

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ROUTING SLIP		
MAIL CODE	NAME	Action
		Approval <input checked="" type="checkbox"/>
		Call Me <input type="checkbox"/>
		Concurrence <input type="checkbox"/>
	<i>Vinograd</i>	File <input checked="" type="checkbox"/>
		Information <input checked="" type="checkbox"/>
		Investigate and Advise <input type="checkbox"/>
		Note and Forward <input type="checkbox"/>
		Note and Return <input type="checkbox"/>
		Per Request <input type="checkbox"/>
		Per Telephone Conversation <input type="checkbox"/>
		Recommendation <input type="checkbox"/>
		See Me <input type="checkbox"/>
		Signature <input type="checkbox"/>
		Circulate and Destroy <input type="checkbox"/>

Your position description is attached for your review, markup for accuracy, and retention.

A 100% desk audit of OSS will be conducted during 1/13-1/19/77. This marked up PD will probably form the audit base.

This audit may be hazardous to your financial health, so critically review your PD. Be aware however that 100% audits generally uncover overlapping claims of responsibilities and duties.

*Bud*

NAME	TEL. NO. (or code) & EXT.
W. H. Shimel	53723
CODE (or other designation)	DATE
SBC	12-9-76

NASA FORM 26 APR 69 PREVIOUS EDITIONS MAY BE USED



Options: Form 8 July 1969 U.S. CIVIL SERVICE COMMISSION P.M. Ch. 505 ADM-104  <h2 style="text-align: center;">POSITION DESCRIPTION</h2>		1. Check one: Dept. <input checked="" type="checkbox"/> Field <input type="checkbox"/> 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 Director, Biomedical Research Division, GS-1301-16 (b) Other (specify)		4. Agency position No.  5. O. S. C. certification No.  6. Date of certification  7. Date received from O. S. C.		
<b>CLASSIFICATION ACTION</b>						
<b>ALLOCATION BY</b>	<b>CLASS TITLE OF POSITION</b>	<b>CLASS</b>			<b>INITIALS</b>	<b>DATE</b>
a. Civil Service Commission		Service	Series	Grade		
b. Department, agency, or establishment	Director, Medical Sciences Division	GS	1301	16		
c. Bureau						
d. Field office						
e. Recommended by initiating office						
9. Organizational title of position (if any) NASA		10. Name of employee (If vacancy, specify V-1, 2, 3, or 4) S. P. Vinograd, M. D.				
11. Department, agency, or establishment NASA Headquarters		c. Third subdivision				
a. First subdivision Office of Space Science		d. Fourth subdivision				
b. Second subdivision Life Sciences Division		e. Fifth subdivision				
12. This is a complete and accurate description of the duties and responsibilities of my position  <div style="display: flex; justify-content: space-between;"> <div>(Signature of employee)</div> <div>(Date)</div> </div>		13. This is a complete and accurate description of the duties and responsibilities of this position  <div style="display: flex; justify-content: space-between;"> <div>(Signature of immediate supervisor)</div> <div>(Date)</div> </div> Title: NASA Director for Life Sciences				
14. Certification by head of bureau, division, field office, or designated representative  <div style="display: flex; justify-content: space-between;"> <div>(Signature)</div> <div>(Date)</div> </div> Title: Associate Administrator, OSS		15. Certification by department, agency, or establishment  <div style="display: flex; justify-content: space-between;"> <div>(Signature)</div> <div>(Date)</div> </div> Title: For: DIRECTOR OF PERSONNEL, NASA				
16. Description of duties and responsibilities  <b>A. General Summary</b>  Under the NASA Director for Life Sciences, plans, budgets, justifies, and coordinates NASA's program of Medical Science Research. This program has as its objective the elucidation of changes in human physiology and behavior, both known and anticipated to be induced by space flight, in the interest of enhancing human protection, safety, comfort, and capability in space. It is an integrated program of in-house and out-of-house research efforts organized and oriented to identified problem areas to determine and amplify the mechanisms involved, expected time courses, prognostic indicators, and optimal preventive/corrective techniques with respect to each. In pursuit of these interests, the area further entails the development of improved bioinstrumentation and measurement methodology, and the preparation of in-flight human and animal investigations for the Shuttle and other future flight programs. Work entails coordination and information exchange among Life Sciences units at the NASA field centers, between Life Sciences and other activities within NASA, with the national professional, academic, and political community, and internationally with related professional groups. The nature of the program is discussed more fully in Section B which follows. The duties involved are developed as Section C, below:						



the furthering of equal opportunity goals is a requirement of this position. In this regard, the incumbent shall exercise leadership in, and be responsible for, equal opportunity in employment, development, advancement, and treatment of employees directly and indirectly supervised.

