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Document title: President's Science Advisory Committee, "Introduction to Outer Space," March 26, 1958, pp. 1-2, 6, 13-15.

Source: NASA Historical Reference Collection, NASA History Office, NASA Headquarters, Washington, D.C.

An initial assignment for the President's Science Advisory Committee, which was formed in the aftermath of the launches of Sputnik I and II, was to assess the appropriate direction and pace for the U.S. space program. The committee focused heavily on the scientific aspects of the space program. With the president's endorsement, on March 26, 1958, it released a report outlining the importance of space activities, but recommended a cautiously measured pace.

Statement by the President

In connection with a study of space science and technology made at my request, the President's Science Advisory Committee, of which Dr. James R. Killian is Chairman, has prepared a brief "Introduction to Outer Space" for the nontechnical reader.

This is not science fiction. This is a sober, realistic presentation prepared by leading scientists. I have found this statement so informative and interesting that I wish to share it with all the people of America, and indeed with all the people of the earth. I hope that it can be widely disseminated by all news media for it clarifies many aspects of space and space technology in a way which can be helpful to all people as the United States proceeds with its peaceful program in space science and exploration. Every person has the opportunity to share through understanding in the adventures which lie ahead.

This statement of the Science Advisory Committee makes clear the opportunities which a developing space technology can provide to extend man's knowledge of the earth, the solar system, and the universe. These opportunities reinforce my conviction that we and other nations have a great responsibility to promote the peaceful use of space and to utilize the new knowledge obtainable from space science and technology for the benefit of all mankind.

Dwight D. Eisenhower

[1] **Introduction to Outer Space**

What are the principal reasons for undertaking a national space program? What can we expect to gain from space science and exploration? What are the scientific laws and facts and the technological means which it would be helpful to know and understand in reaching sound policy decisions for a United States space program and its management by the Federal Government? This statement seeks to provide brief and introductory answers to these questions.

It is useful to distinguish among four factors which give importance, urgency, and inevitability to the advancement of space technology. The first of these factors is the compelling urge of man to explore and to discover, the thrust of curiosity that leads men to try to go where no one has gone before. Most of the surface of the earth has now been explored and men now turn to the exploration of outer space as their next objective.

Second, there is the defense objective for the development of space technology. We wish to be sure that space is not used to endanger our security. If space is to be used for military purposes, we must be prepared to use space to defend ourselves.

Third, there is the factor of national prestige. To be strong and bold in space technology will enhance the prestige of the United States among the peoples of the world and create added confidence in our scientific, technological, industrial, and military strength.

Fourth, space technology affords new opportunities for scientific observation and experiment [2] which will add to our knowledge and understanding of the earth, the solar system, and the universe.

The determination of what our space program should be must take into consideration all four of these objectives. While this statement deals mainly with the use of space for scientific inquiry, we fully recognize the importance of the other three objectives.

In fact it has been the military quest for ultra long-range rockets that has provided man with new machinery so powerful that it can readily put satellites in orbit and, before long, send instruments out to explore the moon and nearby planets. In this way, what was at first a purely military enterprise has opened up an exciting era of exploration that few men, even a decade ago, dreamed would come in this century....

[6]

Will the Results Justify the Costs?

Since the rocket power plants for space exploration are already in existence or being developed for military need, the cost of additional scientific research, using these rockets, need not be exorbitant. Still, the cost will not be small, either. This raises an important question that scientists and the general public (who will pay the bill) both must face: Since there are still so many unanswered scientific questions and problems all around us on earth, why should we start asking new questions and seeking out new problems in space? How can the results possibly justify the cost?

Scientific research, of course, has never been amenable to rigorous cost accounting in advance. Nor, for that matter, has exploration of any sort. But if we have learned one lesson, it is that research and exploration have a remarkable way of paying off—quite apart from the fact that they demonstrate that man is alive and insatiably curious. And we all feel richer for knowing what explorers and scientists have learned about the universe in which we live.

It is in these terms that we must measure the value of launching satellites and sending rockets into space....

[13] the scientific opportunities are so numerous and so inviting that scientists from many countries will certainly want to participate. Perhaps the International Geophysical Year will suggest a model for the international exploration of space in the years and decades to come.

The timetable...suggests the approximate order in which some of the scientific and technical objectives mentioned in this review may be attained.

The timetable is not broken down into years, since there is yet too much uncertainty about the scale of the effort that will be made. The timetable simply lists various types of space investigations and goals under three broad headings: Early, Later, Still Later....

[14] EARLY

1. Physics
2. Geophysics
3. Meteorology
4. Minimal Moon Contact
5. Experimental Communications
6. Space Physiology

LATER

1. Astronomy
2. Extensive Communications
3. Biology
4. Scientific Lunar Investigation
5. Minimal Planetary Contact
6. Human Flight in Orbit

STILL LATER

1. Automated Lunar Exploration
2. Automated Planetary Exploration
3. Human Lunar Exploration and Return

AND MUCH LATER STILL

Human Planetary Exploration

[15] In conclusion, we venture two observations. Research in outer space affords new opportunities in science, but it does not diminish the importance of science on earth. Many of the secrets of the universe will be fathomed in laboratories on earth, and the progress of our science and technology and the welfare of the Nation require that our regular scientific programs go forward without loss of pace, in fact at an increased pace. It would not be in the national interest to exploit space science at the cost of weakening our efforts in other scientific endeavors. This need not happen if we plan our national program for space science and technology as part of a balanced national effort in all science and technology.

Our second observation is prompted by technical considerations. For the present, the rocketry and other equipment used in space technology must usually be employed at the very limit of its capacity. This means that failures of equipment and uncertainties of schedule are to be expected. It therefore appears wise to be cautious and modest in our predictions and pronouncements about future space activities—and quietly bold in our execution....

Document II-17

Document title: "National Aeronautics and Space Act of 1958," Public Law 85-568, 72 Stat., 426. Signed by the president on July 29, 1958.

Source: Record Group 255, National Archives and Records Administration, Washington, D.C.

After the launch of Sputnik and the publicity surrounding it, the Eisenhower administration moved quickly to create an American civilian space agency. The National Advisory Committee for Aeronautics (NACA) was too small for the task, however; the White House decided that a new agency, with NACA as its core, but also including rocket and space engineers involved in various defense programs, was needed. On March 5, 1958, President Eisenhower approved a final memorandum ordering the Bureau of Budget to draft a space bill immediately. It was ready three weeks later and sent to Congress on April 2. Senator Lyndon Johnson had a great deal of influence on the form of the final bill, which was passed after lengthy congressional deliberations. In particular, Congress added to the administration bill a requirement for a National Aeronautics and Space Council as a presidential-level policy coordinating board.

[1]

AN ACT

To provide for research into problems of flight within and outside the earth's atmosphere, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Title I—Short Title, Declaration of Policy, and Definitions
Short Title

Sec. 101. This act may be cited as the “National Aeronautics and Space Act of 1958.”

Declaration of Policy and Purpose

Sec. 102. (a) The Congress hereby declares that it is the policy of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind.

(b) The Congress declares that the general welfare and security of the United States require that adequate provision be made for aeronautical and space activities. The Congress further declares that such activities shall be the responsibility of, and shall be directed by, a civilian agency exercising control over aeronautical and space activities sponsored by the United States, except that activities peculiar to or primarily associated with the development of weapons systems, military operations, or the defense of the United States (including the research and development necessary to make effective provision for the defense of the United States) shall be the responsibility of, and shall be directed by, the Department of Defense; and that determination as to which such agency has responsibility for and direction of any such activity shall be made by the President in conformity with section 201 (e).

(c) The aeronautical and space activities of the United States shall be conducted so as to contribute materially to one or more of the following objectives:

(1) The expansion of human knowledge of phenomena in the atmosphere and space;

(2) The improvement of the usefulness, performance, speed, safety, and efficiency of aeronautical and space vehicles;

(3) The development and operation of vehicles capable of carrying instruments, equipment, supplies and living organisms through space;

(4) The establishment of long-range studies of the potential benefits to be gained from, the opportunities for, and the problems involved in the utilization of aeronautical and space activities for peaceful and scientific purposes.

(5) The preservation of the role of the United States as a leader in aeronautical and space science and technology and in the application thereof to the conduct of peaceful activities within and outside the atmosphere.

(6) The making available to agencies directly concerned with national defenses of discoveries that have military value or significance, and the furnishing by such agencies, to the civilian agency established to direct and control nonmilitary aeronautical and space activities, of information as to discoveries which have value or significance to that agency;

[2] (7) Cooperation by the United States with other nations and groups of nations in work done pursuant to this Act and in the peaceful application of the results, thereof; and

(8) The most effective utilization of the scientific and engineering resources of the United States, with close cooperation among all interested agencies of the United States in order to avoid unnecessary duplication of effort, facilities, and equipment.

(d) It is the purpose of this Act to carry out and effectuate the policies declared in subsections (a), (b), and (c).

Definitions

Sec. 103. As used in this Act—

(1) the term “aeronautical and space activities” means (A) research into, and the solution of, problems of flight within and outside the earth’s atmosphere, (B) the development, construction, testing, and operation for research purposes of aeronautical and space vehicles, and (C) such other activities as may be required for the exploration of space; and

(2) the term “aeronautical and space vehicles” means aircraft, missiles, satellites, and other space vehicles, manned and unmanned, together with related equipment, devices,

components, and parts.

**Title II—Coordination of Aeronautical and Space Activities
National Aeronautics and Space Council**

Sec. 201. (a) There is hereby established the National Aeronautics and Space Council (hereinafter called the "Council") which shall be composed of—

- (1) the President (who shall preside over meetings of the Council);
- (2) the Secretary of State;
- (3) the Secretary of Defense
- (4) the Administrator of the National Aeronautics and Space Administration;
- (5) the Chairman of the Atomic Energy Commission;
- (6) not more than one additional member appointed by the President from the departments and agencies of the Federal Government; and
- (7) not more than three other members appointed by the President, solely on the basis of established records of distinguished achievement from among individuals in private life who are eminent in science, engineering, technology, education, administration, or public affairs.

(b) Each member of the Council from a department or agency of the Federal Government may designate another officer of his department or agency to serve on the Council as his alternate in his unavoidable absence.

(c) Each member of the Council appointed or designated under paragraphs (6) and (7) of subsection (a), and each alternate member designated under subsection (b), shall be appointed or designated to serve as such by and with the advice and consent of the Senate, unless at the time of such appointment or designation he holds an office in the Federal Government to which he was appointed by and with the advice and consent of the Senate.

[3] (d) It shall be the function of the Council to advise the President with respect to the performance of the duties prescribed in subsection (e) of this section.

(e) In conformity with the provisions of section 102 of this Act, it shall be the duty of the President to—

- (1) survey all significant aeronautical and space activities, including the policies, plans, programs, and accomplishments of all agencies of the United States engaged in such activities;
- (2) develop a comprehensive program of aeronautical and space activities to be conducted by agencies of the United States;
- (3) designate and fix responsibility for the direction of major aeronautical and space activities;
- (4) provide for effective cooperation between the National Aeronautics and Space Administration and the Department of Defense in all such activities, and specify which of such activities may be carried on concurrently by both such agencies notwithstanding the assignment of primary responsibility therefor to one or the other of such agencies; and
- (5) resolve differences arising among departments and agencies of the United States with respect to aeronautical and space activities under this Act, including differences as to whether a particular project is an aeronautical and space activity.

(f) The Council may employ a staff to be headed by a civilian executive secretary who shall be appointed by the President by and with the advice and the consent of the Senate and shall receive compensation at the rate of \$20,000 a year. The executive secretary, subject to the direction of the Council, is authorized to appoint and fix the compensation of such personnel, including not more than three persons who may be appointed without regard to the civil service laws or the Classification Act of 1949 and compensated at the rate of not more than \$19,000 a year, as may be necessary to perform such duties as may be prescribed by the Council in connection with the performance of its functions. Each appointment under this subsection shall be subject to the same security requirements as those established for personnel of the National Aeronautics and Space Administration

appointed under section 203 (b) (2) of this Act.

(g) Members of the Council appointed from private life under subsection (a) (7) may be compensated at a rate not to exceed \$100 per diem, and may be paid travel expenses and per diem in lieu of subsistence in accordance with the provisions of section 5 of the Administrative Expenses Act of 1946 (5 U.S.C. 73b-2) relating to persons serving without compensation.

National Aeronautics And Space Administration

Sec. 202. (a) There is hereby established the National Aeronautics and Space Administration (hereinafter called the "Administration"). The Administration shall be headed by an Administrator, who shall be appointed from civilian life by the President by and with the advice and consent of the Senate, and shall receive compensation at the rate of \$22,500 per annum. Under the supervision and direction of the President, the Administrator shall be responsible for the exercise of all powers and the discharge of all duties of the Administration, and shall have authority and control over all personnel and activities, thereof.

(b) There shall be in the Administration a Deputy Administrator, who shall be appointed from civilian life by the President by and with the advice and consent of the Senate, shall receive compensation of \$21,500 per annum, and shall perform such duties and exercise such powers as the Administrator may prescribe. The Deputy Administrator shall act for, and exercise [4] the powers of, the Administrator during his absence or disability.

(c) The Administrator and the Deputy Administrator shall not engage in any other business, vocation, or employment while serving as such.

Functions of the Administration

Sec. 203. (a) The Administration, in order to carry out the purpose of this Act, shall—

(1) plan, direct, and conduct aeronautical and space activities;

(2) arrange for participation by the scientific community in planning scientific measurements and observations to be made through use of aeronautical and space vehicles, and conduct or arrange for the conduct of such measurements and observations; and

(3) provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof.

