offices involved. To present to the Administrator each year a proposed program plan and budget for the integrated program. To review the conduct of the entire NASA effort in life sciences and to make periodic reports to the Administrator and to the involved Program Offices. To recommend on the filling of key life sciences positions throughout NASA. To serve as NASA's principal contact with the outside life sciences community on life sciences matters.

   b. Manage life sciences activities assigned to the Office of Space Science.

2. ORGANIZATIONAL SETTING

   Reports to the Associate Administrator for Space Science.

3. RESPONSIBILITIES

   a. Line Responsibility

      Plans, budgets, justifies and manages the life sciences research, technology and experiment definition program which includes biomedical, behavioral and biological sciences, advanced life support, atmosphere, food, water, and waste management subsystems, man-machine integration, human augmentation devices, advanced bioinstrumentation and habitability, ecology, Planetary biology and quarantine.

   b. Responsible for the Integration of the Total NASA Life Sciences Program:

      (1) Provides operational and programmatic life sciences support to the Associate Administrator for Space Flight for all space flight program offices.

(2) Responsible for guidance, review and recommendations regarding the life sciences activities assigned to the Office of Applications. Typing margin begin on arrow line

(3) Responsible for guidance, review, and recommendations regarding the life sciences activities assigned to the Office of Aeronautics and Space Technology, including research relative to man's operating environments in aircraft and the techniques and equipment required to improve and measure his performance; noise research; and simulation technology.

(4) Responsible for guidance, review, and recommendations regarding the life sciences activities assigned to the Office of Administration, including occupational medicine and environmental health.

(5) Responsible for guidance, review and recommendations regarding the life sciences activities assigned to the Office of Technology Utilization.

4. RELATIONSHIPS WITH OTHER PROGRAM AND STAFF OFFICIALS

a. The NASA Director for Life Sciences is responsible for recognizing the responsibility and authority of other officials and ensuring that actions he may take are properly coordinated with other groups having mutual interests. Particularly he will, in exercise of responsibilities related to life sciences activities in OAST, OSF, OA, TU and the Office of Administration, be mindful of the line responsibilities of these offices over people working in life sciences activities assigned thereto.

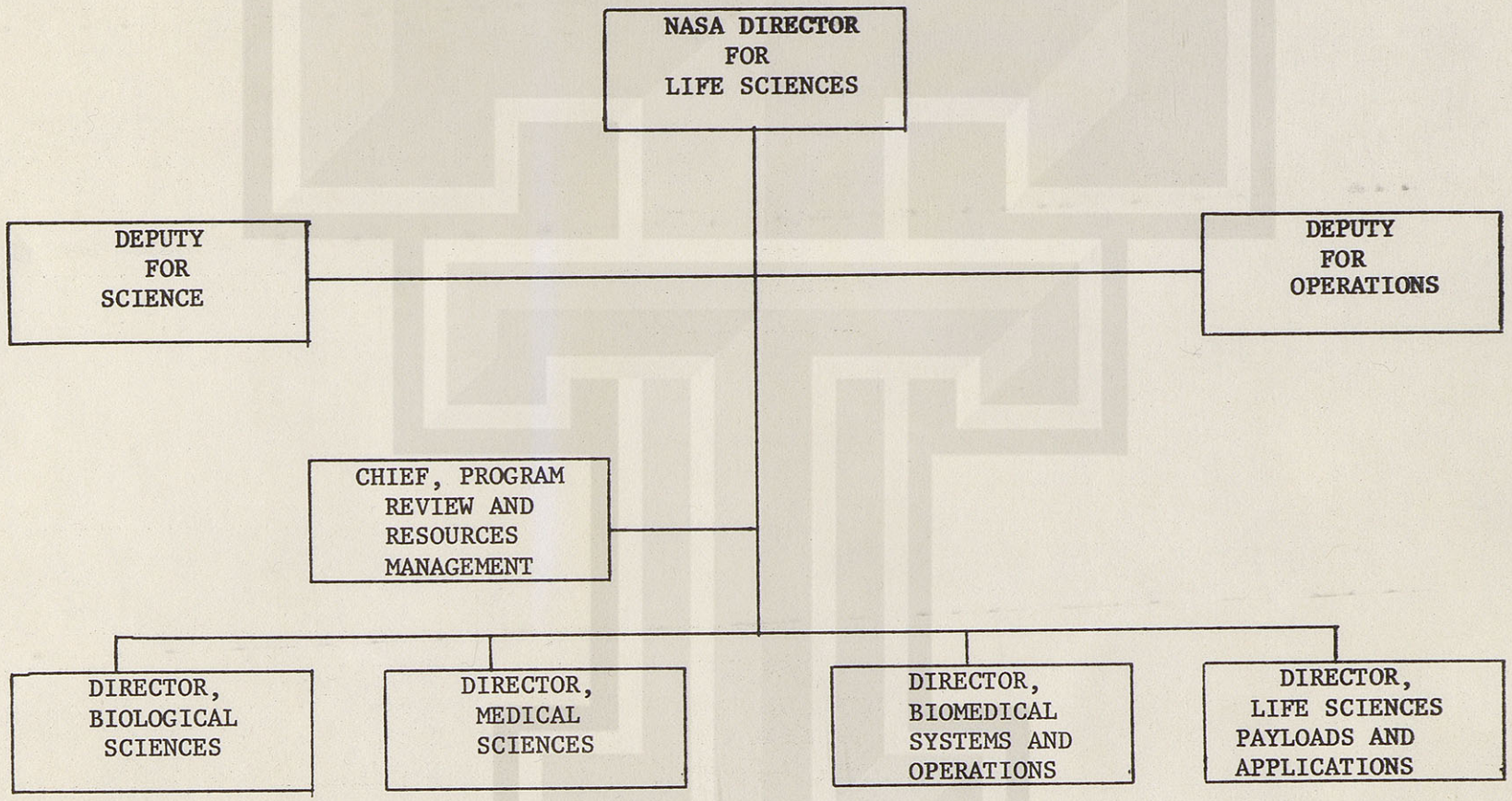
b. Responsibilities for overseeing other offices outside the Office of Space Science may not be delegated below the NASA Director for Life Sciences. In performing these duties, the NASA Director for Life Sciences will function as the equivalent of a program office deputy associate administrator.

Deputy Administrator

ATTACHMENT:
A. Organization Chart

DISTRIBUTION:
SDL-1

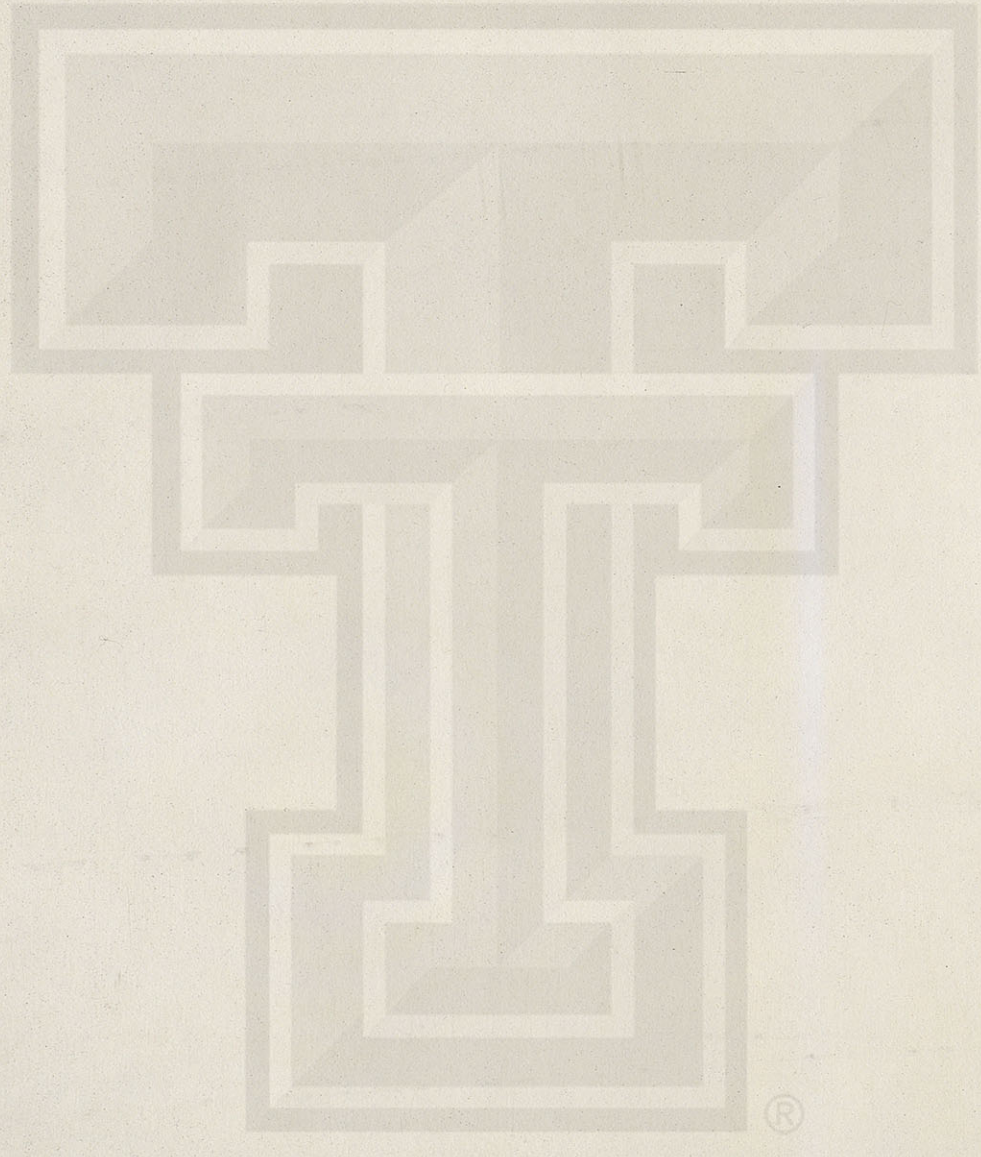
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
OFFICE OF SPACE SCIENCE



APPROVED: _____

DATE: _____

STAFF PD's.



Optional Form 8
July 1969
U.S. CIVIL SERVICE COMMISSION
FPM Ch. 295
5008-104

POSITION DESCRIPTION

1. Check one: Dept'l ☒ Field ☐
2. Official headquarters: Washington, D.C.
3. Reason for submission:
(a) If this position replaces another (i. e., a change of duties in an existing position), identify such position by title, allocation (service, series, grade), and position number
(b) Other (specify)
4. Agency position No.
5. C. S. C. certification No.
6. Date of certification
7. Date received from C. S. C.
8. CLASSIFICATION ACTION

ALLOCATION BY	CLASS TITLE OF POSITION	CLASS Service	CLASS Series	CLASS Grade	INITIALS	DATE
a. Civil Service Commission						
b. Department, agency, or establishment	Deputy Life Sciences Director for Operations	GS	0602	EX		
c. Bureau						
d. Field office						
e. Recommended by initiating office						

9. Organizational title of position (*if any*)
10. Name of employee (*If vacancy, specify V-1, 2, 3, or 4*)
11. Department, agency, or establishment: NASA
a. First subdivision: NASA Headquarters
b. Second subdivision: Office of Space Science
c. Third subdivision: Life Sciences Division
d. Fourth subdivision
e. Fifth subdivision
12. This is a complete and accurate description of the duties and responsibilities of my position
(Signature of employee) (Date)
13. This is a complete and accurate description of the duties and responsibilities of this position
(Signature of immediate supervisor) (Date)
Title: NASA Director for Life Sciences
14. Certification by head of bureau, division, field office, or designated representative
(Signature) (Date)
Title: Associate Administrator for Space Science
15. Certification by department, agency, or establishment
(Signature) (Date)
Title: For: Director of Personnel, NASA
16. Description of duties and responsibilities

March 1, 1976

A. GENERAL SUMMARY

The Office of Space Science is responsible for the planning, directing and execution of the NASA scientific investigations. The NASA Director for Life Sciences is responsible to the Associate Administrator for Space Science for developing an integrated life sciences research program for all of NASA. The NASA Director for Life Sciences, by Memorandum of Understanding signed by the Associate Administrator, Office of Space Science and the Associate Administrator, Office of Space Flight agreed that the NASA Director for Life Sciences would also be responsible for medical operations in support of space flight and the advanced technology associated with food, water, waste management, life support and protective systems. The Deputy Life Sciences Director for Operations is responsible to the NASA Director for Life Sciences for the planning, direction and execution of all medical programs and related SR&T directed towards: (a) the development of medical standards and selection criteria for Shuttle crews; (b) the medical operations support and requirements for STS operations including the Shuttle tests and operations; (c) the advance research and technology programs in support of future space flight systems such as, but not limited to, space station and/or geo-synchronous station; (d) providing the medical operational requirements for Space Shuttle/Spacelab payload operations; (e) the development and acquisition programs associated with Spacelab operations; and (f) international programs of joint experimental flights.

If more space is required, use the other side and additional pages size 8 x 10½

GPO: 1964—O-722-797

B. DUTIES OF THE POSITION

Within the context of the foregoing programmatic and organizational background, incumbent performs duties of the following nature:

1. Provides the interface between the Office of Life Sciences and the Flight Program Offices. Responsible for originating and implementing policies and objectives related to flight operational procedures for medical and health care in all flight programs. Identifies and implements programs in support of operational and SR&T programs relating to space flight activities. Conducts periodic reviews and indepth evaluations of relevant programs and submits schedules and budjets before the agency's top management, the Office of Management and Budget and the Congress.

2. Exercises wide lattitude in the supervision of all space medicine operations within the field of Life Sciences including the center Life Sciences including the center Life Sciences organizations.

3. Has wide lattitude in implementing policy and programs within the purview of the missions of Life Sciences. Requires minimal coordination except for the most critical policy decisions such as international program commitment.

4. Inherent in Life Sciences is a multidisciplinary function of the most complex nature demanding the ability to manage medical research, medical operations and acquisition of space flight experiments as well as complex advanced research including life support and environmental systems technology.

5. Responsible for the incorporation of design guidelines and constraints for all advanced programs to insure the proper consideration for the human subsystem.

6. Responsible for the feed back of flight problems into the SR&T divisions of the NASA office of Life Sciences to insure that timely and appropriate studies and investigations are included in the research programs. Provides advice and consultation to the NASA Director for Life Sciences and other elements of Headquarters NASA on space medicine operations.

7. Participates, with the Deputy for Science, as a member of the Office of Space Science staff in various council and management meetings in which matters of policy and practice are brought to the attention of management, discussed and recommendations are made and decisions executed.

8. Acts, in the absence or at the direction of the NASA Director for Life Sciences, as the Director, Life Sciences Division or as his alternate on selected interagency and scientific committees.

C. BACKGROUND

1. Qualifications Required by the Position

This position requires no less than Board Certification in the specialty of Aerospace Medicine. At least 15 years of experience in the specialty is required and 10 of those years should be directly or closely associated with Space Medicine and Operational Manned Space Flight Programs.

In addition a background in management associated with national and international programs should be included in the individual's experience. Demonstrated ability to initiate policy decisions and to resolve programmatic issues is required.

All background information should demonstrate leadership ability and managerial responsibility. Independent exercise of judgment and decision making is a required attribute.

A national reputation in the field is required and an international reputation is highly desired.

2. Qualifications of Incumbent

Date of birth - 29 March 1921

Education - B.A. 1943 - Yale University - M.D. 1946 - Albany Medical College

Aviation Medical Training - School of Aviation Medicine - Graduate 1947

1957 - Certified in Aerospace Medicine by the American Board of Preventive Medicine

1948 - 50 - Lt/Capt., USAF, MC, Surgeon Air Rescue Squadron

1950 - 52 - Vice Commander and Commander Para Rescue and Survival Training School

1952 - 55 - Major/Lt.Col., USAF, MC, Surgeon 12th Air Rescue Group (Europe)

1955 - 58 - Chief, Biophysics Branch, Aeromedical Laboratory, Wright-Patterson AFB, Ohio

1958 - 60 - Commander, Aeromedical Field Laboratory, Holloman AFB, NM

1961 - 63 - Director, Biomedical Science, AFSC

1963 - 65 - Colonel, USAF, MC, Assistant Chief, Crew Systems Division, NASA, MSC, Houston

1965 - 68 - Director, Science Division, DCS/R&D, Hq USAF, Pentagon

1968 - 69 - National Director of the MEND Program

1969 - 73 - Director, Space Medicine, Hq NASA

1973 (Feb)- Retired from the USAF in grade of Colonel

1973 (MAR)-
to Present- Director, Space Medicine, Hq NASA

1955-58 - While assigned to the Aeromedical Lab in 1956 and 57 the incumbent performed acceleration physiology research which was instrumental in the design and development of the couch configuration used in all U.S. Manned Space Flights from Mercury through ASTP.

1958-60 - As Commander of the Aeromedical Field Lab the incumbent developed the program and plans for the Chimpanzee flight qualification of the Project Mercury capsule in preparation for the suborbital and orbital flights. In 1960 he represented the United States in the IAF meeting in Switzerland by presenting the summary of the Biological Space Flight efforts conducted from 1951 to 1960.

1961-63 - The incumbent was responsible for all biomedical research programs conducted by the Air Force Systems Command (AFCS) in support of both Aviation and Space flight activities.