**B. Functional Background of the Position**

**1. The nature and status of the program:**

The Medical Sciences Program embodies the NASA research in human physiology and behavior. The problem areas which it addresses consist, primarily, of the flight induced changes which have been observed by means of flight crew medical evaluations carried out throughout all of our manned space flight experience as mission duration and complexity grew from project Mercury through Gemini, Apollo and Skylab. The program also addresses anticipated problems and human supportive requirements based upon educated judgment and experience, with the over-all objective of maximizing our supportive capability of man in space and minimizing his constraints in undertaking future extensions of space exploration.

Specific problem areas to which this research is directed include cardiovascular changes, space motion sickness, bone and muscle alterations blood changes, fluid and electrolyte imbalance, performance and behavioral effects, metabolic effects, radiation effects and protection, and the development of early detection of disease methods for medical selection.

A coordinated combination of ground based research and Shuttle flight experiments planning is in progress to amplify our knowledge of mechanisms, predictive techniques and countermeasures with respect to the undesirable effects of space flight on man. Integrated within this activity is the development of bioinstrumentation and physiological and behavioral measurement techniques of improved accuracy, relevance and suitability for space flight to improve both investigative and supportive capability.

The program consists of approximately 125 separate research tasks at a current funding level of 6 million dollars. Approximately 30% of these research efforts are in-house and the majority of the remaining 70% out-of-house efforts are with investigators in university and non-profit institutions.

**2. Organization of the Work:**

The Medical Sciences <sup>Office</sup> Division is one of four <sup>Office</sup> divisions in the NASA Office of Life Sciences. The incumbent reports to the NASA Director for Life Sciences.

The Medical Sciences Program consists of nine Research and Technology Operating Plans (RTOP's), each headed by an RTOP manager who is a member of the staff of either JSC or ARC. The individual research tasks within each RTOP are either carried out within the laboratories of the Centers or, if out-of-house grants or contracts, are monitored by NASA scientists on the staff of the Centers.



In his daily activities, the Director, Medical Sciences, relates directly with all staff members of the NASA Office of Life Sciences, counterparts within other NASA Hqs. offices, with the Deputy Directors, Life Sciences at JSC and ARC, with the RTOP Managers, with Center and out-of-house principal investigators, and with members and representatives of the scientific community.

Program planning is implemented formally by means of the annual program call issued to the Centers by the Medical Sciences Division. Center responses to the program call are carefully reviewed by the Medical Sciences Division, and recommendations are made by the incumbent to the NASA Director for Life Sciences, who then establishes the Program for the fiscal year. Further guidance is given during annual Program Reviews held formally at each Center, by ad hoc review conferences, either in-house or with outside peer groups, by written communications, and by daily contact as the research of the program evolves.

### 3. Principal Responsibilities of the Incumbent:

The incumbent plans, organizes, directs, coordinates and evaluates all agency research activities in the multiple Life Sciences disciplines embraced by the Medical Sciences Program: cardiovascular, respiratory, neuro, endocrine, renal and gastrointestinal physiology, metabolism, exercise physiology, hematology, immunology, microbiology, aviation physiology, radiobiology, pathology, biochemistry, and bioinstrumentation. He is responsible to the NASA Director for Life Sciences for exercising his duties and authority to the fullest extent to develop and maintain a maximally productive and carefully budgeted research program of scientific excellence and authenticity to efficiently resolve identified physiological problems, gather an adequate background of knowledge with which to deal with anticipated problems, maintain the scientific and technical capability to alertly identify currently unsuspected problems, and utilize flight opportunities to full advantage on behalf of all of these purposes.

Subject to the approval of the NASA Director for Life Sciences and in the interests of his functions, the incumbent has authority to initiate policies, convene peer review groups, assemble and chair working groups, call program reviews and reviews of program segments, conduct site visits, act as NASA spokesman and interface with the scientific community at large, as well as with other professional, government, international and lay groups, solicit whatever assistance he deems necessary to develop specific research strategies where he feels such needs are indicated, and use whatever approaches he considers appropriate to identify and resolve impedences to satisfactory progress as they may develop.