(b) In the performance of its functions the Administration is authorized—

(1) to make, promulgate, issue, rescind, and amend rules and regulations governing the manner of its operations and the exercise of the powers vested in it by law;

(2) to appoint and fix the compensation of such officers and employees as may be necessary to carry out such functions. Such officers and employees shall be appointed in accordance with the civil-service laws and their compensation fixed in accordance with the Classification Act of 1949, except that (A) to the extent the Administrator deems such action necessary to the discharge of his responsibilities, he may appoint and fix the compensation (up to a limit of \$19,000 a year, or up to a limit of \$21,000 a year for a maximum of ten positions) of not more than two hundred and sixty of the scientific, engineering and administrative personnel of the Administration without regard to such laws, and (B) to the extent the Administrator deems such action necessary to recruit specially qualified scientific and engineering talent, he may establish the entrance grade for scientific and engineering personnel without previous service in the Federal Government at a level up to two grades higher than the grade provided for such personnel under the General Schedule established by the Classification Act of 1949, and fix their compensation accordingly;

(3) to acquire (by purchase, lease, condemnation, or otherwise), construct, improve, repair, operate, and maintain laboratories, research and testing sites and facilities, aeronautical and space vehicles, quarters and related accommodations for employees and dependents of employees of the Administration, and such other real and personal property (including patents), or any interest therein, as the Administration deems necessary within and outside the continental United States; to lease to others such real and personal prop-

erty; to sell and otherwise dispose of real and personal property (including patents and rights thereunder) in accordance with the provisions of the Federal Property and Administrative Service Act of 1949, as amended (40 U.S.C. 471 et seq.); and to provide by contract or otherwise for cafeterias and other necessary facilities for the welfare of employees of the Administration at its installations and purchase and maintain equipment therefor; [5] (4) to accept unconditional gifts or donations of services, money, or property, real, personal, or mixed, tangible or intangible;

(5) without regard to section 3648 of the Revised Statutes, as amended (31 U.S.C. 529), to enter into and perform such contracts, leases, cooperative agreements, or other transactions as may be necessary in the conduct of its work and on such terms as it may deem appropriate, with any agency or instrumentality of the United States, or with any State, Territory, or possession, or with any political subdivision thereof, or with any person, firm, association, corporation, educational institution. To the maximum extent practicable and consistent with the accomplishment of the purpose of this Act, such contracts, leases, agreements, and other transactions shall be allocated by the Administrator in a manner which will enable small-business concerns to participate equitably and proportionately in the conduct of the work of the Administration;

(6) to use, with their consent, the services, equipment, personnel, and facilities of Federal and other agencies with or without reimbursement, and on a similar basis to cooperate with other public and private agencies and instrumentalities in the use of services, equipment and facilities. Each department and agency of the Federal Government shall cooperate fully with the Administration in making its services, equipment, personnel, and facilities available to the Administration, and any such department or agency is authorized, notwithstanding any other provision of law, to transfer or to receive from the Administration, without reimbursement, aeronautical and space vehicles, and supplies and equipment other than administrative supplies and equipment;

(7) to appoint such advisory committees as may be appropriate for purposes of consultation and advice to the Administration in the performance of its functions;

(8) to establish within the Administration such offices and procedures as may be appropriate to provide for the greatest possible coordination of its activities under this Act with related scientific and other activities being carried on by other public and private agencies and organizations;

(9) to obtain services as authorized by section 15 of the Act of August 2, 1946 (5 U.S.C. 55a), at rates not to exceed \$100 per diem for individuals;

(10) when determined by the Administrator to be necessary, and subject to such security investigations as he may determine to be appropriate, to employ aliens without regard to statutory provisions prohibiting payment of compensation to aliens;

(11) to employ retired commissioned officers of the armed forces of the United States and compensate them at the rate established for the positions occupied by them within the Administration, subject only to the limitations in pay set forth in section 212 of the Act of June 30, 1932 as amended (5 U.S.C. 59a);

(12) with the approval of the President, to enter into cooperative agreements under which members of the Army, Navy, Air Force, and Marine Corps may be detailed by the appropriate Secretary for services in the performance of functions under this Act to the same extent as that to which they might be lawfully assigned in the Department of Defense; and

(13) (A) to consider, ascertain, adjust, determine, settle, and pay, on behalf of the United States, in full satisfaction thereof, any claim for \$5,000 or less against the United States for bodily injury, death, or damage to or loss of real or personal property [6] resulting from the conduct of the Administration's functions as specified in subsection (a) of this section, where such claim is presented to the Administration in writing within two years after the accident or incident out of which the claim arises; and

(B) if the Administration considers that a claim in excess of \$5,000 is meritorious and would otherwise be covered by this paragraph, to report the facts and circumstances thereof to the Congress for its consideration.

Civilian-Military Liaison Committee

Sec. 204 (a) There shall be a Civilian-Military Liaison Committee consisting of—

(1) a Chairman, who shall be the head thereof and who shall be appointed by the President, shall serve at the pleasure of the President, and shall receive compensation (in the manner provided in subsection (d)) at the rate of \$20,000 per annum;

(2) one or more representatives from the Department of Defense, and one or more representatives from each of the Departments of the Army, Navy, and Air Force, to be assigned by the Secretary of Defense to serve on the Committee without additional compensation; and

(3) representatives from the Administration, to be assigned by the Administrator to serve on the Committee without additional compensation, equal in number to the number of representatives assigned to serve on the Committee under paragraph (2).

(b) The Administration and the Department of Defense, through the Liaison Committee, shall advise and consult with each other on all matters within their respective jurisdictions relating to aeronautical and space activities and shall keep each other fully and currently informed with respect to such activities.

(c) If the Secretary of Defense concludes that any request, action, proposed action, or failure to act on the part of the Administrator is adverse to the responsibilities of the Department of Defense, or the Administrator concludes that any request, action, or proposed action, or failure to act on the part of the Department of Defense is adverse to the responsibilities of the Administration, and the Administrator and the Secretary of Defense are unable to reach an agreement with respect thereto, either the Administrator or the Secretary of Defense may refer the matter to the President for his decision (which shall be final) as provided in section 201 (e).

(d) Notwithstanding the provisions of any other law, any active or retired officer of the Army, Navy, or Air Force may serve as Chairman of the Liaison Committee without prejudice to his active or retired status as such officer. The compensation received by any such officer for his service as Chairman of the Liaison Committee shall be equal to the amount (if any) by which the compensation fixed by subsection (a) (1) for such Chairman exceeds his pay and allowances (including special and incentive pays) as an active officer, or his retired pay.

International Cooperation

Sec. 205. The Administration, under the foreign policy guidance of the President, may engage in a program of international cooperation in work done pursuant to the Act, and in the peaceful application of the results thereof, pursuant to agreements made by the President with the advice and consent of the Senate.

[7]

Reports to the Congress

Sec. 206. (a) The Administration shall submit to the President for transmittal to the Congress, semiannually and at such other times as it deems desirable, a report of its activities and accomplishments.

(b) The President shall transmit to the Congress in January of each year a report, which shall include (1) a comprehensive description of the programmed activities and the accomplishments of all agencies of the United States in the field of aeronautics and space activities during the preceding calendar year, and (2) an evaluation of such activities and accomplishments in terms of the attainment of, or the failure to attain, the objectives described in section 102 (c) of this Act.

(c) Any report made under this section shall contain such recommendations for additional legislation as the Administrator of the President may consider necessary or desirable for the attainment of the objectives described in section 102 (c) of this Act.

(d) No information which has been classified for reasons of national security shall be

included in any report made under this section, unless such information has been declassified by, or pursuant to authorization given by, the President.

Title III—Miscellaneous
National Advisory Committee for Aeronautics

Sec. 301. (a) The National Advisory Committee for Aeronautics, on the effective date of this section, shall cease to exist. On such date all functions, powers, duties, and obligations, and all real and personal property, personnel (other than members of the Committee), funds, and records of that organization, shall be transferred to the Administration.

(b) Section 2302 of title 10 of the United States Code is amended by striking out "or the Executive Secretary of the National Advisory Committee for Aeronautics." and inserting in lieu thereof "or the Administrator of the National Aeronautics and Space Administration."; and section 2303 of such title 10 is amended by striking out "National Advisory Committee for Aeronautics" and inserting in lieu thereof "The National Aeronautics and Space Administration."

(c) The first section of the Act of August 26, 1950 (5 U.S.C. 22-1), is amended by striking out "the Director, National Advisory Committee for Aeronautics" and inserting in lieu thereof "the Administrator of the National Aeronautics and Space Administration", and by striking out "or National Advisory Committee for Aeronautics" and inserting in lieu thereof "or National Aeronautics and Space Administration."

(d) The Unitary Wind Tunnel Plan Act of 1949 (50 U.S.C. 511-515) is amended (1) by striking out "The National Advisory Committee for Aeronautics (hereinafter referred to as the 'Committee')" and inserting in lieu thereof "The Administrator of the National Aeronautics and Space Administration (hereinafter referred to as the 'Administrator')"; (2) by striking out "Committee" or "Committee's" wherever they appear and inserting in lieu thereof "Administrator" and "Administrator's", respectively; and (3) by striking out "its" wherever it appears and inserting in lieu thereof "his."

(e) This section shall take effect ninety days after the date of the enactment of this Act, or on any earlier date on which the Administrator shall determine, and announce by proclamation published in the Federal Register, that the Administration has been organized and is prepared to discharge the duties and exercise the powers conferred upon it by this Act.

[8]

Transfer of Related Functions

Sec. 302. (a) Subject to the provisions of this section, the President, for a period of four years after the date of enactment of this Act, may transfer to the Administration any functions (including powers, duties, activities, facilities, and parts of functions) of any other department or agency of the United States, or of any officer or organizational entity thereof, which relate primarily to the functions, powers, and duties of the Administration as prescribed by section 203 of this Act. In connection with any such transfer, the President may, under this section or other applicable authority, provide for appropriate transfers of records, property, civilian personnel, and funds.

(b) Whenever any such transfer is made before January 1, 1959, the President shall transmit to the Speaker of the House of Representatives and the President pro tempore of the Senate a full and complete report concerning the nature and effect of such transfer.

(c) After December 31, 1958, no transfer shall be made under this section until (1) a full and complete report concerning the nature and effect of such proposed transfer has been transmitted by the President to the Congress, and (2) the first period of sixty calendar days of regular session of the Congress following the date of receipt of such report by the Congress has expired without the adoption by the Congress of a concurrent resolution stating that the Congress does not favor such transfer.

Access to Information

Sec. 303. Information obtained or developed by the Administrator in the performance of his functions under the Act shall be made available for public inspection, except (A) information authorized or required by Federal statute to be withheld, and (B) information classified to protect the national security: *Provided*, That nothing in this Act shall authorize the withholding of information by the Administrator from the duly authorized committees of the Congress.

Security

Sec. 304. (a) The Administrator shall establish such security requirements, restrictions, and safeguards as he deems necessary in the interest of the national security. The Administrator may arrange with the Civil Service Commission for the conduct of such security or other personnel investigations of the Administration's officers, employees, and consultants, and its contractors and subcontractors and their officers and employees, actual or prospective, as he deems appropriate; and if any such investigation develops any data reflecting that the individual who is the subject thereof is of questionable loyalty the matter shall be referred to the Federal Bureau of Investigation for the conduct of a full field investigation, the results of which shall be furnished to the Administrator.

(b) The Atomic Energy Commission may authorize any of its employees, or employees of any contractor, prospective contractor, licensee, or prospective licensee of the Atomic Energy Commission or any other person authorized to have access to Restricted Data by the Atomic Energy Commission under subsection 145 b. of the Atomic Energy Act of 1954 (42 U.S.C. 2165 (b)), to permit any member, officer, or employee of the Council, or the Administrator, or any officer, employee, member of an advisory committee, contractor, subcontractor, or officer or employee of a contractor or subcontractor of the Administration, to have access to Restricted Data relating to aeronautical and space activities which is required in the performance of his duties and so certified by the Council or the Administrator, as the case may be, [9] but only if (1) the Council or Administrator or designee thereof has determined, in accordance with the established personnel security procedures and standards of the Council or Administration, that permitting such individual to have access to such Restricted Data will not endanger the common defense and security, and (2) the Council or Administrator or designee thereof finds that the established personnel and other security procedures and standards of the Council or Administration are adequate and in reasonable conformity to the standards established by the Atomic Energy Commission under section 145 of the Atomic Energy Act of 1954 (42 U.S.C. 2165). Any individual granted access to such Restricted Data pursuant to this subsection may exchange such Data with any individual who (A) is an officer or employee of the Department of Defense, or any department or agency thereof, or a member of the armed forces, or a contractor or subcontractor, and (B) has been authorized to have access to Restricted Data under the provisions of section 143 of the Atomic Energy Act of 1954 (42 U.S.C. 2163).

(c) Chapter 37 of title 18 of the United States Code (entitled Espionage and Censorship) is amended by—

(1) adding at the end thereof the following new section:

“799. Violation of regulations of National Aeronautics and Space Administration.

Whoever willfully shall violate, attempt to violate, or conspire to violate any regulation or order promulgated by the Administrator of the National Aeronautics and Space Administration for the protection or security of any laboratory, station, base or other facility, or part thereof, or any aircraft, missile, spacecraft, or similar vehicle, or part thereof, or other property or equipment in the custody of the Administration, or any real or personal property or equipment in the custody of any contractor under any contract with the Administration or any subcontractor of any such contractor, shall be fined not more than

\$5,000, or imprisoned not more than one year, or both.”

(2) adding at the end of the sectional analysis thereof the following new item: “799. Violation of regulations of National Aeronautics and Space Administration.”

(d) Section 1114 of title 18 of the United States Code is amended by inserting immediately before “while engaged in the performance of his official duties” the following: “or any officer or employee of the National Aeronautics and Space Administration directed to guard and protect property of the United States under the administration and control of the National Aeronautics and Space Administration.”

(e) The Administrator may direct such of the officers and employees of the Administration as he deems necessary in the public interest to carry firearms while in the conduct of their official duties. The Administrator may also authorize such of those employees of the contractors and subcontractors of the Administration engaged in the protection of property owned by the United States and located at facilities owned by or contracted to the United States as he deems necessary in the public interest, to carry firearms while in the conduct of their official duties.

Property Rights In Inventions

Sec. 305. (a) Whenever any invention is made in the performance of any work under any contract of the Administration, and the Administrator determines that—

(1) the person who made the invention was employed or assigned to perform research, development, or exploration work and the invention is related to the work he was employed or [10] assigned to perform, or that it was within the scope of his employment duties, whether or not it was made during working hours, or with a contribution by the Government of the use of Government facilities, equipment, materials, allocated funds, information proprietary to the Government, or services of Government employees during working hours; or

(2) the person who made the invention was not employed or assigned to perform research, development, or exploration work, but the invention is nevertheless related to the contract, or to the work or duties he was employed or assigned to perform, and was made during working hours, or with a contribution from the Government of the sort referred to in clause (1), such invention shall be the exclusive property of the United States, and if such invention is patentable a patent therefor shall be issued to the United States upon application made by the Administrator, unless the Administrator waives all or any part of the rights of the United States to such invention in conformity with the provisions of subsection (f) of this section.

(b) Each contract entered into by the Administrator with any party for the performance of any work shall contain effective provisions under which such party shall furnish promptly to the Administrator a written report containing full and complete technical information concerning any invention, discovery, improvement, or innovation which may be made in the performance of any such work.