1963-65 - The incumbent directed all of the Space Medicine Research Programs conducted at the NASA MSC. In addition, he was the physician selected for the special team which developed the EVA hardware and training for GT-4. He also was the medical monitor for the chamber verification test of the EVA hardware. He was responsible for all of the biomedical design requirements for the Apollo Command Module. During that same period he was requested, by name, to present papers on Space Medicine to the Pan American Surgeon's conference in Panama, and the European Branch of the Aerospace Medical Association.

1965-68 - The incumbent directed the entire scientific and technology research program of the USAF including the program of the AFSC and Office of Aerospace Research (OAR). This was at senior staff level requiring judgment, decision and policy effecting the entire AF Bioastronautics Research and Development Program. During this time he headed the US delegation to the Military Air Standardization (MAS) Groups concerned with Life Support Systems, Personnel Protection Systems and Medical Equipment in support of air operations. In addition, he was the alternate delegate leader to the NATO Groups in the same technical and scientific areas. The MAS and NATO activities required a high degree of professional and technical competence as well as diplomatic acumen in formulating international agreements.

1968-69 - As National Director of the MEND Program, the incumbent was assigned to the Assistant Secretary of Defense for Health and Medicine. At this level he interacted with representatives of every accredited medical school in the U.S. In addition, he was singled out by the Assistant Secretary to help form the plans for the Uniformed Services Medical School.

1969-to present - As Director of Space Medicine the incumbent has been responsible for the operational medical policies in support of Apollo, Skylab and ASTP. He has continued to participate at the National and International level of scientific information exchange as well as representing NASA by presenting papers at many diverse national and international scientific meetings. He has been responsible for the Life Sciences payload planning for the Space Shuttle/Spacelab program. His experience, knowledge, and judgment have continued to contribute to the Life Sciences Program of NASA. He is an effective and productive manager, exercising a great deal of initiative in both management of Life Sciences and the policies associated with NASA's programs.

3. Salary History

1948-70 - Salary commensurate with Medical Officer (on Flying Status) pay scale for the rank held i.e., Lt. to Colonel

1971-73 - Colonel, USAF, MC starts $39,000-(71) 43,000-(73)

1973(Dec)-33,915 to 35,000

1974(Oct)-35,000 to 36,000

1975(Oct)-36,000 to 37,800

Optional Form 8
July 1959
U.S. CIVIL SERVICE COMMISSION
FPM Ch. 295
5008-104

POSITION DESCRIPTION

1. Check one: Dept'l ☒ Field ☐
2. Official headquarters: Washington, D.C.
3. Reason for submission:
(a) If this position replaces another (i. e., a change of duties in an existing position), identify such position by title, allocation (service, series, grade), and position number
4. Agency position No.
5. C. S. C. certification No.
6. Date of certification
7. Date received from C. S. C.
8. CLASSIFICATION ACTION
(b) Other (specify) Establishment

ALLOCATION BY	CLASS TITLE OF POSITION	CLASS Service	CLASS Series	CLASS Grade	INITIALS	DATE
a. Civil Service Commission						
b. Department, agency, or establishment	Deputy Life Sciences Director for Science	GS	0602	Ex		
c. Bureau						
d. Field office						
e. Recommended by initiating office						

9. Organizational title of position (*if any*)
10. Name of employee (*If vacancy, specify V-1, 2, 3, or 4*)

11. Department, agency, or establishment: NASA
a. First subdivision: NASA Headquarters
b. Second subdivision: Office of Space Science
c. Third subdivision: Life Sciences Division
d. Fourth subdivision
e. Fifth subdivision

12. This is a complete and accurate description of the duties and responsibilities of my position
N/A
(Signature of employee) (Date)

13. This is a complete and accurate description of the duties and responsibilities of this position
(Signature of immediate supervisor) (Date)
Title: NASA Director for Life Sciences

14. Certification by head of bureau, division, field office, or designated representative
(Signature) (Date)
Title: Associate Administrator for Space Science

15. Certification by department, agency, or establishment
(Signature) (Date)
Title: For: Director of Personnel, NASA

16. Description of duties and responsibilities

February 18, 1976

A. GENERAL SUMMARY

The Office of Space Science is responsible for the planning, directing and execution of the NASA scientific investigations. The NASA Director for Life Sciences is responsible to the Associate Administrator for Space Science for developing an integrated life sciences research program for all of NASA. The Deputy Life Sciences Director for Science is responsible to the NASA Director for Life Sciences for the planning, direction and execution of all medical and biological investigations directed toward: (a) the search for extraterrestrial life; (b) the medical and biological impact of space flight on terrestrial life forms; (c) the causal relationships between gravity and the immunological mechanisms of terrestrial life forms; (d) the prevention of intercontamination of earth and other space objects; and (e) the biospheric impact, biological, ecological and environmental, of modifications of the stratospheric structure.

If more space is required, use the other side and additional pages size 8 x 10½

GPO: 1964—O-722-797

B. DUTIES OF THE POSITION — (continued)

Within the context of the foregoing programmatic and organizational background, incumbent performs duties of the following nature:

1. Translates the broad scientific mission in the medical and biological fields of research into more specific plans that can be programmed, scheduled, budgeted and defended before the Agency's top management, the Office of Management and Budget, and the Congress.

2. Determines the thrust and objectives of supporting medical and biological research and technology.

3. Develops long range plans toward the solution of medical and biological questions resulting from space flight.

4. Establishes funding and scheduling priorities in the basic research program.

5. Participates, with the Deputy for Operations, as a member of the Office of Space Science staff in various council and management meetings in which matters of policy and practice are brought to the attention of management, discussed and recommendations are made and decisions executed.

6. Maintains liaison with the various governmental, industrial and institutional committees and organizations that NASA provides or receives scientific assistance in the fields of biology and medicine concerned with such areas as metabolism, respiration, nervous systems, environmental effects, the existence of life and nature of life forms.

7. Evaluates and advises on all NASA biological and medical science investigations to insure the endeavors are worthwhile and of high scientific interest and benefit.

8. Acts, in the absence of or at the direction of the NASA Director for Life Sciences, as the Director, Life Sciences Division or as his alternate on selected interagency and scientific committees.

C. BACKGROUND OF CANDIDATE

* SF 171

Same. 1

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

POSITION RECORD

1. POSITION NO.

2. NAME OF NASA ACTIVITY

Headquarters

3. DUTY LOCATION

Washington, D.C.

4. ORGANIZATION *(All breakdowns, in descending order)*

Office of Space Science
Life Sciences Programs Division
Chief Program Review and Resources Management

5. CLASSIFICATION

a. NASA SPECIALTY TITLE AND CODE

Project Analysis and Control Officer 602-01-00N

b. CSC TITLE, SERIES AND GRADE

GS-345-15

6. POSITION IS.

☒ a. EXEMPT ☐ b. NON-EXEMPT

7. FUNCTIONAL AND PROGRAM/PROJECT CODES

a. NSF-FC	b. NASA-FC	c. NASA-PPC
	9100	10002

8. DUTIES AND RESPONSIBILITIES

This position has promotion potential to GS- 15 . Future advancement depends solely upon both sufficient work to support the job and clearly demonstrated performance at that higher grade(s).

I certify that this is an accurate statement of the major duties and responsibilities of this position and its organizational relationships, and that the position is necessary to carry out government functions for which I am responsible. This certification is made with the knowledge that this information is to be used for statutory purposes relating to appointment and payment of public funds, and that false or misleading statements may constitute violations of such statutes or their implementing regulations.

9. OFFICIAL POSITION CERTIFICATION

THIS IS A COMPLETE AND ACCURATE DESCRIPTION OF POSITION

a. TYPED NAME OF SUPERVISOR: David L. Winter, M. D.

b. SIGNATURE | c. DATE

10. OFFICIAL CLASSIFICATION CERTIFICATION

a. TYPED NAME OF CLASSIFICATION OFFICER

b. SIGNATURE | c. DATE

11. ANNUAL POSITION CLASSIFICATION CERTIFICATION

a. SUPERVISOR *(Initials and date)*					
b. CLASSIFICATION OFFICER *(Initials and date)*					

12. DISTRIBUTION

a. EMPLOYEE
b. PERSONNEL FOLDER
c. SUPERVISOR
d.
e.
f.

NASA FORM 692 JUL 74 PREVIOUS EDITION MAY BE USED

1. MAJOR DUTIES AND RESPONSIBILITIES

The purpose of this position is to perform as special assistant to the NASA Director for Life Sciences Programs for managing the program review, budget administration, financial management, manpower management and administrative functions of the division. He is also responsible for program management of the Supporting Research and Technology Program and related projects. He is responsible for staff assistance in Congressional and public relations.

Specific duties are as follows:

a. The program review function involves short and intermediate range planning for projects which are approved or scheduled for approval during the current and budget years, direction for the Divisions in efforts to obtain program project approval, assisting the Director in the periodic review of program progress and preparation of presentation on program status. He works closely with Director and his Deputies and with the Program Managers in the development of program plans. He is responsible for insuring that current and budget year programs are planned within established resource limitations. He works closely with Program Managers in the development and revision of Project Approval Documents. He is responsible for managing with the Chief of Program Review (Program Review and Resources Management Division), the planning of Division participation in OSS Program Status Reviews and with Program Managers and Program Chiefs in the preparation for these reviews. He represents the Division in matters relating to the general operation of the OSS Management Information and Control System.

b. The budget administration function involves developing preliminary estimates for short and intermediate range plans, advising the Program Managers and Program Chiefs in the review of these estimates, developing the total budget estimates for the Life Sciences Program, and assisting the Director and Deputy Directors in the adjustment of programs to meet budget guidelines and presentation of the budget to higher authority.

c. The financial management functions involve the allocation and reallocation of available funds to meet changing program requirements and to provide for optimum utilization. It involves the review of financial progress of a program which is estimated to reach an $82 million per annum level. The manpower management function involves the review of manpower utilization in the conduct of the Life Sciences Program, including Division manpower and review of field center and contractor manpower. It involves consideration of the manpower impact of planned programs and planning for assignment of workloads based upon this.

d. The administrative function involves organizational planning, establishment of management procedures, development ofmmanagement issuances, and coordination of program documentation and progress reporting. It also involves arranging for the housekeeping support for Division personnel.

e. Program management of the Supporting Research and Technology Program involves the business management of program research tasks. Responsibility for scientific and technical management of tasks in each discipline rests with the Program Chiefs and Program Managers, but the overall integration of the program is conducted through the incumbent.

f. The incumbent is also responsible for administering the Division review of research proposals and for coordinating the initiation and execution of procurement actions by the Division to insure that the on-going program is managed in a timely manner and that the Director's responsibilities for being responsive to research proposals are met.. This involves the review by the division of numerous research proposals per year and the management of procurement requests.

2. KNOWLEDGE REQUIRED BY THE JOB

The performance of the duties of this position requires:

a. Successful completion of a full 4-year course leading to a Bachelor's degree from an accredited college or university or equivalent with a major in one or a combination of the following occupational fields: Research Administration, Engineering Management, Industrial Management, Industrial Engineering, Business Administration, Public Administration, Government, or other comparable majors; or, the full equivalent in knowledges, skills, and intellectual background with 3 years of qualifying experience in administrative, managerial, professional, technical, investigative, or comparable work or an equivalent combination of such work and formal college or other acceptable study.

b. Evidence of knowledge of the basic concepts, methods, and objectives of appropriate fields of science or engineering, and also evidence of understanding of research and development organizations and their specialized problems, organizational structures, functions, operations, and characteristics.

c. 1) Knowledge of R&D and institutional budget administration including formulation, preparation, and execution.

2) Knowledge of manpower analysis, planning, and staffing techniques.

3) Knowledge of program management information and control systems.

4) Knowledge of overall administrative policies and procedures.

5) Ability to manage resources and make comprehensive trade-off and reprogramming recommendations and decisions.

6) Skill in analyzing budgeting data and coordinating development of budget justification for NASA management, OMB, and Congress.

3. SUPERVISORY CONTROLS

This position reports to the NASA Director for Life Sciences and it provides a wide latitude for expressing individual initiative and judgment. Recommendations made to higher authorities are rarely changed since incumbent is expert for the subject areas. The incumbent exercises independent initiative and resourcefulness in determining approaches, developing methods and techniques, and making decisions and recommendations on the program resources, budgets, personnel and administrative systems.

The incumbent works under broad policy guidance and is expected to define, develop, and implement the tasks to be accomplished. He receives a minimum of supervision and this is usually in the form of brief verbal assignments with only minimum constraints defined. The bulk of his work stems from a recognition of the evolving program, and the problems and actions required are sufficiently diverse to require considerable adaptation and ingenuity in order to effectively satisfy management requirements. The incumbent works with, and in support of, all levels of NASA management and

is responsible for the quality of his final product. In areas where management decisions are required, he is responsible for making recommendations and for supporting the implementation of the resulting management decisions.

4. GUIDELINES:

The following generic leadings of the NASA Management Issuance (NMI) system contain the policies, practices, and limitations of authority and responsibility of the position in the various management and administrative disciplines the incumbent is required to act in on a day to day basis:

Budget Administration

Financial Management

Personnel Management

Travel, time and attendance

Property and Supply

Procurement

Program Management and Approval

Contract and Grant Management

Program Planning and Control

Management Information Systems

Basic Management Procedures

Presentation Preparation

5. COMPLEXITY:

The work is comparable to that of the administrative manager in a small R&D firm whose size and income do not warrant heads of individual administrative departments but requires all of the administrative management functions to be performed; such as personnel recruitment, assignment, training, pay and counseling; budget and financial planning, control and analyses; contracting etc.

6. SCOPE AND EFFECT:

All work performed controlled or directed by the incumbent is required by either law or agency regulation. The net effect of the work being performed at this level is the cost effective integration of all administrative management requirements from the staff offices, freeing the Director and his technical personnel to perform the scientific and technical work they have been assigned.

7. PERSONAL CONTACTS:

The nature of the work requires the incumbent to contact counterpart specialists in all disciplines, stated in the duties, where they place requirements on the Director. These specialists exist at all levels of the agency hierarchy both at Headquarters and the field centers. The incumbent may contact heads of comparable Life Sciences organizations but rarely without the company of a counterpart.

8. PURPOSE OF CONTACTS:

Contacts are to receive or transmit requirements, reports, assignments or background information to conduct the day to day business of the Directorate.

9. PHYSICAL DEMANDS:

The work is sedentary, requring minimal physical exertion. The ability to see and hear in a poor environment and to operate under schedule stress is a prerequisite of the job.

10. WORK ENVIRONMENT:

The activities are performed in an office setting under normal conditions, with routine attendance at large, crowded meetings.

Biological Sciences
PD's

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

REPLY TO ATTN OF: SBL

3/8/76

MEMORANDUM FOR THE RECORD

SUBJECT: Proposed Position of Director, Biological Sciences Program

The subject position is being established as part of a general reorganization of the Agency's Life Sciences activity.

Prior to this change a position existed titled Chief, Planetary Quarantine. Another position was titled Chief, Exobiology Programs. Both of these positions were located in the Office of Space Science.

In September, 1975 the office of the NASA Director for Life Sciences was relocated, from the Office of Manned Space Flight, into the Office of Space Science. All staff, activity and funding in Planetary Biology and Quarantine were assigned to the NASA Director for Life Sciences, with the loss of one person - the Chief, Planetary Quarantine.

It was decided that a new position, with responsibility for all Biological Sciences activity, would be one way to reorganize effectively.

The staff involved with Space Biology - originally part of the Biomedical Division of Life Sciences - and the staff assigned to Planetary Quarantine were combined in the new Biological Sciences Division.

This new position of Director requires the planning and implementing of an integrated biology program with less staff and more responsibility than any of the previous activities. Part of the added responsibility will be the inclusion of new activity in the areas of biospheric and ecological impact evaluation of space flight. This

effort is an expansion of the Agency's role in determining the causal relationships between biospheric modification and stratospheric modification due to space flight. Additionally, one of the major objectives in transfering Life Sciences to the Office of Space Science was to prepare for increased flight experimentation in the Space Shuttle era. A substantial portion of that experimentation will involve the biological sciences. A balanced and integrated program is mandatory.

Optional Form 8
July 1959
U.S. CIVIL SERVICE COMMISSION
FPM Ch. 295
5008-114

POSITION DESCRIPTION

Dept'l X Field ☐ NASA, Wash., DC

3. Reason for submission:
(a) If this position replaces another (i. e., a change of duties in an existing position), identify such position by title, allocation (service, series, grade), and position number

(b) Other (specify)

4. Agency position No.

5. C. S. C. certification No.

6. Date of certification

7. Date received from C. S. C.

8. CLASSIFICATION ACTION

ALLOCATION BY	CLASS TITLE OF POSITION	Service	Series	Grade	INITIALS	DATE
a. Civil Service Commission						
b. Department, agency, or establishment	Director, Biological Sciences Programs	GS	413	16		
c. Bureau			(92)			
d. Field office						
e. Recommended by initiating office						

9. Organizational title of position (if any)

10. Name of employee (If vacancy, specify V-1, 2, 3, or 4)
Dr. Richard S. Young

11. Department, agency, or establishment
NASA

a. First subdivision
OSS

b. Second subdivision
Life Sciences

c. Third subdivision

d. Fourth subdivision

e. Fifth subdivision

12. This is a complete and accurate description of the duties and responsibilities of my position

N/A
(Signature of employee) (Date)

13. This is a complete and accurate description of the duties and responsibilities of this position

David L. Winter MD. 8 March 76
(Signature of immediate supervisor) (Date)

Title: NASA Director for Life Sciences

14. Certification by head of bureau, division, field office, or designated representative

Anthony J. Calio 3/17/76
(Signature) (Date)

Title: Associate Administrator for Space Science

15. Certification by department, agency, or establishment

(Signature) (Date)

Title: For Director of Personnel, NASA

16. Description of duties and responsibilities

A. General Summary

Under the NASA Director for Life Sciences, plans, directs and controls programs of research on detecting origins, evolution and environment of life on other planets; research on methods for inhibiting interplanetary contamination; research on biological effects in Space; and research on biospheric effects of atmospheric modifications. Provides scientific leadership to the biological sciences community in their utilization of space to discover the origins of life and the current ecological trends. Interfaces with the international scientific community in the areas of interplanetary contamination and quarantine standards.

