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SENATE

REPORT
104–155

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AUTHORIZATION ACT, FISCAL YEAR 1996

R E P O R T

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ON

S. 1048

OCTOBER 11 (legislative day, OCTOBER 10), 1995.—Ordered to be printed

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SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED FOURTH CONGRESS

FIRST SESSION

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AUTHORIZATION ACT, FISCAL YEAR 1996

OCTOBER 11 (legislative day, OCTOBER 10), 1995.—Ordered to be printed

Mr. PRESSLER, from the Committee on Commerce, Science, and Transportation, submitted the following

REPORT

[To accompany S. 1048]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 1048) "A Bill to authorize appropriations for fiscal year 1996 to the National Aeronautics and Space Administration for human space flight; science, aeronautics, and technology; mission support; and Inspector General; and for other purposes", having considered the same, reports favorably thereon with an amendment in the nature of a substitute and recommends that the bill as amended do pass.

PURPOSE OF THE BILL

The purpose of the bill is to authorize appropriations to the National Aeronautics and Space Administration (NASA) totalling $13,779,800,000 for fiscal year (FY) 1996 as follows:

Fiscal year 1996	Budget request	Committee authorization
Human space flight	$5,509,600,000	$5,272,800,000
Science, aeronautics, and technology	6,006,900,000	6,049,900,000
Mission support	2,726,200,000	2,439,800,000
Inspector general	17,300,000	17,300,000

BACKGROUND AND NEEDS

NASA is the world's premier space agency. Since its creation in 1958, NASA has successfully managed a broad range of research, development, and flight activities in aeronautics and space. With

current Congressional efforts to balance the budget and reduce the federal debt, NASA is faced with two challenges. The first is to maintain America's aerospace leadership. The second is to accomplish this leadership goal within the confines of a balanced federal budget. To its credit, NASA began the year with an aggressive plan to meet both challenges. It developed a plan to cut $5 billion over five years, while still maintaining core aeronautics and space functions. However, later in the year, Congress developed a budget resolution which assumed even deeper cuts for the agency, particularly in the near term. This added budget pressure has forced an indepth comprehensive review of NASA's entire operation, including its huge civil servant and contractor workforce and its massive infrastructure of field centers. This review also embraces the Space Shuttle program, where cost cutting is often more problematic because of concerns relating to Shuttle crew safety. The effort to streamline the agency is made more complicated by the fact that NASA is embarking on one of the most complex and expensive missions in its history—the Space Station—and the Space Shuttle will soon be asked to satisfy unprecedented launch demands in order to assemble the Space Station.

To meet successfully these new budget and program challenges, NASA cannot settle for changes at the margin, but must reassess its traditional ways of doing business. In carrying out its goals and missions, NASA will need to make more use of cost-sharing partnerships with industry, academia, and non-federal entities as well as with other spacefaring nations. The agency will also need to explore the possibilities of privatizing those activities that can be more cost-effectively performed by the private sector and of purchasing goods and services on a commercial basis when appropriate. Equally important, in justifying its budget, NASA must make special efforts to ensure that its missions and programs are relevant, not just to the narrow group of individuals and interests directly involved, but to the general public. For instance, the global climate change research of Mission to Planet Earth, if managed properly, has the potential to make enormous impacts in the work of real people in such diverse areas as agriculture, forestry, mineral exploration, water resource management, and land use planning.

Notwithstanding this new budget environment, NASA requires a certain minimal level of funding to plan and carry out the space activities that define the agency. Funding must be sufficient to support core ongoing programs as well as new initiatives to address future aerospace needs. This authorization legislation for FY 1996 is intended to provide the agency with the funding and policy guidance necessary to maintain a robust and balanced space program in this environment.

LEGISLATIVE HISTORY

On February 6, 1995, the Administration submitted its FY 1996 budget request for NASA to the Congress. The Subcommittee on Science, Technology, and Space held four oversight hearings on the NASA budget request and related policy matters. On March 1, the Subcommittee held a hearing on the FY 1996 budget and programs of NASA, the Office of Commercial Space Transportation (OCST) of the Department of Transportation (DOT), and the Office of Air and

Space Commercialization (OASC) of the Department of Commerce at which testimony was heard from NASA Administrator Daniel Goldin, OCST Director Frank Weaver, and OASC Director Keith Calhoun-Senghor. On May 16, the Subcommittee held a hearing on NASA's Space Shuttle program and its proposed Reusable Launch Vehicle initiative. Testimony was heard from Wayne Littles, Associate Administrator, NASA Office of Space Flight; John E. Mansfield, Associate Administrator, NASA Office of Space Access and Technology; and representatives from the American Institute of Aeronautics and Astronautics, NASA's Aerospace Advisory Panel, and George Washington University's Space Policy Institute. On May 23, the Subcommittee held a hearing on the International Space Station program. At that hearing, Associate Administrator Wayne Littles again testified before the Subcommittee, along with a separate panel of outside witnesses representing the Congressional Research Service, the National Space Society, the Space Transportation Association, and the Space Science Working Group of the Association of American Universities. Finally, on June 13, the Subcommittee held a hearing on NASA's Mission to Planet Earth program, receiving testimony from Charles Kennel, Associate Administrator, NASA Mission to Planet Earth, and various representatives of the civilian user community for remote sensing satellite data.

On July 19, Chairman Pressler, along with Senator Burns, introduced S. 1048, a bill to authorize appropriations for NASA for FY 1996. On July 20, the Committee met in open executive session and, on a voice vote, ordered the bill reported with an amendment in the nature of a substitute. The amendment includes provisions authorizing appropriations for FY 1996 for NASA and OCST and making changes in OCST's organic act that would expand that office's existing licensing authority over U.S. commercial launches to cover other types of commercial space activities.

SUMMARY OF MAJOR PROVISIONS

For FY 1996, the bill, as reported, authorizes a total of $13,779,800,000 for NASA and $7,000,000 for DOT's OSCT.

The $13,779,800,000 authorized for NASA is allocated among its major accounts as follows: $5,272,800,000 for Human Space Flight, $6,049,900,000 for Science, Aeronautics, and Technology; $2,439,800,000 for Mission Support, and $17,300,000 for the Office of the Inspector General.

SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION NASA BUDGET SPREAD SHEET FOR FISCAL YEAR 1996

[By fiscal year, in millions of dollars]

	Fiscal year 1995 appropriations	Fiscal year 1996 request	Proposed fiscal year 1996 Senate authorization	Comments
I. Human space flight	5,514.9	5,509.6	5,272.8	
1. Space station	1,889.6	1,818.8	1,818.8	
Construction of facilities—Neutral buoyancy laboratory	20.2	14.8	14.8	
2. US/Russian Cooperative Program	150.1	129.2	129.2	
3. Space shuttle	3,155.1	3,271.8	3,031.8	Shuttle goes to single contractor; Zero Based Review [ZBR] process yields $100m in savings and unspecified reductions yield $40m.
ASRM (Iuka, MS)		60.0	0.0	$60m left over from ASRM cancellation is eliminated.
Construction of facilities	12.3	17.4	17.4	
Modernize firex system, pads A and B	4.8	5.0	5.0	
Replace space shuttle main engine processing facility		4.9	4.9	
Replace chemical analysis facility		7.5	7.5	
4. Payload and utilization operations	320.1	315.0	293.0	
Spacelab	98.6	97.0	97.0	
Tethered satellite system	7.4	3.8	3.8	
Payload processing and support	36.3	30.3	30.3	
Advanced projects	12.2	12.2	7.2	Low priority activity to be cut by $5m.
Engineering and technical base	165.6	171.7	154.7	ZBR derived savings of 10%. ($17m).
II. Science, aeronautics, and technology	5,943.6	6,006.9	6,049.9	
1. Space science	2,012.6	1,958.9	1,958.9	
A. Physics and astronomy	1,195.5	1,131.1	1,131.1	
AXAF	234.3	237.6	237.6	
Gravity Probe-B	50.0	51.5	0.0	NASA conditioned GP–B funding on pending review.
Global geospace science (Wind/Polar)	40.0	5.4	5.4	
Payload and instrument development	53.9	33.1	33.1	
Explorers	120.4	129.2	129.2	
Mission operations and data analysis	432.4	428.6	428.6	
Research and analysis	75.4	90.4	90.4	
Space infrared telescope facility [SIRTF] definition		15.0	15.0	
Suborbital Program	67.2	106.7	106.7	
SOFIA		48.7	48.7	
Information systems	26.1	25.9	25.9	
Launch services	95.8	74.2	74.2	
B. Planetary exploration	817.1	827.8	827.8	

Cassini	255.0	191.5	191.5	
Mars instruments	2.1	1.4	1.4	
Discovery Program	129.7	103.8	103.8	
Lunar prospector		36.6	36.6	
Mars surveyor	59.4	108.5	108.5	
Mars global surveyor spacecraft	58.0	58.2	58.2	
Future Mars missions	1.4	50.3	50.3	
New Millennium Spacecraft Program	10.5	30.0	30.0	
Mission operations and data analysis	117.2	127.8	127.8	
Research and analysis	108.4	109.1	109.1	
Launch services	134.8	155.7	155.7	
2. Life and microgravity sciences and applications	483.1	504.0	507.0	
Construction of facilities—addition to microgravity lab (MSFC)		3.0	3.0	
3. Mission to Planet Earth	1,340.1	1,341.1	1,360.1	
EOS	591.1	591.1	591.1	
EOS–AM series	260.8	202.2	202.2	
EOS–PM series	88.8	127.3	127.3	
Chemistry spacecraft	10.3	27.7	27.7	
Special spacecraft	85.5	69.7	69.7	
Algorithm development	58.3	85.4	85.4	
Landsat 7	87.4	78.8	78.8	
EOSDIS	230.6	289.8	289.8	
Earth probes	81.6	36.9	36.9	
NASA scatterometer (NSCAT)	15.4	3.9	3.9	
TOMS	14.9	8.5	8.5	
TRMM	51.3	24.5	24.5	
TopSat (radar satellite)		15.0	15.0	$15m is included to begin phase A and B studies for new radar satellite program.
Payload and instrument development	19.5	4.9	4.9	
Applied research and data analysis	344.3	308.4	318.4	
MTPE science	227.8	209.9	219.9	
Upper Plains States' Hydrology Research Program		10.0	10.0	$10m is included for this scientific investigation, which is part of the GEWEX Program.
Operations, data retrieval and storage	116.5	98.5	98.5	
CIESIN	6.0	6.0	0.0	CIESIN is not essential to NASA mission (non-NASA); finding is eliminated ($6m).
Ocean color data purchase	1.1	0.4	0.4	
Global observations to benefit the environment [GLOBE]	5.0	5.0	5.0	
EOS launch services	48.7	88.0	88.0	
Construction of facilities—Earth System Science Building	17.0	17.0	17.0	
4. Aeronautical Research and Technology	882.0	917.3	891.3	

SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION NASA BUDGET SPREAD SHEET FOR FISCAL YEAR 1996—Continued

[By fiscal year, in millions of dollars]

	Fiscal year 1995 appropriations	Fiscal year 1996 request	Proposed fiscal year 1996 Senate authorization	Comments
High performance computing and communications	76.1	75.2	49.2	$26m is cut to reflect low priority of this activity.
Construction of facilities—aeronautical facilities revitalization	22.0	5.4	5.4	
5. Space Access and Technology	642.4	705.6	766.6	
Advanced space transportation	162.1	193.0	186.0	
X–33	.....	49.0	49.0	
X–34	.....	30.0	30.0	
RLV Technology and DC–XA Program	.....	80.0	80.0	
Transportation technology support	.....	34.0	27.0	
Solid Propulsion Integrity Program [SPIP]	.....	7.0	0.0	Low priority post-Challenger activity looking at solid propulsion; elimination yields $7m savings.
Spacecraft and remote sensing	144.3	177.5	230.5	
Earth applications systems	49.8	71.1	141.1	$70m ''plus-up'' is for reflight of SIR–C.
Space and planetary	50.5	60.1	50.1	Freeze at fiscal year 1995 level yields savings of $10m.
Partnership for next generation vehicle (Clean Car)	5.0	7.0	0.0	Not essential to NASA mission (non-NASA). Elimination yields $7m savings.
Space processing	18.3	18.1	13.1	Low priority. $5m cut (not meant to impact CCDS's).
Commercial Technology Programs	45.8	40.4	60.4	
Rural technology transfer and commercialization center	.....	5.0	5.0	Help for states which are primarily rural or sparsely populated ($5m).
Special technology enhancement grants	.....	15.0	15.0	$15m for grants aimed at help for states which are primarily rural or sparsely populated).
6. Mission Communication Services	481.2	461.3	461.3	
7. Academic Programs	102.2	118.7	104.7	Freeze at fiscal year 1995 level yields savings of $19m.
Rural Teacher Resource Center	.....	1.0	1.0	Help for states which are primarily rural or sparsely populated ($1m).
Aerospace Education Services Program (AESP)	6.2	6.3	9.3	
Pavilion Regional Science Outreach Center	.....	3.0	3.0	
EPSCoR	4.9	5.9	6.9	Help for states which are primarily rural or sparsely populated ($1m increase).
III. Mission support	2,589.2	2,726.2	2,439.8	
1. Safety reliability and quality assurance	38.7	37.6	37.6	
2. Space Communication Services	226.5	319.4	219.4	
TDRSS Replinishment Program	42.0	195.8	95.8	$100m savings from deferring procurement because of TRW challenge of award to Hughes and possibility of obtaining service commercially.
3. Research and Program Management	2,189.0	2,202.8	2,047.8	Savings from elimination of unused fiscal year 1995 buyout funds (yields $108m).
4. Construction of facilities	135.0	166.4	135.0	Freeze at fiscal year 1995 level (yields savings of $31.4m).

IV. Inspector General	16.0	17.3	17.3
Totals	14,463.7	14,260.0	13,779.8

SPACE STATION

The reported bill authorizes the full $1,818,800,000 allocated in the President's FY 1996 budget request for the Space Station, but places a ceiling of $2.1 billion on total Space Station-related activities. This authorization level should permit NASA to maintain its current schedule which calls for a first element launch in 1997 and completion of construction in the year 2002. The bill also provides the full funding for the planned series of seven Shuttle missions to the Russian space station Mir between 1995 and 1997. The Shuttle/Mir missions will help NASA and its international partners prepare for the construction of the Space Station.