### C. Duties of the Position

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

1. Directs the Medical Sciences <sup>Office</sup> ~~Division~~, its purposes and functions and advises the Director for NASA Life Sciences of its status and progress, plans, justifies and disburses the Medical Sciences budget.
2. Makes recommendations to the Director for NASA Life Sciences on all matters relating to Medical Sciences which have impact or bearing on the activities and organizational units within the scope of his function.
3. On the basis of professional consultations and reviews and through the use of advisory panels, advises the Director on Life Sciences experiments recommended for inclusion in NASA flight programs.
4. Advises the Director on Medical Sciences resources requirements and projected planning.
5. Supports the Director for NASA Life Sciences, the Associate Administrator for Space Sciences, and other top level management officials of the Agency as the authority for the Medical Sciences Program.
6. Exercises final technical responsibility for the originating of Agency policy in the area of Medical Sciences subject to the management review of the Director for NASA Life Sciences and the top level management officials of the agency.
7. Maintains an authoritative knowledge, in depth, of the latest advances in the state of the art, and in related areas.
8. Furnishes technical advice concerning the Medical Sciences to the NASA field centers, other OSS and NASA offices, other Federal agencies, and the scientific community.
9. Continues a technical liaison with the NASA field centers, other Life Sciences divisions, and other NASA research and operational elements to assure that the requirements of and for Medical Sciences will be met. Reviews and studies these programs and flight programs for possible applications to the Medical Sciences effort, and initiates research and development efforts as appropriate.
10. Maintains a continuing appraisal, largely through personal professional contacts, of aerospace related biomedical research and development in other parts of the economy for possible application to the NASA Life Sciences effort.



11. Appraises foreign medical technology for application to the National Space Program.
12. Maintains active professional contacts throughout the biomedical research and development community to assure the transmission of medical and behavioral findings and requirements.
13. Conducts formal on-site program reviews at NASA Centers implementing the Medical Sciences program; modifies the program content on the basis of critical evaluation.
14. Continually assesses the technical performance, achievements, and effectiveness of NASA centers and contractors engaged in Medical Sciences and related R&D in order to appraise the desirability of program changes, recommend solutions to problems, and integrate and improve various aspects of the program.
15. Establishes and modifies scientific review systems to obtain consistent and high quality evaluation of research and flight experiment proposals in the medical and behavioral areas. Initiates these evaluations at appropriate intervals.
16. Requests program reviews and reviews of proposed flight experiments for relevance and priority by the AIBS, National Academy of Sciences, the NASA Life Sciences Advisory Committee or other consultant groups as appropriate.
17. Represents the NASA Office of Life Sciences at meetings to discuss and work out medical and behavioral and bioinstrumentation problems so that life support systems and other hardware may be developed to appropriate standards.
18. Represents the NASA Office of Life Sciences on technical committees developing general plans and procedures for carrying out assigned projects and for the development of advanced programs.
19. Represents the NASA Office of Life Sciences to top levels of agency management, industry and professional organizations as an authoritative expert on the Medical Sciences areas of activity and interest.
20. Represents NASA to industry, other agencies, and to the scientific and medical community.
21. Supervises a staff of professional and clerical positions engaged in performing the following functions with approval of the Director, Medical Sciences, as appropriate:
  - a. Managing, planning, justification and disbursement of the budget at branch level.



- b. Conducting a continuing review and analysis to establish overall technical adequacy of medical and bioinstrumentation research, identifying, defining and recommending research and development to merit requirements in the Medical Sciences area of responsibility.
- c. Conducting formal program reviews at regular intervals semi-annually.
- d. Reviewing unsolicited proposals and recommending disposition.
- e. Developing standards and procedures to be used in implementing the program.
- f. Initiating scientific reviews of proposals for research and flight experiments utilizing the formal system established by the Division as approved by the Director for NASA Life Sciences (currently AIBS panels).
- g. Assuring that life support systems and other flight hardware development to support the flight crews is guided by appropriate human design standards with the greatest possible efficiency and safety.
- h. Carrying out both long and intermediate-range planning.
- i. Monitoring the execution of approved Medical Sciences projects, assessing and acting upon on such matters as adherence to time schedules, manpower, and funding plans, qualitative achievements, and related coordination and reporting.
- j. Studying alternate approaches, evaluating and pursuing the approach judged to be the most productive.
- k. Reviewing program requirements which may stem from flight programs, agency studies, R&D originating from other Life Sciences Divisions, or from within the Medical Sciences Program, itself.
- l. Reviewing technical plans and specifications to determine their adequacy.
- m. Attending meetings as required to clarify technical difficulties and assure effective technical coordination of program efforts.
- n. Reviewing Center technical plans and advising on approval of related fund allocations.
- o. Reviewing and advising on Center requests for related program technical facilities.
- p. Reviewing allocation of related program resources for approved projects and advising action on task lists and contracts of over \$100,000 in value.