The nature of the programs are discussed more fully in Section "B" which follows. The duties involved are developed in detail as Section "C" below:

B. Functional Background of the Position

1. The nature and status of the Biological Sciences Program:

Planetary Biology

a. The Planetary Biology Program is the first and only integrated program to look methodically into the planetary events which may have been responsible for or related to the origin, evolution, and distribution of life in the universe. Research is conducted in areas of chemical evolution, organic geochemistry and biological adaptation in order to understand: how organic molecules form abiogenicly; under what physical conditions formation can occur; and, the mechanisms and conditions under which these molecules become more complex and ultimately lead to the origin of life. These studies are interrelated with our knowledge of the Earth and other bodies in the solar system in an attempt to explore the possibility of the presence of extraterrestrial life, its nature and distribution.

Two possible approaches to the solution of the question of life on Mars are presently being examined. First, unmanned missions containing sophisticated, post Viking, analytical instruments could be flown to Mars. Such instrumentation is currently being developed. Secondly, an unmanned mission could be flown to Mars and a soil sample returned to Earth for analyses. The direct examination of a returned Mars sample would provide fundamental information essential to understanding planetary composition and evolution; information difficult, if not impossible, to obtain by unmanned lander vehicles.

Planetary Quarantine

b. The Planetary Quarantine program would be presented with unique and difficult problems by a returned sample mission. The sample would have to be either sterilized or adequately contained in order to eliminate the potential hazard to the Earth posed by extraterrestrial life-forms which might be present in it.

The maximum amount of scientific information would, of course, be obtained from an unsterilized soil sample. Such a sample would however, have to be contained in a fail-safe biobarrier facility. Although containment technology already exists, as does methodology for working with extremely hazardous pathogens, the potential danger of an unknown extraterrestrial life-form may require a containment facility unlike anything presently available. Studies defining technical, operational, and management requirements for such a facility are absolutely essential before this type of program could proceed beyond the Advanced Study phase. The Planetary Quarantine program has begun to pursue these feasibility studies.

As Planetary Quarantine Officer, incumbent conducts a nationwide NASA program (with international aspects) in developing scientific information, policies, and procedures for prevention of biological contamination of the planets, and the return of dangerous contaminants to earth. He develops and operates an organization to monitor and to insure effectiveness of policies and procedures, establishing agreements with the Union of Soviet Socialist Republics and other countries for adherence to standards of planetary quarantine.

Space Biology

c. The Space Biology program provides ground-based research and flight verification to:

(1) Identify biological systems sensitive to the space environment and to understand the responses of these systems to this unique environment, and

(2) Utilize the space environment as a unique tool to probe biological questions impossible to answer on earth and to yield new information important to the understanding of how living systems function.

In the past, Space flight opportunities have been limited, and only a few systems sensitive to gravity have been investigated, e.g., growth and movement of plants, development of vertebrate embryos, muscle

atrophy, and vestibular response. It is possible presently to perform biological experiments in space, an environment that is free of gravitational influence, free of tidal forces and the cyclic events of celestial mechanics, and free from the earth's magnetic field. This new dimension in biological research can make a significant contribution to: the clarification of the role variations in gravitational and magnetic fields have played in the evolution of biorhythms; the elucidation of the influence that gravity has on the growth, development, function, and evolution of plants and animals; and the application of such knowledge to the welfare of man in space and mankind on earth.

To utilize the space environment, ground-based experiments are a necessary prelude in terms of scientific concepts, experimental design, acquisition of baseline data, and development of space flight experimental protocol. In addition, unique scientific equipment and animal and plant holding facilities are needed for use in both manned and unmanned spacecraft. The Space Biology program has been developing ground-based data on the morphological, embryological, genetic and physiological changes induced in plants and animals by real and simulated hypo- and hypergravity.

In preparation for future flight opportunities, research will be directed to (1) identify those biological problems that can be optimally or solely addressed through experimentation in space, (2) select biological systems or parameters that are most useful in studying or exploiting space effects, and (3) design experimental protocol for future flight experiments.

2. Organization of the Work:

a. The Director of Biological Sciences operates at three levels within the Agency.

(1) As Planetary Quarantine Officer of the Agency, incumbent reports only to the Administrator and Deputy Administrator of the Agency.

(2) As head of all Biological Sciences programs, incumbent is responsible to the NASA Director for Life

Sciences, who in turn functions under the direction of the Associate Administrator for Space Sciences but is also directly responsible to the Administrator for overseeing all Life Sciences aspects of the Agency.

(3) As Chief Program Scientist of the Viking Program and Co-chairman of the Viking Science Steering Committee, the incumbent operates within the management structure of the Viking program which is directed by the Planetary Programs division of the Office of Space Science.

b. The Biological Sciences program is directed and controlled by the incumbent. The American Institute of Biological Sciences (AIBS) provides a standing subcommittee to act as a peer review group on the work of the field center, grant and contract research. However, the integrated program is planned and implemented in the division.

Planetary Biology research is monitored 80% from the Headquarters and 20% in the field center (ARC). The ARC portion is primarily in-house scientific research as opposed to grant/contract management.

c. The Planetary Quarantine program is directed and controlled by the incumbent, and operated under a long term contract with the Jet Propulsion Laboratory (JPL). This work is a vital part of all interplanetary programs in that rigorous sterilization procedures must be conducted on all outbound spacecraft to prevent bacterial contamination of other planets and to prevent back contamination of Earth.

d. The Space Biology Program is divided into disciplinary areas within biology. The incumbent is responsible for assuring a properly proportioned effort in each sub-discipline, based on the Agency's assessment of research criticality. Additionally, the distribution of the contract/grant effort in support of this research is planned and directed by this office.

e. The Ecological Research Program is newly instituted to assess and monitor the impact of spaceflight induced atmospheric effects on the biosphere. This potentially critical program is being planned,

coordinated and monitored by the incumbent with direct control over ecological and environmental research at all flight centers.

3. Principal Responsibilities of the Incumbent.

The incumbent plans, directs, coordinates, and approves all Agency activity in the discipline areas of exobiology, environmental biology, space biology, and techniques for sterilization and planetary quarantine.

He is the Agency representative and spokesman on the following committees:

a. Interagency coordinating committee for the International Biological Program.
b. Interagency Committee on Population Research.
c. National Research Council, Division of Biology and Agriculture.
d. COSPAR Working Group V and Panels A, C and D.
e. International Society for the Study of the Origin of Life.
f. Editorial Boards for biology journal publications.

He is singularly responsible for certifying all NASA interplanetary missions as biologically sterile within the criteria established by the COSPAR Advisory Group on sterilization, of which he is the NASA representative.

C. Duties of the Position

1. Planetary Biology

a. Evolutionary and Theoretical Biology - This program area covers a wide variety of investigations relating to the origin of life, molecular evolution, the development of significant steps in the early evolution of terrestrial biota, chemistry of the ancient sediments, micropaleontology, paleobiochemistry, and biological clues of the Earth's geological history.

b. Instrumentation for Detection of Extraterrestrial Life and Life-Related Compounds - This program consists of experimental concepts and instruments capable of pro-

viding significant information by means of automated operation. The devices must be designed to provide morphological, physiological or chemical data which can be relayed by telemetry to receiving stations on the Earth. Sample acquisition and processing is a crucial part of this program.

c. Spectroscopic Analysis of Planetary Atmospheres and Surfaces - This program consists of infrared and ultraviolet spectral observations of the planets and their atmospheres to obtain information of biological significance. The instruments may be ground-based, on a high-altitude platform, on planetary fly-bys and orbitors, earth satellites, or on the planetary surface itself. In each case the kind, resolution and quality of data would be different.

d. Extraterrestrial Sample Collection and Analysis - This program consists of biochemical analysis of the carbonaceous chondrites and extraterrestrial "dust," terrestrial aerobiology, and means of increasing the supply of uncontaminated meteoritic material.

Specific duties in directing this program are:

a. Maintains contact with and promotes communication between related NASA Headquarters activities, grantees, contractors and centers. Reviews their plans for all experiments to determine relevance to objectives with special emphasis on those conceived for early or advanced flight missions. Keeps up with modern biology and relevant developments in other disciplines.

b. Works toward a focus of effort by visiting key scientists to obtain interchange of ideas and cooperation in those objectives which can be realized only at a national or international level.

c. Studies and screens concepts with open mind but with reasonable scientific restraint in order to minimize the cost and burden of unfruitful research. Only ideas which are theoretically sound are brought to the attention of those scientists in the nation who possess

the special skills and knowledge for their judgment as to the novelty of the ideas or the possibility of reducing them to practice for space science. The incumbent has an extensive personal acquaintance with top scientists in many disciplines. He "knows who knows" in those areas critical to the success of his program.

d. Educates scientists on the peculiarities and constraints of space exploration, the limitations of weight, size, special controls, flight qualifications, competition and possible disappointment.

e. Provides continuous briefing of supervisor of unwritten experimental plans, of unreported results, and of management and funding problems. Provides clear and timely briefing of factors threatening the progress of crucial work or the meeting of schedules related to flight missions.

f. Immediately reports all breakthroughs or sudden concentrations of scientific interest of great significance to the NASA Director for Life Sciences. Devises ways and means of prompt response and support by NASA.

g. Maintains status as a part of the scientific community by active participation and membership in recognized scientific societies.

h. Monitors, advises, and evaluates contracts and grants in all areas of Exobiology, including approved work at the Centers. Changes emphasis, fills gaps, makes program as cohesive as operations analysis dictates and as prevailing conditions permit. Serves as the technical spokesman of NASA where such contracts and grants are made directly by the Office of Space Science.

i. Makes recommendations to the NASA Director for Life Sciences towards improvement of research, sharpening of management, better utilization of manpower and resources, workable solutions to long-standing problems, practical and new approaches to the acquisition of scientific facts.

2. Planetary Quarantine

a. Maintains a research program designed to provide data upon which can be based a program of spacecraft sterilization which will insure that no terrestrial life will be transferred on spacecraft from earth to the planets, but which will also insure that (a) the reliability of the flights will not be adversely affected, (b) the cost of the total program due to sterilization will be kept to a minimum, and (c) there will be minimal interference with program operations.

b. Alerts NASA management to possible major hazards to the well-being of mankind from space activities; i.e., recognition of the potential hazards of back contamination from the planets; and stimulates NASA and other government agencies to take necessary action; i.e., briefings of the Surgeon General (U.S. Public Health Service), Directors of appropriate segments of the Department of Agriculture, and of top NASA management; and establishes thereby the courses of action for NASA.

c. Correlates all factors in flight operations that may be influenced by sterilization and operations which may affect sterilization, weighing the many factors that enter into the probability of contaminating the planets, and establishing a rational approach to the final solution. As a part of such solution Sterilization Requirements are to be prepared and published, containing the policies required for accomplishment of the objectives of the Planetary Quarantine Program.

d. Establishes and interprets the sterilization policies to NASA management, the Life Science Committee, the Space Science Board (National Academy of Sciences), and the engineering and scientific communities by means of briefings, speeches, publications, and personal contacts.

e. Develops and operates a monitorial organization at three levels of management in order to design and/or assemble information adequate for certification of

sterility (to NASA management) of any given spacecraft prior to flight. The monitoring organization consists of approximately 10 professional and subprofessional personnel. General direction will be given to each Center's (Jet Propulsion Laboratory, Goddard Space Flight Center, and Langley Research Center) monitoring group and through them to the contractor's monitoring group.

f. Develops a training program in sterilization appropriate for all levels, from NASA management to technicians engaged in the manufacture of spacecraft parts. The incumbent will be responsible for training procedures to include personal briefings of top-level personnel; for determining need, design, and conduct of agency- and industry-wide conferences on sterilization technology; for the planning and establishment of short (two-week) training courses by means of university contracts; for design and development of training audio-visual aids; and for the establishment of a university fellowship program (master's level) designed to develop engineers trained in environmental microbiology.

g. Operates within the guidelines of the Office of International Affairs to obtain information from other nations bearing on spacecraft sterilization, and supplying information on the NASA sterilization program through papers given at COSPAR. Acting as the United States representative to the COSPAR Advisory Group on sterilization, works toward promoting the best interests of the United States by developing position papers, holding the recommendations of the Advisory Group within realistic boundaries, and supporting COSPAR standards of sterilization inasmuch as is appropriate and practical to NASA's purposes.

h. Interprets the general policies of NASA management on planetary contamination to the appropriate operating officials, and securing consistent and constant program compliance. Subsequently, the incumbent is responsible for arranging with the program officials to change spacecraft specifications to achieve a more acceptable method of human waste disposal in space, and to defend these methods to the scientific community.

3. Space Biology

a. Plans, implements and directs a national program of basic scientific and theoretical research and experimentation in the biological sciences.

b. Develops and disseminates policy and criteria concerning requirements for ground and flight support relating to the preparation, conduct and analyses of all flight experiments involving non-human living organisms.

c. Reviews and approves the integrated ground-based research and technology program in support of Space Biology disciplines.

d. Reviews, approves and defends the Space Biology program budgets and milestone schedules.

Technical Qualifications

A doctorate in at least one of the biological sciences and a broad background in laboratory research, spaceflight scientific experiment development and scientific data reduction and analysis are prerequisites to the management of the biological sciences programs.

The incumbent must have established himself as a leader in the scientific community based on peer review of his demonstrated accomplishments in his chosen field.

The diverse nature of the scientific and technical activities within his purview demands a working knowledge of celestial mechanics, astronomy, space physics, electronic engineering, structures and materials testing, immunology, toxicology and general physics.

Managerial Qualifications

Program management of large diverse scientific research at this level requires a level of experience that has been developed in the assumption of increasingly more difficult, government managed, R & D programs.

The incumbent must be proficient in planning, advertising, negotiating procuring, budgeting, funding, scheduling and assessing technical, cost and schedule performance of field center in-house, contract and non-profit grant type arrangements. Additionally

he must direct these same types of activities that are contracted for within the Headquarters.

Incumbent must have the skills and talents necessary to plan, prepare and present scientific and administrative justification of his programs, both short and long range, to NASA management, the Office of Management and Budget, Congress, the scientific community and the public. This requires the ability to communicate orally and in writing in a manner that is understandable to all levels of interest and background.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

POSITION RECORD

1. POSITION NO.

2. NAME OF NASA ACTIVITY

NASA

3. DUTY LOCATION

Washington, DC

4. ORGANIZATION *(All breakdowns, in descending order)*

Office of Space Science
Life Sciences Program Division

5. CLASSIFICATION

a. NASA SPECIALTY TITLE AND CODE

Ast., Life Environmental Studies

b. CSC TITLE, SERIES AND GRADE

GS-0401

6. FUNCTIONAL AND PROGRAM/PROJECT CODES ▶	a. NSF-FC	b. NASA-FC	c. NASA-PPC
	92	9100	10002

7. DUTIES AND RESPONSIBILITIES

This position has promotion potential to GS- 15 . Future advancement depends solely upon both sufficient work to support the job and clearly demonstrated performance at that higher grade(s).

I certify that this is an accurate statement of the major duties and responsibilities of this position and its organizational relationships, and that the position is necessary to carry out government functions for which I am responsible. This certification is made with the knowledge that this information is to be used for statutory purposes relating to appointment and payment of public funds, and that false or misleading statements may constitute violations of such statutes or their implementing regulations.

8. OFFICIAL POSITION CERTIFICATION		9. OFFICIAL CLASSIFICATION CERTIFICATION	
THIS IS A COMPLETE AND ACCURATE DESCRIPTION OF POSITION			
a. TYPED NAME OF SUPERVISOR		a. TYPED NAME OF CLASSIFICATION OFFICER	
b. SIGNATURE	c. DATE	b. SIGNATURE	c. DATE

10. ANNUAL POSITION CLASSIFICATION CERTIFICATION						11. DISTRIBUTION	
						a. EMPLOYEE	
a. SUPERVISOR *(Initials and date)*						b. PERSONNEL FOLDER	
						c. SUPERVISOR	
						d.	
b. CLASSIFICATION OFFICER *(Initials and date)*						e.	
						f.	

NASA FORM 692 NOV 68 PREVIOUS EDITIONS ARE OBSOLETE.