SPACE SHUTTLE

The reported bill authorizes $3,031,800,000 for the Space Shuttle program, a $200 million decrease from the President's budget request. This level should enable NASA to maintain a launch rate of seven flights per year. The $200 million cut assumes (a) $140 million in savings based on NASA's ability to identify cost savings and efficiencies that will not compromise performance or safety as a result of its agency-wide "zero-based review" and its external and internal reviews of the Space Shuttle program, and (b) $60 million in savings associated with the cancellation of the Advanced Solid Rocket Motor program.

SPACE SCIENCE

The reported bill authorizes the full requested level of $1,958,900,000 for the Space Science account. The funding level will permit a continuation of NASA's ongoing space science activities in physics, astronomy, and planetary exploration, including the Advanced X-ray Facility (AXAF), the Explorer program, the Cassini mission to Saturn, the Discovery program, and the Mars Surveyor mission. The bill specifically authorizes funding for three new space science initiatives: $48,700,000 for the Stratospheric Observatory for Infrared Astronomy (SOFIA), $15,000,000 for the Space Infrared Telescope Facility (SIRTF), and $30,000,000 for the New Millennium program to develop microminiature spacecraft. Like the President's FY 1996 budget request, the bill's Space Science authorization level assumes no FY 1996 funding for the Gravity Probe-B program.

LIFE AND MICROGRAVITY SCIENCE AND APPLICATIONS

The reported bill authorizes $507,000,000 for the life and microgravity and applications program at NASA. This authorization is $3 million above the President's budget request, reflecting a specific allocation for the construction of an addition to the Microgravity Development Laboratory at Marshall Space Flight Center that was requested by NASA. The authorized level will support continuation of NASA's ongoing research in the space, biological, physical, and chemical sciences, and related work in technology development and applications.

MISSION TO PLANET EARTH

The reported bill authorizes $1,360,100,000 to fully fund Mission to Planet Earth, NASA's effort to employ the latest satellite technology to understand and predict the global climate trends that affect our daily lives. Mission to Planet Earth is NASA's contribution to the multiagency U.S. Global Change Research Program. The authorized amount assumes full funding for each of the program's main components, including the Earth Observing System (and Landsat), the Earth Observing System Data and Information System, and the Earth Probes.

The bill's authorization for Mission to Planet Earth also includes funding for two new initiatives: $15 million for design studies to begin an operational radar satellite program at NASA and $10 million for a hydrology study of the Upper Missouri River Basin. Because of the importance of the Earth Observing System Data and Information System (EOSDIS) to the successful collection, management, processing, and dissemination of the satellite data from Mission to Planet Earth, the bill expressly prohibits any downscaling or restructuring of the current baseline plan for EOSDIS. The bill also specifically allocates $17 million requested by NASA for the construction of the Earth Systems Science Building at the Goddard Space Flight Center. Finally, the bill assumes elimination of the $6 million requested for the Consortium for International Earth Science Information Networks (CIESIN), an activity viewed as nonessential and marginally relevant to the central goals and objectives of Mission to Planet Earth.

AERONAUTICAL RESEARCH AND TECHNOLOGY

The reported bill authorizes $891,300,000 for NASA's Aeronautical Research and Technology program, a $26 million decrease from the requested level. This program is dedicated to ensuring U.S. leadership in aeronautics and transferring aeronautics technology to industry and government agencies such as the Department of Defense and the Federal Aviation Administration in order to promote better civilian and military aircraft and a safer national air space system. The authorized level will support continuation of the baseline program, including its subsonic, high-speed, and hypersonic research activities. The slight decrease from the requested level assumes a $26 million reduction in funding for program activities relating to the multiagency High Performance Computing and Communications (HPCC) Program. This funding cut is unlikely to have any significant adverse impact on either NASA or the $1-billion-a-year HPCC program in their ability to achieve their respective goals and missions. The bill also specifically allocates $5.4 million requested by NASA for the modernization of the Unitary Plan Wind Tunnel Complex at the Ames Research Center.

SPACE ACCESS AND TECHNOLOGY

The reported bill authorizes $766,600,000 for Space Access and Technology, an increase of $61 million over the requested level. NASA's Space Access and Technology program is intended to stimulate the development of advanced space technologies to improve U.S. industrial competitiveness. Of the authorized amount, $159

million is authorized for the Reusable Launch Vehicle (RLV) program in the President's budget request. The RLV program is aimed at developing and flight testing the technologies that may lead to the eventual development of a replacement for the Space Shuttle.

The bill also allocates funds for several new programs and projects dedicated to maintaining U.S. leadership in aerospace: $70 million for a third Shuttle flight for the Shuttle Imaging Radar-C; $15 million for Technology Enhancement Grants to strengthen the technology base in areas and States that have not fully participated in the Nation's aeronautical and space programs; and $5 million for the establishment of the first NASA Technology Transfer and Commercialization Center to serve the Rocky Mountains and Upper Plains States region. To partially offset the cost of the new activities, the bill assumes the following reductions from the requested levels: $10 million by freezing the Space and Planetary account at the FY 1995 level, $7 million by eliminating funding for "Clean Car"-related activities, $5 million by reducing funding for the Space Processing account, and $7 million by elimination of funding for the Solid Propulsion Integrity Program (SPIP).

MISSION COMMUNICATIONS SERVICES

The reported bill authorizes Mission Communications Services at the President's budget request of $461,300,000. This authorized level will provide sufficient support for NASA's vast ground- and space-based communications systems which are essential to every NASA space mission.

ACADEMIC PROGRAMS

The reported bill authorizes $104,700,000 for NASA's Academic Programs, which is a $19 million cut from the budget request but equals the FY 1995 funding level. This funding level should continue NASA's major activities in this account. To help address the unique requirements of our rural states, the bill specifically allocates $3 million for a science education and outreach center for the Upper Plains States and $1 million for a Rural Teacher Resource Center. Further, it assumes $6.9 million for the Experimental Program to Stimulate Competitive Research (EPSCOR), a $1 million increase over the requested level. EPSCOR funds quality research projects in rural states.

SAFETY, RELIABILITY, AND QUALITY ASSURANCE

The reported bill authorizes the President's budget request of $37,600,000 for the Safety, Reliability, and Quality Assurance programs, which are designed to reduce program risk throughout NASA.

SPACE COMMUNICATIONS SYSTEMS

The reported bill authorizes $219,400,000 for NASA's Space Communications Systems, $100 million less than the President's budget request. This account supports the tracking, telemetry, data acquisition, and data processing activities for all NASA spacecraft. Included among these activities is the Tracking and Data Relay Satellite (TDRS) program, which provides operational support for

NASA and other domestic and international users of NASA's Space Network for space communications purposes. The $100 million cut assumes a delay in the procurement of the next TDRS satellite due to a pending legal challenge by the TRW Corporation to the award of that contract to the Hughes Corporation and the possibility of privatizing that activity.

RESEARCH AND PROGRAM MANAGEMENT

The reported bill authorizes $2,047,800,000 for the Research and Program Management account at NASA, a cut of $155 million from the requested level. This account funds the salaries, travel expenses, and other administrative expenses for NASA's personnel. The $155 million reduction reflects savings of $108 million from eliminating unused FY 1995 funds intended to "buyout" employees through early retirement and another $47 million in savings from the implementation of changes suggested in NASA's comprehensive "zero-based review" of its entire operation to identify potential areas of cost savings.

CONSTRUCTION OF FACILITIES

The reported bill authorizes $135,000,000 for the Construction of Facilities account to fund the repair and upgrade of existing facilities and the construction of new facilities. The authorized level freezes spending at the FY 1995 level, which is $31.4 million below the President's budget request for this account. The bill specifically authorizes each of the projects for which NASA requested funding, but leaves it to NASA's discretion how the total authorization should be allocated among them.

INSPECTOR GENERAL

The reported bill authorizes the President's budget request of $17,300,000 for the Office of the Inspector General, which is a statutorily-created independent organization within NASA charged with investigating cases of fraud, waste, and abuse at the agency.

DOT AUTHORIZATION

The reported bill authorizes $7,000,000 for DOT's Office of Commercial Space Transportation, the federal government agency charged with licensing U.S. commercial launches and promoting the U.S. commercial launch industry. The bill also makes changes in OCST's organic act to expand its licensing authority to cover reentry vehicles and in-space transportation activities.

ESTIMATED COSTS

In accordance with paragraph 11(a) of rule XXVI of the Standing Rules of the Senate and section 403 of the Congressional Budget Act of 1974, the Committee provides the following cost estimate, prepared by the Congressional Budget Office:

U.S. CONGRESS,
CONGRESSIONAL BUDGET OFFICE,
Washington, DC, September 15, 1995.

Hon. LARRY PRESSLER,
Chairman, Committee on Commerce, Science, and Transportation, U.S. Senate, Washington, DC

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the enclosed cost estimate for S. 1048, the National Aeronautics and Space Administration Act, Fiscal Year 1966.

Enacting S. 1048 would affect direct spending and could affect receipts. Therefore, pay-as-you-go procedures would apply to the bill.

If you wish further details on this estimate, we will be pleased to provide them.

Sincerely,

JUNE E. O'NEILL, *Director.*

CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

1. Bill number: S. 1048.

2. Bill title: National Aeronautics and Space Administration Act, Fiscal Year 1966.

3. Bill status: As ordered reported by the Senate Committee on Commerce, Science, and Transportation on July 20, 1995.

4. Bill purpose: S. 1048 would authorize fiscal year 1996 appropriations for the National Aeronautics and Space Administration (NASA) and for the Office of Commercial Space Transportation (OCST) in the Department of Transportation (DOT). The bill also would direct NASA to take steps toward privatizing space shuttle operations and developing advanced radar satellite programs. Other provisions would authorize NASA to convey a property known as the Yellow Creek Facility to the state of Mississippi without reimbursement and use funds authorized for the Human Space Flight program to purchase land and facilities for a neutral buoyancy facility. Finally, licensing of commercial space launch activities by OCST would be expanded to include in-space and reentry vehicles, activities, and sites.

5. Estimated cost to the Federal Government: As shown in the following table, S. 1048 would authorize appropriations totaling $13.8 billion for 1996. Most of that amount would be authorized for NASA; $7 million would be authorized for OCST. CBO estimates that conveying property to the state of Mississippi without reimbursement would result in direct spending of $3 million in 1997 by eliminating offsetting receipts that are likely to occur in the absence of such conveyance.

[By fiscal year, in millions of dollars]

	1995	1996	1997	1998	1999	2000
SPENDING SUBJECT TO APPROPRIATIONS						
Spending under current law:						
Budget authority [1]	13,887	.....	.....	.....	.....	.....
Estimated outlays	14,610	5,249	1,127	53	21	9
Proposed changes:						
Authorization level	.....	13,787	.....	.....	.....	.....
Estimated outlays	.....	8,597	4,250	940	.....	.....

[By fiscal year, in millions of dollars]

	1995	1996	1997	1998	1999	2000
Spending under S. 1048:						
Authorization level [1]	13,887	13,787	.....	.....	.....	.....
Estimated outlays	14,610	13,846	5,378	993	21	9
ADDITIONAL DIRECT SPENDING						
Estimated budget authority	.....	.....	3	.....	.....	.....
Estimated outlays	.....	.....	3	.....	.....	.....

[1] The 1995 level is the amount actually appropriated.

The budgetary impacts of this bill fall within budget functions 250, 400, and 800.

6. Basis of estimate:

Spending subject to appropriations.—This estimate assumes that the full amounts authorized will be appropriated and that outlays will occur at rates consistent with recent trends for each agency. The 1996 authorization level of $13.8 billion for NASA is $100 million below the agency's 1995 appropriation as adjusted for enacted rescissions. The 1996 authorization for OCST is $1 million higher than current funding for its operations.

Direct spending and revenues.—Enacting this bill would result in a loss of offsetting receipts from the sale of surplus property but could generate revenues from the levy of civil penalties. Based on information provided by NASA, we expect that in the absence of this legislation, the agency would follow standard federal practices in disposing of the Yellow Creek property, which is no longer needed for agency programs. If the property were sold by the General Services Administration as surplus property, we estimate that the sale would take about one year to complete and would yield about $3 million in net receipts. CBO estimates that the government would forgo such receipts, because NASA has signaled its intent to exercise the authority in S. 1048 to convey the property to the state.

CBO estimates that any additional receipts from penalties resulting from this bill would be insignificant. DOT has never collected a penalty for a violation of the licensing and related requirements of the commercial space transportation program.

7. Pay-as-you-go considerations: Section 252 of the Balanced Budget and Emergency Deficit Control Act of 1985 sets up pay-as-you-go procedures for legislation affecting direct spending or receipts through 1998. As shown in the following table, CBO estimates that enacting S. 1048 would affect direct spending because of the conveyance of the Yellow Creek properties to the state of Mississippi without reimbursement. The bill also could affect receipts because of provisions that authorize the collection of civil penalties by OCST, but we estimate that any changes in receipts would be zero or negligible.

[By fiscal year, in millions of dollars]

	1995	1996	1997	1998
Change in outlays	0	0	3	0
Change in receipts	0	0	0	0

8. Estimated cost to state and local governments: Under this bill, the state of Mississippi would be given a 1,200-acre site related

property near the city of Iuka, Mississippi without reimbursement and would receive $10 million of NASA's 1996 funding, if these funds are appropriated, for modifying the facility. We estimate that the Yellow Creek facility would be valued at about $3 million if it were sold by the federal government as surplus property. Information provided by NASA suggests that the site could have a higher value to the state as an economic development center.

9. Estimate comparison: None.

10. Previous CBO estimate: CBO has transmitted two costs estimates for bills ordered reported by the House Committee on Science that authorize funding for NASA. An estimate for H.R. 1601, the International Space Station Authorization Act of 1995 was provided on July 10, 1995, and an estimate for H.R. 2043, the National Aeronautics and Space Administration Authorization Act, Fiscal Year 1996 was provided on August 4, 1995. Differences between the estimates reflect differences in the provisions in the respective bills.

11. Estimate prepared by: Kathleen Gramp.

12. Estimate approved by: Robert A. Sunshine for Paul N. Van de Water, Assistant Director for Budget Analysis.

REGULATORY IMPACT STATEMENT

In accordance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee provides the following evaluation of the regulatory impact of the legislation, as reported.