- q. Exercising leadership to stimulate centers to do necessary work in the medical or behavioral research areas that require further investigation and development.
- r. Maintaining an awareness of the technical relationship among the NASA field centers and taking appropriate action to promote and develop a well-coordinated, mutually complementary program.
- s. Establishing good working relationships with the NASA field centers so as to exercise program guidance.
- t. Maintaining an updated reservoir of both domestic and foreign Space Medicine data pertinent to the scope of branch, division and office interest.
- u. Providing other NASA program activities with specialized professional services necessary to monitor and manage related technical programs.
- v. Representing the NASA at selected technical and scientific meetings to present the agency position as regards medical research plans and programs in support of flight missions.

22. Performs supervisory functions, such as the following:

Assigns and reviews work. Issues instruction for nonroutine assignments. Establishes performance standards and prepares formal evaluation of employee performance. Selects subordinates. Recommends promotions, reassignments, and other status changes. Broadens employee training and provides back-up skills by cross-training and recommends establishment of more formalized training where need is apparent. Reviews, accepts, amends, or rejects work of subordinates. Recommends incentive awards. Resolves informal complaints or grievances.

23. Performs other duties as assigned.

Technical Qualifications

The position requires an M.D. or a Ph.D. in physiology with a thorough understanding of aviation physiology, biochemistry, microbiology and bioinstrumentation. A background in laboratory research and research procedures, experiment design, scientific data reduction, spaceflight operations and on-board experiment development is also essential for the successful management of this program.

The incumbent must have sufficient stature and scientific recognition to enable him to speak with authority, and must deal with people well and ethically in order to competently handle frequently difficult and intricate interpersonal and intraorganizational relationships.



It is essential that he be able to communicate effectively through both the spoken and written word to his scientific peers and associates, as well as to all levels of NASA, other Government, and lay groups.

#### Managerial Qualifications

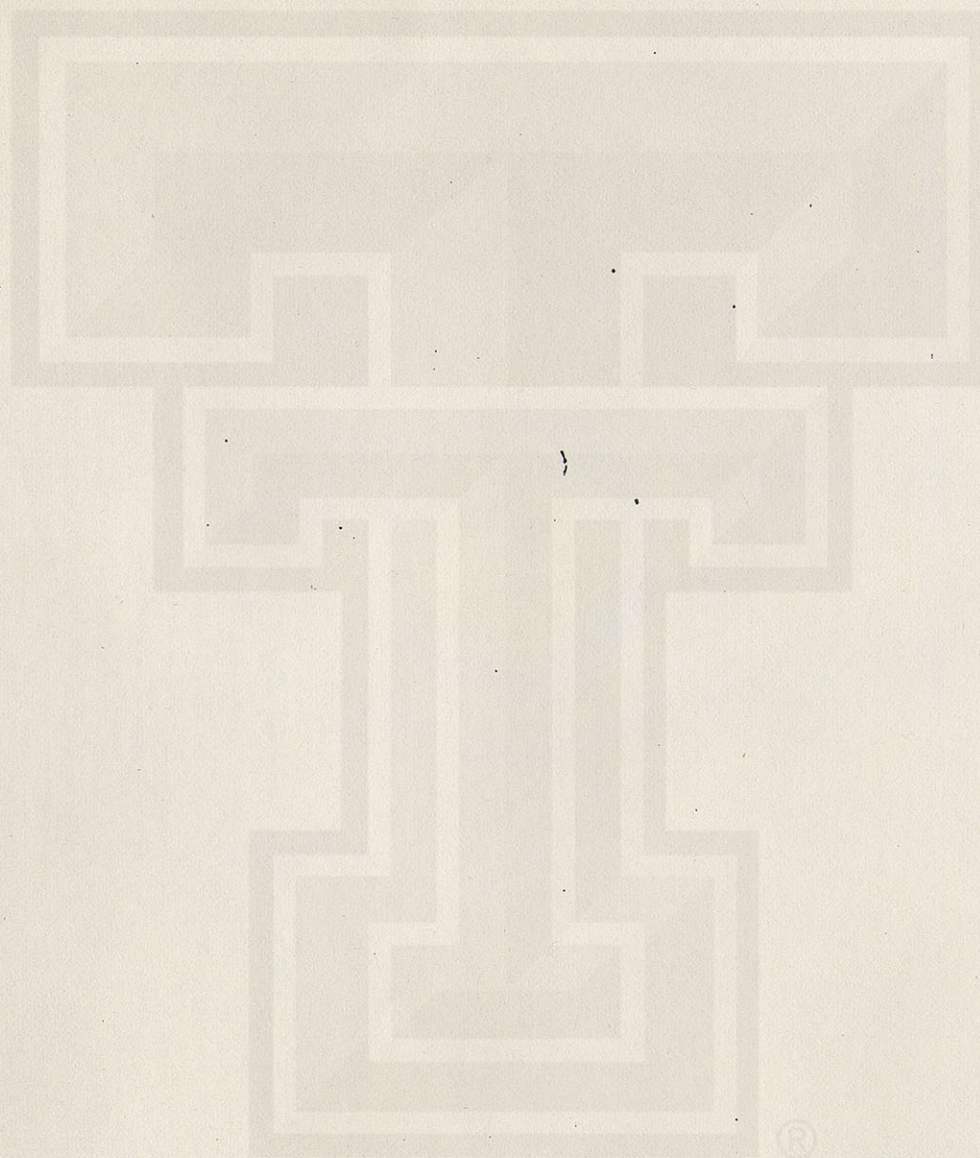
The incumbent must have not only the technical competence to analyze and evaluate the diverse scientific elements and individual research efforts of the Program in keeping with its objectives, and the foresight to identify future research requirements and promising approaches, but he also must possess the managerial ability to efficiently implement the Program in a timely manner consistent with flight program milestones and deadlines. His ability to deal effectively with people is particularly important since the diversity of personalities involved is wide, since some degree of factionalism is always present in a program of this magnitude and physical spread, and since the productivity of the many individuals involved in Medical Sciences research is the essence of the success of the Program. In the current scheme, inspiring and creative leadership warrants perhaps more emphasis than usual in face of diminishing resources, inflated costs, quavering morale and, at the same time, greater program requirements.