GPO 876-271

DUTIES:

The incumbent, under the guidance of the Director, Biological Sciences, is responsible for the Space Biology Program of the Life Sciences Division, Office of Space Science. The incumbent is the principal Headquarters contact for all matters relating to this effort. The incumbent plans, directs, and coordinates all work being done in NASA field Centers, Jet Propulsion Laboratory, other government agencies, and industry that has direct relationship to this program. The program includes basic scientific research studies and scientific space flight experiments in NASA Centers and grants and contracts in universities, industry, private research establishments, and other government agencies. The incumbent works intimately with NASA field organizations, especially the Ames Research Center and the Johnson Space Center and closely monitors the planning, management, subcontracting, funding, scheduling, and problems that develop. The incumbent represents the Headquarters in dealings with NASA field organizations and industrial and university contractors and/or grantees. The incumbent is responsible for review and selection procedures, establishment of review panels and committees, and recommendation for scientifically valid and sound space flight biologic experiments and supporting ground research.

The incumbent is the Life Sciences' representative to OAST as a member of the Fire Resistant Materials Engineering (FIREMEN) program. In this capacity the incumbent has the responsibility for the development and management of the NASA program to assess the toxicological aspects of smoke and gases produced during the combustion of materials developed for aircraft use. The toxic threat from burning materials is a serious problem to industry and many government agencies. Active coordination with the National Academy of Science, FAS, NBS, DOD and other government agencies, the aircraft manufacturing industry, the materials supplier industry and universities has been established.

The incumbent must also act as the Director, Biological Sciences, in the absence of the Director. Within this context, he must maintain a working cognizance of all facets of the Biological Sciences Program. This includes the programmatic management of Planetary Biology, Planetary Quarantine, Ecological Effects and Wildlife Tracking.

2. Solicits proposals from universities, industry, and other government agencies for research and development work which may contribute to the accomplishment of the biological objectives of space science.

3. Reviews and recommends appropriate action for research and development proposals (solicited and unsolicited) from universities, non-profit institutions and industry. Determines the significance and feasibility of those proposals as related to particular discipline. Initiates procurement requests for those proposals approved and monitors the resultant contracts and grants.

4. Assures that the Life Sciences Advisory Group and other policy committees are knowledgeable of all work being performed throughout the scientific community which is of significance to this scientific area.

5. Initiates requirements and establishes, with the concurrence of the Director, scientific objectives in the field of biology for Life Sciences Program flight projects.

6. Defines specific experiments to be carried on flight missions. Presents proposed experiments to the committees and carries out the recommendations and determinations thereof. In this respect, the incumbent must establish an order of priority for these experiments in order that these committees may select the most desirable experiments that will ensure maximum scientific returns within the overall limitations of the scientific payload.

7. Ensures that the scientific data obtained from the successful flight missions and ground-based experiments are properly analyzed and evaluated. This involves continuous contact with individuals performing these analyses and evaluations at NASA Centers and within the scientific community.

8. Maintains continuous contact with key individuals in the academic, industrial and government scientific community to secure coordination of events and interchange of ideas and products.

9. Reviews and updates short and long range planning with respect to scientific objectives, funding and scope of work. In the areas of research and development, new ideas and concepts must be continually explored. It is the responsibility of the incumbent to keep abreast of these developments to: (1) assure that those

new ideas and concepts are properly evaluated; (2) determine those which are feasible in relation to his area of responsibility; and (3) to assure that they are considered in the planning of NASA science objectives.

10. As chief of this program, the incumbent keeps the Biological Science Director, and the Director of the Life Sciences Division informed as to the status of planning, progress, and problems encountered. The incumbent makes recommendations for the solution of these problems and indicates action that has been initiated for the solution thereof.

11. Participates in national scientific conferences and symposia as a NASA representative. In these conferences the incumbent presents a summary of the work being accomplished and the status of developments in this scientific area. Where required, the incumbent arranges meetings of scientific experts to review specific areas for state-of-the-art and future projections relevant to NASA's mission.

12. Formulates, prepares and presents plans for use in budget presentations, including complete justification, schedules and funds required for the execution of the work.

13. Provides the NASA centers with proper guidance for the submission of scientific requirements and for the implementation of the work approved by Headquarters and monitors the progress of that work.

14. In assuming the responsibilities of this position, the incumbent is expected to establish and maintain an effective leadership role within this program. The incumbent is expected to plan effectively and carry out approved plans and programs in a timely and efficient manner.

15. Performs other related duties as required by, and inherent in, the general area of assignments and level of responsibility involved.

<u>Knowledge Required by the Job</u>

a. The degree of Doctor of Philosphy in a field of biology.

b. Technical experience - the essential areas in which the incumbent must demonstrate particular proficiency include:

(1) Basic Biology: The incumbent must have a thorough background in both theoretical and experimental biology, including genetics, physiology, zoology, botany, microbiology, and molecular biology, in order to develop meaningful biologic concepts unobtainable by earth-based research.

(2) Biochemistry: The incumbent must have a thorough background of biochemistry in order to be able to direct a program which attempts to identify the mechanisms regulating the adaptation to spaceflight variables of living systems at different levels of organization.

(3) Physics: The incumbent must be well acquainted with physical environmental factors, including the electromagnetic spectrum, gravity, and radiation in order to provide for a sound program for determining the effects of the space environment on life processes.

c. The incumbent must have a demonstrated ability to conduct an integrated research program. Program planning, scheduling cost estimating and analysis form a substantial part of the day to day management of this program. Because of the broad scope of the research and multiple organizations involved, decision making and problem solving capability is mandatory.

d. Collateral abilities include direction of committees and symposia, effective communication to both large and small audiences and the supervision of non-subordinate professionals.

SUPERVISORY CONTROLS:

This position reports to the Director of Biological Sciences within the Life Sciences Division, OSS, NASA with wide latitude for exercising initiative, judgment, policy formulation and direction for those assigned activities. He defines, develops, implements and completes all assigned programmatic activities. Conclusions drawn and recommendations made are rarely reviewed for technical accuracy. Tentative decisions of the incumbent may be modified on the basis of administrative or interrelated program considerations. The incumbent exercises initiative and resourcefulness in determining approaches, developing methods and techniques, and making recommendations to the Director of Biological Sciences on the direction of the biology programs.

Guidelines:

Consist of technical handbooks, publications, research reports, conferences and symposia minutes and discussions with scientific peers. In addition, the incumbent must rely on experience gained from previous space research and its impact on the scientific community. In the majority the work of this program represents the leading edge of knowledge in Space Biology.

Complexity:

The work is comparable to that of managing a research institute involving program planning, budgeting, personnel skill assessment and assignment, integration of a multi-discipline scientific research endeavor and simultaneously maintaining a scientific competence that will command respect in the scientific community.

SCOPE AND EFFECT:

Recommendations of the incumbent affect the selection, planning, development and evaluation of theoretical and experimental research on the effects of the space environment on living organisms and on the basic mechanisms underlying their responses. Space biology research provides a means of understanding the influence gravity has had in the shaping of life on earth as we know it, and the role gravity plays in growth, development, reproduction and regulation of plant and animal life on earth. In scope, the work includes the development of requirements for systems, techniques and equipment for biological flight experiments.

The incumbent plans, develops and manages the toxicity program of the OAST FIREMEN program. This FIREMEN program is expected to produce an improved materials technology base and a testing rationale that can more stringently evaluate aircraft materials for flammability, smoke, and toxicity. Industry will benefit in its ability to better specify materials requirements, and FAA will have a better basis on which to promulgate meaningful and achievable regulations.

PERSONAL CONTACTS:

Contacts are with all levels of NASA management both in Headquarters and field centers, other government agencies, national and international biological science organizations, e.g., National Research

Council, American Institute of Biological Sciences, etc., and industry.

PURPOSE OF CONTACTS:

Contacts are to direct, inform, advise, obtain consent on, and support all space biology program activities within the Office of Space Science and scientific community, maintain competence, disseminate vital science data, etc.

PHYSICAL REQUIREMENTS:

The work demands endurance as a primary requirement. Although basically sedentary, long hours and travel are a substantial requirement of the position.

WORK ENVIRONMENT:

Primarily an office setting, except when on travel reviewing field center university, industry or other government agency activities.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

POSITION RECORD

1. POSITION NO.

2. NAME OF NASA ACTIVITY

Planetary Biology & Quarantine

3. DUTY LOCATION

NASA Headquarters, Washington, DC

4. ORGANIZATION *(All breakdowns, in descending order)*

5. CLASSIFICATION

a. NASA SPECIALTY TITLE AND CODE

b. CSC TITLE, SERIES AND GRADE

Technical/Administrative Assistant
GS 13-7

6. FUNCTIONAL AND PROGRAM/PROJECT CODES ▶

a. NSF-FC

b. NASA-FC

c. NASA-PPC

7. DUTIES AND RESPONSIBILITIES

This position has promotion potential to GS- 13 . Future advancement depends solely upon both sufficient work to support the job and clearly demonstrated performance at that higher grade(s).

I certify that this is an accurate statement of the major duties and responsibilities of this position and its organizational relationships, and that the position is necessary to carry out government functions for which I am responsible. This certification is made with the knowledge that this information is to be used for statutory purposes relating to appointment and payment of public funds, and that false or misleading statements may constitute violations of such statutes or their implementing regulations.

8. OFFICIAL POSITION CERTIFICATION

THIS IS A COMPLETE AND ACCURATE DESCRIPTION OF POSITION

a. TYPED NAME OF SUPERVISOR

Richard S. Young

b. SIGNATURE

c. DATE

9. OFFICIAL CLASSIFICATION CERTIFICATION

a. TYPED NAME OF CLASSIFICATION OFFICER

b. SIGNATURE

c. DATE

10. ANNUAL POSITION CLASSIFICATION CERTIFICATION

a. SUPERVISOR *(Initials and date)*					
b. CLASSIFICATION OFFICER *(Initials and date)*					

11. DISTRIBUTION

a. EMPLOYEE	
b. PERSONNEL FOLDER	
c. SUPERVISOR	
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e.	
f.	

NASA FORM 692 NOV 68 PREVIOUS EDITIONS ARE OBSOLETE.

GPO 876-271

GS/E

1. Duties: This position reports to the Chief, Planetary Biology and Quarantine, Office of Space Science, Life Sciences Branch. The Planetary Biology mission within the OSS Program office encompasses the areas of Chemical Evolution, Organic Geochemistry, Life Detection/Planetary Microbiology, Biological Adaptation to Extreme Environments, Bioinstrumentation, Planetary Environments, Origin of Life, Support Activities and interfaces with Planetary Quarantine and Space Biology Programs.

a. Provides administrative support to the Planetary Biology program office. Assists Program Chief in estimating the financial requirements and budget estimates and in preparation of budget justification narrative and graphic material.

b. In conjunction with the Chief participates in developing an annual SR&T program of approximately 3.6M, including planning, analyses implementation, direction and review of research activities.

c. Recommends adjustments to this program as necessary based upon availability of financial resources.

d. Reviews Planetary Biology proposals from universities, industries, non-profit institutions and government agencies. Assists in appropriate action based upon the significance and feasibility of the work planned, competence of the scientific personnel involved and validity of the financial estimates.

e. Prepares proposal material for review by technical Exobiology Advisory Panels and participates in rating of proposals.

f. Initiates procurement documents for funding of Planetary Biology tasks.

g. Monitors contracts and grants to determine any subsequent project modifications, cost revisions and time extensions.

h. Prepares bibliographic material on grantees before their assignment to specialized committees.

i. Maintains close liason concerning grants and contracts with office of University Affairs, Institutional Management, Industry and Technology Utilization. Acts as interface between Planetary Biology Program and OTU to expedite transfer of technology acquired in PB program to the public and private sector.

j. Maintains contact and communication between related NASA Headquarters activities, grantees, contractors and centers.

k. Prepares visual materials for Program Chief for use in conferences, seminars and scientific lectures.

2. Knowledge Required by the Job:

a. Minimum of Masters degree in a biological science.

b. Ability to assimilate technical, progress and financial reports from grantees and contractors. Background to understand scientific perspective and to help maintain scientific direction and management for a dynamic and effective research program vital to NASA's mission.

c. In addition, an ability to exercise diplomacy, tact and mature judgment in dealing with grantees, contractors and grant applicants is necessary.

3. Supervisory Controls: Reports directly to Chief, Planetary Biology and Quarantine and cooperates with NASA Field Center detailees.

4. Guidelines: Generally involves policy and constraints. Incumbent must use his own judgment and initiative in absence of Program Chief.

5. Complexity: The work involves responsibility directly proportional to the large number of grants and contracts and interaction with grantees and grantee problems to help maintain a smooth running program.

6. Scope and Effect: Incumbent is responsible for aiding Chief, Planetary Biology with administration, evaluation, and budgetary requirements, progress reports and general management of $\pm$ 90 Headquarters and Centers grants and Industrial contracts.

7. Personal Contacts: Incumbent has contacts with research scientists, engineers, University and Industrial research coordinators and Business Administrators, Headquarters and Centers management.

8. Purpose of Contacts: Close coordination with above personnel to ensure prompt grant/contract award dates and cooperation of all personnel involved in research projects.

9. Physical Demands: Mostly sedentary in nature.

10. Work Environment: Work performed in an office setting with occasional Panel meetings in Metropolitan DC area.

Medical Sciences
PD's

POSITION RECORD

Larson

2. NAME OF NASA ACTIVITY

NASA Office of Life Sciences

3. DUTY LOCATION

Washington, DC

4. ORGANIZATION *(All breakdowns, in descending order)*

Office of Space Science
NASA Office of Life Sciences
Biomedical Research Division

5. CLASSIFICATION

a. NASA SPECIALTY TITLE AND CODE

AST-Manager, Bioinstrumentation Programs

b. CSC TITLE, SERIES AND GRADE

6. FUNCTIONAL AND PROGRAM/PROJECT CODES ▶

a. NSF-FC

b. NASA-FC

c. NASA-PPC

7. DUTIES AND RESPONSIBILITIES

This position has promotion potential to GS- 15 . Future advancement depends solely upon both sufficient work to support the job and clearly demonstrated performance at that higher grade(s).

I certify that this is an accurate statement of the major duties and responsibilities of this position and its organizational relationships, and that the position is necessary to carry out government functions for which I am responsible. This certification is made with the knowledge that this information is to be used for statutory purposes relating to appointment and payment of public funds, and that false or misleading statements may constitute violations of such statutes or their implementing regulations.

8. OFFICIAL POSITION CERTIFICATION

THIS IS A COMPLETE AND ACCURATE DESCRIPTION OF POSITION

a. TYPED NAME OF SUPERVISOR

b. SIGNATURE

c. DATE

9. OFFICIAL CLASSIFICATION CERTIFICATION

a. TYPED NAME OF CLASSIFICATION OFFICER

b. SIGNATURE

c. DATE

10. ANNUAL POSITION CLASSIFICATION CERTIFICATION

a. SUPERVISOR *(Initials and date)*						
b. CLASSIFICATION OFFICER *(Initials and date)*						

11. DISTRIBUTION

a. EMPLOYEE
b. PERSONNEL FOLDER
c. SUPERVISOR
d.
e.
f.

NASA FORM 692 NOV 68 PREVIOUS EDITIONS ARE OBSOLETE.

GPO 876-271

1. Duties: This position reports to the Director, Medical Sciences. The incumbent is responsible for all Life Sciences Bioinstrumentation research and development efforts and for supporting, aiding the Director, Medical Sciences, in the daily operations and functions of the Medical Sciences research program, and acts for the Director in his absence. The incumbent plans, directs, and coordinates all work being done in NASA field Centers, Jet Propulsion Laboratory, other government agencies, and industry that has direct relationship to measurement and/or detection of biological, physiological, and psychological responses of man and/or their selected species to space flight. The overall program includes basic scientific research and development studies and scientific space flight experiments in NASA Centers and grants and contracts in universities, industry, private research establishments, and other government agencies. The incumbent works intimately with NASA field organizations, especially the Ames Research Center and the Johnson Space Center and closely monitors the planning, management, subcontracting, funding, scheduling, and problems that develop. The incumbent represents the Headquarters in dealings with NASA field organizations and industrial and university contractors and/or grantees. The incumbent is responsible for review and selection procedures, guiding the Centers in establishment of review panels and committees, and recommendation for scientifically valid and sound space flight life sciences experiments and supporting ground research.

a. Directs the activities required for research and development of a bioinstrumentation technology base applicable to future life sciences flight needs.

b. Directs and coordinates the NASA Centers' involvement in the development of the bioinstrumentation technology base;

c. Plans, develops and defends budgets and schedules required for the various bioinstrumentation developments and integrates these within the appropriate and related life science research areas;

d. Develops, in conjunction with the related research areas, the definition of flight experiments necessary to the solving of life science problem areas. Also, related to this activity, develops the technology assessment and necessary progress and schedule which must be achieved to meet future life sciences flight plans;

e. Speaks for the Agency, as a recognized authority in his area in a variety of conferences, committees and relationships with other agencies, industry and universities. Objectives of these contacts are chiefly exchange of information and exploration of alternatives.

2. Knowledge Required for the Job:

a. Advanced degree, preferable a Doctor of Philosophy, in the field of Biomedical Engineering;

b. Scientific and technical knowledge and understanding of Life Sciences research and experimentation areas and good engineering practices;

c. Demonstrated ability to conduct an integrated hardware research and development program. Program planning, scheduling, cost estimating and analysis form a substantial part of the day-to-day management of this

program. Because of the broad scope of the research and multiple organizations involved, decision making and problem solving capability is mandatory;

d. Knowledge of progress or problems in interacting programs (i.e., Shuttle, Spacelab, Life Sciences R&D, Technology Utilization, etc.).

e. Collateral abilities include direction of committees and symposia, effective communication to both large and small audiences and the supervision of non-subordinate professionals.