(c) No patent may be issued to any applicant other than the Administrator for any invention which appears to the Commissioner of Patents to have significant utility in the conduct of aeronautical and space activities unless the applicant files with the Commissioner, with the application or within thirty days after request therefor by the Commissioner, a written statement executed under oath setting forth the full facts concerning the circumstances under which such invention was made and stating the relationship (if any) of such invention to the performance of any work under any contract of the Administration. Copies of each such statement and the application to which it relates shall be transmitted forthwith by the Commissioner to the Administrator.

(d) Upon any application as to which any such statement has been transmitted to the Administrator, the Commissioner may, if the invention is patentable, issue a patent to the applicant unless the Administrator, within ninety days after receipt of such application and statement, requests that such patent be issued to him on behalf of the United States. If, within such time, the Administrator files such a request with the Commissioner, the Com-

missioner shall transmit notice thereof to the applicant, and shall issue such patent to the Administrator unless the applicant within thirty days after receipt of such notice requests a hearing before a Board of Patent Interferences on the question whether the Administrator is entitled under this section to receive such patent. The Board may hear and determine, in accordance with rules and procedures established for interference cases, the question so presented, and its determination shall be subject to appeal by the applicant or by the Administrator to the Court of Customs and Patent Appeals in accordance with procedures governing appeals from decisions of the Board of Patent Interferences in other proceedings.

(e) Whenever any patent has been issued to any applicant in conformity with subsection (d), and the Administrator thereafter has reason to believe that the statement filed by the applicant in connection therewith contained any false representation of any material fact, the Administrator within five years after the date of issuance of such patent may file with the Commissioner a request for the [11] transfer to the Administrator of title to such patent on the records of the Commissioner. Notice of any such request shall be transmitted by the Commissioner to the owner of record of such patent, and title to such patent shall be so transferred to the Administrator unless within thirty days after receipt of such notice such owner of record requests a hearing before a Board of Patent Interferences on the question whether any such false representation was contained in such statement. Such question shall be heard and determined, and determination thereof shall be subject to review, in the manner prescribed by subsection (d) for questions arising thereunder. No request made by the Administrator under this subsection for the transfer of title to any patent, and no prosecution for the violation of any criminal statute, shall be barred by any failure of the Administrator to make a request under subsection (d) for the issuance of such patent to him, or by any notice previously given by the Administrator stating that he had no objection to the issuance of such patent to the applicant therefor.

(f) Under such regulations in conformity with this subsection as the Administrator shall prescribe, he may waive all or any part of the rights of the United States under this section with respect to any invention or class of inventions made or which may be made by any person or class of persons in the performance of any work required by any contract of the Administration if the Administrator determines that the interests of the United States will be served thereby. Any such waiver may be made upon such terms and under such conditions as the Administrator shall determine to be required for the protection of the interests of the United States. Each such waiver made with respect to any invention shall be subject to the reservation by the Administrator of an irrevocable, nonexclusive, nontransferable, royalty-free license for the practice of such invention throughout the world by or on behalf of the United States or any foreign government pursuant to any treaty or agreement with the United States. Each proposal for any waiver under this subsection shall be referred to an Inventions and Contributions Board which shall be established by the Administrator within the Administration. Such Board shall accord to each interested party an opportunity for hearing, and shall transmit to the Administrator its findings of fact with respect to such proposal and its recommendations for action to be taken with respect thereto.

(g) The Administrator shall determine, and promulgate regulations specifying, the terms and conditions upon which licenses will be granted by the Administrator for the practice by any person (other than an agency of the United States) of any invention for which the Administrator holds a patent on behalf of the United States.

(h) The Administrator is authorized to take all suitable and necessary steps to protect any invention or discovery to which he has title, and to require that contractors or persons who retain title to inventions or discoveries under this section protect the inventions or discoveries to which the Administration has or may acquire a license or use.

(i) The Administration shall be considered a defense agency of the United States for the purpose of chapter 17 of title 35 of the United States Code.

(j) As used in this section—

(1) term "person" means any individual, partnership, corporation, association,

institution, or other entity;

(2) the term "contract" means any actual or proposed contract, agreement, understanding, or other arrangement, and includes any assignment, substitution of parties, or subcontract executed or entered into thereunder; and

[12] (3) the term "made", when used in relation to any invention, means the conception or first actual reduction to practice of such invention.

Contributions Awards

Sec. 306. (a) Subject to the provisions of this section, the Administrator is authorized, upon his own initiative or upon application of any person, to make a monetary award, in such amount and upon such terms as he shall determine to be warranted, to any person (as defined by section 305) for any scientific or technical contribution to the Administration which is determined by the Administrator to have significant value in the conduct of aeronautical and space activities. Each application made for any such award shall be referred to the Inventions and Contributions Board established under section 305 of this Act. Such Board shall accord to each such applicant an opportunity for hearing upon such application, and shall transmit to the Administrator its recommendation as to the terms of the award, if any, to be made to such applicant for such contribution. In determining the terms and conditions of any award the Administrator shall take into account-

(1) the value of the contribution to the United States;

(2) the aggregate amount of any such sums which have been expended by the applicant for the development of such contribution;

(3) the amount of any compensation (other than salary received for services rendered as an officer or employee of the Government) previously received by the applicant for or on account of the use of such contribution by the United States; and

(4) such other factors as the Administrator shall determine to be material.

(b) If more than one applicant under subsection (a) claims an interest in the same contribution, the Administrator shall ascertain and determine the respective interests of such applicants, and shall apportion any award to be made with respect to such contribution among such applicants in such proportions as he shall determine to be equitable. No award may be made under subsection (a) with respect to any contribution—

(1) unless the applicant surrenders, by such means as the Administrator shall determine to be effective, all claims which such applicant may have to receive any compensation (other than the award made under this section) for the use of such contribution or any element thereof at any time by or on behalf of the United States, or by or on behalf of any foreign government pursuant to any treaty or agreement with the United States, within the United States or at any other place;

(2) in any amount exceeding \$100,000, unless the Administrator has transmitted to the appropriate committees of the Congress a full and complete report concerning the amount and terms of, and the basis for, such proposed award, and thirty calendar days of regular session of the Congress have expired after receipt of such report by such committees.

[13]

Appropriations

Sec. 307. (a) There are hereby authorized to be appropriated such sums as may be necessary to carry out this Act except that nothing in this Act shall authorize the appropriation of any amount for (1) the acquisition or condemnation of any real property, or (2) any other item of a capital nature (such as plant or facility acquisition, construction, or expansion) which exceeds \$250,000. Sums appropriated pursuant to this subsection for the construction of facilities, or for research and development activities, shall remain available until expended.

(b) Any funds appropriated for the construction of facilities may be used for emergency repairs of existing facilities when such existing facilities are made inoperative by major breakdown, accident, or other circumstances and such repairs are deemed by the Administrator to be of greater urgency than the construction of new facilities.

(Sam Rayburn)
Speaker of the House of Representatives

(Richard Nixon)
*Vice President of the United States and
President of the Senate.*

Document II-18

Document title: National Security Council, NSC 5814, "U.S. Policy on Outer Space," June 20, 1958.

Source: Presidential Papers, Dwight D. Eisenhower Library, Abilene, Kansas.

Even before a new civilian space agency began operation, the Eisenhower administration developed an initial post-Sputnik statement of national space policy. This document was prepared under National Security Council auspices; the discussions included the National Advisory Committee for Aeronautics, which had been chosen by the White House as the core of a new civilian space agency. (The National Aeronautics and Space Council established by the 1958 Space Act had not yet begun to function.) As the document was sent to the National Security Council for discussion on June 20, 1958, disagreements remained on some aspects of the statement of U.S. objectives in space (paragraph 43) and of the policy guidance for U.S. space activities (paragraphs 50 and 56.f).

[1]

Introductory Note

This statement of U.S. Policy on Outer Space is designated Preliminary because man's understanding of the full implications of outer space is only in its preliminary stages. As man develops a fuller understanding of the new dimension of outer space, it is probable that the long-term results of exploration and exploitation will basically affect international and national political and social institutions.

Perhaps the starkest facts which confront the United States in the immediate and foreseeable future are (1) the USSR has surpassed the United States and the Free World in scientific and technological accomplishments in outer space, which have captured the imagination and admiration of the world; (2) the USSR, if it maintains its present superiority in the exploitation of outer space, will be able to use that superiority as a means of undermining the prestige and leadership of the United States; and (3) the USSR, if it should be the first to achieve a significantly superior military capability in outer space, could create an imbalance of power in favor of the Sino-Soviet Bloc and pose a direct military threat to U.S. security.

The security of the United States requires that we meet these challenges with resourcefulness and vigor.

[2]

General Considerations Introduction

Significance of Outer Space to U.S. Security

1. More than by any other imaginative concept, the mind of man is aroused by the thought of exploring the mysteries of outer space.

2. Through such exploration, man hopes to broaden his horizons, add to his knowledge, improve his way of living on earth. Already, man is sure that through further exploration he can obtain certain scientific and military values. It is reasonable for man to believe that there must be, beyond these areas, different and great values still to be discovered.

3. The technical ability to explore outer space has deep psychological implications over and above the stimulation provided by the opportunity to explore the unknown. With its hint of the possibility of the discovery of fundamental truths concerning man, the earth, the solar system, and the universe, space exploration has an appeal to deep insights within man which transcend his earthbound concerns. The manner in which outer space is explored and the uses to which it is put thus take on an unusual and peculiar significance.

4. The beginning stages of man's conquest of space have been focused on technology and have been characterized by national competition. The result has been a tendency to equate achievement in outer space with leadership in science, military capability, industrial technology, and with leadership in general.

5. The initial and subsequent successes by the USSR in launching large earth satellites have profoundly affected the belief of peoples, both in the United States and abroad, in the superiority of U.S. leadership in science and military capability. This psychological reaction of sophisticated and unsophisticated peoples everywhere affects U.S. relations with its allies, with the Communist Bloc, and with neutral and uncommitted nations.

[3] 6. In this situation of national competition and initial successes by the USSR, further demonstrations by the USSR of continuing leadership in outer space capabilities might, in the absence of comparable U.S. achievements in this field,⁵⁵⁴ dangerously impair the confidence of these peoples in U.S. over-all leadership. To be strong and bold in space technology will enhance the prestige of the United States among the peoples of the world and create added confidence in U.S. scientific, technological, industrial and military strength.

7. The novel nature of space exploitation offers opportunities for international cooperation in its peaceful aspects. It is likely that certain nations may be willing to enter into cooperative arrangements with the United States. The willingness of the Soviets to cooperate remains to be determined. The fact that the results of cooperation in certain fields, even though entered into for peaceful purposes, could have military application, may condition the extent of such cooperation in those fields.

Problem of Defining Space

8. Many names for the various regions of the earth's atmosphere and the divisions of space have developed over the years. The boundaries of these regions and divisions cannot be precisely defined in physical terms, and authorities differ widely on terminology and meaning.

9. The term "air space" has been used to denote the layer of atmosphere surrounding the earth in which military and civilian air vehicles operate. Although national policies and international agreements have dealt extensively with air space and expressly assert the sovereignty of each nation over its air space, the upper limit of air space has not been defined.

⁵⁵⁴ Communist China has announced, furthermore, an intention of proceeding to launch its own earth satellite in the near future. Such a development, which could only result from USSR assistance, would tend to enhance the prestige of the Chinese Communist regime throughout Asia and among the less-developed countries, and could further undermine the reputation of the West for technological leadership unless the accomplishment were matched by a Free World ally.

[4] [Entire page omitted due to classification]

[5] 12. Because the question of rights in "outer space" will undoubtedly arise at the UN General Assembly in September 1958, perhaps in international discussions on post-IGY activities, and perhaps in other international negotiations, it would appear desirable for the United States to develop a common understanding of the term "outer space" as related to particular objects and activities therein.

13. For the purposes of this policy statement, space is divided into two regions: "air space" and "outer space." "Outer space" is considered as contiguous to "air space", with the lower limit of "outer space" being the upper limit of "air space."

Use of Outer Space

General

14. Outer space can be used:

a. By vehicles or other objects that achieve their primary purpose in outer space; such as

(1) Vehicles or objects that remain in an area directly over a nation's own territory, such as sounding rockets;

(2) Vehicles or objects that orbit the earth;

(3) Vehicles that traverse outer space enroute to the moon, other planets or the sun; b. For the transmission of electromagnetic energy for such purposes as communications, radar measurement and electronic countermeasures;

c. By [phrase omitted during declassification review] vehicles which traverse outer space, but which achieve their primary purpose upon their return to air space or earth.

15. There are many uses of outer space for peaceful purposes, such as exploration, pure adventure, increase of scientific knowledge, and development and applications of technology. Any use of outer space, however, whatever the purpose it is intended to serve, may have some degree of military or other non-peaceful application. Therefore, U.S. policies relating to international arrangements on uses of outer space for peaceful purposes will have to take into account possible non-peaceful applications in determining the net advantage to U.S. security.

Science and Technology

16. Outer space technology affords new and unique opportunities for scientific observations and experiments which will add greatly to our knowledge and understanding of the earth, the solar system and the universe. These opportunities exist in many fields, including among others:

a. **Geophysics:** Three-dimensional mapping of the earth's gravity and magnetic field.

b. **Physics:** Cosmic ray measurements above the earth's dense atmosphere and experiments in the theory of relativity.

c. **Meteorology:** World-wide cloud-cover mapping for improved forecasting of weather and measurements of incoming and outgoing heat energy which will allow a better understanding of weather.

d. **Biology:** Possible living organisms in space and the effects on man of prolonged exposure to radiation and weightlessness.

e. **Psychological** response of man to a space environment.

f. **Astronomy:** The universe as seen from beyond the earth's atmosphere and measurement of stellar radiation.

g. **Lunar investigations** including the moon's gravity, mass, magnetic field, atmosphere, surface, core, and original state.

h. **Nature of the Planets.**

The foregoing studies would be conducted by means of sounding rockets, earth satellites, lunar vehicles, and interplanetary vehicles.

17. Outer space activity and scientific research would have both military and non-military applications. Examples are satellites as navigational aids; and satellites as relay stations to receive and relay television or radio signals and improve world-wide communications.

18. It is not possible to foresee all applications of outer space activity which may be developed, but our ability to achieve and maintain leadership in such applications will largely depend on the breadth of the scientific research which is undertaken and supported.

[7] **Military**

19. The effective use of outer space by the United States and the Free World will enhance their military capability. Military uses of outer space (some of which may have peaceful applications) may be divided into the following three general categories:

a. **Now Planned or in Immediate Prospect**

(1) **Ballistic Missiles.** A family of IRBM's and ICBM's is now in the latter stages of development. Components of these missiles can be used to develop other space vehicles, for both military and scientific use.

(2) **Anti-ICBM's** which are now being developed.