S. 1048, as reported, reauthorizes the programs and activities of the National Aeronautics and Space Administration for fiscal year 1996. In addition, the bill reauthorizes, for fiscal year 1996, the Office of Commercial Space Transportation of the Department of Transportation, which licenses U.S. commercial space launches and promotes the U.S. commercial launch industry. The bill also contains amendments to the Commercial Space Launch Act, as amended, to clarify OCST's licensing authority over commercial reentry vehicles and in-space transportation activities. It is the Committee's judgment that the bill will not subject any individuals or businesses affected by the bill to additional regulation, will not increase the paperwork requirement for such individuals or businesses, and will not have an adverse impact on individual privacy.

SECTION-BY-SECTION ANALYSIS

Section 1.—Short title

This section permits the bill to be cited as the ''National Aeronautics and Space Administration Act, Fiscal Year 1996.''

Section 2. Definitions

This section defines ''[NASA] Administrator,'' ''NASA,'' and ''institution of higher education'' for the purposes of the Act.

TITLE I—AUTHORIZATION OF APPROPRIATIONS

Section 101.—Human space flight

This section authorizes a total of $5,272,800,000 for the Human Space Flight account allocated as follows:

—Space Station, $1,818,800,000.
—Russian Cooperation, $129,200,000.
—Space Shuttle, $3,031,800,000.
—Payload and Utilization Operations, $293,000,000.

SPACE STATION

The bill authorizes the full requested funding level for the Space Station program but in section 201, places a $2.1 billion ceiling on the total funding for all Space Station-related activities. The Space Station is by far NASA's most costly and complex program. The Space Station is aimed at constructing and operating an orbiting laboratory in space that will be used to conduct advanced materials research, study the effects of long-term human spaceflight, and perform other work requiring a near-zero gravity environment. While the U.S. has the lead role in this effort, major contributions are being made by the European Space Agency, Japan, and Canada. In addition, as part of the 1993 redesign of the Space Station, Russia was added as a Space Station partner to build and supply critical Station hardware and to fly hardware and supplies to the Space Station. The bill's authorization should allow the Space Station to stay on schedule for First Element Launch in 1997 and Assembly Complete in 2002.

The authorization of full funding for the Space Station reflects the Committee's recognition of the program's importance to the future of the Nation's human space flight program. It also reflects the tremendous potential of the program to generate breakthrough scientific and technological discoveries, strengthen the Nation's technology base, and stimulate U.S. aerospace competitiveness. The Committee believes that it would not be in the public interest to abandon the Space Station program this close to the start of the assembly phase after so much time and money has been invested in it. Through 1993, the U.S. had spent $9 billion on the program and, thus far, its foreign partners have contributed about $4 billion. This massive investment would be wasted if the program were cancelled at this time.

However, the bill's authorization should not be viewed as a ringing endorsement by the Committee of the Space Station program. Since it was first funded in 1984, the program has had a troubled history of chronic schedule slippages and cost overruns. Originally scheduled for completion in 1992 at a total cost of $8 billion, the current plan calls for completion ten years after that date at a cost of $30 billion. Through the years, the Space Station has undergone five redesigns, each resulting in further reduction of its scientific capabilities.

At its May 23rd hearing on the Space Station, the Subcommittee on Science, Technology, and Space heard testimony from NASA and outside witnesses raising concerns about the program's over reliance on Russian involvement. The current Space Station plan depends on the Russian contributions in almost every phase of its development. For example, under that plan, 44 of the 73 flights needed to assemble and service the Space Station will involve launches of Russian rockets from Russia; the core of the Space Station will be a Russian-built navigation and propulsion system; and the Space Station's two Crew Transfer Vehicles will be modified Rus-

sian Soyuz spacecraft. Although the Committee is aware that NASA has a viable contingency plan to permit the program to proceed in the event of a Russian withdrawal, there is little question that non-performance by the Russians would cause serious cost increases and schedule delays.

The cost of the Space Station continues to be controversial. NASA's cost estimate for the Space Station through Assembly Complete is $30 billion and $70 billion through the anticipated end of its operational life in the year 2012. However, in its June 1995 report entitled "Space Station -Estimated Total U.S. Funding Requirements," the General Accounting Office estimated the U.S. funding requirements to design, launch, and operate the Space Station through 2012 to be $94 billion. With NASA under pressure to cut its budget, the Committee is concerned that the Space Station could ultimately crowd out other space programs and activities, leaving the Space Station as NASA's only mission. Such a result is plainly not in the public interest.

Finally, questions have been raised about whether the current Space Station design can even be executed. According to the Congressional Research Service, the current Space Station design will require 648 hours of spacewalking or extra-vehicular activity (EVA), 214 hours more than the previous design. In 1993, the Vest Committee, which was appointed by the Vice President to oversee NASA's redesign of the Space Station, reported that "EVA is an inherent risk to crew safety, and such heavy dependence on EVA threatens the success of station assembly." The Committee also notes that the Space Station construction will require 73 launches to take place on time and in sequence within a 55-month period, an unprecedented demand on the launch resources of the U.S. and its foreign partners.

In light of these concerns, the Committee will closely monitor the progress of the Space Station to insure that it remains within budget and on schedule and that it does not jeopardize NASA's other missions and programs.

RUSSIAN COOPERATION

The bill authorizes the full $129,200,000 requested for the planned series of Shuttle missions to the Russian space station Mir to prepare for the assembly of the Space Station. These missions should increase the likelihood of Space Station's success by mitigating the risks in the design, assembly, and operation of the Space Station. The Committee commends NASA on its successful Shuttle docking with Mir in June, the first such docking since the Apollo-Soyuz rendezvous in July 1975. When the Shuttle and Mir connected, they formed the largest spacecraft ever assembled in space.

SPACE SHUTTLE

The Space Shuttle account is authorized at $3,031,800,000, $200 million below the President's budget request. Notwithstanding the modest cut, this funding level should enable NASA to maintain Shuttle performance without compromising safety. Over the next decade, America will rely on the Shuttle as never before as construction of the Space Station begins. Between 1997 and the year 2000, the Shuttle is scheduled to fly 27 missions to deliver parts

and supplies to the Space Station. At the same time, the Shuttle program is facing intense pressure to cut costs. While the Committee applauds cost cutting, safety must always come first. As NASA reduces personnel to reduce costs, it must guard against taking shortcuts that would place our astronaut crews at risk.

To its credit, earlier this year, NASA conducted several studies to examine responsible strategies for streamlining the Shuttle program. In February, NASA issued a report on its internal review of the Shuttle program (the "Littles Report"). The Littles Report concluded that the Shuttle program's 35,000-person civil servant and contractor workforce could be reduced by 5,900 people without safety concerns. The Littles Report was followed in March by the issuance of another report (the "Kraft Report") which published the findings of an independent blue-ribbon panel chaired by former Johnson Space Center director Dr. Christopher Kraft. The Kraft Report made a number of recommendations, including that: (1) Space Shuttle operations should be placed under the control of one prime contractor with NASA's role reduced to top level oversight; (2) NASA should rely on current Shuttle hardware and software, with minimal modifications and upgrades; (3) Shuttle requirements should be reviewed with the goal of reducing requirements based on NASA's decades of experience with the Shuttle; (4) payload processing and integration should be streamlined; (5) operational contracts with contractors should be restructured to provide greater incentives to accomplish safe and successful missions; and (6) NASA should consider further industry involvement and progression toward the privatization of the Space Shuttle. Equally significant was the Kraft Report's general theme that safety concerns not be used to avoid consideration of ways to downsize the standing army of NASA personnel and the massive infrastructure that operate and maintain the Shuttle. The Kraft Report noted that NASA continues to operate the decades-old Shuttle as an experimental vehicle, changing 150 items of Shuttle hardware after each flight even though an average of only 10 in-flight (mostly inconsequential) problems per Shuttle mission typically occur.

The Committee believes that the bill reflects a responsible strategy for achieving cost savings in the Shuttle program without compromising safety. The bill authorization makes a modest cut from the requested level based on two assumptions. First, it assumes $140 million in cost savings from the implementation of cost savings measures identified or suggested in NASA's zero-based review and other studies. Second, it assumes the elimination of $60 million in funds left over in the NASA budget as a result of last year's termination of the Advanced Solid Rocket Motor (ASRM) program and the closing of the ASRM facility in Iuka, Mississippi.

PAYLOAD AND UTILIZATION OPERATIONS

The bill provides full funding for Payload and Utilization Operations. This funding will support operation of Spacelab systems, a cooperative reflight of the Tethered Satellite System (TSS), and integration of various payloads to accommodate Shuttle requirements. The Spacelab is a laboratory facility that is placed in the Space Shuttle payload bay to permit an expansion of the number and types of experiments that can be performed using the Shuttle.

In its pressurized module configuration, the Spacelab has the added advantage of enabling astronauts to conduct research in the payload bay in a "shirt sleeves" environment. The reflight of TSS will give NASA and its foreign partner in this effort, the Italian Space Agency, a second opportunity to achieve the mission goals that were not accomplished in the first flight of TSS in 1992. During that 1992 mission, a mechanical problem prevented the full unspooling of the tether and the attached satellite, thereby preventing the completion of all of the planned mission studies. The payload integration account provides the support needed for payload buildup, testing, and servicing, transportation to the Shuttle, payload integration and installation, and related launch activities.

Section 102.—Science, aeronautics, and technology

This section authorizes a total of $6,049,900,000 for Science, Aeronautics, and Technology allocated as follows:

—Space Science, $1,958,900,000.
—Life and Microgravity Sciences and Applications, $507,000,000.
—Mission to Planet Earth, $1,360,100,000.
—Aeronautical Research and Technology, $891,300,000.
—Space Access and Technology, $766,600,000.
—Mission Communications Services, $461,300,000.
—Academic Programs, $104,700,000.

SPACE SCIENCE

A. Physics and Astronomy. The bill's authorization provides full funding at the requested level of $1,131,000,000 for all of the major activities in this account, including the Hubble Space Telescope (HST), the Advanced X-ray Astrophysics Facility (AXAF), and the Global Geospace Science (GGS) spacecraft. The authorization also supports continuation of the operations of HST, which has yielded remarkable scientific results since its repair in December 1993. AXAF, scheduled for launch in 1998, will be the next in NASA's series of Great Observatories aimed at examining a broad range of the universe's electromagnetic spectrum. The GGS spacecraft are designed to perform measurements providing a better understanding of the interactions between the Sun and the Earth.

The bill specifically authorizes the three new starts proposed in the President's budget request: the Stratospheric Observatory for Infrared Astronomy (SOFIA), the Space Infrared Telescope (SIRTF), and the New Millennium program. SOFIA is a cooperative project with the German Space Agency to develop an infrared observatory for flight in a specially modified Boeing 747 airplane. Intended as a replacement for the Kuiper Airborne Observatory, SOFIA is expected to advance our knowledge and understanding of star and planet formation and the composition of the Universe. A key factor in authorizing SOFIA was the Committee's understanding that, if SOFIA were not approved for FY 1996, the German Space Agency would likely withdraw from the project. SIRTF, planned for launch in the year 2002, would be the last of NASA's Great Observatories. SIRTF will use infrared technology to examine deep space in connection with advanced astrophysics studies.

The bill assumes no new funding for Gravity Probe-B (GPB), a $51.5 million FY 1996 budget item, which was not funded in the President's budget request. Begun in the 1960s, GPB is an effort to test Einstein's theory of relativity by flying gyroscopes in space. Thus far, NASA has spent approximately $240 million on GPB, without a single mission having ever flown, and it would require an additional $292 million to complete the project for a scheduled launch in the year 2002. In recent years, some segments of the scientific community have questioned the scientific value and feasibility of the program. In fact, over the years, GPB has undergone at least 17 studies to answer questions about its merit. The President's budget request indicated that, if a National Academy of Sciences study requested by NASA in 1994 recommended funding GPB, NASA would have to find offsets in the budget to fund the program. At the March 1 hearing of the Subcommittee on Science, Technology, and Space on the NASA budget, NASA Administrator Goldin was asked, "If the latest National Academy of Sciences study does not find Gravity Probe-B to be a national priority, what do you think the possibilities of further funding in the program would be?" His response was: "Zero."

In May, the Academy issued its final report on the GPB study. Although the report did recommend continuation of funding for GPB, the text of the report was critical of the program. The report indicated that the panel was unable to reach a consensus on the relative value of the GPB, but noted that it would likely have less impact on the scientific world than the Cosmic Background Explorer (COBE) satellite. The report further noted that the possibility of GPB producing "a great surprise" was "remote." Equally troubling was the skepticism expressed by some panel members that the project is even technically feasible. In any event, the report clearly did not view GPB as a national scientific priority. In light of the failure of the Academy and the broad scientific community it represents to give GPB their unqualified endorsement, the Committee believes the $51.5 million for GPB would be better spent on cost reductions or other space science.

B. Planetary Exploration. The bill authorizes at the requested level of $827,800,000 NASA's Planetary Exploration programs, including Cassini, Mars Surveyor, and the Discovery programs. The authorization will keep on schedule the Cassini mission to Saturn planned for launch in October 1997. The Mars surveyor program, the first Mars exploration program since the Viking spacecraft of the 1970s, would launch an orbiter to Mars in 1996 and launch another orbiter and a lander in 1998. The Discovery program is aimed at flying low-cost ($150 million), focused missions concentrating on the inner solar system planets. Funding for the Discovery program will continue development of the Mars Pathfinder and Near Earth Asteroid Rendezvous (NEAR) missions, as well as support a third Discovery mission, Lunar Prospector. Lunar Prospector will map the chemical composition of the Moon and study its magnetic and gravity fields.

The bill also specifically authorizes the New Millennium spacecraft as a new start for FY 1996. The requested level of $30 million is authorized for this new activity, which is intended to reduce the size and development times of scientific spacecraft, while increas-

ing their capabilities. The Committee approves the New Millennium program with the understanding that its program managers will work in concert with the Mission to Planet Earth program and other federal remote sensing activities such as Landsat so those programs and activities might implement any technological advances and breakthroughs that develop from New Millennium to reduce costs and increase capabilities. In that connection, the Committee asks that, within 60 days of the enactment of the bill, NASA submit to the Committee a strategic plan for how New Millennium will coordinate with and complement the activities of Mission to Planet Earth and other federal remote sensing programs.