The incumbent must be proficient in planning, budgeting, cost-effectiveness assessment, personality assessment, R&D procurement techniques, and administrative techniques and devices to effect efficient implementation of the Medical Sciences Program in all of its aspects and requirements. He must be mindful of the importance of timely information flow in both directions internally and with the scientific community, and aware of means to enhance it.

In addition, the incumbent must be able to effectively describe, justify and defend the Program, and, where necessary, present the case for additional resources to NASA management, the OMB and Congress. He must have the facility, as well, to communicate in a stimulating manner with the scientific community and the public at large.



Medical Sciences  
PD's



®



Optional Form # July 1960 U.S. CIVIL SERVICE COMMISSION FORM CH. 100 AGM-104  <h2 style="text-align: center;">POSITION DESCRIPTION</h2>		1. Check one: Dept. <input checked="" type="checkbox"/> Field <input type="checkbox"/>  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 Director, Biomedical Research Division, GS-1301-16 (b) Other (specify)		4. Agency position No.  5. C. S. C. certification No.  6. Date of certification  7. Date received from C. S. C.		
a. CLASSIFICATION ACTION						
ALLOCATION BY	CLASS TITLE OF POSITION	CLASS			INITIALS	DATE
a. Civil Service Commission		Service	Series	Grade		
b. Department, agency, or establishment	Director, Medical Sciences Division	GS	1301	16		
c. Bureau						
d. Field office						
e. Recommended by initiating office						
9. Organizational title of position (if any) NASA		10. Name of employee (If vacancy, specify V-1, 2, 3, or 4) S. P. Vinograd, M. D.				
11. Department, agency, or establishment NASA Headquarters		c. Third subdivision				
a. First subdivision Office of Space Science		d. Fourth subdivision				
b. Second subdivision Life Sciences Division		e. Fifth subdivision				
12. This is a complete and accurate description of the duties and responsibilities of my position   <div style="display: flex; justify-content: space-between;"><div>(Signature of employee)</div><div>(Date)</div></div>		13. This is a complete and accurate description of the duties and responsibilities of this position   <div style="display: flex; justify-content: space-between;"><div>(Signature of immediate supervisor)</div><div>(Date)</div></div> <div>Title: NASA Director for Life Sciences</div>				
14. Certification by head of bureau, division, field office, or designated representative   <div style="display: flex; justify-content: space-between;"><div>(Signature)</div><div>(Date)</div></div> <div>Title: Associate Administrator, OSS</div>		15. Certification by department, agency, or establishment   <div style="display: flex; justify-content: space-between;"><div>(Signature)</div><div>(Date)</div></div> <div>Title: For: DIRECTOR OF PERSONNEL, NASA</div>				
16. Description of duties and responsibilities						
<p><b>A. General Summary</b></p> <p>Under the NASA Director for Life Sciences, plans, budgets, justifies, and coordinates NASA's program of Medical Science Research. This program has as its objective the elucidation of changes in human physiology and behavior, both known and anticipated to be induced by space flight, in the interest of enhancing human protection, safety, comfort, and capability in space. It is an integrated program of in-house and out-of-house research efforts organized and oriented to identified problem areas to determine and amplify the mechanisms involved, expected time courses, prognostic indicators, and optimal preventive/corrective techniques with respect to each. In pursuit of these interests, the area further entails the development of improved bioinstrumentation and measurement methodology, and the preparation of in-flight human and animal investigations for the Shuttle and other future flight programs. Work entails coordination and information exchange among Life Sciences units at the NASA field centers, between Life Sciences and other activities within NASA, with the national professional, academic, and political community, and internationally with related professional groups. The nature of the program is discussed more fully in Section B which follows. The duties involved are developed as Section C, below:</p>						