3. Supervisory Controls: Receives general direction from the Director, Medical Sciences, who assigns broad program area responsibility. This provides a wide latitude for exercising individual initiative and judgment as the incumbent defines and develops, implements and completes the programs assigned. Recommendations made to higher authorities are rarely changed for technical reasons, since incumbent is a recognized expert for the particular subject area. Decisions may, however, be modified on the basis of administrative or interrelated program considerations. The incumbent exercises independent initiative and resourcefulness in determining approaches, developing methods and techniques, and making decisions and recommendations on the program. His assignment specifically includes directing, coordinating and evaluating field center staffs in the research, development, integration and operation of bioinstrumentation systems. Reviews of incumbent's work is on an irregular basis, usually associated with overall Life Sciences Program reviews.

4. Guidelines: Guidelines are primarily verbal in nature and general in direction. They communicate policy, and, where appropriate, constraints. Incumbent uses his independent judgment to interpret and adapt this guidance so as to accomplish the assignment. Where incompatibilities exist, incumbent develops and recommends new guidelines.

5. Complexity: This work is comparable to that of managing a scientific multi-discipline hardware and development program. It includes planning, budgeting, scheduling, multiple Center management and coordination, and review before top management while simultaneously maintaining a scientific competence that will command respect in the scientific community.

6. Scope and Effect: This position manages the synthesis of efforts required to provide a bioinstrumentation technology base to support Life Sciences orbital research through the Shuttle era of the 80's. The resultant products will be the means by which Life Sciences Space research will be conducted and, as such, they will affect the cost and science effectiveness of research during the Shuttle era. This can impact the agency's primary mission, competitive commercial research, and potentially major advances in medicine.

In addition, the results of these efforts have a direct effect on medical devices and health care delivery in the civil sector. These devices and health care systems directly impact thousands of people. The

incumbent serves on critical NASA and interagency Committees that impact the health care programs of this Country and nations abroad. He functions as a recognized authority in bioinstrumentation systems.

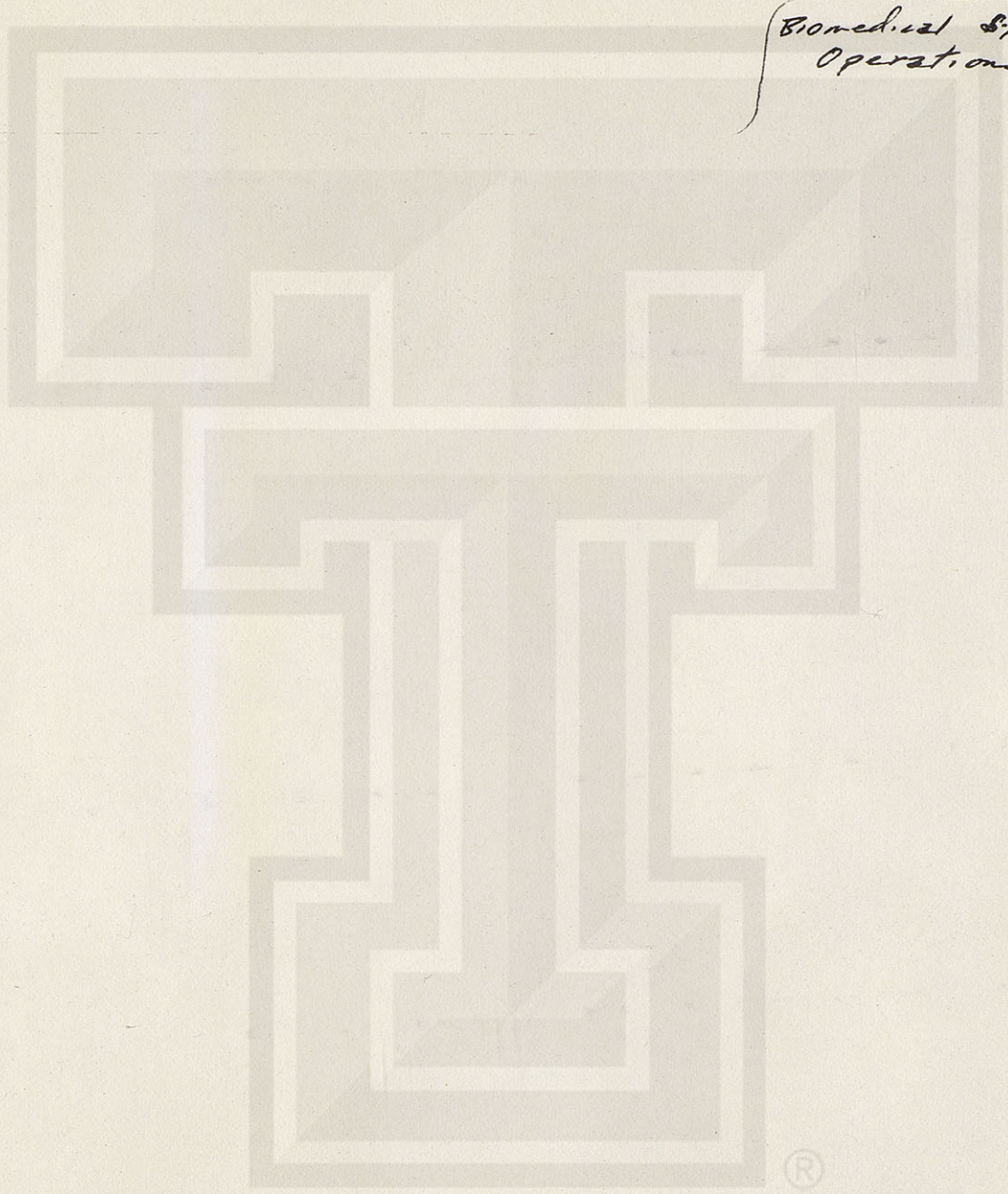
7. Personal Contacts: Contacts with all levels of NASA management and science, both at Headquarters and field centers, other government agencies (e.g., ERDA, NIH, FDA, etc.), universities, industry, foreign and domestic, national and international medical and biological science organizations (e.g., National Science Foundation, American Institute of Biological Sciences, Aerospace Medical Association, etc.), and medical engineering organizations (e.g., Alliance in Medicine Biology and Engineering, IEEE, etc.).

8. Purpose of Contacts: Contacts are to direct, inform, advise, obtain consent on, and support all bioinstrumentation program activities within the Office of Space Science and scientific community, maintain competence, disseminate vital science and engineering data, etc.

9. Physical Requirements: The work demands endurance as a primary requirement. Although basically sedentary, long hours and travel are a substantial requirement of the position.

10. Work Environment: Primarily an office setting, except when on travel reviewing field center university, industry or other government agency activities.

Biomedical Systems & Operations PD's



Form 2

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

POSITION RECORD

1. POSITION NO.

2. NAME OF NASA ACTIVITY

NASA Headquarters

3. DUTY LOCATION

Washington, DC

4. ORGANIZATION (All breakdowns, in descending order)

Office of Space Science
Life Sciences Programs Division

5. CLASSIFICATION

a. NASA SPECIALTY TITLE AND CODE

b. CSC TITLE, SERIES AND GRADE

6. FUNCTIONAL AND PROGRAM/PROJECT CODES ▶

a. NSF-FC

b. NASA-FC

c. NASA-PPC

7. DUTIES AND RESPONSIBILITIES

This position has promotion potential to GS- 15 . Future advancement depends solely upon both sufficient work to support the job and clearly demonstrated performance at that higher grade(s).

I certify that this is an accurate statement of the major duties and responsibilities of this position and its organizational relationships, and that the position is necessary to carry out government functions for which I am responsible. This certification is made with the knowledge that this information is to be used for statutory purposes relating to appointment and payment of public funds, and that false or misleading statements may constitute violations of such statutes or their implementing regulations.

8. OFFICIAL POSITION CERTIFICATION

THIS IS A COMPLETE AND ACCURATE DESCRIPTION OF POSITION

a. TYPED NAME OF SUPERVISOR

David L. Winter, M.D.

b. SIGNATURE

c. DATE

9. OFFICIAL CLASSIFICATION CERTIFICATION

a. TYPED NAME OF CLASSIFICATION OFFICER

b. SIGNATURE

c. DATE

10. ANNUAL POSITION CLASSIFICATION CERTIFICATION

a. SUPERVISOR (Initials and date)					
b. CLASSIFICATION OFFICER (Initials and date)					

11. DISTRIBUTION

a. EMPLOYEE	
b. PERSONNEL FOLDER	
c. SUPERVISOR	
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POSITION DESCRIPTION

1. DUTIES: Serves as Director of Biomedical Systems and Operations within the Life Sciences Division, Office of Space Sciences, NASA Headquarters. In this capacity, the incumbent is responsible to the NASA Director of Life Sciences for management of all duties assigned to Biomedical Systems and Operations. These duties include:

   a. Aids the NASA Director of Life Sciences and his deputies in planning and implimenting the policy and program direction of the Division and acts as Acting Director of the Office of Life Sciences on behalf of, and at the request of the Director.

   b. Plans and coordinates the activities of the program in fulfilling the Divisional responsibilities of providing and maintaining operational and programmatic support in Space Medicine to the Associate Administrator for Space Flight for all flight programs. These responsibilities include: the application of medical selection criteria for both crew and passengers of space vehicles; preflight detection of diseases; maintenance of crew health; advanced manned systems design criteria; and habitability requirements for spacecraft.

   c. Plans, budgets, justifies, and coordinates the activities of the program in the research and technology development of advanced biomedical, behavioral, and bioenvironmental systems at the appropriate NASA Centers. These responsibilities include the research and development of: medical selection criteria for crew and passengers for future spacecraft, monitoring and maintenance of crew health; the investigation of human behavior and performance; the definition of physiological design requirements; the development of medical support for crew and passengers; research of advanced teleoperator technology, and man-machine design requirements; and research and development of advanced extravehicular and protective systems and advanced life support systems, including atmosphere control and revitalization systems, water-waste management systems, food and feeding systems, and closed ecological systems for future spacecraft.

   d. Prepares, presents and defends program plans, budgets, and technical presentations and briefings for the benefit of the NASA Director of Life Sciences and other levels of NASA management. These duties include preparation and presentation of appropriate program funding, manpower and facility needs.

   e. Maintains technical awareness of the appropriate NASA Center research programs, contractor efforts, and Agency technology needs. Assigns priorities to Center program submittals,

impliments funding of appropriate Center programs, and conducts periodic technical reviews to assure the achievement of these objectives in a timely and cost-effective manner.

f. Participates in technical conferences, seminars, and symposia in which key representatives of other agencies, industry, universities and other groups meet to discuss technology needs and developments.

2. KNOWLEDGE REQUIRED BY THE POSITION:

a. Ability to manage and direct innovative, scientific and technical research and development programs directly, as well as through subordinates. This management capability applies to work involving remote and diverse technical groups at NASA Centers, and others, and includes not only technical capability, but also business management capability to assure timeliness and cost-effectiveness of these programs to the Agency.

b. Knowledge of Biomedical Systems technology and the application of this technology to fit with the needs of the Agency and the Division of Life Sciences. This includes a technical knowledge in the biomedical, behavioral, bioengineering and bioenvironmental systems areas and an awareness of Agency and Life Sciences needs and requirements in these areas.

c. Skill in planning, implimenting and coordinating Center programs to provide future manned spacecraft with optimal systems and configurations as they interface with crew and passengers, and the support of these crew and passengers.

d. Comprehensive understanding of Agency needs relative to this position, in order to plan and impliment research programs that correctly anticipate and fulfill future manned spacecraft requirements.

e. Degree in physical sciences, such as Engineering or Physics, and at least five years experience involving the above technical areas.

f. Ability to write and present technical and management summaries and reports on a timely basis. This includes many different levels of technical detail and complexity, ranging from summaries for Congressional presentations and justifications for the Office of Management and Budget, to technical papers for presentation to peer groups.

3. SUPERVISORY CONTROLS: Receives minimal direction from the NASA Director of Life Sciences and his deputies who assign broad program direction consistant with Life Science and Space Science planning and funding constraints. Incumbent determines most effective means of allocating resources consistant with program direction and develops guidelines for Center activities; implements and maintains cognizance over these Center programs. The incumbent, as a technical authority in this area, has the responsibility for management of Biomedical Systems and Operations as it pertains to Headquarters interfaces and Centers. The incumbent's judgement and recommendations will directly affect the capabilities and operational success of future manned spaceflight programs. The incumbent periodically briefs suppervisor and others on work progress and problems.

4. GUIDELINES: Consist of technical handbooks, publications, contractor and Center publications, conference and symposia reports and discussions with colleagues and Center personnel. In addition, the incumbent must rely on experience gained from previous manned space flights in the establishment of guidelines for use in this position, and by others. The incumbent must exercise technical judgement in the appropriate formulation and adaptation of existing guidelines to future work.

5. COMPLEXITY: The work involves decisions regarding selection of most promising areas for research and development in consideration of the needs of current and future manned space programs and the implementation of these developments into current and future manned space systems. The incumbent considers such factors as program research and development costs, as balanced with Agency need and potential benefit. The incumbent recognizes and responds to changes in the needs of the Division of Life Sciences and the Agency, and impliments changes in program direction to maintain their relevance and timeliness. The work also involves the responsibility for supervision of medical personnel who are engaged in planning and control of human-habitat relationships and human occupancy and operation of current future spacecraft in a safe, economical and efficient manner for long time periods.

6. SCOPE AND EFFECT: The purpose of the incumbent's work is to plan, prioritize, and impliment the research and development of advanced technology for current and future spacecraft. These efforts have a significant impact on current and future spacecraft design, and the usefulness of such spacecraft in carrying out their missions. In addition, this work has a direct effect on the efficiency with which man interfaces with spacecraft systems, and the efficient utilization of man within these spacecraft.

7. PERSONAL CONTACTS: The incumbent establishes personal contacts with a variety of management and technical personnel within the Centers, NASA Headquarters, and peers within other Government Agencies doing similar work, as well as with contractor organizations and academic institutions.

8. PURPOSE OF CONTACTS: Contacts are made to maintain un up-to-date knowledge of Agency needs and directions, and technical developments made by others, as well as to coordinate Center research and development programs. These contacts allow resolution of differing opinions among researchers and other authorities on program plans and direction. A part of this work involves contacts with others in terms of advising, directing and coordinating activities and making recommendations concerning man in his role as an operator and experimenter within future spacecraft.

9. PHYSICAL REQUIREMENTS: The work is basically sedentary, with periodic travel as required to fulfill the position.

10. WORK ENVIRONMENT: Work is normally performed in an office setting.

Nicogossian

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

POSITION RECORD

1. POSITION NO.

2. NAME OF NASA ACTIVITY

NASA HEADQUARTERS

3. DUTY LOCATION

Washington, DC

4. ORGANIZATION (All breakdowns, in descending order)

Office of Space Science
Life Sciences Division

5. CLASSIFICATION

a. NASA SPECIALTY TITLE AND CODE

b. CSC TITLE, SERIES AND GRADE

Medical Officer (Aviation Medicine)

6. FUNCTIONAL AND PROGRAM/PROJECT CODES ▶	a. NSF-FC	b. NASA-FC	c. NASA-PPC

7. DUTIES AND RESPONSIBILITIES

This position has promotion potential to GS- 15 . Future advancement depends solely upon both sufficient work to support the job and clearly demonstrated performance at that higher grade(s).

I certify that this is an accurate statement of the major duties and responsibilities of this position and its organizational relationships, and that the position is necessary to carry out government functions for which I am responsible. This certification is made with the knowledge that this information is to be used for statutory purposes relating to appointment and payment of public funds, and that false or misleading statements may constitute violations of such statutes or their implementing regulations.

8. OFFICIAL POSITION CERTIFICATION THIS IS A COMPLETE AND ACCURATE DESCRIPTION OF POSITION		9. OFFICIAL CLASSIFICATION CERTIFICATION	
a. TYPED NAME OF SUPERVISOR David L. Winter, M.D.		a. TYPED NAME OF CLASSIFICATION OFFICER	
b. SIGNATURE	c. DATE	b. SIGNATURE	c. DATE

10. ANNUAL POSITION CLASSIFICATION CERTIFICATION						11. DISTRIBUTION	
a. SUPERVISOR (Initials and date)						a. EMPLOYEE	
						b. PERSONNEL FOLDER	
						c. SUPERVISOR	
						d.	
b. CLASSIFICATION OFFICER (Initials and date)						e.	
						f.	

NASA FORM 692 NOV 68 PREVIOUS EDITIONS ARE OBSOLETE.