LIFE AND MICROGRAVITY SCIENCES AND APPLICATIONS

The bill fully funds the Life and Microgravity Sciences and Applications account at $507,000,000. This authorization will support NASA's ongoing study of the effects of weightlessness on humans and animals, as well as biomedical and materials research. The bill specifically authorizes the $3 million requested by NASA for the construction of an addition to the Microgravity Development Laboratory at Marshall Space Flight Center. NASA's life and microgravity sciences research will take on increasing importance when the Space Station assembly begins in 1997. The program also supports the joint NASA/National Institutes of Health research in biotechnology and the Committee encourages NASA to pursue similar research partnerships with other federal, state, academic, and private organizations.

MISSION TO PLANET EARTH

The bill authorizes $1,360,100,000 for Mission to Planet Earth, a $19 million increase over the President's budget request, reflecting the Committee's strong endorsement of this activity. Mission to Planet Earth is NASA's satellite program aimed at understanding and predicting global climate change by studying how the atmosphere, land, seas, and ice caps interact as a system. It is NASA's main contribution to the U.S. Global Climate Change Research Program. The bill assumes continued support for each of the program's components, including the Earth Observing System (EOS), the EOS Data and Information System (EOSDIS), Landsat, and the Earth Probes. The bill's authorization assumes elimination of funding for CIESIN, an activity which was deemed largely irrelevant to NASA's goals and missions and which has been severely criticized in the past by NASA's Inspector General. The bill also assumes funding for the radar satellite program authorized in Section 206 of the bill and the hydrology study authorized in Section 207.

The central activity of Mission to Planet Earth is the development and launch of the EOS satellites. Beginning in 1998, NASA will launch several series of EOS satellites, each of which will carry multiple instruments measuring different aspects of climate change. The three main satellite series are: EOS–AM (scheduled for a 1998 launch); EOS–PM (scheduled for 2000), and EOS–CHEM (scheduled for 2002). Each series is designed to include up to three spacecraft that would be launched at up to 6-year intervals to permit climate change measurements over an 18-year period. The data

from EOS will be collected, processed, and distributed by EOSDIS. Full funding for EOSDIS is essential if the huge volumes of data expected from EOS is to be properly distributed for the benefit of researchers, educators, government agencies, and other users of remote sensing satellite data around the Nation and the world.

The Landsat activity at NASA will continue support for development and launch in 1998 of the Landsat 7 satellite. For the last twenty years, the Landsat program has provided high-resolution satellite imagery of the Earth that has been used for climate and environmental research, land use planning, mineral exploration, and government missions. That imagery is archived at the Department of the Interior's EROS Data Center in Sioux Falls, South Dakota. The Landsat program currently relies on two aging satellites (Landsat 4 and 5). Because a 1993 effort to deploy Landsat 6 failed, the successful and timely deployment of Landsat 7 is critical to maintaining this national asset and its data continuity. The Committee also urges NASA and DOD to resolve their dispute over the $25 million in prior year appropriations that NASA claims DOD owes for the development work on Landsat 7 and requests that NASA provide the Committee with a written status report on this matter within 60 days of the enactment of this bill.

NASA's Earth Probes are smaller satellites designed to complement the larger EOS satellites by focusing on specific aspects of global change. They are also intended to take advantage of unique opportunities for international cooperation. The bill's authorization would support three activities: the Total Ozone Mapping Spectrometer, the NASA Scatterometer, and the Tropical Rainfall Measuring Mission.

The Committee believes Mission to Planet Earth is arguably NASA's most important and relevant mission and it views any effort to eliminate the program or undermine it through inappropriate budget cuts as short-sighted and not in the public interest. Mission to Planet Earth is one of the few NASA programs that will yield clear, direct benefits to American taxpayers, rather than the speculative spinoff benefits often promised by other space activities.

In the Nation's agricultural states, many of which are represented on the Committee, the community's livelihood depends on weather and climate. Mission to Planet Earth may some day permit year-to-year climate prediction so farmers and ranchers would know in advance whether a particular year would bring floods, droughts, tornadoes, or other severe weather events. The program may also help us determine the location and rate of ozone depletion, which poses a particular threat to our agricultural community. Mission to Planet Earth may eventually enable farmers, sitting in front of their personal computers, to access the Internet to obtain soil moisture data on the fields they are cultivating on almost a foot-by-foot basis. For years, the manufacturing industry has applied new technologies to operate with more precision and efficiency. Mission to Planet Earth may eventually give the agricultural community that same capability.

AERONAUTICAL RESEARCH AND TECHNOLOGY

The bill authorizes $891,300,000 for Aeronautical Research and Technology, an amount that assumes full funding for all of the ac-

tivities essential to NASA's aeronautics mission requirements. The bill specifically authorizes $5.4 million requested for the modernization of the Unitary Plan Wind Tunnel Complex at the Ames Research Center. The authorization level assumes funding at the requested levels for all of the main aeronautics programs, including NASA's subsonic, supersonic, and hypersonic research programs. NASA's aeronautics program has been a major factor in maintaining U.S. leadership and industrial competitiveness in aerospace. Because of budget constraints, the authorization level assumes the elimination of $26 million from the $75.2 million requested for the High Performance Computing and Communications Program (HPCC). However, none of the $26 million cut shall be taken from the Yohkoh Public Outreach Project (YPOP), a NASA-funded project that supports important educational and public outreach activities using scientific data collected under the Japan/U.S./United Kingdom Yohkoh solar physics mission. The reduction reflects the Committee's view that, since the HPCC activities are not essential to NASA's ability to perform its core aeronautics research, full funding cannot be justified in this budget environment.

NASA's aeronautics program is focused around six strategic goals: (1) to develop high-payoff technologies for a new generation of environmentally compatible, economically superior U.S. subsonic aircraft and a safe, highly productive global air transportation system; (2) to ready the technology base for an economically viable and environmentally friendly high-speed civil transport; (3) to develop the technology options for new capabilities in high-performance aircraft; (4) to develop and demonstrate technologies for hypersonic flight; (5) to develop advanced concepts, physical understanding, and theoretical, experimental, and computational tools to enable advanced aerospace systems; and (6) to develop and maintain critical national facilities for aeronautical research and for support of industry, FAA, DOD, and other NASA programs. In accordance with these goals, the aeronautics program is intended to maintain laboratory strengths, and staff excellence; ensure timely domestic technology transfer; ensure strong university involvement; and ensure strong cooperation among NASA Research Centers, industry, and academia in a manner that uses the strengths of each partner.

The Committee continues to strongly support the NASA aeronautics research and technology program as a critical element of the success of the U.S. aerospace industry in the world market. Because of leading-edge aeronautical research conducted by NASA and NASA's work on emerging technologies, the U.S. aerospace industry is now one of the Nation's leading trade surplus industries. In order to maintain this positive balance of trade in the aerospace industries, the Committee has authorized the full funding for all essential NASA aeronautics activities.

The Committee strongly supports the NASA Research and Technology Base program that helps the U.S. lead the world in aeronautical breakthroughs and advanced aviation concepts. The program should develop technologies for all flight regimes from subsonic (including rotorcraft) through hypersonic. The Research and Technology Base program includes disciplines of aerodynamics; propulsion and power; materials and structures; controls, guidance

and human factors; and flight systems. The Committee encourages cooperative agreements with industry and other Government institutions, but recommends that NASA ensure a core competency in NASA personnel at the Research Centers. The emphasis of the program should be on efficiency, safety, and new capabilities. The Committee continues to support strongly NASA's research in hypersonic flight and the application of magnetohydrodynamics technologies to hypersonic flight.

SPACE ACCESS AND TECHNOLOGY

The bill authorizes $766,600,000 for Space Access and Technology account to continue current programs and initiate several new activities. This funding level will support NASA's ongoing work in spacecraft and remote sensing, technology development, advanced space transportation, flight programs, space communications, and technology transfer. Within the authorization, the bill specifically authorizes $70 million for a third Shuttle flight of the Shuttle Imaging Radar-C satellite, $5 million for a Rural Technology Transfer and Commercialization Center for the Rocky Mountains and Upper Plains States region, and $159 million for the new Reusable Launch Vehicle (RLV) program proposed in the budget request. The bill assumes elimination of the funding requested for the Solid Propulsion Integrity Program (SPIP), a cooperative effort with the Department of Defense (DOD) focused on solid rocket motor (SRM) development. In its July 3rd letter to Congress updating its FY 1995 operating plan, NASA indicated that it was reorienting SPIP away from SRM development and toward hybrid propulsion. In explaining its action, NASA cited its "reduced priority for SRM development" and DOD's increased commitment to that activity. To that end, NASA stated it would be reallocating funding for SPIP beginning in FY 1996. Given the lack of agency support for SPIP, the Committee has assumed no FY 1996 funding for that activity and cautions against initiation of the new hybrid propulsion program referenced in the July 3rd letter without specific Congressional authorization of that activity.

The bill authorizes a third Shuttle flight for SIR-C to promote U.S. involvement in the development of radar satellite technology. Radar satellite technology holds the promise of taking conventional optical-based remote sensing capabilities like Landsat to the next level. Optical-based satellites cannot see through cloud cover so they often must wait for clear skies to obtain the desired imagery. Radar satellites do not labor under that constraint. Because radar satellites employ radio waves to generate their images, the radar satellites are unhampered by cloud cover. For rural states, radar satellites hold special interest since they can provide data about soil moisture, crop and vegetation classification and health, and the water content of snow. In addition, radar satellites can reveal elevation data, which can be integrated with current Landsat data to provide three-dimensional Earth images. Equally exciting, when these satellites are flown as clusters, they can measure ground movements of as little as one centimeter, producing data of enormous benefit to seismologists in understanding and predicting earthquakes around the world. The applications of this technology seem truly limitless. This fact is not lost on Japan and Europe,

which already operate radar satellites, or on Canada, which is launching one this year. The Committee urges NASA to make the development of quality radar satellite capabilities an agency priority beginning in FY 1996 and continuing thereafter.

Also specifically authorized is a Technology Transfer and Commercialization Center for the Rocky Mountains and Upper Plains States region. Currently, NASA funds twelve regional technology centers, but none in the Rocky Mountains and Upper Plains States region. States in this region now have to work with a facility in Texas, which cannot adequately understand and meet the special needs of that region. The new center would focus on the unique interests and requirements of the region where there are often great distances between businesses and 98 percent of the companies have 50 or fewer employees. The Committee strongly recommends that NASA give appropriate consideration to the placement of the new center at Montana State University (MSU). The Committee believes that MSU possesses the requisite experience, skills, resources, and outreach capabilities to serve the interests of the region and could draw on the existing Burns Telecommunications Center in Bozeman, Montana, for assistance in delivering programs and materials to the community.

The bill provides the full requested level of $159 million for NASA's proposed RLV initiative to develop and flight test technologies that might lead to a privately developed and operated reusable space transportation system to replace the Space Shuttle in the next century. The bill assumes $49 million for the single-stage-to-orbit test vehicle, the X–33; $30 million for a smaller launch vehicle, the X–34; and $80 million for underlying technology activities, including the ground and flight testing of the DC–XA (an upgrade of the DOD's successful DC–X test vehicle).

The cost of putting useful cargo into low Earth orbit currently ranges from $3,000 per pound of payload to the Space Shuttle's $15,000 per pound cost. These high costs have kept this Nation from doing more in space, and, until access to orbit is made easier and less expensive, the U.S. will not be able to take full advantage of the scientific and commercial opportunities of space.

The goal of the RLV program is to demonstrate cheap, reliable, frequent access to space through cooperative efforts with industry to develop experimental vehicles to test new approaches to spaceflight. The Committee notes this is an implementation of the President's August 4, 1994, National Space Policy (PDD/NSTC-4), which calls for a ''flight demonstration which would prove the concept of single-stage-to-orbit.'' One of the strengths of experimental vehicles, like the X–33, X–34, and DC–XA vehicles, is that they focus on the development and demonstration of technologies, rather than on the accomplishment of operational mission goals.

The Committee commends NASA's commitment to do business in new ways, as exemplified by its intention to require significant financial participation by its RLV contractors, as well as its decision to allow industry to take the lead in designing the X–33 and X–34. However, in conducting business differently, some new legal issues have arisen regarding the third-party liability of the contractors involved with the development and operation of the experimental vehicles in the program. The aerospace industry has raised

valid legal questions about whether, under current law, its third-party liability can be restricted to an acceptable level. Until these questions are resolved, industry might be reluctant to move to the flight test phase of any of the RLV planned activities. To address this matter, the Committee requests that, within 60 days of the enactment of this bill, NASA submit to the Committee a report that identifies the major legal and policy issues relating to the third-party liability and indemnification of contractors involved in RLV work, as well as any other issues NASA deems relevant, and that recommends possible options (including schedules) for resolving these issues in a manner which is satisfactory to NASA and the contractor community, but which also promotes the public interest.

The Committee stresses that the ultimate goal of NASA's RLV program is to provide proven, demonstrated technologies enabling the private sector to build and fly single-stage-to-orbit RLVs. In the case of the X–33 activity, there is the additional expectation of the development of an RLV capable of replacing the Shuttle in the next decade. In this budget environment, the federal government cannot afford to pay the more than $6 billion in estimated development costs for a Shuttle replacement vehicle. In its support for the RLV, the Committee assumes that any effort to build a Shuttle replacement will require industry to share approximately 10 to 20 percent of the development costs. However, industry will not be disposed to share financing responsibilities if the vehicle concepts do not meet the commercial needs of its customers. On that point, the Committee is aware of concerns within the aerospace industry that the performance requirements for the X–33 vehicle are too closely biased toward the goal of replacing the Shuttle. The Committee's approval of the proposed RLV program assumes that NASA will take immediate steps to resolve this problem so that the program continues to remain focused on the goal of producing a vehicle that will both satisfy government needs and respond to commercial market requirements.