(3) **Military Reconnaissance.** (See "Reconnaissance Satellites" section, paragraphs 20-23)

b. **Feasible in the Near Future**

(1) **Satellites of Weather Observation.**

(2) **Military Communications Satellites.**

(3) **Satellites for Electronic Countermeasures (Jamming).**

(4) **Satellites as Aids for Navigation,** tracked from the earth's surface visually or by radio.

c. **Future Possibilities**

(1) **Manned Maintenance and Resupply Outer Space Vehicles.**

(2) **Manned Defensive Outer Space Vehicles,** which might capture, destroy or neutralize an enemy outer space vehicle.

(3) **Bombardment Satellites (Manned or Unmanned).** It is conceivable that, in the future, satellites carrying weapons ready for firing on signal might be used for attacking targets on the earth.

(4) **Manned Lunar Stations,** such as military communications relay sites or reconnaissance stations. Conceivably, launching of missiles to the earth from lunar sites would be possible.

[8] **Reconnaissance Satellites**

20. Reconnaissance satellites are of critical importance to U.S. national security. Those now planned are designed:

(a) [major section omitted during declassification review] Reconnaissance satellites would also have a high potential use as a means of implementing the "open skies" proposal or policing a system of international armaments control.

21. As envisaged in U.S. plans, the instrumentation of reconnaissance satellites would consist primarily of [remainder of page omitted during declassification review] . . .

[9] 23. Some political implications of the use of reconnaissance satellites may be adverse. Therefore, studies must be urgently undertaken in order to determine the most favorable political framework in which such satellites would operate.

Manned Exploration of Outer Space

24. In addition to satisfying man's urge to explore new regions, manned exploration of outer space is of importance to our national security because:

(a) Although present studies in outer space can be carried on satisfactorily by using only unmanned vehicles, the time will undoubtedly come when man's judgment and resourcefulness will be required fully to exploit the potentialities of outer space.

(b) To the layman, manned exploration will represent the true conquest of outer space. No unmanned experiment can substitute for manned exploration in its psychological effect on the peoples of the world.

(c) Discovery and exploration may be required to establish a foundation for the rejection of USSR claims to exclusive sovereignty of other planets which may be visited by nationals of the USSR.

25. The first step in manned outer space travel could be undertaken using rockets and components now under study and development. Travel by man to the moon and beyond will probably require the development of new basic vehicles and equipment.

[10]

Other Implications of Outer Space Activities International Cooperation and Control

General

26. International cooperation in certain outer space activities appears highly desirable from a scientific, political and psychological standpoint and may appear desirable in selected instances with U.S. allies from the military standpoint. International cooperation agreements in which the United States participates could have the effect of (a) enhancing the position of the United States as a leader in advocating the uses of outer space for peaceful purposes and international cooperation in science, (b) conserving U.S. resources, (c) speeding up outer space achievements by the pooling of talents, (d) "opening up" the Soviet Bloc, and (e) introducing a degree of order and authority in the necessary international regulations governing certain outer space activities.

27. Various types of international cooperation may be possible through existing international scientific organizations, the United Nations, multilateral and bilateral arrangements with the Free World nations and NATO, and U.S.-Soviet bilateral arrangements. International cooperation by the United States in outer space activities might, as consistent with U.S. security interests, include (a) the collection and exchange of information on outer space; (b) the exchange of scientific instrumentation; (c) contacts among scientists; (d) participation of foreign scientists in U.S. space projects; (e) planning and coordination of certain programs or specific projects to be carried out on a fully international basis (some of which might be: a large instrumented scientific satellite, communication satellites, and meteorological satellites); (f) establishment of regulations governing certain outer space activities; (g) provision and launching of scientific satellites in support of international planning of a program of satellite observations.

28. Under present conditions, the extent of international cooperation, particularly in fields having important military applications such as propulsion and guidance mechanisms, will have to take into account security considerations (see paragraphs 7 and 15).

[11] U.S. Position

29. In January 1957 the United States initiated international discussion of the control of outer space by proposing in the UN General Assembly that the testing of outer space vehicles should be carried out and inspected under international auspices. This proposal was based on a policy decision⁵⁵⁵ to seek to assure that the sending of objects into outer space should be exclusively for peaceful and scientific purposes and that, under effective control, the production of such objects designed for military purposes should be

555. With reference to the relation of the use of outer space to an armaments control system, the Annex to NSC Action No. 1553 (November 21, 1956), which remains in effect, provides: "5. It is the purpose of the United States, as part of an armaments control system, to seek to assure that the sending of objects into outer space shall be exclusively for peaceful and scientific purposes and that under effective control the production of objects designed for travel in or projection through outer space for military purposes shall be prohibited.

Therefore, the United States to propose that, contingent upon the establishment of effective inspection to verify the fulfillment of the commitment, all states agree to provide for international inspection of and participation in tests of outer space objects."

prohibited as part of an armaments control system. It was thought, at the then state of the art, that a control of testing would have precluded development until more comprehensive controls could be agreed upon. The U.S. proposal was altered with the passage of time and, as presented on August 29, 1957 as the Four Power Proposal in London, calls for technical studies of the "design of an inspection system which would make it possible to assure that the sending of objects through outer space will be exclusively for peaceful and scientific purposes." In his letter of January 13, 1958 to Bulganin, the President proposed, as part of a five-point program relating to control of armaments and armed forces, that "we agree that outer space be used only for peaceful purposes" and inquired "can we not stop the productions of such weapons which would use or more accurately misuse, outer space...?" In his later letter to Bulganin, dated February 15, 1958, the President proposed "wholly eliminating the newest types of weapons which use outer space for human destruction."

[12] 30. a. The most recent statement of basic policy relating to the regulation and reduction of armed forces and armaments appears in paragraph 40 of NSC 5810/1 (May 5, 1958).

b. Further consideration of U.S. policy concerning the scope of control and inspection required to assure that outer space could be used only for peaceful purposes, as well as the relationship of any such control arrangement to other aspects of an arms agreement, is deferred pending the recommendation of the Special NSC Committee established to make preparations for a possible Summit Meeting (NSC Action No. 1893). It is understood that the Special NSC Committee will also consider possible interim and more limited arrangements, and take into account the technical feasibility of assuring that outer space can be used only for peaceful purposes.

USSR Position

31. The USSR has proposed an agenda item for the next UN General Assembly meeting calling for the banning of the use of "cosmic space" for military purposes, the elimination of foreign bases on the territories of other countries, and international cooperation in the study of "cosmic space." The Soviets envisage an international agency with the following functions: development and supervision of an international program for launching intercontinental and space rockets to study "cosmic space"; continuation on a permanent basis of the IGY "cosmic space" research; world-wide collection, exchange and dissemination of "cosmic" research information; and coordination of and assistance to national research programs.

United Nations Role

32. The Soviet position makes certain that outer space questions, probably including peaceful uses, control, and organization, will be discussed in the UN General Assembly in September, 1958. The rapid pace of outer space achievements in past months has aroused great interest among all UN members concerning the role of the United Nations in the various aspects of outer space. The maintenance of our posture as the leading exponent of the use of outer space for peaceful purposes requires that the United States take in the General Assembly an imaginative and positive position.

[13] Legal Problems of Air Space and Outer Space

33. Numerous legal problems will be posed by the development of activities in space. Many of these cannot be settled until we gain more experience and basic information, because the only foundation for a sound rule of law is a body of ascertained fact. It is altogether likely that some issues in the field of space law which will be practical questions in the future are not even identified today. This is not to say that there is an entire lack of international law applicable to activities in space at the present time. For example, Article 51 of the Charter of the United Nations recognizes the inherent right of individual or collective self-defense against armed attack. Clearly this right is available against any space activities employed in such an attack.

34. **International Geophysical Year.** From the arrangements and announcements made in connection with the International Geophysical Year, there may be a general implied consent that scientific satellites be launched and orbited during the IGY. Such implied consent does not necessarily mean, however, that assent has been given to the launching and orbiting or other types of satellites and missiles, or that assent with respect to scientific satellites extends beyond the IGY. It remains to be determined what rules will apply to subsequent satellites; what limitations will govern the types and purposes of satellites in the future. The United States, as well as other countries, has not yet taken positions on these questions and, here again, the answer will depend not only upon what others are likely to do but also upon what activities the United States wishes to be free to engage in.

35. **A problem of jurisdiction in space** on which the United States reserves its position at present is whether celestial bodies in space beyond the earth are susceptible to appropriation by national control or sovereignty.

36. **The problem of legal definitions** is unsolved. As indicated above, there is as yet insufficient basis for legally deciding that air space extends so far and no farther; that outer space begins at a given point above the earth. Because, for some time to come, at least, activities in outer space will be closely connected with activities on the earth and in air space, many legal problems with respect to space activities may well be resolved without the necessity of determining or agreeing upon a line of demarcation between air space and outer space. If, by analogy to the Antarctic proposal of the United States, international agreement can be reached upon permissible activities in space and the rules and regulations to be followed with respect thereto, problems of sovereignty may be avoided or at least deferred.

[14] 37. **Problems of liability** for injury or damage caused by activities in space or by re-entry will also arise. No nation has as yet taken a position as to whether due care against negligence should be the standard or whether liability should be absolute. Here again future experience, and the development of agreement among the nations, will be necessary. Absolute liability as respects objects landing on United States will have to be weighed against absolute liability for U.S. objects landing on other nations.

38. **Problems of national and international regulation** over activities in space will also arise. There is already the need to assign telecommunication wavelengths to communications with satellites and space objects. Other types of regulations having serious security implications will have to be worked out for the identification of space objects and for some type of traffic control to prevent congestion and interference.

39. **Generally speaking, rules will have to be evolved gradually** and pragmatically from experience. While the nations engaging in space activities will play an important role in this field, it will have to be recognized from the nature of the subject that all nations have a legitimate interest in it. The field is not suitable for abstract *a priori* codification.

[15]

Comparison of USSR and U.S. Capabilities in Outer Space Activities

40. Conclusive evidence shows that the Soviets are conducting a well-planned outer space program at high priority. The table below attempts to estimate the U.S. and USSR timetable for accomplishment of specific outer space flight activities.

a. Soviet space flight capabilities estimated in the table reflect the earliest possible time periods in which each specific event could be successfully accomplished.

(1) The space flight program is in competition with many other programs, particularly the missile program. The USSR probably cannot successfully accomplish all of the estimated space flight activities within the time periods specified. The USSR will not permit its space flight program to interfere with achieving an early operational capability for ICBM's (which enjoy the highest priority).

(2) The USSR is believed to have the intention to pursue both an active space flight program designed to put man into outer space for military and/or scientific purposes,

and further scientific research utilizing earth satellites, lunar rockets, and probes of Mars and Venus; but it cannot be determined, at this time, whether the basic scientific program or the "man in space" program enjoys the higher priority and will, therefore, be pursued first.

b. U.S. space flight capabilities indicated in the table reflect the earliest possible time periods in which each specific event could be successfully accomplished. Not all of the indicated activities could be successfully accomplished with the time period specified. It must also be recognized that the accomplishment of some of the activities listed would impinge upon space activities already programmed, or upon other military programs.

41. If the USSR high-priority outer space program continues, the USSR will maintain its lead at least for the next few years, as shown in the following table.

[16]

**Earliest Possible Time Periods of Various
Soviet and U.S. Accomplishments in Outer Space**

(NOTE: Generally, Soviet vehicles will be of substantially greater orbital payloads than U.S. vehicles. It should be noted, however, that the comparative capabilities of the United States and the USSR should not be measured by orbital payloads alone.)

The United States is estimated to be considerably ahead of the USSR in miniaturization of missile and satellite components, and therefore the effectiveness of U.S. satellites on a "per pound in orbit" basis is estimated to be greater than that of the USSR.)

	<u>Soviet^a</u>	<u>U.S.^b</u>
1. Scientific Earth Satellites (IGY Commitment)	1957-58	1958
2. Reconnaissance Satellites ^c	1958-59	1959-61
3. Recoverable Aeromedical Satellites	1958-59	1959
4. Exploratory Lunar Probes or Lunar Satellites	1958-59	1958-59
5. "Soft" Lunar Landing	1959-60	Early 1960
6. Communications Satellites	_____	1959-60
7. Manned Recoverable Satellites		
a. Capsule-type Satellites	1959-60 ^d	1960-63
b. Glide-type Vehicles	1960-61	1960-63
8. Mars Probe	Aug. 1958 ^c	Oct. 1960
9. Venus Probe	June 1959 ^c	Jan. 1961
10. 25,000-pound Satellite — manned	1961-62	After 1965
11. Manned Circumlunar Flight	1961-62	1962-64
12. Manned Lunar Landing	After 1965	1968

^a Estimate by the Guided Missile Intelligence Committee (GMIC) of the IAC as of June 3, 1958.

^b Source: Department of Defense, June 4, 1958.

^c Defense Comment: (See Annex B for test reconnaissance satellites.) The United States plans to launch a reconnaissance satellite of approximately 3,000 pounds in late 1959. During the same time period the USSR is estimated to be capable of launching a 45,000 pound reconnaissance satellite.

^d The Joint Staff member of GMIC reserves his position on the date 1959.

^e The Soviets most likely would attempt probes when Venus and Mars are in their most favorable conjunction with the earth for such an undertaking.

Level of Effort

42. a. Because of the highly speculative nature of future activities in outer space, decisions as to the priority and extent of U.S. outer space programs will obviously be a judgment based on limited knowledge. Some activities in outer space would be expedited by the allocation of additional financial resources; others would not, being dependent on research progress. The potentially great importance to U.S. national interests of outer space activities, however, requires taking risks in allocating resources to research and development activities, the success or ultimate utility of which cannot be definitely foreseen.

b. The level of material and scientific effort to be expended on outer space activities must nevertheless be related to other national security programs to ensure that a proper balance is maintained between anticipated scientific, military and psychological gains from outer space programs and the possible loss resulting from reductions in resources allocated to other programs.

Objectives⁵⁵⁶

43. The fullest⁵⁵⁷ development and exploitation of U.S. outer space capabilities as needed to achieve U.S. scientific, military and political purposes as follows:

a. A technological capability to meet the requirements of **b**, **c** and **d** below.

b. A degree of competence and a level of achievement in outer space basic and applied research and exploration which is at least on a par with that of any other nation.

c. Applications of outer space technology, research and exploration to achieve a military capability in outer space sufficient to assure the over-all superiority of U.S. [outer space]⁵⁵⁸ offensive and defensive systems relative to those of the USSR.

d. Applications of outer space technology, research, and exploration for non-military purposes, which are at least on a par with any other nation.

e. World recognition of the United States as, at least, the equal of any other nation in over-all outer space activity and as the leading advocate of the peaceful exploitation of outer space.