The furthering of equal opportunity goals is a requirement of this position. In this regard, the incumbent shall exercise leadership in, and be responsible for, equal opportunity in employment, development, advancement, and treatment of employees directly and indirectly supervised.

**B. Functional Background of the Position**

**1. The nature and status of the program:**

The Medical Sciences Program embodies the NASA research in human physiology and behavior. The problem areas which it addresses consist, primarily, of the flight induced changes which have been observed by means of flight crew medical evaluations carried out throughout all of our manned space flight experience as mission duration and complexity grew from project Mercury through Gemini, Apollo and Skylab. The program also addresses anticipated problems and human supportive requirements based upon educated judgment and experience, with the over-all objective of maximizing our supportive capability of man in space and minimizing his constraints in undertaking future extensions of space exploration.

Specific problem areas to which this research is directed include cardiovascular changes, space motion sickness, bone and muscle alterations blood changes, fluid and electrolyte imbalance, performance and behavioral effects, metabolic effects, radiation effects and protection, and the development of early detection of disease methods for medical selection.

A coordinated combination of ground based research and Shuttle flight experiments planning is in progress to amplify our knowledge of mechanisms, predictive techniques and countermeasures with respect to the undesirable effects of space flight on man. Integrated within this activity is the development of bioinstrumentation and physiological and behavioral measurement techniques of improved accuracy, relevance and suitability for space flight to improve both investigative and supportive capability.

The program consists of approximately 125 separate research tasks at a current funding level of 6 million dollars. Approximately 30% of these research efforts are in-house and the majority of the remaining 70% out-of-house efforts are with investigators in university and non-profit institutions.

**2. Organization of the Work:**

The Medical Sciences <sup>Office</sup> ~~Division~~ is one of four <sup>Office</sup> ~~divisions~~ in the NASA Office of Life Sciences. The incumbent reports to the NASA Director for Life Sciences.

The Medical Sciences Program consists of nine Research and Technology Operating Plans (RTOP's), each headed by an RTOP manager who is a member of the staff of either JSC or ARC. The individual research tasks within each RTOP are either carried out within the laboratories of the Centers or, if out-of-house grants or contracts, are monitored by NASA scientists on the staff of the Centers.



In his daily activities, the Director, Medical Sciences, relates directly with all staff members of the NASA Office of Life Sciences, counterparts within other NASA Hqs. offices, with the Deputy Directors, Life Sciences at JSC and ARC, with the RTOP Managers, with Center and out-of-house principal investigators, and with members and representatives of the scientific community.

Program planning is implemented formally by means of the annual program call issued to the Centers by the Medical Sciences Division. Center responses to the program call are carefully reviewed by the Medical Sciences Division, and recommendations are made by the incumbent to the NASA Director for Life Sciences, who then establishes the Program for the fiscal year. Further guidance is given during annual Program Reviews held formally at each Center, by ad hoc review conferences, either in-house or with outside peer groups, by written communications, and by daily contact as the research of the program evolves.

### 3. Principal Responsibilities of the Incumbent:

The incumbent plans, organizes, directs, coordinates and evaluates all agency research activities in the multiple Life Sciences disciplines embraced by the Medical Sciences Program: cardiovascular, respiratory, neuro, endocrine, renal and gastrointestinal physiology, metabolism, exercise physiology, hematology, immunology, microbiology, aviation physiology, radiobiology, pathology, biochemistry, and bioinstrumentation. He is responsible to the NASA Director for Life Sciences for exercising his duties and authority to the fullest extent to develop and maintain a maximally productive and carefully budgeted research program of scientific excellence and authenticity to efficiently resolve identified physiological problems, gather an adequate background of knowledge with which to deal with anticipated problems, maintain the scientific and technical capability to alertly identify currently unsuspected problems, and utilize flight opportunities to full advantage on behalf of all of these purposes.