The authorization assumes funding for the Centers for the Commercial Development of Space (CCDSs). The Committee is concerned that the funding for this activity not evolve into an entitlement. The CCDSs were originally established to promote the development of new products using the unique microgravity environment of space. The Centers were expected to increase the U.S. business participation and investments in space-linked commercial goods and services in order to benefit the U.S. industries involved and the economy as a whole. The idea was that federal funds would be used in the early stage of a Center's existence as "seed money" until the Center could support itself with money from non-federal funding sources. In 1993, NASA phased out support for 6 of the 17 Centers; however, the FY 1996 budget request assumes $19 million for subsidization of the remaining 11 Centers. Current budget realities require that NASA take aggressive steps with each of the remaining Centers to move it to self-sufficiency so its federal support does not develop into an entitlement. In that connection, the Committee requests that NASA submit to the Committee by April 1, 1996, a strategic plan for ending federal support for each Center and the plan shall include intermediate targets and timetables for achieving that end. The Committee further requests that such plan

include an assessment of the current economic viability of each Center. Finally, the Committee requests that, in all future budget submissions to Congress, beginning with the submission for FY 1997, the total funding for the CCDSs, as well as the funding for each Center, be clearly identified.

The Committee recommends that NASA allocate $1 million for the establishment of an Optical Sciences Institute. The Institute would be a partnership involving NASA, industry, and academia for conducting research and establishing educational programs in materials science, laser communications, laser materials, and sensing technologies. The work at the Institute on these technologies would not only benefit NASA's biotechnology, remote sensing and aeronautics activities, but would strengthen our technology base and our national security.

The Committee urges NASA to develop policies and manage its programs and activities in a manner that promotes, rather than frustrates, the U.S. commercial space industry. In that connection, the Committee notes its concern about the failure of NASA and the U.S. Air Force to develop and implement a common pricing policy for launch property and launch services provided to the commercial space industry and state governments. Accordingly, the Committee requests that the two agencies develop and implement a common pricing policy without further delay and submit a report regarding that policy to the Committee no later than March 1, 1996. The Committee is also concerned about NASA's interpretation of direct costs which are charged to the commercial space industry and state governments. The legislative history of the Commercial Space Launch Amendments of 1988 indicates that direct costs are limited to additive costs, which would preclude the government from charging for the salaries of existing government and contractor personnel as well as equipment use fees. The Committee directs NASA to correct immediately its interpretation of direct costs to make it consistent with the legislative history of the 1988 legislation and to submit a report to the Committee regarding its corrections no later than January 1, 1996.

MISSION COMMUNICATIONS SERVICES

The bill authorizes the requested level of $461.3 million for Mission Communications Services. Mission Communications Services manages the provision of telecommunications services needed to support NASA's exploration, science, and research and development programs. This authorization will enable this activity to continue at the level required to meet mission goals.

ACADEMIC PROGRAMS

The bill authorizes $104.7 million for NASA's Academic Programs, which is $19 million less than the budget request, but equal to the FY 1995 appropriated level. This activity is aimed at enhancing scientific and technological competence through a broad range of educational outreach activities addressed to both pre-college and higher education. Of the authorized amount, $3 million is allocated to support the establishment of an Upper Plains States regional science education and outreach center and $1 million is allocated for the establishment of a Rural Teacher Resource Center.

The funding for the science education and outreach center would support the Science Discovery Center project presently under development in Sioux Falls, South Dakota. Currently, the Sioux Falls community is working diligently to convert an unused high-school facility into a high-tech center that would be used to enhance and expand the educational experiences at the K-12 level and to increase the knowledge and understanding of the entire community and region of science and technology. Once completed, the Center would be the only facility of its kind in the region. The Center has broad support in the local community, which is currently financing the ongoing development work on the project.

The new Rural Teacher Resource Center authorized in the bill would be the tenth NASA Teacher Resource Center (TRC). The TRCs maintain a collection of NASA-related materials and make them available to the communities they serve. Each of the current TRCs is located at a NASA field center. While the decision to colocate the TRCs at NASA facilities is understandable, it has meant that those in the Plains States region have not been served by the TRCs. The authorization of an additional Rural TRC should rectify this problem. The Committee recommends that the Rural TRC be located at Montana State University, whose location, knowledge of the area, and outreach capabilities uniquely qualify it to manage the TRC in a way that would serve the special needs of the entire region.

In order to increase the effectiveness of NASA's academic programs, the Committee encourages NASA to work with non-profit organizations to enhance the development of aerospace education programs through state-based teacher outreach. The goals of such partnerships should include streamlining the administration of NASA's education programs, stimulating state participation in the civilian space program, evolving the role of aerospace science in the classroom, and supporting teacher training in aerospace science. The Committee believes that space education is important to the Nation and encourages efforts like those of the Spaceweek International Association, which holds an annual event with government, industry, and education organizations across the United States to educate the public about space. The Committee supports these kinds of initiatives and recommends scheduling them during the school year to maximize student participation and stimulate student interest in mathematics and science.

Section 103.—Mission support

This section authorizes a total of $2,439,800,000 for Mission Support allocated as follows:

—Safety, Reliability, and Quality Assurance, $37,600,000.
—Space Communications Services, $219,400,000.
—Research and Program Management, $2,047,800,000.
—Construction of Facilities, $135,000,000.

SAFETY, RELIABILITY, AND QUALITY ASSURANCE

The bill authorizes the requested level of $37,600,000 for NASA's safety, reliability, and quality assurance programs. This activity funds NASA's safety oversight of all of its missions and programs.

The funding reflects the importance the Committee places on NASA's safety-related functions.

SPACE COMMUNICATIONS SERVICES

The bill authorizes $219,400,000 for Space Communications Services, a reduction of $100 million from the President's budget request. This account funds the tracking, telemetry, data acquisition, and data processing activities for all NASA spacecraft. Included among these activities is NASA's Tracking and Data Relay Satellite (TDRS) system of geosynchronous satellites and its associated ground stations. The $100 million reduction from the authorized level assumes the elimination of any funds for the procurement of TDRS replenishment spacecraft. The Committee did not fund this item for two reasons. First, the award of the procurement contract to the Hughes Corporation is the subject of a pending legal challenge by a competitor, the TRW Corporation. It is impossible to predict how long it will take to resolve this dispute and the procurement cannot proceed until this matter is resolved. Second, funding this procurement may discourage NASA from considering privatization options for meeting its future TDRS requirements. With the explosive growth of commercial satellite communications systems and the need to reduce federal spending, the Committee would want absolute assurance that TDRS-type services cannot be obtained commercially before it approves funding for a new set of TDRS spacecraft.

RESEARCH AND PROGRAM MANAGEMENT

The bill authorizes $2,047,800,000 for Research and Program Management, the account which funds the salaries, travel expenses, and other administrative expenses at NASA. The authorization level is $155 million less than the budget request, reflecting savings from the elimination of unused FY95 funds reserved for buyouts of NASA personnel and the implementation of cost savings measured recommended or suggested by NASA's zero-based review and other studies.

CONSTRUCTION OF FACILITIES

The bill authorizes $135,000,000 for Construction of Facilities, which maintains funding at the FY 1995 level. This account funds the repair and renovation of existing facilities and the design and construction of new facilities, except for discrete construction projects funded as part of the authorization of the Human Space Flight and Science, Aeronautics, and Technology accounts in Sections 101 and 102 of the bill.

Section 104.—Inspector general

This section authorizes the requested $17,300,000 for NASA's Office of Inspector General (OIG). The OIG conducts audits, inspections, and investigations to assist NASA to achieve efficiency and effectiveness in the administration of its programs and to prevent and detect fraud, waste, and abuse. The OIG's role is particularly critical in the area of procurement since about 90 percent of the agency's total obligations are for procurement. In recent years, the

OIG has been criticized for failing to maintain the level of independence from the agency management that was contemplated under the Inspector General Act. In certain cases, that failure may well have compromised the effectiveness and integrity of the OIG's investigations and undermined staff investigators. In a February 1994 report, the GAO released the results of its investigation into allegations of misconduct by the individual serving as Inspector General at that time. The GAO reviewed allegations in three areas: (1) prenotification of senior NASA employees who were targets of impending OIG investigations; (2) unauthorized disclosure of grand jury-related information; and (3) premature closing of selected audits and investigations. The GAO found no support for allegations in the last two categories; however, with regard to the "prenotification" charge, the GAO found that the Inspector General's practice appeared to constitute "a failure to exercise due professional care and could be viewed as an impairment of his office's execution of investigations." The Committee expects the OIG to adopt appropriate policies and guidelines to ensure against a repeat of this practice. While the OIG need not develop an antagonistic posture towards agency management, it must maintain an appropriate distance and independence from management in its operations and interactions in order to discharge properly its statutory mandate.

Section 105.—Office of Commercial Space Transportation

This section authorizes $7 million for DOT's Office of Commercial Space Transportation (OCST), a $459,000 increase over the President's budget request. Since 1984, OCST has been the government's lead agency for the regulation and promotion of the U.S. commercial launch industry. OCST issues licenses for U.S. commercial launches and commercial space launch facilities. It also sets insurance requirements for the protection of persons and property and assures that space transportation activities are in compliance with U.S. domestic and foreign policy. The mission of OCST also includes the promotion and facilitation of the U.S. commercial launch industry.

The funding increase for OCST is intended to enable it to handle an expected increased workload arising from the anticipated growth in the number of U.S. commercial launches. Additional demand on its resources can also be expected as a result of many new developments in commercial space. For example, some of the new commercial launch vehicles under consideration or development will be reusable or will employ reusable components. Novel launch concepts are also emerging where the launch would take place from aircraft or other platforms such as balloons or oil rigs. Finally, work is proceeding on four commercial spaceports in Alaska, New Mexico, California, and Florida, which should generate more licensing work for OCST. [To clarify OCST's statutory authority to license the reentry activity and other in-space commercial transportation, Title III of the bill amends the Commercial Space Launch Act to provide express authority to license those activities.]

The Committee commends OCST for the central role it has played through the years in promoting a favorable regulatory environment for the growth of the U.S. commercial launch industry.

However, there are two areas of concern that require OCST's immediate attention. First, the OCST is years overdue in issuing regulations on the insurance requirements of commercial launch companies established by the Commercial Space Launch Act, as amended. To date, the OCST has adequately handled such matters on a case-by-case basis, but the promulgation of regulations would provide clearer guidance in this area for the government, the launch providers, and the insurance industry. Accordingly, the Committee requests that, no later than April 1, 1996, the Department of Transportation publish for notice and comment proposed regulations to implement the statutory provisions relating to the insurance requirements for launch providers or provide the Committee with a written explanation of the reason for having failed to do so. Second, the Committee is also concerned about overlaps between OCST's responsibilities and those of NASA and the Office of Air and Space Commercialization (OASC) of the Department of Commerce. For instance, there has been no resolution of the continuing debate between OCST and NASA regarding their respective jurisdictions over commercial launch services purchased by NASA. With regard to OASC, OASC's mission to develop policies to promote U.S. commercial space industry duplicates in large measure the promotional activities of OCST. The Committee requests that the Administration, through the Office of Science and Technology Policy, resolve both of these issues and, by April 1, 1996, submit to the Committee a plan which (a) delineates and clarifies the respective regulatory responsibilities of the three civilian space agencies so that duplication and conflict among their operations are minimized and (b) establishes a policy for cooperation and coordination among those agencies in formulating and implementing U.S. civilian space policy.

TITLE II—LIMITATIONS AND GENERAL PROVISIONS

Section 201.—Space station limitation

This section limits to $2,100,000,000 the total amount authorized to be appropriated for Space Station-related activities in FY 1996. This limitation is consistent with NASA's baseline plan to maintain an annual ceiling of $2.1 billion for Space Station-related activities through the scheduled completion of the Space Station in the year 2002.

Section 202.—Experimental program to stimulate competitive research

This section authorizes $6,900,000 for the Experimental Program to Stimulate Competitive Research (EPSCoR), an increase of $1 million over the budget request. While the program is currently funded out of the Academic Programs account, the Committee intentionally did not specify the funding source for this activity to provide NASA with the flexibility to reprogram moneys from other accounts to support this activity. EPSCoR is one of the genuine success stories in the federal science and technology enterprise. EPSCoR provides critical funding for quality research proposals from institutions in States that have been left out of the mainstream of federally supported research. Through the years, NASA's

EPSCoR program and similar programs at the National Science Foundation and other science agencies have played a central role in ensuring that rural, small-city states are allowed to contribute to the Nation's technological revolution. The funding level reflects the Committee's strong endorsement of this activity.

Section 203.—Special technology enhancement grants

This section authorizes $15,000,000 within the Space Access and Technology account for technology enhancement grants for areas or States that have not fully participated in NASA's space and aeronautics programs in the past. This new program will help expand the technology base in rural areas and, in so doing, strengthen our economy and national security. These technology grants should also complement the highly successful EPSCoR program at NASA, a similar program which concentrates on scientific research.

Section 204.—Clear Lake development facility

This provision was requested by NASA to give the agency authority to acquire a parcel of land, and the Clear Lake Development Facility located thereon, in Clear Lake, Texas, to establish a training facility for the Space Station program. NASA is directed to acquire the real estate for no more than $35 million.

Section 205.—Yellow Creek facility

This provision, requested by NASA, authorizes NASA to convey the Yellow Creek Facility to the State of Mississippi, without reimbursement, and further authorizes NASA to transfer $10 million to the State for transitional activities. The facility, an abandoned nuclear plant that has never been activated, was to be used by NASA for the Advanced Solid Rocket Motor program until the program was cancelled last year by Congress. This provision would help bring this matter to a final conclusion.

Section 206.—Radar remote sensing satellites

This section authorizes $15 million within the Earth Probes account to conduct Phase A and B studies to initiate a new radar satellite program to make use of this advanced technology. The section requires NASA to submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science of the House of Representatives an implementation plan within 90 days of the enactment of the bill. At a time when three other nations operate, or are developing, radar satellite systems, the Committee believes it is in the national interest for NASA to develop an operational radar satellite system for the U.S. The radar satellite program would complement and strengthen the capabilities of our current remote sensing assets and generate benefits for industry, academia, and the government. The Committee requests that this new radar satellite be coordinated with Mission to Planet Earth, any reflights of the Shuttle Imaging Radar-C or similar follow-on spacecraft, and other remote sensing activities at NASA or other government agencies.