[43. The establishment of the United States as the recognized leader in the over-all development and exploitation of outer space for scientific, military and political purposes.]⁵⁵⁹

44. As consistent with U.S. security, achievement of international cooperation in the uses of and activities related to outer space: for peaceful purposes, and with selected allies for military purposes.

[19] 45. As consistent with U.S. security, the achievement of suitable international agreements relating to the uses of outer space for peaceful purposes that will assure orderly outer space programs.

46. Utilization of the potentials of outer space to assist in "opening up" the Soviet Bloc through improved intelligence and programs of scientific cooperation.

Policy Guidance⁵⁶⁰

Priority and Scope of Outer Space Effort

47. With a priority and scope sufficient to enable the United States at the earliest practicable time to achieve its scientific, military and political objectives as stated in para-

556. See paragraphs 29 and 30 for statement of the status of policy on the regulation and reduction of armed forces and armaments in relation to outer space.

557. Budget proposes to delete "the fullest" and all of the paragraph after "purposes".

558. Defense-JCS proposal.

559. ODM-NACA-USIA alternative paragraph 43.

560. See paragraphs 29 and 30 for statement of the status of policy on the regulation and reduction of armed forces and armaments in relation to outer space.

graph 43, develop and expand selected U.S. activities related to outer space in:

- a. Research and technology required to exploit the military and non-military potentials of outer space.
- b. Outer space exploration required to determine such military and non-military potentials.
- c. Applications of outer space research, technology, and exploration to develop outer space capabilities (in addition to those capabilities which now have the highest national priority⁵⁶¹) required to achieve such objectives.

48. In addition to undertaking necessary immediate and short-range activities related to outer space, develop plans for outer space activities or the longer range (through at least a ten-year period).

49. Study on a continuing basis the implications which U.S. and foreign exploitation of outer space may hold for international and national political and social institutions. Critically examine such exploitation for possible consequences on activities and on life on earth (e.g., outer space activities which affect weather, health for other factors relating to activities and life on earth).

[50. In the absence of a safeguarded international agreement for the control of armaments and armed forces, place primary emphasis on activities related to outer space necessary to maintain the over-all deterrent capability of the United States and the Free World.]⁵⁶²

[21] Psychological Exploitation

51. In the near future, while the USSR has a superior capability in space technology, judiciously select (without prejudicing activities under paragraph 47) projects for implementation which, while having scientific or military value, are designed to achieve a favorable world-wide psychological impact.

52. Identify, to the greatest extent possible, the interests and aspirations of other Free World nations in outer space with U.S.-sponsored activities and accomplishments.

53. Develop information and other programs that will exploit fully U.S. outer space activities on a continuing basis; especially, during the period while the USSR has superior over-all outer space capabilities, those designed to counter the psychological impact of Soviet outer space activities and to present U.S. outer space progress in the most favorable comparative light.

Reconnaissance Satellites⁵⁶³

54. In anticipation of the availability of reconnaissance satellites, seek urgently a political framework which will place the uses of U.S. reconnaissance satellites in a political and psychological context most favorable to the United States.

55. At the earliest technologically practicable date, use reconnaissance satellites to enhance to the maximum extent the U.S. intelligence effort.

International Cooperation in Outer Space Activities

56. Consistent with the objectives in paragraphs 43 and 44, and as a means of maintaining the U.S. position as the leading advocate of the use of outer space for peaceful purposes, be prepared to propose that the United States join with other nations, including the USSR, in cooperative efforts relating to outer space. Specifically:

- a. Encourage a continuation and expansion of the type of cooperation which exists in the IGY programs, through non-governmental international scientific [22] organizations such as the International Council of Scientific Unions; including cooperation in the design of experiments and instrumentation, exchange of information on instrumenta-

561. See NSC Action No. 1846.

562. State-Defense-Treasury-JCS proposal. Other Planning Board representatives believe the subject is adequately covered in paragraphs 43 and 47, and would therefore delete paragraph 50.

563. The priority and scope of operational capabilities of reconnaissance satellites are established in NSC Action No. 1846, January 22, 1958.

tion, scientific data and telemetry, exchange of instruments, and in the use of scientific satellites and other scientific vehicles in support of international planning for exploration of outer space.

b. Recognize UN interests in outer space cooperation, but do not encourage precipitous UN action to establish permanent organizational arrangements. To this end consider: (1) establishment of an ad hoc UN planning committee to formulate recommendations to facilitate international cooperation and appropriate UN organizational arrangements; and (2) in the interim, participation in those joint projects for cooperation and exchange of information for which UN auspices are desirable.

c. Invite scientists of foreign countries, including the Soviet Bloc in general on a reciprocal basis, to participate in selected U.S. programs for the scientific exploration of space.

d. Propose scientific bilateral arrangements with other nations (including the USSR) for cooperative ventures related to outer space, provided that the combined existing competence might achieve meaningful scientific and technical advance.

e. Propose to groups of nations and international organizations independent outer space projects which would be appropriate for multilateral participation.

f. Assist selected Free World nations willing and able to undertake useful activities related to outer space, [as necessary to assure that the over-all Free World position in outer space developments is at least on a par with that of the Sino-Soviet Bloc].⁵⁶⁴

Limited International Arrangements to Regulate Outer Space Activities

57. Propose international agreements concerning appropriate means for maintaining a full and current public record of satellite orbits and emission frequencies.

[23] International Outer Space Law

58. [Paragraph excised during declassification review]

59. Reserve the U.S. position on legal issues of outer space, but undertake on an urgent basis a study of the legal issues that will arise from national and international outer space activities in the near future.

Interim Position in International Negotiations

60. In negotiations with other nations or organizations dealing with outer space (pending the results of the study referred to in paragraph 58), seek to achieve common agreement to relate such negotiations to the traversing or operating of man-made objects in outer space, rather than to defined regions in outer space.

Security Classification

61. In considering whether U.S. outer space information and material requires classification under Executive Order No. 10501,⁵⁶⁵ take special account of the lead achieved by the USSR in outer space activities and the advantages, including more rapid progress, which could accrue to the United States through liberalizing the general availability and use of such information and material.

Administration of Outer Space Programs

62. Provide through appropriate legislation for the conduct of U.S. outer space activities under the direction of a civilian agency, except in so far as such activities may be peculiar to or primarily associated with weapons systems or military operations, in the case of which activities the Department of Defense shall be responsible.

⁵⁶⁴. Budget proposes deletion.

⁵⁶⁵. Executive Order No. 10501 ("Safeguarding Official Information in the Interests of the Defense of the United States"), Section 3 provides in part that: "Unnecessary classification and over-classification [of information or material] shall be scrupulously avoided."

[24]

Annex A The Soviet Space Program

1. **Objectives and Scope of Program.** Conclusive evidence shows that the Soviets are conducting a well-planned space flight program at high priority. This program is apparently aimed at placing both instrumented and manned vehicles into space. Certain successes have been exhibited already in the instrumented vehicles category (including the orbiting of three earth satellites, one containing a dog) and we believe they are fully capable of achieving manned space flight within the next few years.

2. **General.** Evidence of Soviet interest in space flight dates back to a publication in 1903 of a paper, "Investigation of Universal Space by Means of Rocket Flight," by the eminent Russian scientist Tsiolkovsky. This highly scientific treatise for the first time mathematically established the fundamentals of rocket dynamics and included a proposal for an artificial earth satellite. Reactive motion (rockets) was seriously engaged again in the latter '20s and in the '30s. In April 1955, the Interagency Commission for Interplanetary Communications was formed under the Academy of Sciences to establish an automatic laboratory for scientific research in cosmic space as a first step in solving the problems of interplanetary travel. Since early 1955 several hundred articles on space research, earth satellites and space flight have been published in the USSR. Many of the articles have been written by high-caliber Soviet scientists and most deal with the theoretical principles of space flight.

3. **Capabilities.** The Soviet Union dramatically demonstrated its interest and current capability in space flight with the launching of two earth satellites in October and November 1957, and a third in mid-May 1958. The complex facilities and skills needed to operate the large rocket vehicles required for the launching of a satellite or space vehicle are apparently available within the Soviet military. Thus, although the first space flights were doubtless undertaken for the furtherance of scientific knowledge and for whatever psychological and political advantage would accrue, the Soviet military department, by intimate participation of its hardware and personnel, is in a position to utilize immediately such knowledge for the enhancement of the Soviet military position and objectives. The realization of even more advanced space projects particularly those involving manned flight, must be preceded by a vast amount of systematic [25] and well-coordinated scientific and technological work directed toward the development of practical space vehicles, the determination of basic operational requirements and limitations, and the creation of an environment and equipment capable of sustaining human life in outer space. Such a program embraces virtually all fields of science and engineering and the following fields were particularly examined for evidence of Soviet technical capability: guided missiles, re-entry vehicles, propulsion, electronics, space medicine, astrobiology, internal power supplies, and celestial mechanics. While firm association of these areas with a space program varied considerably, it is noted that the state of Soviet art in all sciences required in a space program was such that no scientific barriers of magnitude were detected. Four areas critical to a space program have apparently received considerable attention by the USSR, e.g., development of large rocket-engine propulsion systems, space medicine, cosmic biology and celestial mechanics. We believe the depth and advancement of their research and development makes them world leaders in these areas. In particular their work in space medicine and cosmic biology are strong indicators of their serious intent to put man in space at an early date.

4. Time Scales.

a. The following milestones are considered at least partially affiliated with a space program and indicate historically the long-term interest of Soviet Union in this endeavor:

1903	Initial treatise on space flight
1923	Soviet Institute on Theoretical Astronomy founded
1929	First significant rocket studies conducted, "Group for the Investigation of Reactive Motion" founded
1934	Government-sponsored rocket research program established

1940	Flight of first Soviet rocket-powered aircraft
1946-47	Rocket-propelled intercontinental bomber program organized
1953-55	Systematic investigation of moon flight problems undertaken
1955	Interagency Commission for Interplanetary
(Apr.)	Communications established
1955-58	Over 500 Soviet articles published dealing with space research, earth satellites and manned space flight.
1957	First artificial earth satellites orbited.
(Oct.-Nov.)	

b. **Future Capabilities.** Soviet space flight capabilities estimated in this section are the earliest possible time periods in which each specific event could be successfully accomplished. It is recognized that the space flight program is in competition with many other programs, particularly the missile program, and that the USSR probably cannot successfully accomplish all of the estimated space flight activities within the time periods specified. We believe the USSR has the intention to pursue an active flight program designed to put man into space for military and/or scientific purposes. We also believe they have a definite intention to pursue further scientific research utilizing earth satellites, lunar rockets, and probes of Mars and Venus. We cannot, at this time, determine whether the basic scientific program or the "man in space" program enjoys the higher priority and will, therefore, be pursued first. Whichever approach is adopted will probably result in some slippage in the capability dates indicated for the other program. We believe the Soviet ICBM program still enjoys the highest priority and that the USSR will not permit its space flight program to interfere with achieving an early operational ICBM capability.

(1) Unmanned Earth Satellites.

(a) Based on current estimates of Soviet ICBM capabilities, it is estimated that the USSR could orbit scientific satellites weighing on the order of 5,000 pounds within the next several months. The USSR could probably continue to place into orbit more and perhaps larger satellites throughout the period of this estimate. As additional scientific data is obtained, the USSR could refine or develop new scientific instrumentation to be placed into satellites.

(b) It is believed that the USSR could place into orbit and recover aeromedical specimens from satellites early in the period of this estimate. Early recovery of a biological specimen from orbiting satellites is essential and could advance Soviet knowledge of recovery techniques and provide indications of adverse effects of a space environment for man.

(c) The USSR could probably orbit surveillance satellites capable of low resolution (approximately 100-200 feet) at any time within the next year to obtain weather data and perhaps [27] some additional data of military intelligence value such as fleet movements. More sophisticated surveillance satellites, involving improved photographic or TV reconnaissance, infrared photography and/or ELINT, could be developed within a year or two following an initial success. These latter satellites containing this more advanced instrumentation could be capable of providing more diverse scientific and military information. Should they elect to do so, the USSR could also develop a communications relay satellite within the period of this estimate.

(2) **Lunar Rockets.** The USSR has had the capability of launching a lunar probe toward the vicinity of the moon since the fall of 1957 as far as propulsion and guidance requirements are concerned. A Soviet program of lunar probes could commence with experimental rockets followed by rocket landings on the moon with increasingly heavy loads containing scientific and telemetering equipment. Placing a satellite into orbit around the moon requires the use of a retro-rocket and more accurate guidance. It is believed that the USSR could achieve a lunar satellite in late 1958-1959 and have a lunar soft landing about six months thereafter.

(3) **Manned Earth Satellites.** Sufficient scientific data could probably be attained and recovery techniques perfected to permit the USSR to launch a manned satellite into or-

bital flight and recovery by about 1959-1960.⁵⁶⁶ A manned capsule-type satellite as well as a manned glide-type vehicle appear to be feasible techniques and within Soviet capabilities. However, it is believed that the first Soviet orbital recovery attempt will probably be with the manned capsule.

(4) **Planetary Probes.** Planetary probe vehicles could utilize existing Soviet ICBM propulsion units for the first stage and presently available guidance components. It is believed that the USSR could launch probes towards Mars and Venus with a good chance of success. The first launchings toward Mars could occur in August 1958, when Mars will be in the most favorable [28] position relative to the earth. More sophisticated probes could occur in October 1960, when Mars will again be in a favorable position relative to the earth. Probes toward Venus could probably occur in June 1959, and more sophisticated probe vehicles could be launched in January 1961.

(5) **Manned Circumlunar Flights.** Contingent upon their success with manned earth satellites and the development of a new, large booster engine, and concurrent advances in scientific experimentations with lunar rockets, the USSR could achieve a capability for manned circumlunar flight with reasonable chance for success in about 1961-1962.

(6) **Manned Lunar Landings.** It is not believed that the USSR will have a capability for manned lunar landings until some time after 1965.

(7) **Space Platforms.** There is insufficient information on the problems as well as the utility of constructing a platform in space to determine the Soviet capability. It is believed, however, that they are capable of placing a very large satellite (about 25,000 pounds) into orbit in 1961-1962 and that this vehicle could serve some of the scientific functions of a large space platform without the difficulties of joining and constructing such a platform in space.