POSITION DESCRIPTION

1. DUTIES: The incumbent directs the Life Sciences support to all manned and unmanned operational flight project efforts within NASA, providing the interface between the NASA Director for Life Sciences and Space Flight Program Offices. This includes the incorporation of design guidelines and constraints for all advanced programs to ensure the proper consideration for the human subsystem.

   a. Responsible for identifying problems of human physiological tolerances and performance criteria in the engineering design of flight vehicles. Insures that these problems are directed to the divisions so that timely and appropriate studies and investigations are included in research programs to resolve the observed medical and bioengineering problems or deficiencies in advanced and ongoing flight programs. Continually overviews the functional design and operational concepts of the Space Shuttle, Spacelab and future systems to optimize the bioenvironmental, bioengineering, biomedical and man-machine design necessary for the effective integration of the human subsystem in the designed environment. Recommends design modification in areas of research to correct biomedical design deficiencies.

   b. Provides advice and consultation on the biological appropriateness of Life Sciences experiments and/or payloads under consideration for manned and unmanned missions.

   c. Reviews criteria, constraints, and standards established for the proper design, development and operation of advanced systems. Assesses crew selection provisions and medical standards for future missions and originates and implements policies on manned and unmanned flight operational procedures to provide for incorporation of essential medical and health care considerations to produce safe and effective man-machine functioning.

   d. Serves as an expert technical member of committees and control boards which make decisions on the engineering design of space flight vehicles.

   e. Conducts continuous evaluation of flight activities requiring humans in space and the associated operational activities as their plans, procedures and conduct effect human utilization, safety and effectiveness. Prepares special reports to the NASA Director for Life Sciences and other top management officials on the medical status of program activities, accomplishments and future plans, incorporating medical opinion on life support requirements into advanced planning and design of OSF vehicles.

   f. Prepares comprehensive medical reports of tests and evaluations which describe the scope and methods of testing, test conclusions and recommendations.

g. Serves as the medical expert when attending conferences at NASA or other inter-governmental activities concerning manned space flight. Assumes an authoritative role for NASA Life Sciences in international conferences of medical experts or technical groups considering Life Sciences implications of planned missions.

2. KNOWLEDGE REQUIRED BY THE JOB:

a. The degree of Doctor of Medicine.

b. Must be qualified for, preferably certified by the American Board of Preventive Medicine in the sub-specialty of Aerospace Medicine.

c. Ability to apply these skills in directing and managing the assigned tasks.

d. Decision making and problem solving ability.

e. Experience in operational space medicine activities is highly desirable.

f. Multilingual capability desirable in dealing internationally.

g. Familiarity with engineering problems arising in the design development, and operational phases of space flight missions.

3. SUPERVISORY CONTROLS: This position reports to the Director Biomedical Systems and Operations with wide latitude for exercising initiative, judgement, policy formulation and direction for those assigned activities within the NASA Office of Space Flight (OSF). He defines, develops, implements and completes all assigned programmatic activities. Conclusions drawn and recommendations made are rarely reviewed for technical accuracy. Tentative decisions of the encumbent may be modified on the basis of administrative or inter-related program considerations. The encumbent exercises initiative and resourcefulness in determining approaches, developing methods and techniques, and making recommendations on the direction of the flight programs.

4. GUIDELINES: Guidelines consist of standard aerospace medical and environmental specifications on spacecraft safety, habitability and effectivity. Experience from previous flights is a significant component of the standards and criteria for the next generation of flight vehicles. While some of these standards and criteria are available, the position is one of generating creative guidelines and standards for use by engineers planning flight missions based on experience.

5. COMPLEXITY: The work involves the planning and control of human habitat and utilization in a sage and efficient manner for long periods, in a hazardous environment with all of the concomitant complexity of maintaining human life.

6. SCOPE AND EFFECT: Recommendations and directions initiated by the encumbent can redirect the design, development, test, flight and operation of any and all flights requiring a human in flight.

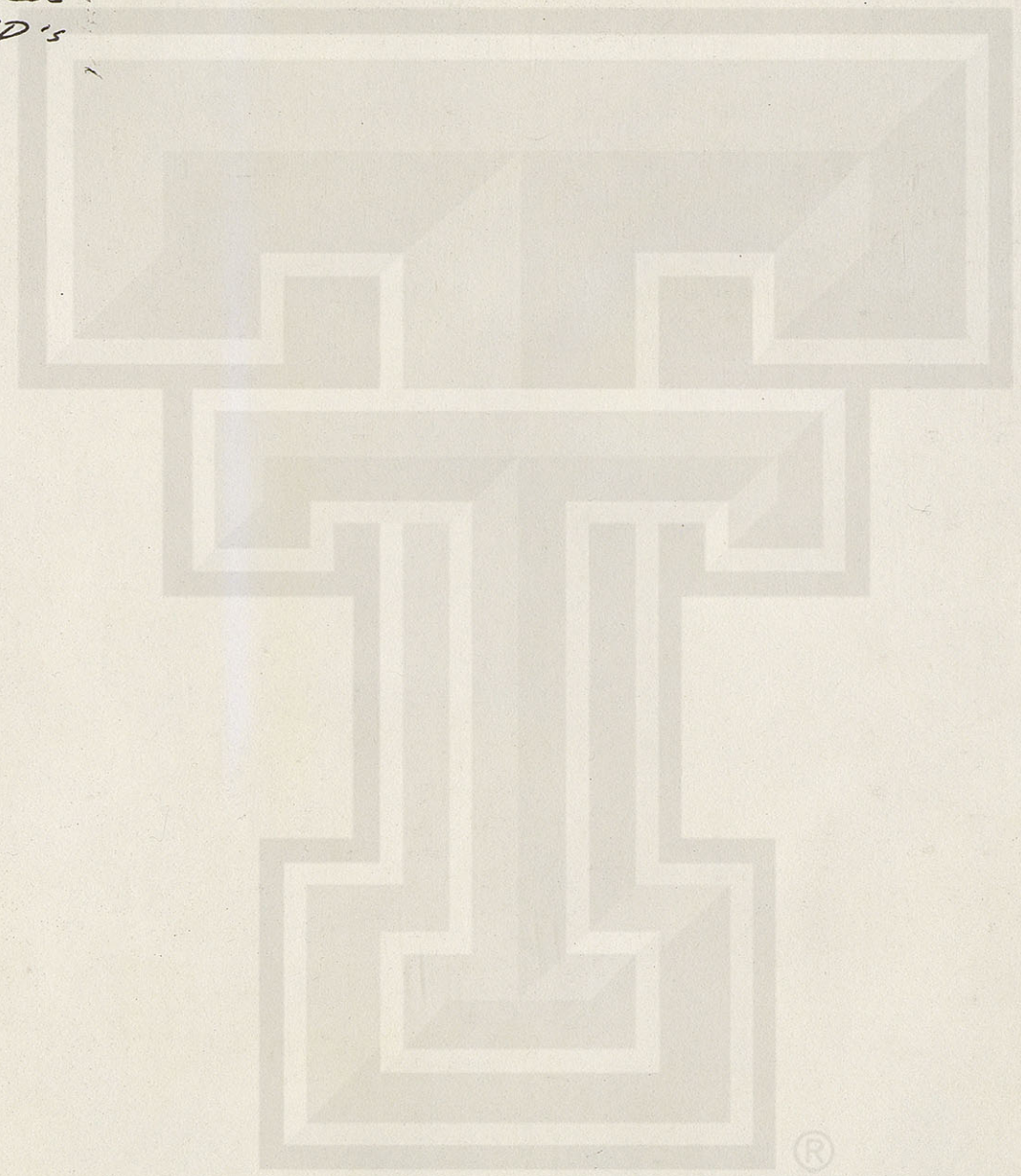
7. PERSONAL CONTACTS: Contacts are with all levels of NASA management both in Headquarters and field centers, other government agencies, national and international medical organizations.

8. PURPOSE OF CONTACTS: Contacts are to direct, inform, advise, obtain consent on, and support all space flight program activities relating to manned flight.

9. PHYSICAL REQUIREMENTS: The work demands endurance as a primary requirement. Although basically sedentary, long hours and travel for long periods of time are a substantial requirement of the position.

10. WORK ENVIRONMENT: Primarily an office or clinical setting, except when on travel reviewing field training and testing activities.

Life Science Payloads
& Applications PD's



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Deutsch

Optional Form 8
July 1959
U.S. CIVIL SERVICE COMMISSION
FPM Ch. 295
5008-104

POSITION DESCRIPTION

1. Check one: Dept'l ☒ Field ☐
2. Official headquarters: Washington, D. C.
4. Agency position No.

3. Reason for submission:
(a) If this position replaces another (i. e., a change of duties in an existing position), identify such position by title, allocation (service, series, grade), and position number
Director, Bioengineering Division GS-1301-16
5. C. S. C. certification No.

(b) Other (specify)
6. Date of certification

8. CLASSIFICATION ACTION
7. Date received from C. S. C.

ALLOCATION BY	CLASS TITLE OF POSITION	CLASS Service	CLASS Series	CLASS Grade	INITIALS	DATE
a. Civil Service Commission						
b. Department, agency, or establishment	Director, Life Sciences Payloads and Applications	GS	1301	16		
c. Bureau						
d. Field office						
e. Recommended by initiating office						

9. Organizational title of position *(if any)*

10. Name of employee *(If vacancy, specify V-1, 2, 3, or 4)*
Dr. Stanley Deutsch

11. Department, agency, or establishment
NASA Headquarters

a. First subdivision
OSS

b. Second subdivision
Life Sciences

c. Third subdivision

d. Fourth subdivision

e. Fifth subdivision

12. This is a complete and accurate description of the duties and responsibilities of my position

(Signature of employee) (Date)

13. This is a complete and accurate description of the duties and responsibilities of this position

(Signature of immediate supervisor) (Date)

Title: NASA Director for Life Sciences

14. Certification by head of bureau, division, field office, or designated representative

(Signature) (Date)

Title: Associate Administrator for Space Science

15. Certification by department, agency, or establishment

(Signature) (Date)

Title: Director, Office of Personnel

16. Description of duties and responsibilities Director, Life Sciences Payloads and Applications

A. General Summary

Under the Director, plans, develops, organizes, directs and controls programs for the development of space flight payloads and research programs, the application of space research and technology to medical and biological problems on earth, and the stimulation, encouragement, and coordination of the scientific community in the Life Sciences space flight programs. The incumbent functions in a wide variety of disciplines such as medicine, physiology, biology, behavior, performance, life support and protective systems, as outlined in Sections B and C below. He represents the Program externally to other Program Offices, to NASA Centers, to other government agencies, to universities, and to industry in Payloads and Applications. Responsible for the planning and development of Life Sciences experiment payloads for the NASA Space Transportation System Missions end to end, including the allocation of limited resources, such as funds, manpower, facilities, and materials.

If more space is required, use the other side and additional pages size 8 x 10½

GPO: 1964—O-722-797

B. Functional Background of the Position

1. The nature and status of the Life Sciences Payloads and Applications Program:

The Life Sciences Payloads and Applications Program has several major components: Flight Payloads, Flight Systems and Operations, Life Sciences Applications, and Future Systems.

Flight Payloads

a. Develops and integrates all Life Sciences flight experiments into meaningful compatible cost effective payloads. A multitude of diverse complex elements are managed and coordinated for research and technology development for the use of the unique properties of the space environment to improve understanding of life processes on earth, to enhance man's well-being and performance in space, and to provide Life Sciences information and technology required to extend the duration of manned space flight.

This effort requires the effective combining of such diverse factors as 1) knowledge of medical, biological, behavioral, life support, and protective systems, 2) the engineering development, design, and fabrication of flight experiment packages and 3) milestones, schedules and resources such as manpower, funds, and facilities to provide the greatest return to the program. This requires the solicitation of flight experiment proposals from the scientific community in universities, government, laboratories, and industry. Peer groups are established and provided guidance for the critical review and evaluation of these proposals on their scientific merit. Concurrently, it is necessary to establish engineering feasibility and cost review groups to assure that selected scientific proposals can be developed and flown within the constraints of the NASA flight missions.

Thus a constant flow of planning, organizing, directing, communication with high level scientists, and their top level management, control of the program and its large number of elements, and evaluation, is required on a day to day basis, with rigid adherence to milestones to meet mission planning and schedules with the manpower and funding constraints.

Since each flight mission in which Life Sciences participates has a variety of technical as well as resource constraints, it is mandatory that the return to the program be maximized by identifying and utilizing all flight opportunities. This requires

complex and significant coordination and negotiation with the various flight mission managers to obtain the required space, mission support, and funding needed to fly these Life Sciences payloads. A large proportion of these payloads will be flown on dedicated Spacelab flights. These flights require the development, implementation and simulation of a variety of Life Sciences experiments of sufficient quality and in sufficient quantity to utilize these dedicated flights in a meaningful and cost effective manner to maintain the high caliber of Life Sciences experiments and payloads that has been the hallmark of the Life Sciences Program to date.

Extensive planning and coordination must be undertaken to develop the Kosmos series of Life Sciences experiments. This international US/USSR flight program requires close and continuing liaison with members of the Russian Academy of Sciences.

Flight Systems and Operations

b. Provides the pre-flight, in-flight, post-flight and ground-based activities and equipment required for the successful implementation of the Flight Payloads efforts. These activities require long range planning to develop the Common Operations Research Equipment (CORE). This is the basic life sciences equipment that will be used and reused a number of times to reduce the cost of flying the Life Sciences experiments and payloads. The CORE hardware, software, and integration will provide up to 90 per cent of all equipment and data management capability for the Life Sciences Flight Program.

Detailed planning for the transportation and integration of flight experiments into payloads, the Level IV integration of these payloads into racks; and the transportation to and Level III integration of the payload racks into the Spacelab module is required in a timely and orderly manner for each Life Sciences flight.

In addition, special biological specimen holding facilities for housing, feeding, and providing a life support system for plants and animals to be flown must be provided. Since none of these systems exist, they must be planned, developed, and tested. Each of these systems must be flight qualified at a reasonable level of reliability, still to be determined.

Additional flight system capability must be developed for the free flying Biological Experimental Satellite System (BESS) that will remain in low earth orbit for periods of up to six months.

Development of BESS and the supporting subsystems is a major development project to be undertaken to broaden the Life Sciences Flight Payloads capabilities for longer duration flights.

Another major flight system to be developed is the Vestibular Functions Research (VFR) vehicle and support systems. The VFR is a self-contained vehicle for orbital flight research on a frog otolith to study the effects of weightlessness on an isolated vestibular organ to determine the mechanisms that control man's sense of balance in Earth gravity and in zero gravity in space. The VFR is a uniquely designed complete habitat containing biomedical and physiological measurement equipment that will measure otolith response and record data on board and transmit data to earth as required in a series of orbital flights.

Life Sciences Applications

c. Provide information on Life Sciences research and technology for use by the social sector of the United States. Much of the information gathered on the effects of weightlessness on biological elements, subsystems, and systems is very meaningful in the understanding of life processes on earth. In space, the effects of gravity are eliminated, thereby permitting research on processes and mechanisms without the confusing influence of gravity. In addition, much of the biomedical instrumentation required for the Life Sciences Flight Program represent advances in the state of the engineering art and provide technological development of interest to physicians, hospitals, laboratories and industry. The Life Sciences Applications efforts continue to identify these capabilities and to work with the NASA Office of Technology Utilization and the NASA Office of Applications to bring these advances to the state of development where they can be applied to natural needs. An example of this coordination and application is the STARPAHC Program (Space Technology Applied to Rural Papago Advanced Health Care) where Life Sciences developed technology is being used to deliver high level health care to members of the Papago Indian Nation located in remote villages. Extensive interaction with non-NASA organizations is required on a continuing basis, including DHEW, Bureau of Indian Affairs, industry, and foreign governments and industry.

Future Systems

d. Studies are concerned with the planning for Life Sciences in advanced space systems such as the Orbiting Space Station, the Manned Orbiting Systems Concept, and the Space Solar Power Satellite System. Participation in the planning, concept development, and

feasibility studies in these advanced system concepts requires extensive, creative, independent involvement in unique uncharted areas to solve complex difficult problems. Knowledge of man's functioning, response to the environment, and his life support and protective needs are brought to bear on these challenging problems in unique ways. Life Sciences research and flight operations must be defined to provide meaningful inputs to these advanced studies.

2. Organization of the Work:

The Office of Space Science is responsible for the planning, direction, and execution of the NASA efforts in the scientific investigation of phenomena in space including highly diverse programs in the disciplines of Physics, Astronomy, Lunar and Planetary Exploration, and Life Sciences.

Life Sciences Program Summary

The Life Sciences Programs Division is responsible for the development of an integrated life sciences research program for all of NASA. The Life Sciences research and technology programs are directed toward many different technical objectives ranging from the advancement of science and understanding the effects of flight environments on living organisms, to defining crew roles and developing crew equipment and life support for aeronautic and space systems, the applications of space technology to aid in the conservation and management of earth ecosystems and for improved health delivery and medical care. The aspects of these programs which identify them as part of the Life Sciences programs are their focus on goals in the disciplines of medicine, physiology, biology, pathology, psychology, human factors, health care, the biological relationships of living things to their environment, and the bioengineering necessary to measure associated parameters. Medical support and planning associated with NASA flight projects are also important elements of the program.

Life Sciences Payloads and Applications

The Director of Life Sciences Payloads and Applications is responsible to the NASA Director for Life Sciences for the planning, direction, execution and control of all Life Sciences flight payloads, projects, vehicle and equipment development, and applications. He directs and manages programs at Headquarters and projects at the NASA Centers, industrial organizations and universities in consonance with Life Sciences Program Goals and Objectives. He is a spokesman for NASA to the national and international scientific and technical communities.

In the direction and management of Life Sciences flight projects, he works with Center Directors and their Deputies, Laboratory Directors, and Project Managers. Frequent negotiation with Center Directors, their Deputies, and Laboratory Directors is required to establish project priorities and the effective allocation of financial, manpower, and facility resources for the Project Management of critical major systems such as CORE, Integrated Life Sciences Payloads, BESS, and VFR.