Section 207.—Study of the hydrology of the Upper Missouri River Basin

This section authorizes $10 million from the Mission to Planet Earth account to be used for a project to conduct research on the hydrology of the flood-plagued Upper Missouri River Basin. The project will use the enormous volumes of data from Mission to Planet Earth for research to inform public policy decisions relating to the Upper Missouri River Basin. The research will focus on a broad range of subjects, including: the development of better management and investigation of floods and natural disasters, the impact of natural events and water management on the food-producing capabilities of the region, and the development of models for hydrology research and water management policy which can be transferred to other large river basins around the world. The project would be managed by a broad consortium of regional academic, government, and private sector institutions led by the South Dakota School of Mines and Technology, which has a distinguished track record in the area of hydrology research and development.

Section 208.—Shuttle privatization

This section directs NASA to conduct a feasibility study of the major recommendation of its own independent review team (the Kraft commission) that the Shuttle be privatized. The study would look at all the main policy and legal issues that must be resolved before NASA could responsibly proceed toward privatization. Within 60 days of the enactment of the bill, NASA is required to complete the study and submit a report thereon to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science of the House of Representatives. The section also requires that, within 180 days of the bill's enactment, NASA take all necessary and appropriate actions to consolidate current Shuttle operations under one contractor as a transitional step toward privatization. It is the Committee's understanding that a private company would be able to manage and operate the Shuttle for far less than the $3 billion a year the program now costs the taxpayer and that complete privatization, whereby NASA would be reduced to the role of customer, would produce even greater efficiencies and savings.

Section 209.—Use of funds for construction

Subsection (a) authorizes NASA to use funds appropriated for purposes other than for the construction of facilities, research and program management (excluding research operations support), and Inspector General accounts for the construction of new facilities, and additions to, or repair, rehabilitation, or modification of, existing facilities at any location in support of the purposes for which such funds were appropriated. Subsection (b) prohibits the use of funds under subsection (a) for any project whose cost exceeds $750,000, unless the Administrator provides the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science of the House of Representatives with 30 days' notice of the nature, location, and cost of such facilities.

Section 210.—Construction of facilities

This section provides that the amounts appropriated for any construction of facilities project may be increased by (a) up to 10 percent at the discretion of the Administrator, or (b) up to 25 percent to meet unusual cost variations if the Administrator provides the Committee on Commerce, Science, and Transportation of the Senate, and the Committee on Science of the House of Representatives with 30 days' written notice describing the circumstances of such action. The section further provides that no amounts may be obligated until 30 days after a written report describing the nature of the acquisition, construction, conversion, rehabilitation, or installation, its cost, and the reasons for the acquisition is provided to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science of the House of Representatives. Subsection (d) provides that if, pursuant to subsection (a), funds are used for grants to institutions of higher learning or to non-profit institutions for the purchase or construction of additional facilities, title to such facilities would vest in the U.S. unless the Administrator determines that the national program of aeronautical and space activities would be best served by vesting title in the grantee institution.

Section 211.—Availability of appropriated amounts

This section provides that appropriations authorized under the bill will remain available without fiscal year limitation.

Section 212.—Consideration by committees

This section provides that NASA may not use appropriations for any program deleted by Congress from the budget request and that NASA may not use appropriations for a program in excess of the amount authorized (exclusive of construction of facility projects) unless NASA provides 30 days' notice of such action to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science of the House of Representatives. The section is intended to discourage the use of appropriations for requested NASA programs and activities not approved by Congress and spending for projects in excess of the amounts authorized.

Section 213.—Use of funds for scientific consultations or extraordinary expenses

This section authorizes the use of up to $35,000 in Mission Support funds for scientific consultations or extraordinary expenses upon the authority of the Administrator.

Section 214.—Reporting requirements

This section amends the National Aeronautics and Space Act of 1958, as amended, to authorize the annual Aeronautics and Space Report in May rather than January and to submit the report on a fiscal-year, rather than calendar-year, basis. In July 1990, the Office of Management and Budget directed NASA to publish the Aeronautics and Space Report on a fiscal-year basis and on a more timely basis. The reports had been issued on a calendar-year basis and were published about two or three years after the year they covered. Since FY 1990, the reports have been written on a fiscal-

year basis. To conform current law with NASA's actual practice, the bill changes the word "calendar" to "fiscal," and, to provide NASA with sufficient time to prepare the report, changes the word "January" to "May."

Section 215.—Independent research and development

This section indicates that Congress finds it is appropriate for costs contributed by a contractor under a cooperative agreement to be considered as allowable independent research and development costs for the purposes of the federal procurement regulations if the work would have been allowable as independent research and development costs had there been no cooperative agreement. It further directs the Administration to seek a revision in the regulations to reflect the Congressional finding.

Section 216.—Restructuring of the Earth observing system data and information system

The Administrator is prohibited from restructuring the data management portion of Mission to Planet Earth unless, 60 days before undertaking such action, he has provided the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science of the House of Representatives with a written report detailing the nature, reasons, and impact of the action. The Committee is pleased with the baseline plan for Mission to Planet Earth, particularly its data management component, the Earth Observing System Data and Information System (EOSDIS). Through its network of regional Distributed Active Archive Centers (DAACs), EOSDIS will collect and process an unprecedented volume of satellite data and distribute that data to over 100,000 users in business, education, agriculture, and the general public. As the troubled history of the Space Station program shows, nothing is more destructive to a mission of this size and complexity than repeated downscalings and restructurings. Such program changes typically reduce scientific content, increase long-term costs, and produce schedule delays. This section is intended to ensure that NASA honors its commitment to the baseline plan for EOSDIS and does not take unilateral action to restructure, downsize, re-compete, or make fundamental changes in EOSDIS. The Committee cautions NASA that it will not condone any unauthorized plan to restructure EOSDIS or, for that matter, any other major space activity that Congress has already approved. Significant changes to EOSDIS should be made only through the enactment of appropriations or authorization legislation.

TITLE III—COMMERCIAL SPACE LAUNCH ACT AMENDMENTS

Sections 301 through 318.—Reentry vehicles and sites

These sections amend the Commercial Space Launch Act by expressly extending the licensing authority of the Office of Commercial Space Transportation (OCST), which issues licenses for U.S. commercial launches, to cover emerging "reentry" and orbit-to-orbit activities. These statutory changes were requested by OCST to clarify its authority to regulate the reentry of reentry vehicles, the operation of reentry sites, and orbit-to-orbit space transportation.

These specific types of commercial space activities were not contemplated when the Commercial Space Launch Act was enacted.

Section 319.—Space advertising

This section prohibits the Secretary of Transportation from issuing or transferring any license for the launch of a payload containing material to be used for purposes of obtrusive space advertising. The section also requests that the President enter into negotiations with other spacefaring nations for the purpose of reaching an agreement prohibiting obtrusive space advertising. These provisions were in response to indications that private companies might attempt to launch into orbit billboards large enough to be seen from Earth by the unaided eye.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new material is printed in italic, existing law in which no change is proposed is shown in roman):

[Note: Changes in existing law are shown as that law is carried in the United States Code, whether or not a particular title has been enacted into positive law. Changes to tables of sections are not shown.]

TITLE 42. THE PUBLIC HEALTH AND WELFARE

CHAPTER 26. NATIONAL SPACE PROGRAM

GENERAL PROVISIONS

§ 2454. Access to information

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

(b) The Administrator, for a period of up to 5 years after the development of information that results from activities conducted under an agreement entered into under section 203(c) (5) and (6) of this Act, and that would be a trade secret or commercial or financial information that is privileged or confidential under the meaning of section 552(b)(4) of title 5, United States Code, if the information had been obtained from a non-Federal party participating in such an agreement, may provide appropriate protections against the dissemination of such information, including exemption from subchapter II of chapter 5 of title 5, United States Code.

(c)(1) The Administrator may delay, for a period not to exceed 5 years, the unrestricted public disclosure of technical data, related to a competitively sensitive technology, in the possession of, or under the control of, the Administration that has been generated in the

performance of experimental, developmental, or research activities or programs conducted by, or funded in whole or in part by, the Administration, if the technical data has significant value in maintaining leadership or competitiveness, in civil and governmental aeronautical and space activities by the United States industrial base.

(2) The Administrator shall publish biannually in the Federal Register a list of all competitively sensitive technology areas which it believes have a significant value in maintaining the United States leadership or competitiveness in civil and governmental aeronautical and space activities. The list shall be generated after consultation with appropriate Government agencies and a diverse cross section of companies—

(A) that conduct a significant level of research, development, engineering, and manufacturing in the United States; and

(B) the majority ownership or control of which is held by United States citizens.

(3) The Administrator shall provide an opportunity for written objections to the list within a 60-day period after it is published. After the expiration of that 60-day period, and after consideration of all written objections received by the Administrator during that period, NASA shall issue a final list of competitively sensitive technology areas.

(4) For purposes of this subsection, the term "technical data" means any recorded information, including computer software, that is or may be directly applicable to the design, engineering, development, production, manufacture, or operation of products or processes that may have significant value in maintaining leadership or competitiveness in civil and governmental aeronautical and space activities by the United States industrial base.

§ 2476. Reports to the Congress

(a) PRESIDENTIAL REPORT; TRANSMITTAL.—The President shall transmit to the Congress in [January] *May* of each year a report, which shall include (1) a comprehensive description of the programed activities and the accomplishments of all agencies of the United States in the field of aeronautics and space activities during the preceding [calendar] *fiscal* 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 [42 U.S.C. § 2451(c)].

(b) RECOMMENDATIONS FOR ADDITIONAL LEGISLATION.—Any report made under this section shall contain such recommendations for additional legislation as the Administrator or the President may consider necessary or desirable for the attainment of the objectives described in section 102(c) of this Act [42 U.S.C. § 2451(c)].

(c) CLASSIFIED INFORMATION.—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.

§ 70101. Findings and purposes

(a) FINDINGS.—Congress finds that—

(1) the peaceful uses of outer space continue to be of great value and to offer benefits to all mankind;

(2) private applications of space technology have achieved a significant level of commercial and economic activity and offer the potential for growth in the future, particularly in the United States;

(3) new and innovative equipment and services are being sought, produced, and offered by entrepreneurs in telecommunications, information services, *microgravity research,* and remote sensing technologies;

(4) the private sector in the United States has the capability of developing and providing *commercial space transportation services, including in-space transportation activities and* private satellite launching and associated services that would complement the launching and associated services now available from the United States Government;

(5) the development of [commercial launch vehicles] *commercial space transportation including commercial launch vehicles, in-space transportation activities, reentry vehicles,* and associated services would enable the United States to retain its competitive position internationally, contributing to the national interest and economic well-being of the United States;

(6) providing [launch] *launch, in-space transportation, and reentry* services by the private sector is consistent with the national security and foreign policy interests of the United States and would be facilitated by stable, minimal, and appropriate regulatory guidelines that are fairly and expeditiously applied;

(7) the United States should encourage private sector [launches] *launches, in-space transportation activities, reentries* and associated services and, only to the extent necessary, regulate those [launches] *launches, in-space transportation activities, reentries* and services to ensure compliance with international obligations of the United States and to protect the public health and safety, safety of property, and national security and foreign policy interests of the United States;

(8) space transportation, including the establishment and operation of launch [sites and complementary facilities, the providing of launch] *sites, in-space transportation control sites, reentry sites, and complementary facilities, the providing of launch, in-space transportation, and reentry* services, the establishment of support facilities, and the providing of support services, is an important element of the transportation system of the United States, and in connection with the commerce of the United States there is a need to develop a strong space transportation infrastructure with significant private sector involvement; and

(9) the participation of State governments in encouraging and facilitating private sector involvement in space-related ac-

tivity, particularly through the establishment of a space transportation-related infrastructure, including launch sites, *in-space transportation control sites, reentry sites,* complementary facilities, and launch site support facilities, is in the national interest and is of significant public benefit.

(b) PURPOSES.—The purposes of this chapter are—

(1) to promote economic growth and entrepreneurial activity through use of the space environment for peaceful purposes;

(2) to encourage the United States private sector to provide [launch vehicles] *commercial space transportation services, including launch vehicles, in-space transportation activities, reentry vehicles,* and associated services by—

(A) simplifying and expediting the issuance and transfer of commercial launch licenses; and

(B) facilitating and encouraging the use of Government-developed space technology;

(3) to provide that the Secretary of Transportation is to oversee and coordinate the conduct of commercial [launch] *launch, in-space transportation vehicle, and reentry* operations, issue and transfer [commercial launch] licenses authorizing those operations, and protect the public health and safety, safety of property, and national security and foreign policy interests of the United States; and

(4) to facilitate the strengthening and expansion of the United States space transportation infrastructure, including the enhancement of United States launch sites and launch-site support facilities, *in-space transportation vehicle control facilities, and development of reentry sites* with Government, State, and private sector involvement, to support the full range of United States space-related activities.

§ 70102. Definitions

In this chapter—

(1) "citizen of the United States" means—

(A) an individual who is a citizen of the United States;

(B) an entity organized or existing under the laws of the United States or a State; or

(C) an entity organized or existing under the laws of a foreign country if the controlling interest (as defined by the Secretary of Transportation) is held by an individual or entity described in subclause (A) or (B) of this clause.

(2) "executive agency" has the same meaning given that term in section 105 of title 5.

(3) "launch" means to place or try to place a launch vehicle and any payload *from Earth, including a reentry vehicle and its payload, if any*—

(A) in a suborbital trajectory;

(B) in Earth orbit in outer space; or

(C) otherwise in outer space.

(4) "launch property" means an item built for, or used in, the launch preparation or launch of a launch vehicle.

(5) "launch services" means—

(A) activities involved in the preparation of a launch vehicle and payload for launch; and

(B) the conduct of a launch.

(6) "launch site" means the location on Earth from which a launch takes place (as defined in a license the Secretary issues or transfers under this chapter) and necessary facilities.

(7) "launch vehicle" means—

(A) a vehicle built to operate in, or place a payload in, outer space; and

(B) a suborbital rocket.

(8) "payload" means an [object] *object, including a reentry vehicle and its payload, if any,* that a person undertakes to place in outer space by means of a launch vehicle, including components of the vehicle specifically designed or adapted for that object.

(9) "in-space transportation vehicle" means any vehicle designed to operate in space and designed to transport any payload or object substantially intact from one orbit to another orbit.

(10) "in-space transportation services" means—

(A) those activities involved in the direct transportation or attempted transportation of a payload or object from one orbit to another;

(B) the procedures, actions, and activities necessary for conduct of those transportation services; and

(C) the conduct of transportation services.