Subject to the approval of the NASA Director for Life Sciences and in the interests of his functions, the incumbent has authority to initiate policies, convene peer review groups, assemble and chair working groups, call program reviews and reviews of program segments, conduct site visits, act as NASA spokesman and interface with the scientific community at large, as well as with other professional, government, international and lay groups, solicit whatever assistance he deems necessary to develop specific research strategies where he feels such needs are indicated, and use whatever approaches he considers appropriate to identify and resolve impedences to satisfactory progress as they may develop.



C. Duties of the Position

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

1. Directs the Medical Sciences <sup>Office</sup> ~~Division~~, its purposes and functions and advises the Director for NASA Life Sciences of its status and progress, plans, justifies and disburses the Medical Sciences budget.
2. Makes recommendations to the Director for NASA Life Sciences on all matters relating to Medical Sciences which have impact or bearing on the activities and organizational units within the scope of his function.
3. On the basis of professional consultations and reviews and through the use of advisory panels, advises the Director on Life Sciences experiments recommended for inclusion in NASA flight programs.
4. Advises the Director on Medical Sciences resources requirements and projected planning.
5. Supports the Director for NASA Life Sciences, the Associate Administrator for Space Sciences, and other top level management officials of the Agency as the authority for the Medical Sciences Program.
6. Exercises final technical responsibility for the originating of Agency policy in the area of Medical Sciences subject to the management review of the Director for NASA Life Sciences and the top level management officials of the agency.
7. Maintains an authoritative knowledge, in depth, of the latest advances in the state of the art, and in related areas.
8. Furnishes technical advice concerning the Medical Sciences to the NASA field centers, other OSS and NASA offices, other Federal agencies, and the scientific community.
9. Continues a technical liaison with the NASA field centers, other Life Sciences divisions, and other NASA research and operational elements to assure that the requirements of and for Medical Sciences will be met. Reviews and studies these programs and flight programs for possible applications to the Medical Sciences effort, and initiates research and development efforts as appropriate.
10. Maintains a continuing appraisal, largely through personal professional contacts, of aerospace related biomedical research and development in other parts of the economy for possible application to the NASA Life Sciences effort.



11. Appraises foreign medical technology for application to the National Space Program.
12. Maintains active professional contacts throughout the biomedical research and development community to assure the transmission of medical and behavioral findings and requirements.
13. Conducts formal on-site program reviews at NASA Centers implementing the Medical Sciences program; modifies the program content on the basis of critical evaluation.
14. Continually assesses the technical performance, achievements, and effectiveness of NASA centers and contractors engaged in Medical Sciences and related R&D in order to appraise the desirability of program changes, recommend solutions to problems, and integrate and improve various aspects of the program.
15. Establishes and modifies scientific review systems to obtain consistent and high quality evaluation of research and flight experiment proposals in the medical and behavioral areas. Initiates these evaluations at appropriate intervals.
16. Requests program reviews and reviews of proposed flight experiments for relevance and priority by the AIBS, National Academy of Sciences, the NASA Life Sciences Advisory Committee or other consultant groups as appropriate.
17. Represents the NASA Office of Life Sciences at meetings to discuss and work out medical and behavioral and bioinstrumentation problems so that life support systems and other hardware may be developed to appropriate standards.
18. Represents the NASA Office of Life Sciences on technical committees developing general plans and procedures for carrying out assigned projects and for the development of advanced programs.
19. Represents the NASA Office of Life Sciences to top levels of agency management, industry and professional organizations as an authoritative expert on the Medical Sciences areas of activity and interest.
20. Represents NASA to industry, other agencies, and to the scientific and medical community.
21. Supervises a staff of professional and clerical positions engaged in performing the following functions with approval of the Director, Medical Sciences, as appropriate:
  - a. Managing, planning, justification and disbursement of the budget at branch level.