Annex B **Tentative Schedule of U.S. Vehicle Launchings⁵⁶⁷**

(as of June 30, 1958)

1. IGY (Five Vanguard vehicles)
Firing rate about one per month ending late in 1958 (or early 1959).
Payload 22 lbs.
2. Lunar Probes (Three Thor-Vanguard vehicles)
First launching - September 1958 - Payload 25 lbs. plus retro-rockets.
Second launching - October 1958 - Payload 26 lbs. plus retro-rockets.
Third launching - November 1958 - Payload 26 lbs. plus retro-rockets.
3. Satellites and Lunar Probes (Three Juno II, One Juno I)
(Inflatable Sphere) - Fall 1958 - Payload 12-foot reflecting sphere.
(Lunar Probe) - November 1958 - Payload 15 lbs.
(Lunar Probe) - January 1959 - Payload 15 lbs.
(Cosmic ray satellite) - February 1959 - Payload 60 lbs.
4. a. ARGUS Project (Two Juno I)
Both units to be launched as earth satellites in August 1958 - Payload 26 lbs.
b. ARGUS Project (Six NOTS fly-up satellites)
Satellites are air-launched, have approximately 3-pound payload of instruments designed to detect Argus effect. Satellites are to be launched into polar orbits. Three flights in July 1958 are planned for purpose of testing system. If these first three are successful, three more will be launched in August as part of Argus Project.
- [30] 5. Advanced Reconnaissance Satellite Development Program, W/S 117L

566. The Joint Staff member reserves his position on the date 1959.

567. Launchings shown are those needed to implement presently-planned programs. These programs are under review and are not to be regarded as final.

a. Tests

(1) Thor-boosted program - Up to nineteen vehicles - Test firings for second stage and instrumentation capability.

First launching about November 1958 - Firing rate nearly one per month until completion. Payload 400 lbs. to 135-mile orbit.

(2) Atlas-boosted program - five vehicles - Visual Reconnaissance Components Test.

First launching about July 1959, with firing rate of about one every other month to completion of program. Payload 2600 lbs. to 300-mile orbit. Launchings from Cape Canaveral. Satellites would not pass over the USSR.

(3) Atlas-boosted program - one vehicle - Visual Reconnaissance Components Test.

Launching about March 1960 (the earliest date an Atlas 117L launching stand would be available at Cooke). Payload 2600 lbs. to 300-mile orbit.

(4) Atlas-boosted program - four vehicles - Visual Reconnaissance Test.

First launching about May 1960, with firing rate of one every other month to completion November 1960. Payload 2600 lbs. to 300-mile orbit. Launchings from Cooke.

(5) Atlas-boosted program - Three vehicles - Ferret Reconnaissance Test.

First launching about August 1960, with firing rate of one every other month to completion December 1960. Payload 2600 lbs. to 300-mile orbit. Launchings from Cooke.

[Section omitted during declassification review]

(6) X-15 Manned Research Aircraft - Three aircraft - (USAF, NACA, USN). First flight scheduled in first half of CY 1959. Maximum altitude capability, 100-125 miles. Maximum speed about 4500 miles per hour.⁵⁶⁸

Document II-19

Document title: Nathan F. Twining, Chairman, Joint Chiefs of Staff, Memorandum for the Secretary of Defense, "U.S. Policy on Outer Space (NSC 5814)," August 11, 1958.

Source: Presidential Papers, Dwight D. Eisenhower Library, Abilene, Kansas.

While the draft of NSC 5814 was being discussed, Chairman of the Joint Chiefs Nathan F. Twining was asked to review the document, and he recommended changes. His August 11, 1958, memorandum on the subject argued that primary emphasis in U.S. space policy should be given to military activities related to U.S. security.

[1] Memorandum for the Secretary of Defense

Subject: U.S. Policy on Outer Space (NSC 5814).

1. The Joint Chiefs of Staff have reviewed the subject draft revision of NSC 5814 prepared by the NSC Planning Board in accordance with NSC Action 1940-*c* for consideration by the National Security Council at its meeting on 14 August 1958. The Joint Chiefs of Staff consider that while the draft revision is in literal consonance with NSC Action 1940-*c*, it does not wholly reflect the substance of the recommendation made to the National Security Council by the Deputy Secretary of Defense. As a result, the draft statement of policy does not reflect a proper balance between military and non-military interests in outer space. Paragraph 43 of the draft revision states the following as a U.S. objective: "Development and exploitation of U.S. outer space capabilities as needed to achieve U.S.

⁵⁶⁸ This aircraft was not planned as an orbital vehicle and approved programs do not include modification of system to allow orbiting. Various problems related to re-entry of orbiting or space vehicles can be effectively studied with this aircraft.

scientific, military, and political purposes, and to establish the United States as a recognized leader in this field." The primary product of leadership in the non-military aspect of outer space is world-wide prestige, whereas that of the military aspect is a factor of survival of the United States. Since U.S. resources that can be devoted to outer space activities overall are limited, it is appropriate to indicate the relative priority between military and non-military activities.

2. The Joint Chiefs of Staff wish to emphasize the "preliminary" nature of the draft statement of policy and the need for flexibility in the execution of its provisions.

3. Specific comments on the diverse views contained in the draft revisions follow:

a. *Paragraph 50, page 12.* (Changes to read as follows, indicated in the usual manner):

[50. In the absence of a safeguarded international agreement for the control of armaments and armed forces, *place primary emphasis on activities related to outer space necessary to maintain the over-all deterrent capability of the United States and the Free World.*]

[2] **REASON:** In the absence of a safeguarded international agreement for the control of armaments and armed forces, policy guidance, particularly as it affects future military research and development programs is needed. Such guidance does not appear elsewhere in this paper nor in other U.S. policy papers.

4. Subject to the foregoing,

a. The majority view of the draft revision of policy is acceptable from a military point of view, and

b. The Joint Chiefs of Staff recommend that you concur in the adoption of the draft revision of NSC 5814, "U.S. Policy on Outer Space."

For the Joint Chiefs of Staff:
N.F. TWINING,
Chairman,
Joint Chiefs of Staff.

Document II-20

Document title: National Security Council, NSC 5814/1, "Preliminary U.S. Policy on Outer Space," August 18, 1958, pp. 17-19.

Source: Presidential Papers, Dwight D. Eisenhower Library, Abilene, Kansas.

This statement of U.S. policy, a revision of NSC 5814, was adopted by the National Security Council at its August 14, 1958, meeting and approved by President Eisenhower on August 18, 1958. Coordinating the implementation of the policy was the Operations Coordinating Board, a unit within the Executive Office of the President closely linked to the National Security Council; this was the president's means of making sure that various executive agencies were being responsive to administration policy. At the time this policy statement was approved, the new National Aeronautics and Space Administration had been created, but had not begun operations.

There are a number of language changes between this document and the draft NSC 5814 [II-18], which are relatively insignificant. However, paragraph 44 is a revision of paragraph 43 in the draft document that takes a less expansive view of U.S. purposes in space. Also, paragraph 50 of the earlier document was deleted on the basis of objections from the military community. The major changes are reprinted here.

[17]

Level of Effort

43. a. Because of the highly speculative nature of future activities in outer space, decisions as to the priority and extent of U.S. outer space programs will obviously be a judgment based on limited knowledge. Some activities in outer space would be expedited by the allocation of additional financial resources; others would not, being dependent on research progress. The potentially great importance to U.S. national interests of outer space activities, however, requires taking risks in allocating resources to research and development activities, the success or ultimate utility of which cannot be definitely foreseen.

b. The level of material and scientific effort to be expended on outer space activities must nevertheless be related to other national security programs to ensure that a proper balance is maintained between anticipated scientific, military and psychological gains from outer space programs and the possible loss resulting from reductions in resources allocated to other programs.

[18]

Objectives⁵⁵⁴

44. Development and exploitation of U.S. outer space capabilities as needed to achieve U.S. scientific, military, and political purposes, and to establish the U.S. as a recognized leader in this field.

45. As consistent with U.S. security, achievement of international cooperation in the uses of and activities related to outer space; for peaceful purposes, and with selected allies for military purposes.

46. As consistent with U.S. security, the achievement of suitable international agreements relating to the uses of outer space for peaceful purposes that will assure orderly development and regulation of national and international outer space programs.

47. Utilization of the potentials of outer space to assist in "opening up" the Soviet Bloc through improved intelligence and programs of scientific cooperation.

Policy Guidance⁵⁵⁵**Priority and Scope of Outer Space Effort⁵⁵⁶**

48. With a priority and scope sufficient to enable the U.S. at the earliest practicable time to achieve its scientific, military and political objectives as stated in paragraph 44, develop and expand selected U.S. activities related to outer space in:

[19] a. Basic and applied research, and exploration required to determine the military and non-military potentials of outer space.

b. Research and technology required to exploit such military and non-military potentials.

c. Application of such outer space research, technology, and exploration to develop outer space capabilities required to achieve such objectives.

49. In addition to undertaking necessary immediate and short-range activities related to outer space, develop plans for outer space activities for the longer range (through at least a ten-year period).

50. Study on a continuing basis the implications which U.S. and foreign exploitation of outer space may hold for international and national political and social institutions. Critically examine such exploitation for possible consequences on activities and life on earth (e.g., outer space activities which affect weather, health, or other factors relating to activities and life on earth)....

⁵⁵⁴ See paragraphs 30 and 31 for statement of the status of policy on the regulation and reduction of armed forces and armaments in relation to outer space.

⁵⁵⁵ See paragraphs 30 and 31 for statement of the status of policy on the regulation and reduction of armed forces and armaments in relation to outer space.

⁵⁵⁶ Nothing in this paper shall be construed as affecting priorities established under NSC Action No. 1846 or future priorities approved by the President.

Document II-21

Document title: National Aeronautics and Space Council, "U.S. Policy on Outer Space," January 26, 1960.

Source: Presidential Papers, Dwight D. Eisenhower Library, Abilene, Kansas.

This final Eisenhower administration statement on U.S. space policy was adopted at what was considered a joint meeting of the National Aeronautics and Space Council and the National Security Council on January 12, 1960, and approved by the president on January 26, 1960. It replaced the policy statements contained in National Security Council documents NSC 5520 [II-10] and NSC 5814/1 [II-18, II-20]. Although the draft of this policy statement had been circulated bearing a National Security Council designation (NSC 5918), the approved statement was issued as a National Aeronautics and Space Council document. Because of changes from the draft policy statement that had been circulated in December, this final policy document did not contain a page 14.

[1]

General Considerations**Scope of Policy**

1. This policy is concerned with U.S. interests in scientific, civil, military, and political activities related to outer space. It deals with sounding rockets, earth satellites, and outer space vehicles, their relationship to the exploration and use of outer space, and their political and psychological significance. Although the relation between outer space technology and ballistic missile technology is recognized, U.S. policy on ballistic missiles is not covered in this policy. Anti-missile defense systems also are not covered except to the extent that space vehicles may be used in connection with such systems.

Significance of Outer Space to U.S. Security

2. Outer space presents a new and imposing challenge. Although the full potentialities and significance of outer space remain largely to be explored, it is already clear that there are important scientific, civil, military, and political implications for the national security, including the psychological impact of outer space activities which is of broad significance to national prestige.

3. Outer space generally has been viewed as an area of intense competition which has been characterized to date by comparison of Soviet and U.S. activities. The successes of the Soviet Union in placing the first earth satellite in orbit, in launching the first space probe to reach escape velocity, in achieving the first "hard" landing on the moon and in obtaining the first pictures of the back side of the moon have resulted in substantial and enduring gains in Soviet prestige. The U.S. has launched a greater number of earth satellites and has also launched a space probe which has achieved escape velocity. These U.S. activities have resulted in a number of scientifically significant "firsts." However, the space vehicles launched by the Soviet Union have been substantially heavier than those in the U.S., and weight has been a major point of comparison internationally. In addition, the Soviets have benefited from their ability to conceal any failures from public scrutiny.

4. From the political and psychological standpoint the most significant factor of Soviet space accomplishments is that they have produced new credibility for Soviet statements and claims. Where once the Soviet Union was not generally believed, even its boldest propaganda claims are now apt to be accepted at face value, not only abroad but in the United States. The Soviets have used this credibility for the following purposes:

a. To claim general superiority for the Soviet system on the grounds that the Sputniks and Luniks demonstrate the ability [2] of the system to produce great results in an extremely short period of time.

- b. To claim that the world balance has shifted in favor of Communism.
- c. To claim that Communism is the wave of the future.
- d. To create a new image of the Soviet Union as a technologically powerful, scientifically sophisticated nation that is equal to the U.S. in most respects, superior in others, and with a far more brilliant future.
- e. To create a new military image of the vast manpower of the Communist nations now backed by weaponry that is as scientifically advanced as that of the West, superior in the missile field, and superior in quantity in all fields.

5. Soviet efforts already have achieved a considerable degree of success, and may be expected to show further gains with each notable space accomplishment, and particularly each major "first."

6. Significant advances have been made in restoring U.S. prestige overseas, and in increasing awareness of the scope and magnitude of the U.S. outer space effort. Although most opinion still considers the U.S. as probably leading in general scientific and technical accomplishments, the USSR is viewed in most quarters as leading in space science and technology. There is evidence that a considerable portion of world leadership and the world public expects the United States to "catch up" with the Soviet Union, and further expects this to be demonstrated by U.S. ability to equal Soviet space payloads and to match or surpass Soviet accomplishments. Failure to satisfy such expectations may give rise to the belief that the United States is "second best," thus transferring to the Soviets additional increments of prestige and credibility now enjoyed by the United States.

7. To the layman, manned space flight and exploration will represent the true conquest of outer space and hence the ultimate goal of space activities. No unmanned experiment can substitute for manned space exploration in its psychological effect on the peoples of the world. There is no reason to believe that the Soviets, after getting an earlier start, are placing as much emphasis on their manned space flight program as is the U.S.

[3] 8. The scientific value of space exploration and the prestige accruing therefrom have been demonstrated. The scientific uses of space are a potent factor in the derivation of fundamental information of use in most fields of knowledge. Further, the greater the breadth and precision of the knowledge of the space environment, the greater the ability to exploit its potentials.

9. Among several foreseeable civil applications of earth satellites, two at present offer unique capabilities which are promising in fields of significance to the national economy: communications and meteorology. Other civil potentials are also likely to be identified.

10. [Paragraph excised during declassification review]

11. [Paragraph excised during declassification review]

12. Outer space activities present new opportunities and problems in the conduct of the relations of the U.S. with its allies, neutral states, and the Soviet Bloc; and the establishment of sound international relationships in this new field is of fundamental significance to the national security. Of importance in seeking such relationships is the fact that all nations have an interest in the purposes for which outer space is explored and used and in the achievement of an orderly basis for the conduct of space activities. Moreover, many nations are capable of participating directly in various aspects of outer space activities, and international participation in such applications of space vehicles as those involved in scientific research, weather forecasting, and communications may [4] be essential to full realization of the potentialities of such activities. In addition, an improvement of the international position of the U.S. may be effected through U.S. leadership in extending internationally the benefits of the peaceful purposes of outer space. The fact that the results of the arrangements in certain fields, even though entered into for peaceful purposes, could have military implications, may condition the extent of such arrangements in those fields.