(11) "in-space transportation control site" means a location from which an in-space transportation vehicle is controlled or operated (as such terms may be defined in any license the Secretary issues or transfers under this chapter).

(12) "obtrusive space advertising" means advertising in outer space that is capable of being recognized by a human being on the surface of the earth without the aid of a telescope or other technological device.

(13) "reenter" and "reentry" mean to return purposefully, or attempt to return, a reentry vehicle and payload, if any, from Earth orbit or outer space to Earth.

(14) "reentry services" means—

(A) activities involved in the preparation of a reentry vehicle and its payload, if any, for reentry; and

(B) the conduct of a reentry.

(15) "reentry site" means the location on Earth to which a reentry vehicle is intended to return (as defined in a license the Secretary issues or transfers under this chapter).

(16) "reentry vehicle" means any vehicle designed to return substantially intact from Earth orbit or outer space to Earth.";

[(9)] *(17)* "person" means an individual and an entity organized or existing under the laws of a State or country.

[(10)] *(18)* "State" means a State of the United States, the District of Columbia, and a territory or possession of the United States.

[(11)] *(19)* "third party" means a person except—

(A) the United States Government or the Government's contractors or subcontractors involved in launch [services] *services, in-space transportation activities, or reentry services;*

(B) a licensee or transferee under this chapter;

(C) a licensee's or transferee's contractors, subcontractors, or customers involved in launch [services] *services, in-space transportation activities, or reentry services; or*

(D) the customer's contractors or subcontractors involved in launch [services] *services, in-space transportation activities, or reentry services.*

[(12)] *(20)* "United States" means the States of the United States, the District of Columbia, and the territories and possessions of the United States.

§ 70103. General authority

(a) GENERAL.—The Secretary of Transportation shall carry out this chapter.

(b) FACILITATING COMMERCIAL [LAUNCHES] *SPACE ACTIVITIES*.—In carrying out this chapter, the Secretary shall—

(1) encourage, facilitate, and promote [commercial space launches] *commercial space transportation services* by the private sector; and

(2) take actions to facilitate private sector involvement in commercial space transportation activity, and to promote public-private partnerships involving the United States Government, State governments, and the private sector to build, expand, modernize, or operate [a space launch] *space transportation* infrastructure.

(c) EXECUTIVE AGENCY ASSISTANCE.—When necessary, the head of an executive agency shall assist the Secretary in carrying out this chapter.

§ 70104. [Restrictions on launches and operations] *Restrictions on launches, in-space transportation activities, operations, and reentries*

(a) LICENSE REQUIREMENT.—A license issued or transferred under this chapter is required for the following:

(1) for a person to launch a launch vehicle or to operate a launch [site] *site, an in-space transportation operations site, reentry site, or reenter a reentry vehicle,* in the United States.

(2) for a citizen of the United States (as defined in section 70102(1)(A) or (B) of this title) to launch a launch vehicle or to operate a launch [site] *site, an in-space transportation operations site, reentry site, or reenter a reentry vehicle,* outside the United States.

(3) for a citizen of the United States (as defined in section 70102(1)(C) of this title) to launch a launch vehicle or to operate a launch [site] *site, an in-space transportation operations site, reentry site, or reenter a reentry vehicle,* outside the United States and outside the territory of a foreign country unless there is an agreement between the United States Government and the government of the foreign country providing that the government of the foreign country has jurisdiction over the [launch or operation.] *launch, in-space transportation activity, or reentry operation.*

(4) for a citizen of the United States (as defined in section 70102(1)(C) of this title) to launch a launch vehicle or to oper-

ate a launch [site] *site, an in-space transportation operations site, reentry site, or reenter a reentry vehicle,* in the territory of a foreign country if there is an agreement between the United States Government and the government of the foreign country providing that the United States Government has jurisdiction over the [launch or operation.] *launch, in-space transportation activity, or reentry operation.*

[(b) COMPLIANCE WITH PAYLOAD REQUIREMENTS.—The holder of a launch license under this chapter may launch a payload only if the payload complies with all requirements of the laws of the United States related to launching a payload.]

(b) COMPLIANCE WITH PAYLOAD REQUIREMENTS.—The holder of a license under this chapter may launch a payload, operate an in-space transportation vehicle, or reenter a payload only if the payload or vehicle complies with all requirements of the laws of the United States related to launching a payload, operating an in-space transportation vehicle, or reentering a payload.

(c) [PREVENTING LAUNCHES.—] *PREVENTING LAUNCHES, IN-SPACE TRANSPORTATION ACTIVITIES, OR REENTRIES.*—The Secretary of Transportation shall establish whether all required licenses, authorizations, and permits required for a payload have been obtained. If no license, authorization, or permit is required, the Secretary may prevent the [launch] *launch, in-space transportation activity, or reentry* if the Secretary decides the [launch] *launch, in-space transportation activity, or reentry* would jeopardize the public health and safety, safety of property, or national security or foreign policy interest of the United States.

§ 70105. License applications and requirements

(a) APPLICATIONS.—A person may apply to the Secretary of Transportation for a license or transfer of a license under this chapter in the form and way the Secretary prescribes. Consistent with the public health and safety, safety of property, and national security and foreign policy interests of the United States, the Secretary, not later than 180 days after receiving an application, shall issue or transfer a license if the Secretary decides in writing that the applicant complies, and will continue to comply, with this chapter and regulations prescribed under this chapter. The Secretary shall inform the applicant of any pending issue and action required to resolve the issue if the Secretary has not made a decision not later than 120 days after receiving an application.

(b) REQUIREMENTS.—

(1) Except as provided in this subsection, all requirements of the laws of the United States applicable to the launch of a launch vehicle or the operation of a launch [site] *site, an in-space transportation control site, or a reentry site or the reentry of a reentry vehicle,* are requirements for a license under this chapter.

(2) The Secretary may prescribe—

(A) any term necessary to ensure compliance with this chapter, including on-site verification that a [launch or operation] *launch, in-space transportation activity, operation, or reentry* complies with representations stated in the application;

(B) an additional requirement necessary to protect the public health and safety, safety of property, national security interests, and foreign policy interests of the United States; and

(C) by regulation that a requirement of a law of the United States not be a requirement for a license if the Secretary, after consulting with the head of the appropriate executive agency, decides that the requirement is not necessary to protect the public health and safety, safety of property, and national security and foreign policy interests of the United States.

(3) The Secretary may waive a requirement for an individual applicant if the Secretary decides that the waiver is in the public interest and will not jeopardize the public health and safety, safety of property, and national security and foreign policy interests of the United States.

(c) PROCEDURES AND TIMETABLES.—The Secretary shall establish procedures and timetables that expedite review of a license application and reduce the regulatory burden for an applicant.

§ 70106. Monitoring activities

(a) GENERAL REQUIREMENTS.—A licensee under this chapter must allow the Secretary of Transportation to place an officer or employee of the United States Government or another individual as an observer at a launch [site] *site, in-space transportation control site, or reentry site* the licensee uses, at a production facility or assembly site a contractor of the licensee uses to produce or assemble a launch [vehicle,] *vehicle, in-space transportation vehicle, or reentry vehicle* or at a site at which a payload is integrated with a launch [vehicle.] *vehicle, in-space transportation vehicle, or reentry vehicle.* The observer will monitor the activity of the licensee or contractor at the time and to the extent the Secretary considers reasonable to ensure compliance with the license or to carry out the duties of the Secretary under section 70104(c) of this title. A licensee must cooperate with an observer carrying out this subsection.

(b) CONTRACTS.—To the extent provided in advance in an appropriation law, the Secretary may make a contract with a person to carry out subsection (a) of this section.

§ 70108. [Prohibition, suspension, and end of launches and operation of launch sites] *Prohibition, suspension, and end of launches, in-space transportation activities, reentries, or operation of launch sites, in-space transportation control sites, or reentry sites*

(a) GENERAL AUTHORITY.—The Secretary of Transportation may prohibit, suspend, or end immediately the launch of a launch vehicle or the operation of a launch [site] *site, in-space transportation control site, in-space transportation activity, or reentry site, or reentry of a reentry vehicle,* licensed under this chapter if the Secretary decides the [launch or operation] *launch, in-space transportation activity, operation, or reentry* is detrimental to the public health and safety, the safety of property, or a national security or foreign policy interest of the United States.

(b) EFFECTIVE PERIODS OF ORDERS.—An order under this section takes effect immediately and remains in effect during a review under section 70110 of this title.

§ 70109. [Preemption of scheduled launches] *Preemption of scheduled launches, in-space transportation activities, or reentries*

(a) GENERAL.—With the cooperation of the Secretary of Defense and the Administrator of the National Aeronautics and Space Administration, the Secretary of Transportation shall act to ensure that a launch *or reentry* of a payload is not preempted from access to a United States Government launch [site] *site, reentry site,* or launch property, *nor shall an in-space transportation activity or operation be preempted,* except for imperative national need, when a launch date commitment *or reentry date commitment* from the Government has been obtained for a launch *or reentry* licensed under this chapter. A licensee or transferee preempted from access to a launch [site] *site, reentry site,* or launch property does not have to pay the Government any amount for launch [services] *services, or services related to a reentry,* attributable only to the scheduled launch *or reentry* prevented by the preemption. *A licensee or transferee preempted from access to a reentry site does not have to pay the Government agency responsible for the preemption any amount for reentry services attributable only to the scheduled reentry prevented by the preemption.*

(b) IMPERATIVE NATIONAL NEED DECISIONS.—In consultation with the Secretary of Transportation, the Secretary of Defense or the Administrator shall decide when an imperative national need requires preemption under subsection (a) of this section. That decision may not be delegated.

(c) REPORTS.—In cooperation with the Secretary of Transportation, the Secretary of Defense or the Administrator, as appropriate, shall submit to Congress not later than 7 days after a decision to preempt under subsection (a) of this section, a report that includes an explanation of the circumstances justifying the decision and a schedule for ensuring the prompt launching *or reentry* of a preempted payload.

§ 70109a. Space advertising

(a) LICENSING.—Notwithstanding the provisions of this chapter or any other provision of law, the Secretary shall not—

(1) issue or transfer a license under this chapter; or

(2) waive the license requirements of this chapter;

for the launch of a payload containing any material to be used for the purposes of obtrusive space advertising.

(b) LAUNCHING.—No holder of a license under this chapter may launch a payload containing any material to be used for purposes of obtrusive space advertising on or after the date of enactment of the National Aeronautics and Space Administration Authorization Act, Fiscal Year 1996.

(c) COMMERCIAL SPACE ADVERTISING.—Nothing in this section shall apply to nonobtrusive commercial space advertising, including advertising on commercial space transportation vehicles, space in-

frastructure, payloads, space launch facilities, and launch support facilities.

§ 70110. Administrative hearings and judicial review

(a) ADMINISTRATIVE HEARINGS.—The Secretary of Transportation shall provide an opportunity for a hearing on the record to—

(1) an applicant under this chapter, for a decision of the Secretary under section 70105(a) of this title to issue or transfer a license with terms or deny the issuance or transfer of a license;

(2) an owner or operator of a payload under this chapter, for a decision of the Secretary under section 70104(c) of this title to prevent the [launch] *launch, in-space transportation activity, or reentry* of the payload; and

(3) a licensee under this chapter, for a decision of the Secretary under—

(A) section 70107 (b) or (c) of this title to modify, suspend, or revoke a license; or

(B) section 70108(a) of this title to prohibit, suspend, or end a launch or operation of a launch [site] *site, in-space transportation control site, in-space transportation activity, reentry site, or reentry of a reentry vehicle,* licensed by the Secretary.

(b) JUDICIAL REVIEW.—A final action of the Secretary under this chapter is subject to judicial review as provided in chapter 7 of title 5.

§ 70111. Acquiring United States Government property and services

(a) GENERAL REQUIREMENTS AND CONSIDERATIONS.—

(1) The Secretary of Transportation shall facilitate and encourage the acquisition by the private sector and State governments of—

(A) launch *or reentry* property of the United States Government that is excess or otherwise is not needed for public use; and

(B) launch services, *in-space transportation activities, or reentry services,* including utilities, of the Government otherwise not needed for public use.

(2) In acting under paragraph (1) of this subsection, the Secretary shall consider the commercial availability on reasonable terms of substantially equivalent launch *or reentry* property or launch [services] *services, in-space transportation activities, or reentry services,* from a domestic source.

(b) PRICE.—

(1) In this subsection, "direct costs" means the actual costs that—

(A) can be associated unambiguously with a commercial [launch] *launch, in-space transportation activity, or reentry* effort; and

(B) the Government would not incur if there were no commercial [launch] *launch, in-space transportation activity, or reentry* effort.

(2) In consultation with the Secretary, the head of the executive agency providing the property or service under subsection (a) of this section shall establish the price for the property or service. The price for—

(A) acquiring launch property by sale or transaction instead of sale is the fair market value;

(B) acquiring launch property (except by sale or transaction instead of sale) is an amount equal to the direct costs, including specific wear and tear and property damage, the Government incurred because of acquisition of the property; and

(C) launch [services] *services, in-space transportation activities or services, or reentry services* is an amount equal to the direct costs, including the basic pay of Government civilian and contractor personnel, the Government incurred because of acquisition of the services.

(c) COLLECTION BY SECRETARY.—The Secretary may collect a payment under this section with the consent of the head of the executive agency establishing the price. Amounts collected under this subsection shall be deposited in the Treasury. Amounts (except for excess launch property) shall be credited to the appropriation from which the cost of providing the property or services was paid.

[(d) COLLECTION BY OTHER GOVERNMENTAL HEADS.—The head of a department, agency, or instrumentality of the Government may collect a payment for an activity involved in producing a launch vehicle or its payload for launch if the activity was agreed to by the owner or manufacturer of the launch vehicle or payload.]

(d) COLLECTION BY OTHER GOVERNMENTAL HEADS.—The head of a department, agency, or instrumentality of the Government may collect a payment for any activity involved in producing a launch vehicle, in-space transportation vehicle, or reentry vehicle or its payload for launch, in-space transportation activity, or reentry if the activity was agreed to by the owner or manufacturer of the launch vehicle, in-space transportation vehicle, reentry vehicle, or payload.