- b. Conducting a continuing review and analysis to establish overall technical adequacy of medical and bioinstrumentation research, identifying, defining and recommending research and development to merit requirements in the Medical Sciences area of responsibility.
- c. Conducting formal program reviews at regular intervals semi-annually.
- d. Reviewing unsolicited proposals and recommending disposition.
- e. Developing standards and procedures to be used in implementing the program.
- f. Initiating scientific reviews of proposals for research and flight experiments utilizing the formal system established by the Division as approved by the Director for NASA Life Sciences (currently AIBS panels).
- g. Assuring that life support systems and other flight hardware development to support the flight crews is guided by appropriate human design standards with the greatest possible efficiency and safety.
- h. Carrying out both long and intermediate-range planning.
- i. Monitoring the execution of approved Medical Sciences projects, assessing and acting upon on such matters as adherence to time schedules, manpower, and funding plans, qualitative achievements, and related coordination and reporting.
- j. Studying alternate approaches, evaluating and pursuing the approach judged to be the most productive.
- k. Reviewing program requirements which may stem from flight programs, agency studies, R&D originating from other Life Sciences Divisions, or from within the Medical Sciences Program, itself.
- l. Reviewing technical plans and specifications to determine their adequacy.
- m. Attending meetings as required to clarify technical difficulties and assure effective technical coordination of program efforts.
- n. Reviewing Center technical plans and advising on approval of related fund allocations.
- o. Reviewing and advising on Center requests for related program technical facilities.
- p. Reviewing allocation of related program resources for approved projects and advising action on task lists and contracts of over \$100,000 in value.



- q. Exercising leadership to stimulate centers to do necessary work in the medical or behavioral research areas that require further investigation and development.
- r. Maintaining an awareness of the technical relationship among the NASA field centers and taking appropriate action to promote and develop a well-coordinated, mutually complementary program.
- s. Establishing good working relationships with the NASA field centers so as to exercise program guidance.
- t. Maintaining an updated reservoir of both domestic and foreign Space Medicine data pertinent to the scope of branch, division and office interest.
- u. Providing other NASA program activities with specialized professional services necessary to monitor and manage related technical programs.
- v. Representing the NASA at selected technical and scientific meetings to present the agency position as regards medical research plans and programs in support of flight missions.

22. Performs supervisory functions, such as the following:

Assigns and reviews work. Issues instruction for nonroutine assignments. Establishes performance standards and prepares formal evaluation of employee performance. Selects subordinates. Recommends promotions, reassignments, and other status changes. Broadens employee training and provides back-up skills by cross-training and recommends establishment of more formalized training where need is apparent. Reviews, accepts, amends, or rejects work of subordinates. Recommends incentive awards. Resolves informal complaints or grievances.

23. Performs other duties as assigned.

Technical Qualifications

The position requires an M.D. or a Ph.D. in physiology with a thorough understanding of aviation physiology, biochemistry, microbiology and bioinstrumentation. A background in laboratory research and research procedures, experiment design, scientific data reduction, spaceflight operations and on-board experiment development is also essential for the successful management of this program.

The incumbent must have sufficient stature and scientific recognition to enable him to speak with authority, and must deal with people well and ethically in order to competently handle frequently difficult and intricate interpersonal and intraorganizational relationships.



It is essential that he be able to communicate effectively through both the spoken and written word to his scientific peers and associates, as well as to all levels of NASA, other Government, and lay groups.

#### Managerial Qualifications

The incumbent must have not only the technical competence to analyze and evaluate the diverse scientific elements and individual research efforts of the Program in keeping with its objectives, and the foresight to identify future research requirements and promising approaches, but he also must possess the managerial ability to efficiently implement the Program in a timely manner consistent with flight program milestones and deadlines. Has ability to deal effectively with people is particularly important since the diversity of personalities involved is wide, since some degree of factionalism is always present in a program of this magnitude and physical spread, and since the productivity of the many individuals involved in Medical Sciences research is the essence of the success of the Program. In the current scheme, inspiring and creative leadership warrants perhaps more emphasis than usual in face of diminishing resources, inflated costs, quavering morale and, at the same time, greater program requirements.

The incumbent must be proficient in planning, budgeting, cost-effectiveness assessment, personality assessment, R&D procurement techniques, and administrative techniques and devices to effect efficient implementation of the Medical Sciences Program in all of its aspects and requirements. He must be mindful of the importance of timely information flow in both directions internally and with the scientific community, and aware of means to enhance it.

In addition, the incumbent must be able to effectively describe, justify and defend the Program, and, where necessary, present the case for additional resources to NASA management, the OMB and Congress. He must have the facility, as well, to communicate in a stimulating manner with the scientific community and the public at large.



3. 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		7. NSF-FC	8. NASA-FC
		9. 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.

The furthering of equal opportunity goals is a requirement of this position. In this regard, the incumbent shall exercise leadership in, and be responsible for, equal opportunity in employment, development, advancement, and treatment of employees directly and indirectly supervised.

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. SUPERVISOR (Initials and date)						a. EMPLOYEE	
						b. PERSONNEL FOLDER	
b. CLASSIFICATION OFFICER (Initials and date)						c. SUPERVISOR	
						d.	
						e.	
						f.	



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.