Use of Outer Space

General

13. As further knowledge of outer space is obtained, the advantages to be accrued will become more apparent. At the present time, space activities are directed toward tech-

nological development and scientific exploration; however, it is anticipated that systems will be put into operation, beginning in the near future, that will more directly contribute to national security and well-being and be of international benefit.

14. Present and planned outer space activities will require the use of the following classes of vehicles:

a. **Sounding Rockets**¹ - Vehicles that are launched vertically or in a ballistic trajectory to heights well outside the earth's atmosphere and return to earth.

b. **Earth Satellites** - Manned and unmanned vehicles that orbit the earth.

c. **Space Probes and Interplanetary Space Vehicles** - Manned and unmanned vehicles that escape the earth environment to traverse interplanetary space.

15. It is not possible to foresee all the uses of outer space, but the ability to identify and develop such uses will be significantly influenced by the breadth of the exploratory scientific research which is undertaken.

Scientific Research and Exploration

16. Space technology affords new and unique opportunities for immediate and long-range scientific observation, experimentation, and [5] exploration which will add to our knowledge and understanding of the earth, the solar system, and the universe. Immediate opportunities exist in many areas, including among others:

a. **Atmosphere** - Study of the structure and composition of the earth's outer atmosphere.

b. **Ionosphere** - Measurement of the electron density of the earth's outer ionosphere and its temporal and spatial variations.

c. **Energetic Particles** - Measurement of cosmic ray intensity, radiation belts, and auroral particles and their variations with time and space in the vicinity of the earth and moon.

d. **Electric and Magnetic Fields** - Measurement of the magnitude and variations of the earth's magnetic field and the associated ionospheric electric currents.

e. **Gravitational Fields** - Study of the detailed motion of existing and special satellites with the object of determining a more detailed picture of the earth's and moon's gravitational field.

f. **Astronomy** - Preliminary investigation of the moon; and measurement of spectra, especially in the ultraviolet and X-ray regions, including the brightness and positions of interesting regions of the sky.

g. **Bio Sciences** - Investigation of the effects of outer space on living organisms, especially those which have most application to the manned exploration of space.

h. **Geodesy** - Measurement of the size and shape of the earth, and location of land masses and water.

17. Future possibilities for scientific research and exploration include: continuation on a more sophisticated basis of the measurements of atmospheres, ionospheres, electric and magnetic fields, and expansion of such measurements to Mars and Venus and ultimately throughout the solar system; astronomical observations from points beyond the earth's atmosphere; manned and unmanned exploration of the moon and the planets; advance experiments designed to test certain predictions of the theory of relativity and other theories relating to the fundamental nature of the universe; investigation of the occurrence of biological phenomena in outer space.

[6] Operational Applications of Space Technology

18. All applications of the technology of outer space that now show promise of early operational utility for military or civilian purposes are based on the earth satellite. These applications ultimately will have to meet one of several criteria if they are to survive in either the defense program or the civilian economy. They will have to make possible the

1. Sounding rockets have also been defined as those vertically launched rockets that do not penetrate outer space beyond one earth radius, approximately 4000 statute miles.

more efficient operation of an existing activity or create a new and desirable activity. It is expected that benefits will be gained from these applications, but the full extent of their military, economic, political and social implications has yet to be determined. Military applications are designed to enhance military capabilities by fulfilling stated requirements of the Military Services and are currently being developed for use as operational systems. The applications that are expected to be available earliest are as follows:²

a. **Meteorology** - Satellite systems to provide weather data on a global scale, making use of such techniques as television, optics, infrared detectors and radar. Information on cloud cover, storm locations, precipitation, wind direction, heat balance and water vapor would permit improved weather forecasting, including storm warnings, useful in a variety of civil activities such as agricultural, industrial and transportation activities, and would provide weather information to meet military operational needs.

b. **Communications** - Satellite systems to improve and extend existing world-wide communications. For the Military Services, such systems would provide more effective global military communications for purposes of command, control, and support of military forces. Civil applications will benefit through more prompt service, increased message capacity, and greater reliability. Direct world-wide transmission of voice and video signals is envisaged.

c. **Navigation** - Satellite systems to provide global all-weather capability, for land, sea and air vehicles, which will permit accurate determination of position; in the case of the military, secure operations would be possible.

[Paragraph excised during declassification review]

[7] **Manned Space Flight and Exploration**

20. It is expected that manned space flight will add significantly to the effectiveness of many of the scientific, military and civil applications indicated in the foregoing paragraphs. There are a number of important reasons why manned space activities, including the initial step of placing a man in orbit, are being carried out. Primary among these are:

a. To the layman, manned space flight and exploration will represent the true conquest of outer space. No unmanned experiment can substitute for manned exploration in its psychological effect on the peoples of the world.

b. Man's judgment, decision-making capability, and resourcefulness will ultimately be needed in many instances to ensure the full exploitation of space technology.

Moreover, manned space flight is required for scientific studies in which man himself is the principal subject of the experiment, because there is no substitute for the conduct in outer space of essential psychological and biological studies of man.

[Footnote excised during declassification review]

[8] **International Principles, Procedures and Arrangements**

21. National policies and international agreements have dealt extensively with "air space" and expressly assert national sovereignty over this region; however, the upper limit of air space has not been defined. The term "outer space" also has no accepted definition, and the consequences of adopting a definition cannot now be fully anticipated. Although an avowedly arbitrary definition might prove useful for specific purposes, most of the currently foreseeable legal problems of outer space may be resolved without a precise line of demarcation between air space and outer space.

22. The U.S. has advanced and a number of states have accepted the view that outer space is not wholly without law inasmuch as the United Nations Charter and the Statute of the International Court of Justice are not spatially limited. Furthermore, the principles and procedures developed in the past to govern the use of air space and also the sea may provide useful analogies. However, many problems of outer space will be unique in character.

2. Order of listing does not indicate anticipated order of availability.

23. An initial problem, in which all states have an interest, involves the permissibility of various activities in outer space. With respect to this problem, the report of the United Nations *Ad Hoc* Committee on the Peaceful Uses of Outer Space expresses the following view which the U.S. has supported:

"During the International Geophysical Year 1957-58 and subsequently, countries through the world proceeded on the premise of the permissibility of the launching and flight of the space vehicles which were launched, regardless of what territory they passed over during the course of their flight through outer space. The Committee, bearing in mind that its terms of reference refer exclusively to the peaceful uses of outer space, believes that, with this practice, there may have been initiated the recognition or establishment of a generally accepted rule to the effect that, in principle, outer space is, on conditions of equality, freely available for exploration and use by all in accordance with existing or future international law or agreements."

In this connection, it should be noted that definitions of "peaceful" or "non-interfering" uses of outer space have not been advanced by the United States or other states.

24. Although the U.S. has not to date recognized any upper limit to its sovereignty, a principle of freedom of outer space, such as that expressed by the United Nations *Ad Hoc* Committee, suggests [9] that at least insofar as peaceful exploration and use of outer space are concerned, the right of states to exclude persons and objects may not obtain. However, the full implications of a principle of freedom of outer space, in contrast with a principle of national sovereignty over outer space, remain to be assessed fully.

25. It is possible that certain military applications of space vehicles may be accepted as peaceful or acquiesced in as not-interfering. On the other hand, it may be anticipated that states will not willingly acquiesce in unrestricted use of outer space for activities which may jeopardize or interfere with their national interests.

26. There is frequent and sharpening concern on the part of world opinion over the military implications of unchecked competition in outer space between the U.S. and the Soviet Union, and there is an accompanying interest in international agreements, controls or restrictions to limit the dangers felt to stem from such competition. With regard to the armaments control aspects of outer space, the United States first proposed in 1957, in connection with international consideration of an armaments control system, that a multilateral technical committee be set up to attempt to design an inspection system to ensure that the sending of objects through outer space will be exclusively for peaceful purposes. Furthermore, the United States has offered, if there is a general agreement to proceed with this study without awaiting the conclusion of negotiations on other substantive disarmament proposals. There has not, to date, been multilateral agreement to proceed with such a study, and U.S. policy has not been determined concerning either the scope of control and inspection required to ensure that outer space could be used only for peaceful purposes or the relationship of any such control arrangement to other aspects of an arms agreement.³

27. Exploration and use of celestial bodies require separate consideration. Neither the U.S. nor any other state has yet taken a position regarding the questions of whether a celestial body is capable of appropriation to national sovereignty and if so what acts would suffice to found a claim thereto. It is clear that serious problems would arise if a state claimed, on one ground or another, exclusive rights over all or part of a celestial body. At an appropriate time some form of international arrangement may prove useful.

28. Other problems in which all states have an interest arise from the operation of space vehicles. The following problems appear [10] amenable to early treatment with a view to seeking internationally a basis for orderly accomplishment of space vehicle operations: (a) identification and registration of space vehicles; (b) liability for injury or damage caused by space vehicles; (c) reservation of radio frequencies for space vehicles and the related problem of termination of transmission; (d) avoidance of interference between space vehicles and aircraft; and (e) the re-entry and landing of space vehicles, through

3. Basic national security policy with respect to disarmament is stated in paragraph 52 of NSC 5906/1.

accident or design, on the territory of other states.

29. Although only a few states may be capable of mounting comprehensive outer space efforts, many states are capable of participating in the conduct of outer space activities, and active international cooperation in selected activities offers scientific, economic, and political opportunities. Continuation and extension of such cooperation in the peaceful uses of outer space through a variety of governmental and non-governmental arrangements should further enhance the position of the United States as the leading advocate of the exploration and use of outer space for the benefit of all. Where space vehicles are employed for military applications, some degree of international cooperation may also prove useful. Any international arrangements for cooperation in outer space activities may require determination of the net advantage to U.S. security.

30. The role most appropriately undertaken by the United Nations with respect to the foregoing matters appears to lie in performing two principal functions: (a) facilitating international cooperation in the exploration and use of outer space, and (b) providing a forum for consultation and agreement respecting international problems arising from outer space activities. Future developments may make it desirable for additional functions to be performed by or under the auspices of the United Nations.

Objectives

31. Carry out energetically a program for the exploration and use of outer space by the U.S., based upon sound scientific and technological progress, designed: (a) to achieve that enhancement of scientific knowledge, military strength, economic capabilities, and political position which may be derived through the advantageous application of space technology and through appropriate international cooperation in related matters, and (b) to obtain the advantages which come from successful achievements in space.

[11]

Policy Guidance

Priority, Scope and Level of Effort

32. While relating the resources and effort to be expended on outer space activities to other programs to ensure that the anticipated gains from such activities are properly related to possible gains from other programs which may be competitive for manpower, facilities, funds or other resources, commit and effectively apply adequate resources with a priority sufficient to enable the U.S. as soon as reasonably practicable to achieve the objectives stated in paragraph 31.

33. In addition to undertaking necessary immediate and short-range activities related to outer space, develop goals and supporting plans for outer space activities for the longer range, through at least a ten-year period.

34. Study on a continuing basis the implications and possible consequences which United States and foreign exploitation of outer space may hold for international and national political and social institutions. Critically examine such exploitation for possible consequences on activities and on life on earth (e.g., the use of nuclear energy for auxiliary or main power sources or for other applications in outer space which may affect health, or other outer space activities which may affect weather or other factors relating to activities and life on earth).

35. Periodically evaluate and compare the space activities of the U.S. and USSR with a view to determining, insofar as possible, the goals and relative rate of progress of each country's program.

Psychological Exploitation

36. To minimize the psychological advantages which the USSR has acquired as a result of space accomplishments, select from among those current or projected U.S. space activities of intrinsic military, scientific or technological value, one or more projects which offer promise of obtaining a demonstrably effective advantage over the Soviets and, so far as is consistent with solid achievements in the overall space program, stress these projects

in present and future programming.

37. Identify, to the greatest extent possible, the interests and aspirations of other Free World nations in outer space with U.S.-sponsored activities and accomplishments.

[12] 38. Develop information programs that will exploit fully U.S. outer space activities on a continuing basis; especially develop programs to counter overseas the psychological impact of Soviet outer space activities and to present U.S. outer space progress in the most favorable light.

[Paragraphs 39 and 40 excised during declassification review]

Manned Space Flight

41. Starting with the recovery from orbit of a manned satellite, proceed as soon as reasonably practicable with manned space flight and exploration.

International Principles, Procedures and Arrangements

42. Continue to support the principle that, insofar as peaceful exploration and use of outer space are concerned, outer space is freely available for exploration and use by all, and in this connection: (a) consider as a possible U.S. position the right of transit through outer space of orbital space vehicles or objects not equipped to inflict injury or damage; (b) where the U.S. contemplates military applications of space vehicles and significant adverse international reaction is anticipated, seek to develop measures designed to minimize or counteract such reaction; and (c) consider the usefulness of international arrangements respecting celestial bodies.

43. Taking into account, among other factors, the relationship of outer space capabilities to the present and future security position of the United States:

a. Study the scope of control and character of safeguards required in an international system designed to assure that outer space be used for peaceful purposes only; include in this study an assessment of the technical feasibility of a positive enforcement system and an examination of the possibility of multilateral or international control of all outer space activities.

b. Study the relationship between any international [13] arrangement to assure that outer space be used for peaceful purposes only and other aspects of the regulation and reduction of armed forces and armaments.

c. In connection with the prosecution of studies enumerated in 43 (a) and (b), give full consideration to the requirements of U.S. security interests.

44. In the interest of establishing an international basis for orderly accomplishment of space flight operations, explore the desirability of and, where so indicated, seek international agreement on such problems as: (a) Some form of identification and registration of space vehicles which is to the net advantage to national security; (b) liability for injury or damage caused by space vehicles; (c) reservation of radio frequencies for space vehicles and the related problem of termination of transmission; (d) avoidance of interference between space vehicles and aircraft; and (e) the re-entry and landing of space vehicles, through accident or design, on the territory of other nations.

45. Seek to increase international cooperation in selected activities relating to the peaceful exploration and use of outer space by such means as: (a) Arrangements within the framework of the international scientific community including the Committee on Space Research (COSPAR) of the International Council of Scientific Unions, and (b) bilateral and multilateral arrangements between the U.S. and other countries including the Soviet Union. International arrangements for cooperation in outer space activities should consider the net advantage to U.S. security.

46. Support the United Nations in facilitating international cooperation in the exploration and use of outer space and in serving as a forum for consultation and agreement respecting international problems arising from outer space activities.