In the direction and management of Life Sciences flight systems development and operations, he works with the major Flight Systems Program Directors at Headquarters and their counterpart Project Directors at the Centers for such programs as Space Shuttle, Spacelab, Space Transportation System (STS) Operations to assure proper integration of Life Sciences Flight Payloads into the design, development, and operation of these major flight systems and their ground-based support and facilities.

In the direction and management of Life Sciences Applications, he works with the Director of the Technology Utilization Office and the Center Project Managers for various medical, physiological, behavioral, and other equipment and methods, developments and applications. Frequent interaction occurs with external (non-NASA) government agencies, laboratories, universities, and industry.

3. Principal Responsibilities of the Incumbent

The incumbent plans, organizes, directs, coordinates, controls, evaluates, and modifies all Agency activities in the Life Sciences Flight Payloads, Life Sciences Flight System Developments, and the Life Sciences Applications Programs within the general policy provided by the NASA Director for Life Sciences. He has the authority to initiate policies necessary to accomplish his broad functions, and convenes and chairs management steering and working groups to establish program priorities, schedules, and funding levels. He is responsible for the technical merit and administration of assigned programs and their control and modification. The incumbent is responsible for the management of the major portion of the Life Sciences Program funding. A large proportion of Headquarters and Center personnel are also involved.

Incumbent has the authority to act as the NASA spokesman with the NASA and external scientific communities in the initiation, development and operation of the Life Sciences flight payloads and flight systems. In this capacity, he works with the Directors of the Biological Sciences, Medical Research, and Biomedical Support Programs as the focal point for integrating their research experiments and technology into the flight programs. All Life Sciences flights must be approved by the incumbent and assigned to candidate payloads and missions.

Since the functions of the incumbent are almost totally new, there are no existing standards or procedures that can be used. The incumbent must develop new and creative approaches to the development of Life Sciences flight payloads, including the soliciting of interest and participation by National and international scientific investigators in an extensive complex flight payloads program. This program is extremely dynamic with complex interactions since it will be necessary to develop and integrate experiments into payload concepts that will constantly change as the scientific community develops and improves the unique flight equipment.

The incumbent has considerable freedom in the development of procedures required to generate the life sciences payloads. He must resolve conflicts in the competition for available funds and other resources as well as conflicts that arise due to the assignment of experiments to candidate payloads. He also establishes peer groups composed of subject matter experts to evaluate proposals and recommend payload development.

C. Duties of the Position

Within the context of the foregoing programmatic and organizational background, incumbent performs duties of the following nature:

As noted above, the duties of this position are extremely complex and diverse, with responsibility for a number of large scale and varied projects located in Headquarters and at several NASA Centers, extensive coordination across Headquarters Offices in OSF, OSS, OA, OAST and OTDA to accomplish these duties in a timely and meaningful manner.

Continuing liaison and coordination is maintained with scientific and technical personnel in the Life Sciences who are interested in working with NASA to help in accomplishing the NASA Life Sciences space flight and applications objectives. These scientists and engineers are located in other government agencies, universities, laboratories, hospitals, and industry. The scientific community is kept informed of NASA plans and requirements and they, in turn, provide advice and guidance to the incumbent. Additional interaction occurs when the incumbent establishes peer groups for proposal review composed of the top scientists and engineers in the fields of investigation involved in the proposals. The incumbent must be aware of the constant rapid changes in science and technology and must utilize the latest state of the art in the continuing evolvement of program development and implementation.

The NASA Director for Life Sciences uses the incumbent as an authority for decisions concerning allocation of resources such as funds and manpower, and for modifications to program objectives based on detailed system analyses and management studies.

In addition, supervision is provided to three program managers in widely disparate areas. Authority is delegated to these program managers with the understanding that they are responsible to the incumbent for their program activities, schedules and results and that the incumbent is responsible to the NASA Director for Life Sciences for meeting program goals and objectives in a timely cost-effective manner.

1. Life Sciences Flight Payloads

   a. Establishes the short and long range plans for all Life Sciences Space Flight Payloads for the Space Transportation System (STS) and future space systems.

   b. Plans, directs, and manages the agency effort in the development of Life Sciences payloads for the Space Transportation System. Exercises broad latitude in the commitment of hundreds of millions of dollars, hundreds of NASA and non-NASA scientific and technical personnel, and extensive NASA facilities. These payloads are made up from the flight experiments proposed by the scientific and technological investigators that are selected for flight, the common operational research equipment (CORE), the biological specimen holding facilities, the joint US/USSR biological flight experiments (Kosmos), and the engineering models used for ground-based life sciences mission simulation studies.

   c. Provides the agency focal point for the science and technology communities to develop and fly Life Sciences experiments on the Space Shuttle, Spacelab, and free flyers. Develops methods for the acquisition of Life Sciences experiments. Prepares Life Sciences appendices to OSS Announcement of Opportunities for release to Life Scientists in USA, Canada, Europe, and Asia.

   d. Integrates highly diversified flight experiments into compatible payloads. Allocates approved experiments to candidate payloads based on complexity and unique characteristics and requirements of each experiment. This requires broad technical and administrative skills because of the highly diverse nature of the Life Sciences discipline.

   e. Provides periodic in-depth evaluation of payload development programs, program objectives, and results. Redefines program requirements and objectives as needed to improve results. Reprograms resources as required to meet broad goals and solve problems that may arise.

   f. Direct and evaluate an international program with the USSR in the development of scientific payloads for flight in the Kosmos series of unmanned space flights.

g. Determine the various factors involved in developing the large scale Payloads Program based on scientific and technical requirements, impact on the public of the various payload elements, Congressional reactions, and impact on other organizations. Use this and other related information in the decision making processes concerning the various payload proposals and flight assignments.

h. Prepare briefing materials and make presentations on program plans, management and results to the NASA Director for Life Sciences, the Associate Administrator for Space Science, the NASA Associate Administrator, the NASA Administrator and his Deputy, to the high level advisory committees and to Congress as required.

2. Life Sciences Flight Systems and Operations

a. Establishes the short and long range plans for the development and utilization of Life Sciences Flight Systems and their integration into OFT, Space Shuttle, Spacelab, free flying satellites and advanced space systems.

b. Plans and directs the development of pre-flight activities required to bring Life Sciences experiment and operational equipment and system to proper state of flight readiness. This includes proposal selection, continuing close liaison and coordination with principal investigators, development of ground-based and space system integration requirements, and the operational training requirements and training program development.

c. Plans, directs, and manages the agency effort in the development and operation of Life Sciences Flight Support Systems such as those portions of the Payload Operations Centers, Mission Control Centers, Data Management, Payload Changeout Room, access to biological specimens, that are related to the Life Sciences Flight Payloads. Requires total systems research and analysis to determine Life Sciences Flight Systems requirements, integration of these requirements with other Life Sciences programs and projects, and the development of the total Life Sciences Flight System and interfaces with STS.

d. Plans, directs, and manages the development of the Life Sciences Flight Vehicle Systems required to fly the Life Sciences Payloads in a free flying mode after deployment in earth orbit by the Space Transportation System. These Life Sciences flight systems carriers include the Vestibular Functions Research Vehicle (VFR), the Biomedical Experiments Scientific Satellite (BESS), and the Teleoperator Orbiter Bay Experiment (TOBE).

Each of these Life Sciences Flight Systems constitutes a separate major complex project.

e. Participates as a member of the STS Payloads Requirements and Analysis Group to develop life sciences payload development and life sciences flight systems design and operational requirements. This high level technical group reports to and makes recommendations in these areas to the Assistant Administrator for Operations.

f. Chairs the NASA Remotely Manned Systems and Extravehicular Activities Committee that recommends payload design requirements and operational procedures across the board.

g. Provides periodic in-depth evaluation of flight systems development programs, program objectives, and results. Redefines program requirements and objectives as needed to improve results or to meeting changes in program, agency, or national goals.

h. Plans and directs large scale simulation of complete Life Sciences Flight missions to exercise the system, improve procedures identify potential problem areas, establish mission time lines, and to provide orientation for flight and ground-based mission crews.

i. Prepare briefing materials and defend program to NASA top management, NASA Advisory Committees, OMB, and Congress as required.

3. Life Sciences Applications

a. Reviews efforts in Life Sciences SRT programs to identify useful applications of research and technology instrument, equipment, procedures and other developments to the Life Sciences flight programs payloads and operations.

b. Provide information to the Life Sciences directors and program managers to guide them in the development of research and technology flight experiments that should result from their ground-based SRT.

c. Develops a program plan to identify NASA Life Sciences research and technology development instrumentation, equipment, and methodology that can make useful contributions to external organizations such as health care delivery systems, telemedicine, specialized medical equipment, and teleoperator technology.

d. Briefs the Office of Technology Utilization and the Office of Applications on Life Sciences developments of potential value to the social sector. Advises these offices on the technical factors and provides technical guidance in the initiation of applications efforts.

e. Plans and directs joint undertakings with the Office of Technology Utilization in special projects that provide valuable data for Life Sciences while developing technology needed by the civil sector, such as the teleoperator technology development program.

f. Coordinates closely with non-NASA organizations in research and technology developments to encourage them to provide joint support for Life Sciences projects of value to two or more Government agencies. Typical studies are the STARPAHC health care delivery system development and aid to the handicapped using manual control devices.

H. Future Systems

a. Defines Life Sciences requirements to advanced NASA studies on future manned and unmanned systems. Identifies roles of man and develops human factors data and study requirements.

b. Provides scientific and technical data in Life Sciences to advanced space system study managers. Develop and collate technical information on medical and human engineering design, remotely manned systems, life support, human performance, protective space suits and extra-vehicular activities.

c. Participation on study teams to perform systems analysis on advanced concepts, develop man-machine design criteria for mock-ups, and evaluate the Life Sciences study data. Establish Life Sciences policy positions for these studies.

Technical Qualifications

This position requires a minimum of the Ph.D. or equivalent in one of the Life Sciences or related fields plus a broad background and extensive experience in laboratory and field studies. Scientific, technical, and operational experience in large scale projects and systems is mandatory to the satisfactory performance of these duties. The incumbent must be able to plan and function on a broad systems level with complex and difficult interactions.

Experience and training in life sciences, engineering, and project management constitute minimum technical qualifications for this position due to the combined scientific and engineering planning and direction required. The incumbent should have taken additional formal training courses since he received his doctor's degree.

The incumbent must be a recognized leader among his peers in his field. He should have achieved eminence by having held major offices in one or more professional life sciences societies.

He must be able to communicate his ideas effectively both orally and in writing form to scientific and technical individuals as well as to the layman. He should appeal to all levels of interest and understanding.

Managerial Qualifications

The incumbent must have extensive experience and training in the management of large scale, highly diversified, complex R&D projects. He must be able to utilize available resources in an imaginative and cost effective manner to produce the greatest results with limited manpower, funds, materials and facilities.

He must be able to plan, organize, direct, control, evaluate, and modify projects utilizing large numbers of personnel and funds and demonstrate creativity and flexibility to meet the stringent managerial demands of the Life Sciences Flight Payloads and Applications Program.

The incumbent should have demonstrated his superior ability to meet crises and resolve them in a satisfactory manner. He must be able to provide justification for his short and long term planning and decisions and to defend his program to NASA top management both technically and fiscally. He must be able to discuss his programs and defend them against criticism by the scientific community such as the science advisory committees, the OMB, Congress, and members of the public. He should be capable of enlisting the support of Life Scientists in the further development and implementation of his programs.

Incumbent must be capable of critical judgment and clear decision making and the ability to persuade others to his points of view.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

POSITION RECORD

1. POSITION NO.

2. NAME OF NASA ACTIVITY

Headquarters

3. DUTY LOCATION

Washington, D. C.

4. ORGANIZATION *(All breakdowns, in descending order)*

NASA Headquarters
Office of Space Science
Life Sciences Program Division

5. CLASSIFICATION

a. NASA SPECIALTY TITLE AND CODE

AST-Manager, Life Sciences Flight Programs
HQ 5657 725-80-250

b. CSC TITLE, SERIES AND GRADE

Aerospace Engineer

6. FUNCTIONAL AND PROGRAM/PROJECT CODES ▶	a. NSF-FC	b. NASA-FC	c. NASA-PPC
	92		

7. DUTIES AND RESPONSIBILITIES

This position has promotion potential to GS- 15 . Future advancement depends solely upon both sufficient work to support the job and clearly demonstrated performance at that higher grade(s).

I certify that this is an accurate statement of the major duties and responsibilities of this position and its organizational relationships, and that the position is necessary to carry out government functions for which I am responsible. This certification is made with the knowledge that this information is to be used for statutory purposes relating to appointment and payment of public funds, and that false or misleading statements may constitute violations of such statutes or their implementing regulations.

8. OFFICIAL POSITION CERTIFICATION		9. OFFICIAL CLASSIFICATION CERTIFICATION	
THIS IS A COMPLETE AND ACCURATE DESCRIPTION OF POSITION			
a. TYPED NAME OF SUPERVISOR Dr. Stanley Deutsch		a. TYPED NAME OF CLASSIFICATION OFFICER	
b. SIGNATURE	c. DATE	b. SIGNATURE	c. DATE

10. ANNUAL POSITION CLASSIFICATION CERTIFICATION						11. DISTRIBUTION	
a. SUPERVISOR *(Initials and date)*						a. EMPLOYEE	
						b. PERSONNEL FOLDER	
						c. SUPERVISOR	
						d.	
b. CLASSIFICATION OFFICER *(Initials and date)*						e.	
						f.	

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GPO 876-271

1. Duties: This position reports to the Director, Life Sciences Payloads and Applications. The incumbent, under his guidance, is responsible for developing all major Life Sciences Flight Systems. These include dedicated spacelabs, satellite missions and various shared payloads. The incumbent is the principal Headquarters contact and senior advisor to the Director, Life Sciences Payloads and Applications for all matters relating to this effort and, as such, plans, directs, and coordinates all work being done at NASA Field Centers, other government agencies and industry that have direct relationships to this Program.
   a. Directs the activities required to design, develop and fly the Life Sciences major flight systems.
   b. Directs and coordinates the NASA Centers involvement in support of flight systems projects.
   c. Plans, develops and defends budgets and schedules required for the various flight systems.
   d. Develops Life Sciences flight program goals and objectives. Also, develops the technology assessment associated with each of these goals and objectives identifying the progress which must be achieved and the time schedule necessary to meet future agency flight plans.
   e. Speaks for the Agency, as a nationally recognized authority in his area in a variety of conferences, committees and relationships with other agencies, industry and universities. Objectives of these contacts are chiefly exchange of information and exploration of alternatives.

2. Knowledge Required by the Job:
   a. Ability to manage and direct innovative scientific and technical projects through subordinates.
   b. Scientific and technical knowledge and understanding of Life Sciences Research Space Flight requirements, systems, engineering/integration, and subsystem "state of the art."
   c. Administrative knowledge of policy (both NASA and Federal), Executive and Congressional Budget cycles and rules, NASA organization and fiscal limitations.
   d. Knowledge of progress or problems in interacting programs (i.e., Shuttle, Life Sciences R&D, Low Cost Systems Program, etc.)
   e. Ability to write and present technical and budgetary research analyses of major developments.
   f. Ability to plan ahead fifteen years and integrate this planning with the ongoing program.

3. Supervisory Controls: Receives general direction from the Director, Life Sciences Payloads and Applications, who assigns broad program area responsibility. This provides a wide latitude for exercising individual initiative and judgment as the incumbent defines and develops, implements and completes the programs assigned. Recommendations made to higher authorities are rarely changed for technical reasons since incumbent is a nationally recognized expert for the particular subject area. Decisions may, however, be modified on the basis of administrative or interrelated program considerations. The incumbent exercises independent initiative and resourcefulness in determining approaches, developing methods and

techniques, and making decisions and recommendations on the program. His assignment specifically includes directing, coordinating and evaluating field center staffs in the design, development, integration and operation of Life Sciences flight systems. Reviews of incumbent's work is on an irregular basis usually associated with overall Life Sciences Program reviews.

4. Guidelines: Guidelines are primarily verbal in nature and general in direction. They communicate policy, and, where appropriate, constraints. Incumbent uses his independent judgment to interpret and adapt this guidance so as to accomplish the assignment. Where incompatibilities exist, incumbent develops and recommends new guidelines.

5. Complexity: This work involves the top level management of several "major flight systems" projects. It includes planning, budgeting, scheduling, multiple center management and coordination, and interaction/presentation and review before top management and the development of material NASA can use for presentation to OMB and Congress. The incumbent must maintain up to date scientific and technical competence.

6. Scope and Effect: This position manages the synthesis of efforts required to provide flight qualified flight systems to support Life Sciences orbital research through the Shuttle era of the 80's. The resultant products will be the means by which Life Sciences Space research will be conducted and as such they will affect the cost and science effectiveness of research during the Shuttle era. This can impact the agency's primary mission, competitive commercial research, and potentially major advances in medicine.

7. Personal Contacts: Contacts with all levels of management and science, both at Headquarters and field centers, other government agencies, universities, industry, foreign and domestic.

8. Purpose of Contacts: Contacts are for many reasons. They are for developing the objectives, approaches and solutions for the projects, for informing and answering questions about the projects and Life Sciences and for interest and securing participation in the projects.