47. Develop means and take appropriate measures to ensure that the U.S. leads the USSR in making the scientific and technological information from its outer space program available to the world at large.

Security Classification

48. In implementing security classification regulations, take special account of the lead achieved by the USSR in outer space activities and the advantages to the U.S. which result from the maximum availability and use of scientific and technological information and material.

[15]

ANNEX A

The Soviet Space Program

1. **Soviet Objectives:** The USSR has announced that the objective of its space program is the attainment of manned interplanetary travel. At present, the program appears to be directed toward the acquisition of scientific and technological data which would be applicable to Soviet space activities, their ICBM program, and basic scientific research. While the space program was undoubtedly initiated to serve scientific purposes, one of the primary underlying motivations which continues to give it impetus is the promise of substantial world-wide political and psychological gains for the USSR. Military considerations may have little bearing on the decision to develop certain types of space vehicles, although the successful development of these vehicles may result in military applications. Thus, it can be concluded that the Soviet space program has four major objectives. These objectives will have varying priorities as the program itself progresses and as new political and military requirements develop:

- a. Manned space travel
- b. Scientific research
- c. Propaganda
- d. Military applications

Of the above, it appears now that flight test priority has been on the scientific and propaganda objectives rather than on man-in-space or military applications.

2. **Background:** Russian interest in space flight dates back to 1903 when a scientific paper was published entitled: "Investigation of Universal Space by Means of Rocket Flight," by eminent Russian scientist Tsiolkovsky. Several other Russian actions took place during the succeeding years to the present which have been identified as at least partially associated with a space program. These have included the founding of the Soviet Institute of Theoretical Astronomy in 1923, establishment in 1934 of a government-sponsored rocket research program, flights of animals in vertical rockets since the early 1950's, and systematic investigations of moon flight problems starting in 1953. The establishment in early 1955 of the Interagency Commission for Interplanetary Communications was indicative of the Soviet realization that theory and capability for space flight were both feasible and that accomplishment of a long cherished ambition was within sight.

[16] 3. **Priority:** The Soviets have demonstrated that they are conducting a well-planned space flight program. The importance attached to this program is illustrated by the high quality of the scientists assigned to its direction, by the broad range of facilities and specialists engaged in its implementation, and by the wealth of theoretical and applied research being conducted in its support. However, the numbers of space vehicles actually launched over the past few years have not been as numerous as had been expected and it is apparent that their actual flight program is proceeding at a fairly deliberate pace. While there is no direct evidence on the priority of the overall Soviet space program vis-a-vis the military missile program, it is believed that any interference between the two would be resolved in favor of the missile program. To date, however, there is no indication that the space program has interfered with the missile program.

4. **Capabilities:** The Soviet Union dramatically demonstrated its interest and capability in space flight with the orbiting of two earth satellites in the fall of 1957, and a third in 1958. These were followed by the launching of three lunar associated vehicles in 1959.

Evidence indicates that the Soviet space program has been built on the foundation of military rocketry and guidance systems, with military and other facilities probably engaged dually in supporting tests of military ballistic missiles and space experiments. Thus, although these first space flights were doubtlessly undertaken for the furtherance of scientific knowledge and for whatever psychological and political advantage would accrue, the Soviet military, by intimate participation of its hardware, personnel, and facilities, has been in a position to utilize immediately such knowledge for the enhancement of the Soviet military position and objectives. The realization of more advanced space projects, particularly those involving manned flight, must be preceded by a vast amount of scientific and technological work directed towards the development of useable space vehicles, the determination of basic operational requirements and limitations, and the creation of an environment and equipment capable of sustaining human life in outer space. Since such a program embraces virtually all fields of science and engineering, the following areas were particularly examined for evidence of Soviet technical capability: guided missiles (including vertical rocket launchings), re-entry vehicles and techniques, propulsion, guidance, communications, space medicine, internal power supplies, and celestial mechanics. While firm association of these fields with a space program varied considerably, it is noted that the state of Soviet art in all the sciences required in a space program is such that no scientific or technical barriers of magnitude have been noted. Four areas deemed critical to a space program have apparently received considerable attention by the USSR; e.g., development of large rocket-engine propulsion systems, vertical rocket flights with animals (including recovery devices), space medicine, and celestial mechanics. There are indications that Soviet advanced thinking and study [16] in astro-biology have been de-emphasized in favor of providing an artificial environment within a vehicle suitable for manned space flight.

5. Future Capabilities:

a. There is no firm evidence of Soviet future plans for the exploration of outer space with either unmanned or manned vehicles. It is believed they will continue and expand their scientific research with further unmanned earth satellites, lunar probes (including satellites and soft landings), solar and planetary probes. Manned experiments will probably be conducted in earth satellites, circumlunar flights and soft landings on the moon. It is expected that all manned flights into outer space will be preceded by similar tests with animals, unless for political purposes the Soviets attempt a high risk program. Man-in-space programs are confronted by many problems or hazards, the most immediate of which are recovery and life support over extended periods. While data which might lead to solutions or better understandings of both can be obtained from instrumented packages which are orbited and recovered, accomplishment of the same test animals would provide data of more direct application to subsequent attempts with man.

b. The dates estimated for specific Soviet accomplishments in space represent the earliest possible time periods in which each specific event could be accomplished. It is recognized that the various facets of the space flight program are in competition not only among themselves, but with other priority programs, and that the USSR probably cannot undertake all the space flight activities described below at the priority required to meet the time periods specified. At this time it cannot be determined which specific space flight activities enjoy the higher priorities and will be pursued first.

c. No attempt has been made to estimate manned space missions beyond the earth-moon realm. The time periods in which the successful development of sub-systems essential to planetary flight activities can be brought to fruition and integrated into a complete space flight system cannot be foreseen.

d. Similarly, considerations of military applications have been limited to earth orbiting types of space vehicles. Missions beyond this realm are considered only in the scientific or exploratory sense because we believe they cannot be successfully accomplished in the time period considered.

6. An estimate of a possible Soviet space development program is as follows:

[18] **Possible Soviet Space Development Program**

Space Program Objectives

**First Possible
Capability Rate**

These dates represent the earliest possible time period in which each specific event could be accomplished. However, competition between the space program and the military missile program as well as within the space program itself makes it unlikely that all of these objectives will be achieved within the specified time periods.

Unmanned Earth Satellites

5000-10,000 pounds, low orbit satellites 1959
 Recoverable (including biological) satellites 1959
 Military Satellites: The dates shown are the earliest in which feasibility demonstrations could begin. Generally, militarily useful vehicles would be available 2-3 years after the feasibility demonstration.

[Remainder of paragraph excised during declassification review]

Unmanned Lunar Rockets

Biological Probe 1959
 Satellite of the Moon 1959
 Soft Landings 1960
 Lunar Landing, Return and Earth Recovery 1963-1964

Planetary Probes

Mars about Oct. 1960
 Venus about Jan. 1961

Manned Vertical or Short Down-Range Flight 1959

Manned Earth Satellites - The specified time periods for manned...accomplishments are predicated on the Soviets having previously successfully accomplished a number of similar unmanned ventures.

Capsule-type Vehicles ⁴ Mid-1960-mid-1961
 Glide-type Vehicles 1 to 2 years
 after above

Maneuverable (minimum: conventional propulsion) 1963
 Maneuverable (nuclear propulsion) about 1970
 Space Platform (minimum, non-ecological, feasibility demonstration) 1965
 Space Platform (long-lived) about 1970

Manned Lunar Flights

Circumlunar 1964-1965
 Satellites (temporary) 1965-1966
 Landings about 1970

4. Recovery would probably be attempted after the first few orbits but life could probably be sustained for about a week.

[19]

ANNEX B

**Estimated Funding* Requirements
Summary**

	Fiscal Year				
	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
NASA	524.0	802.0	1031.0	1171.0	1350.0
AEC	46.7	41.5	66.0	60.6	55.2
DEFENSE	<u>438.8</u>	<u>480.7</u>	<u>747.5</u>	<u>750.0</u>	<u>728.0</u>
	1054.5	1324.2	1844.5	1981.6	2133.2

*Figures are in millions of dollars.

More detailed agency estimates given on following pages.

[20]

**Estimated Funding* Requirements
of
National Aeronautics and Space Administration**

	Fiscal Year				
	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
<u>RESEARCH & DEVELOPMENT</u>					
Launching Vehicle Dev.	57	140	163	230	375
Space Propulsion Technol.	39	51	118	120	90
Vehicle Systems Technol.	13	30	47	49	50
Manned Space Flight	87	108	120	135	180
Scientific Investig. in Space	82	95	140	145	150
Satellite Applications	11	27	36	60	75
Aeronautical and Space Res.	28	61	70	70	70
Space Flight Operations	<u>16</u>	<u>33</u>	<u>42</u>	<u>50</u>	<u>55</u>
SUB TOTAL - Research & Dev.	<u>333</u>	<u>545</u>	<u>736</u>	<u>859</u>	<u>1045</u>
CONSTRUCTION & EQUIPMENT	100	89	120	137	130
SALARIES & EXPENSES	<u>91</u>	<u>168</u>	<u>175</u>	<u>175</u>	<u>175</u>
<u>TOTAL FUNDS REQUIRED</u>	524	802	1031	1171	1350

*Figures are in millions of dollars.

These figures represent a level of effort which corresponds to an efficient and steadily growing capability. The rate of progress could be improved by an increased funding level, primarily by improving the certainty of the timely completion of the many essential engineering developments.

[21]

**Estimated Funding* Requirements
of
Atomic Energy Commission**

<u>PROJECT</u>	Fiscal Year				
	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
ROVER - Nuclear rocket	31.5	24.9	33	32.6	26.2
SNAP - Nuclear auxiliary power system	15.2	16.6	33	28	29
Total	46.7	41.5	66.0	60.6	55.2

*Figures are in millions of dollars

Document II-22

Document title: Cyrus Vance, Deputy Secretary of Defense, Department of Defense Directive Number TS 5105.23, "National Reconnaissance Office," March 27, 1964.

Source: Space Policy Institute, George Washington University, Washington, D.C.

In February 1958, President Eisenhower directed the CIA to develop a reconnaissance satellite. He did so because the Air Force's WS 117L was unlikely to be available soon because it relied on the still-untested Atlas rocket. The CIA began the development of a reconnaissance satellite for launch atop Thor IRBMs. The result was that the United States had two reconnaissance satellites in simultaneous development. In August 1960, the National Reconnaissance Office (NRO) was created to manage the development and operation of reconnaissance satellites. The existence of this office was highly classified and was formally established in DoD Directive Number TS 5105.23. The existence of the NRO was not officially acknowledged until September 1992. This document, dated March 27, 1964, is the earliest declassified charter for the NRO. Neither the earlier version of DoD Directive 5105.23 mentioned in this document nor the presidential directive—possibly a National Security Council memorandum—has been publicly released.

[1]

I. General

Pursuant to the authority vested in the Secretary of Defense and the provisions of the National Security Act of 1947, as amended, including the Department of Defense Reorganization Act of 1958, a National Reconnaissance Office is hereby established as an operating agency of the Department of Defense, under the direction and supervision of the Secretary of Defense.

II. Organization and Responsibility

The National Reconnaissance Office will be organized separately within the Department of Defense under a Director, National Reconnaissance Office, appointed by the Secretary of Defense. The Director will be responsible for consolidation of all Department of Defense satellite and air vehicle overflight projects for intelligence into a single program, defined as the National Reconnaissance Program, and for the complete management and conduct of this Program in accordance with policy guidance and decisions of the Secretary of Defense.

III. Relationships

A. In carrying out his responsibilities for the National Reconnaissance Program, the Director, National Reconnaissance Office shall:

[2] 1. Keep the Director of Defense Research and Engineering and the Assistant Secretary of Defense (Comptroller) personally informed on a regular basis on the status of projects of the National Reconnaissance Program.

2. Similarly inform other Department of Defense personnel as he may determine necessary in the course of carrying out specific project matters.

3. Establish appropriate interfaces between the National Reconnaissance Office and the United States Intelligence Board, the Joint Chiefs of Staff, the Defense Intelligence Agency, and the National Security Agency.

4. Where appropriate, make use of qualified personnel of services and agencies of the Department of Defense as full time members of the National Reconnaissance Office.

B. Officials of the Office of the Secretary of Defense, military departments, and other DoD agencies shall provide support within their respective fields of responsibility, to the Director, National Reconnaissance Office as may be necessary for the Director to carry out his assigned responsibilities and functions. The Director, National Reconnaissance Office will be given support as required from normal staff elements of the military departments and agencies concerned, although these staff elements will not participate in these project matters except as he specifically requests.

IV. Authorities

A. The Director, National Reconnaissance Office, in connection with his assigned responsibilities for the [3] National Reconnaissance Office and the National Reconnaissance Program, is hereby specifically delegated authority to:

1. Organize, staff, and supervise the National Reconnaissance Office.

2. Establish, manage and conduct the National Reconnaissance Program.

3. Assist the Secretary of Defense in the supervision of aircraft and satellite reconnaissance photographic projects, and be his direct representative on these matters both within and outside the Department of Defense.

4. Review all Department of Defense budget requests and expenditures for any items falling within the definition of the National Reconnaissance Program, including studies and preliminary research and development of components and techniques to support such existing or future projects.

B. Other authorities specifically delegated to the Director, National Reconnaissance Office by the Secretary of Defense will be referenced in numbered enclosures to this directive.

V. Project Assignments

All projects falling within the definition of the National Reconnaissance Program are assigned to that program and will be managed as outlined herein unless specific exception is made by the Director, National Reconnaissance Office. Announcements of any such exceptions will be made by numbered enclosures to this directive.

[4]

VI. Security

A. The Director, National Reconnaissance Office will establish the security procedures to be followed for all matters of the National Reconnaissance Program, to protect all elements of the National Reconnaissance Office.

B. All communications pertaining to matters under the National Reconnaissance Program will be subject to special systems of security control under the cognizance of the

Director, Defense Intelligence Agency, except in those instances specifically exempted by either Director, National Reconnaissance Office or the Secretary of Defense.

C. With the single exception of this directive, no mention will be made of the following titles or their abbreviations in any document which is not controlled under the special security control system(s) referred to in B. above: National Reconnaissance Program; National Reconnaissance Office. Where absolutely necessary to refer to the National Reconnaissance Program in communications not controlled under the prescribed special security systems, such reference will be made by use of the terminology: "Matters under the purview of DoD TS-5105.23."

VII. Effective Date

This Directive is effective upon publication.

VIII. Cancellation

Reference (a) is hereby cancelled.

Cyrus Vance
Deputy Secretary of Defense