9. Physical Demands: Although basically sedentary, long hours and travel for long periods of time are a substantial requirement of the position.

10. Work Environment: Primarily an office setting but includes shops or test areas when on travel reviewing contractor or center activities.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

POSITION RECORD

1. POSITION NO.

2. NAME OF NASA ACTIVITY

NASA HEADQUARTERS

3. DUTY LOCATION

Washington, DC

4. ORGANIZATION *(All breakdowns, in descending order)*

Office of Space Science
Life Sciences Programs

5. CLASSIFICATION

a. NASA SPECIALTY TITLE AND CODE

AST, Flight Systems Program Management

b. CSC TITLE, SERIES AND GRADE

6. FUNCTIONAL AND PROGRAM/PROJECT CODES ▶

a. NSF-FC

b. NASA-FC

c. NASA-PPC

7. DUTIES AND RESPONSIBILITIES

This position has promotion potential to GS- 15 . Future advancement depends solely upon both sufficient work to support the job and clearly demonstrated performance at that higher grade(s).

I certify that this is an accurate statement of the major duties and responsibilities of this position and its organizational relationships, and that the position is necessary to carry out government functions for which I am responsible. This certification is made with the knowledge that this information is to be used for statutory purposes relating to appointment and payment of public funds, and that false or misleading statements may constitute violations of such statutes or their implementing regulations.

8. OFFICIAL POSITION CERTIFICATION

THIS IS A COMPLETE AND ACCURATE DESCRIPTION OF POSITION

a. TYPED NAME OF SUPERVISOR

David L. Winter, M.D.

b. SIGNATURE

c. DATE

9. OFFICIAL CLASSIFICATION CERTIFICATION

a. TYPED NAME OF CLASSIFICATION OFFICER

b. SIGNATURE

c. DATE

10. ANNUAL POSITION CLASSIFICATION CERTIFICATION						11. DISTRIBUTION	
a. SUPERVISOR *(Initials and date)*						a. EMPLOYEE	
						b. PERSONNEL FOLDER	
						c. SUPERVISOR	
						d.	
b. CLASSIFICATION OFFICER *(Initials and date)*						e.	
						f.	

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GPO 876-271

1. Duties: This position reports to the Director, Life Sciences Payloads and Applications. The incumbent serves as Manager of Life Sciences Payloads and senior advisor to the Director, Life Sciences Payloads and Applications in the areas of planning, developing and integrating ground and flight operations of Life Sciences flight experiments to be flown on the Shuttle/Spacelab and other space vehicles. Duties include:

a. Identify and develop NASA Life Sciences flight experiment payloads for Spacelab Missions.

b. Manage Shuttle/Spacelab Life Sciences flight experiment payloads development program, working directly with centers and principal investigators on proposed flight experiments preparation, development, implementation, and operation.

c. Provide direction to Center Project Managers, and coordinate intercenter activities related to these Life Sciences projects.

d. Conduct technical and managerial discussions with ESA and other European experimenters who plan to fly Life Sciences experiments.

e. Plan and develop operational requirements for the implementation of Life Sciences experiments and payloads.

f. Provide back-up management on Life Sciences Spacelab module and sortie flight experiment facilities.

g. Develop flight experiment data processing and a management system for both in-flight and on-the-ground operations.

h. Perform Life Sciences cost analysis studies with emphasis on low cost developments.

i. Identify requirements and develop programs to meet Life Sciences facilities requirements at KSC, JSC, ARC and other centers and at Principal Investigators' laboratories to support flight experiments.

j. Develop and coordinate Life Sciences unique and integrated simulation studies.

k. Advise Center Project Managers on problems and priority adjustments.

l. Advises NASA top management on the status of all program activities, e.g., analysis of ongoing work including presentations and reports of program status and activities.

2. Knowledge Required by the Position:

a. Ability to manage and direct multi-discipline scientific and technical programs.

b. Previous experience in directing and managing flight hardware programs.

c. Broad scientific and technical background knowledge to cope with and understand multi-experiment design requirements, spacecraft development, and integration into the carrier vehicle (e.g., Shuttle/Spacelab), operations, and data management.

d. Ability to make program decisions and solve problems necessary for success of the administrative process.

e. Ability to write and communicate well so that ideas and concepts can be effectively presented to top management.

3. Supervisory Controls: The incumbent receives general direction from the Director of Payloads and Applications who assigns broad program areas of responsibility with a wide latitude for exercising individual initiative, resourcefulness and judgment. He also defines, develops, implements, and completes the programs and work that are assigned to him. The incumbent will periodically brief the Director of Payloads and Applications on the activities he is responsible for and its progress.

4. Guidelines: Consists of contractor proposals, studies, reports, Shuttle and Spacelab handbooks, Program Definition and requirements documents, specifications, reports, operating procedures, and discussions with scientific, technical and managerial personnel.

5. Complexity: Requires the establishment and implementation of a management approach/system to handle the areas of assigned responsibility which include Vestibular Functions Research, Life Sciences experiments and payloads to be flown on the Shuttle and Spacelab, Joint US/USSR Biological Satellite Program (Kosmos 782), backup support to Kosmos 1977, NASA Center facility requirements, Orbital Flight Tests, and all simulations related to Life Sciences. When hardware development begins, management positions would have to be filled and supervision of these positions provided.

6. Scope and Effect: The scope of the incumbent's assigned duties is to develop the management philosophy, implement it into a working system and oversee its operation. The results of the incumbent's efforts will directly effect and have significant impact upon the success of a variety of Life Sciences payloads in the 1980's.

7. Personal Contacts: Personal contacts are established with a wide variety of technical, scientific and management officials within NASA Headquarters, the Centers, outside contractors, and foreign contractors or agencies, e.g., ESA.

8. Purpose of Contacts: Contacts are primarily made in order to communicate necessary information and data to run the program. Resolution of programmatic and technical problems are handled by this method. Persons contacted range from in-house NASA people to representatives of foreign Governments and contractors who may have serious disagreements with NASA.

9. Physical Requirements: Desk work and travel.

10. Work Environment: Office setting and travel to various contractors and center locations.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

POSITION RECORD

1. POSITION NO.

2. NAME OF NASA ACTIVITY

NASA Headquarters

3. DUTY LOCATION

Washington, D. C.

4. ORGANIZATION *(All breakdowns, in descending order)*

NASA Headquarters
Office of Space Science
Life Sciences Program Division

5. CLASSIFICATION

a. NASA SPECIALTY TITLE AND CODE

AST-Flight Experiments Program Management

b. CSC TITLE, SERIES AND GRADE

Aerospace Engineer

6. FUNCTIONAL AND PROGRAM/PROJECT CODES ▶	a. NSF-FC	b. NASA-FC	c. NASA-PPC

7. DUTIES AND RESPONSIBILITIES

This position has promotion potential to GS- 15 . Future advancement depends solely upon both sufficient work to support the job and clearly demonstrated performance at that higher grade(s).

I certify that this is an accurate statement of the major duties and responsibilities of this position and its organizational relationships, and that the position is necessary to carry out government functions for which I am responsible. This certification is made with the knowledge that this information is to be used for statutory purposes relating to appointment and payment of public funds, and that false or misleading statements may constitute violations of such statutes or their implementing regulations.

8. OFFICIAL POSITION CERTIFICATION		9. OFFICIAL CLASSIFICATION CERTIFICATION	
THIS IS A COMPLETE AND ACCURATE DESCRIPTION OF POSITION			
a. TYPED NAME OF SUPERVISOR Dr. Stanley Deutsch		a. TYPED NAME OF CLASSIFICATION OFFICER	
b. SIGNATURE	c. DATE	b. SIGNATURE	c. DATE

10. ANNUAL POSITION CLASSIFICATION CERTIFICATION						11. DISTRIBUTION	
						a. EMPLOYEE	
a. SUPERVISOR *(Initials and date)*						b. PERSONNEL FOLDER	
						c. SUPERVISOR	
						d.	
b. CLASSIFICATION OFFICER *(Initials and date)*						e.	
						f.	

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GPO 876-271

1. Duties: This position reports to the Director, Life Sciences Payloads and Applications. As Associate Staff Specialist for Biomedical Engineering, incumbent serves as Program Manager of the joint US/USSR Kosmos Missions, Program Manager for Life Sciences Technology Applications, and senior advisor to the Director, Life Sciences Payloads and Applications, on bioinstrumentation, medical data management, and health care system development. The incumbent is responsible for planning, organizing, and directing all NASA aspects of the joint US/USSR Life Sciences spaceflight experiments, and planning, organizing and directing NASA-wide and interagency projects and studies in remote health care delivery systems, emergency medical service systems, and biomedical technology applications.

a. Directs all NASA aspects of the joint US/Soviet Program, Kosmos 1977, in which U.S. Life Sciences experiments will be flown on board a Russian Satellite in 1977.

b. Provides intergovernmental coordination and liaison for Life Sciences flight experiment operations and logistic support.

c. Briefs NASA top management on status of joint international Life Sciences flight program activities.

d. Plans and directs NASA aspects of the joint NASA-HEW Program on STARPAHC (Space Technology Applied to Rural Papago Advanced Health Care), in which an advanced medical telecommunications and data management system has been designed and installed in a remote location in the United States, and is being operated and evaluated to verify requirements and procedures for health care delivery to crewmen and passengers in space, and to verify the applicability and effectiveness of these technologies for remote health care on earth.

e. Provide interagency coordination and liaison for remote health care project operations and overall system evaluation.

f. Serve as NASA representative to interagency and intergovernmental committees, working groups, and other meetings for remote health care and emergency medical services systems in the USA and abroad.

g. Act as the interface between the NASA Office of Life Sciences and the Office of Technology Utilization, assisting O.T.U. in expediting the transfer of NASA biomedical technology to the public and private sectors.

h. Provide review and evaluation of biomedical technology applications projects for Life Sciences.

i. Assist the Manager, Biomedical Applications Program in managing Applications Engineering Projects and Biomedical Applications Teams.

j. Provide biomedical engineering expertise to the Director, Technology Applications Division, and the Director, Office of Technology Utilization.

k. Review Life Sciences SR&T projects and operations to identify equipment, techniques, and procedures applicable to earth-based medical problems in the social sector.

l. Develop methodologies to encourage industry and mission agencies to utilize NASA Life Sciences advanced technology and provide coordination to implement these methodologies.

m. Participate in the development of instrumentation and other support equipment and operational requirements for Life Sciences spaceflight experiments, and assist the Program Manager, CORE (Common Operations Research Equipment) by providing consultation regarding biomedical instrumentation and other support as required.

2. Knowledge Required by the Position:
a. Advanced studies in Biomedical Engineering, including basic physiology, mathematical analysis of physiological systems, biomedical measurement systems, and data management systems.
b. Knowledge of the application of bioinstrumentation to remote health care delivery systems and measurement systems for physiological research, including implantable and non-invasive bioinstrumentation technology, biotelemetry systems, and medical telecommunications systems.
c. Advanced training and/or experience and understanding of human physiological systems and their responses under stress.
d. Knowledge of complex systems management techniques, including resources and schedule analysis techniques as practiced in NASA.
e. Ability to assimilate complex technical reports in medical and biomedical engineering areas and summarize for management presentations.
f. College level training in mathematics, physics, chemistry, and electrical, mechanical, or chemical engineering.
g. Training and/or experience in experimental design and computer-based data management.
h. Familiar with biological signal processing, electromagnetic interference, power supply alternatives, and biomedical safety standards.
i. Knowledge of the overall NASA program and future needs in Biomedical Engineering and Biomedical Technology Applications.

3. Supervisory Controls: Reports directly to the Director, Life Sciences Payloads and Applications. General policy guidance is provided to incumbent who then uses his own substantial technical expertise and management capability to plan, organize, manage, and evaluate NASA activities in the joint US/USSR KOSMOS 77 Mission, and Life Sciences projects aimed at the development of advanced health care systems for future spaceflight. Incumbent has extensive latitude for independent action in pursuit of program goals that he helps to establish. Recommendations and decisions are accepted as technically and fiscally sound and are rarely changed. However, final approval may depend on administrative or interrelated program considerations or by formal actions by higher levels of management when NASA policy or United States foreign policy is involved.

4. Guidelines: Generally, involves policy and constraints. Incumbent must use his own judgment and initiative in planning, implementing, and evaluating projects. Where no guidelines exist, incumbent must devise methods and procedures to accomplish objectives.

5. Complexity: The incumbent is responsible for the exercising of considerable initiative and independent judgment in a large variety of complex areas. These include the development, coordination, and preparation for flight

readiness of biological experiments for the US/USSR KOSMOS Life Sciences Missions, the development of health care delivery systems to maintain astronaut and Shuttle passenger well-being in manned space flight, the development of bioinstrumentation and data management systems for medical and physiological research in the Spacelab and in other space systems, and as the NASA Life Sciences focal point in the applications of biomedical technology to other agencies and industry in accordance with the National Aeronautics and Space Act of 1958.

Must integrate the activities of two or more Centers and coordinate with various Headquarters Offices to asure a well-coordinated cost effective program. Recommends program priorities, program realignment, and funding based on his assessment of program requirements and progress.

In terms of technology, the incumbent is responsible for the development of medical telecommunications systems, including high resolution wide-band video, narrow-band and slow-scan video, audio channels for heart and lung sounds, and high-speed digital data channels; non-invasive and implantable biotelemetry systems for transmitting human and animal physiological measurement information from the measurement site to remote locations; medically-oriented data management systems; instrument power sources; and the functioning and procedures for use of a wide variety of medical electronic devices, biological measurement systems, and related support equipment, and the integration of such diverse equipment into a unified system compatible with U.S. and Soviet spacecraft.

6. Scope and Effect: Incumbent is responsible for the efforts of more than 25 NASA Center personnel and more than 30 contractors and grantees, and for coordinating the efforts of U.S. and foreign scientists and engineers. The funding level of projects under his management, direction and evaluation may be in excess of $5 million (as in the case of the STARPAHC Project). Extensive NASA Center, university, and industrial laboratories and other facilities in the U.S. and abroad are involved in these programs. The results of his programs have a direct bearing on the physiological measurement analyses and evaluation of flight crews, passengers, and animal specimens in space flight. Results of his expertise have a direct effect on medical devices and health care delivery in the civil sector. These devices and health care systems directly impact thousands of people. The incumbent serves on critical NASA and interagency Committees that impact the health care programs of this Country and nations abroad. He functions as a recognized authority in bioinstrumentation systems and health care delivery systems.

7. Personal Contacts: Represents three broad program areas to officials of NASA Headquarters, including the Associate Administrator for Space Science, and the Assistant Administrator for Industry Affairs and Technology Utilization, other officials, such as the Assistant Secretary for Health of DHEW, and key officials of DOD, VA, NSF and Department of

State and to representatives of foreign countries, such as the Ministry of Health of the USSR, providing interpretations of program results, reports, trends, progress and caveats, and correlating various aspects of the three major programs with other related programs.

Incumbent is the senior representative of Life Sciences to the Technology Utilization Office in NASA, and the Life Sciences representative for medical telecommunications to the Office of Applications. In addition, he participates in a variety of interagency and intergovernmental committees and panels with considerable autonomy in the interpretation and application of established policy and procedures.

8. Purpose of Contacts: Within NASA, incumbent must convince management of the critical need for resources in certain program areas, and recommend allocation of resources among the part of the Life Sciences Program for which he is responsible. He works in close coordination with HQ management, engineers, center management, and technical personnel, and grant and contractor management and personnel. He must frequently convince them of the soundness of his logic and decisions and expertise in the areas involved.

The incumbent has high levels of responsibilities that require extensive interaction to advise high level management and technical personnel of bioinstrumentation requirements, Soviet spacecraft interface and logistics requirements, program status, and future program plans. He provides expert consultation and advice to other NASA and non-NASA organizations in bioinstrumentation, medical telecommunications and data management, life support, and environmental control systems of a frequent basis. He provides expert consultation and advice in biomedical measurement systems and space flight experiment design and operation whenever problems arise in his area of expertise.

Outside of NASA, the incumbent deals with representatives of U.S. health related agencies to expedite the transfer of NASA developed biomedical technology to the public sector, and to assure the success of joint agency programs.

He must assess the mission agencies' needs and priorities, enlist their supporting efforts in NASA programs, and advise the other organizations of NASA activities in biomedical instrumentation, rehabilitation medical emergency medical systems, and health care delivery systems. He is frequently asked to represent NASA Life Sciences at non-NASA government conferences and technical sessions.

The incumbent deals with representatives of the Department of Space Biology and Medicine, and the Institute of Biomedical Problems of the USSR Ministry of Health to coordinate scientific and technical information from NASA field centers personnel and university scientists, concerning the interfaces and logistics requirements of U.S. biological experiments

for flight on Soviet spacecraft, and to formulate and negotiate overall program level management plans and agreements.

9. Physical Demands: Mostly sedentary in nature. Occasional physical activity, mostly walking and some travel.

10. Work Environment: Primarily benign in an office location. Travels around the D. C. area and visits NASA field centers and contractor facilities. Infrequent foreign travel may be required in connection with the management of the joint US/USSR Kosmos 77 Program.

FIG. 1 INCORRECT.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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		Note and Forward	
		Note and Return	
		Per Request	
		Per Telephone Conversation	
		Recommendation	
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CODE *(or other designation)*	DATE

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