§ 70112. Liability insurance and financial responsibility requirements

(a) GENERAL REQUIREMENTS.—

(1) When a license is issued or transferred under this chapter, the licensee or transferee shall obtain liability insurance or demonstrate financial responsibility in amounts to compensate for the maximum probable loss from claims by—

(A) a third party for death, bodily injury, or property damage or loss resulting from an activity carried out under the license; and

(B) the United States Government against a person for damage or loss to Government property resulting from an activity carried out under the license.

(2) The Secretary of Transportation shall determine the amounts required under paragraph (1)(A) and (B) of this subsection, after consulting with the Administrator of the National Aeronautics and Space Administration, the Secretary of the Air Force, and the heads of other appropriate executive agencies.

(3) For the total claims related to one [launch,] *launch or reentry, or to the operations of each in-space transportation vehicle,* a licensee or transferee is not required to obtain insurance or demonstrate financial responsibility of more than—

(A) (i) $ 500,000,000 under paragraph (1)(A) of this subsection; or

(ii) $ 100,000,000 under paragraph (1)(B) of this subsection; or

(B) the maximum liability insurance available on the world market at reasonable cost if the amount is less than the applicable amount in clause (A) of this paragraph.

(4) An insurance policy or demonstration of financial responsibility under this subsection shall protect the following, to the extent of their potential liability for involvement in launch [services,] *services, in-space transportation activities, or reentry services* at no cost to the Government:

(A) the Government.

(B) executive agencies and personnel, contractors, and subcontractors of the Government.

(C) contractors, subcontractors, and customers of the licensee or transferee.

(D) contractors and subcontractors of the customer.

(b) RECIPROCAL WAIVER OF CLAIMS.—

(1) A license issued or transferred under this chapter shall contain a provision requiring the licensee or transferee to make a reciprocal waiver of claims with its contractors, subcontractors, and customers, and contractors and subcontractors of the customers, involved in launch [services] *services, in-space transportation activities, or reentry services* under which each party to the waiver agrees to be responsible for property damage or loss it sustains, or for personal injury to, death of, or property damage or loss sustained by its own employees resulting from an activity carried out under the *applicable* license.

(2) The Secretary of Transportation shall make, for the Government, executive agencies of the Government involved in launch [services,] *services, in-space transportation activities, or reentry services* and contractors and subcontractors involved in launch [services,] *services, in-space transportation activities, or reentry services* a reciprocal waiver of claims with the licensee or transferee, contractors, subcontractors, and customers of the licensee or transferee, and contractors and subcontractors of the customers, involved in launch [services] *services, in-space transportation activities, or reentry services* under which each party to the waiver agrees to be responsible for property damage or loss it sustains, or for personal injury to, death of, or property damage or loss sustained by its own employees resulting from an activity carried out under the *applicable* license. The waiver applies only to the extent that claims are more than the amount of insurance or demonstration of financial responsibility required under subsection (a)(1)(B) of this section. After consulting with the Administrator and the Secretary of the Air Force, the Secretary of Transportation may waive, for the Government and a department, agency, and instrumentality of the Government, the right to recover damages for dam-

age or loss to Government property to the extent insurance is not available because of a policy exclusion the Secretary of Transportation decides is usual for the type of insurance involved.

(c) DETERMINATION OF MAXIMUM PROBABLE LOSSES.—The Secretary of Transportation shall determine the maximum probable losses under subsection (a)(1)(A) and (B) of this section associated with an activity under a license not later than 90 days after a licensee or transferee requires a determination and submits all information the Secretary requires. The Secretary shall amend the determination as warranted by new information.

(d) ANNUAL REPORT.—

(1) Not later than November 15 of each year, the Secretary of Transportation shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on [Science, Space, and Technology] *Science* of the House of Representatives a report on current determinations made under subsection (c) of this section related to all issued licenses and the reasons for the determinations.

(2) Not later than May 15 of each year, the Secretary of Transportation shall review the amounts specified in subsection (a)(3)(A) of this section and submit a report to Congress that contains proposed adjustments in the amounts to conform with changed liability expectations and availability of insurance on the world market. The proposed adjustment takes effect 30 days after a report is submitted.

(e) [LAUNCHES] *LAUNCHES, IN-SPACE TRANSPORTATION ACTIVITIES, OR REENTRIES* INVOLVING GOVERNMENT FACILITIES AND PERSONNEL.—The Secretary of Transportation shall establish requirements consistent with this chapter for proof of financial responsibility and other assurances necessary to protect the Government and its executive agencies and personnel from liability, death, bodily injury, or property damage or loss as a result of a launch or operation of a launch [site] *site, in-space transportation control site, or control or an in-space transportation vehicle or activity, or reentry site or a reentry* involving a facility or personnel of the Government. The Secretary may not relieve the Government of liability under this subsection for death, bodily injury, or property damage or loss resulting from the willful misconduct of the Government or its agents.

(f) COLLECTION AND CREDITING PAYMENTS.—The head of a department, agency, or instrumentality of the Government shall collect a payment owed for damage or loss to Government property under its jurisdiction or control resulting from an activity carried out under a license issued or transferred under this chapter. The payment shall be credited to the current applicable appropriation, fund, or account of the department, agency, or instrumentality.

§ 70113. Paying claims exceeding liability insurance and financial responsibility requirements

(a) GENERAL REQUIREMENTS.—

(1) To the extent provided in advance in an appropriation law or to the extent additional legislative authority is enacted providing for paying claims in a compensation plan submitted

under subsection (d) of this section, the Secretary of Transportation shall provide for the payment by the United States Government of a successful claim (including reasonable litigation or settlement expenses) of a third party against a licensee or transferee under this chapter, a contractor, subcontractor, or customer of the licensee or transferee, or a contractor or subcontractor of a customer, resulting from an activity carried out under the license issued or transferred under this chapter for death, bodily injury, or property damage or loss resulting from an activity carried out under the license. However, claims may be paid under this section only to the extent the total amount of successful claims related to one [launch—] *launch, operation of one in-space transportation vehicle, or one reentry—*

(A) is more than the amount of insurance or demonstration of financial responsibility required under section 70112(a)(1)(A) of this title; and

(B) is not more than $1,500,000,000 (plus additional amounts necessary to reflect inflation occurring after January 1, 1989) above that insurance or financial responsibility amount.

(2) The Secretary may not provide for paying a part of a claim for which death, bodily injury, or property damage or loss results from willful misconduct by the licensee or transferee. To the extent insurance required under section 70112(a)(1)(A) of this title is not available to cover a successful third party liability claim because of an insurance policy exclusion the Secretary decides is usual for the type of insurance involved, the Secretary may provide for paying the excluded claims without regard to the limitation contained in section 70112(a)(1).

(b) NOTICE, PARTICIPATION, AND APPROVAL.—Before a payment under subsection (a) of this section is made—

(1) notice must be given to the Government of a claim, or a civil action related to the claim, against a party described in subsection (a)(1) of this section for death, bodily injury, or property damage or loss;

(2) the Government must be given an opportunity to participate or assist in the defense of the claim or action; and

(3) the Secretary must approve any part of a settlement to be paid out of appropriations of the Government.

(c) WITHHOLDING PAYMENTS.—The Secretary may withhold a payment under subsection (a) of this section if the Secretary certifies that the amount is not reasonable. However, the Secretary shall deem to be reasonable the amount of a claim finally decided by a court of competent jurisdiction.

(d) SURVEYS, REPORTS, AND COMPENSATION PLANS.—

(1) If as a result of an activity carried out under a license issued or transferred under this chapter the total of claims related to one launch is likely to be more than the amount of required insurance or demonstration of financial responsibility, the Secretary shall—

(A) survey the causes and extent of damage; and

(B) submit expeditiously to Congress a report on the results of the survey.

(2) Not later than 90 days after a court determination indicates that the liability for the total of claims related to one launch may be more than the required amount of insurance or demonstration of financial responsibility, the President, on the recommendation of the Secretary, shall submit to Congress a compensation plan that—

(A) outlines the total dollar value of the claims;

(B) recommends sources of amounts to pay for the claims;

(C) includes legislative language required to carry out the plan if additional legislative authority is required; and

(D) for a single event or incident, may not be for more than $1,500,000,000.

(3) A compensation plan submitted to Congress under paragraph (2) of this subsection shall—

(A) have an identification number; and

(B) be submitted to the Senate and the House of Representatives on the same day and when the Senate and House are in session.

(e) CONGRESSIONAL RESOLUTIONS.—

(1) In this subsection, ''resolution''—

(A) means a joint resolution of Congress the matter after the resolving clause of which is as follows: ''That the Congress approves the compensation plan numbered ———— submitted to the Congress on —— —, 19—.'', with the blank spaces being filled appropriately; but

(B) does not include a resolution that includes more than one compensation plan.

(2) The Senate shall consider under this subsection a compensation plan requiring additional appropriations or legislative authority not later than 60 calendar days of continuous session of Congress after the date on which the plan is submitted to Congress.

(3) A resolution introduced in the Senate shall be referred immediately to a committee by the President of the Senate. All resolutions related to the same plan shall be referred to the same committee.

(4)(A) If the committee of the Senate to which a resolution has been referred does not report the resolution within 20 calendar days after it is referred, a motion is in order to discharge the committee from further consideration of the resolution or to discharge the committee from further consideration of the plan.

(B) A motion to discharge may be made only by an individual favoring the resolution and is highly privileged (except that the motion may not be made after the committee has reported a resolution on the plan). Debate on the motion is limited to one hour, to be divided equally between those favoring and those opposing the resolution. An amendment to the motion is not in order. A motion to reconsider the vote by which the motion is agreed to or disagreed to is not in order.

(C) If the motion to discharge is agreed to or disagreed to, the motion may not be renewed and another motion to dis-

charge the committee from another resolution on the same plan may not be made.

(5)(A) After a committee of the Senate reports, or is discharged from further consideration of, a resolution, a motion to proceed to the consideration of the resolution is in order at any time, even though a similar previous motion has been disagreed to. The motion is highly privileged and is not debatable. An amendment to the motion is not in order. A motion to reconsider the vote by which the motion is agreed to or disagreed to is not in order.

(B) Debate on the resolution referred to in subparagraph (A) of this paragraph is limited to not more than 10 hours, to be divided equally between those favoring and those opposing the resolution. A motion further to limit debate is not debatable. An amendment to, or motion to recommit, the resolution is not in order. A motion to reconsider the vote by which the resolution is agreed to or disagreed to is not in order.

(6) The following shall be decided in the Senate without debate:

(A) a motion to postpone related to the discharge from committee.

(B) a motion to postpone consideration of a resolution.

(C) a motion to proceed to the consideration of other business.

(D) an appeal from a decision of the chair related to the application of the rules of the Senate to the procedures related to resolution.

(f) APPLICATION.—This section applies to a license issued or transferred under this chapter for which the Secretary receives a complete and valid application not later than December 31, 1999.

§ 70115. Enforcement and penalty

(a) PROHIBITIONS.—A person may not violate this chapter, a regulation prescribed under this chapter, or any term of a license issued or transferred under this chapter.

(b) GENERAL AUTHORITY.—

(1) In carrying out this chapter, the Secretary of Transportation may—

(A) conduct investigations and inquiries;

(B) administer oaths;

(C) take affidavits; and

(D) under lawful process—

(i) enter at a reasonable time a launch site, *in-space transportation control site, or reentry site,* production facility, assembly site of a launch **[**vehicle,**]** *vehicle, in-space transportation vehicle, or reentry vehicle* or site at which a payload is integrated with a launch **[**vehicle**]** *vehicle, in-space transportation vehicle, or reentry vehicle* to inspect an object to which this chapter applies or a record or report the Secretary requires be made or kept under this chapter; and

(ii) seize the object, record, or report when there is probable cause to believe the object, record, or report

was used, is being used, or likely will be used in violation of this chapter.

(2) The Secretary may delegate a duty or power under this chapter related to enforcement to an officer or employee of another executive agency with the consent of the head of the agency.

(c) CIVIL PENALTY.—

(1) After notice and an opportunity for a hearing on the record, a person the Secretary finds to have violated subsection (a) of this section is liable to the United States Government for a civil penalty of not more than $ 100,000. A separate violation occurs for each day the violation continues.

(2) In conducting a hearing under paragraph (1) of this subsection, the Secretary may—

(A) subpoena witnesses and records; and

(B) enforce a subpoena in an appropriate district court of the United States.

(3) The Secretary shall impose the civil penalty by written notice. The Secretary may compromise or remit a penalty imposed, or that may be imposed, under this section.

(4) The Secretary shall recover a civil penalty not paid after the penalty is final or after a court enters a final judgment for the Secretary.

§ 70117. Relationship to other executive agencies, laws, and international obligations

(a) EXECUTIVE AGENCIES.—Except as provided in this chapter, a person is not required to obtain from an executive agency a license, approval, waiver, or exemption to launch a launch vehicle or operate a launch [site.] *site, perform in-space transportation activities or operate an in-space transportation control site or reentry site, or reenter a reentry vehicle.*

(b) FEDERAL COMMUNICATIONS COMMISSION AND SECRETARY OF COMMERCE.—This chapter does not affect the authority of—

(1) the Federal Communications Commission under the Communications Act of 1934 (47 U.S.C. 151 et seq.); or

(2) the Secretary of Commerce under the Land Remote-Sensing Commercialization Act of 1984 (15 U.S.C. 4201 et seq.).

(c) STATES AND POLITICAL SUBDIVISIONS.—A State or political subdivision of a State—

(1) may not adopt or have in effect a law, regulation, standard, or order inconsistent with this chapter; but

(2) may adopt or have in effect a law, regulation, standard, or order consistent with this chapter that is in addition to or more stringent than a requirement of, or regulation prescribed under, this chapter.

(d) CONSULTATION.—The Secretary of Transportation is encouraged to consult with a State to simplify and expedite the approval of a space [launch] *launch, perform an in-space transportation activity, or reentry* activity.

(e) FOREIGN COUNTRIES.—The Secretary of Transportation shall—

(1) carry out this chapter consistent with an obligation the United States Government assumes in a treaty, convention, or

agreement in force between the Government and the government of a foreign country; and

(2) consider applicable laws and requirements of a foreign country when carrying out this chapter.

[(f) LAUNCH NOT AN EXPORT.—A launch vehicle or payload that is launched is not, because of the launch, an export for purposes of a law controlling exports.

[(g) NONAPPLICATION.—This chapter does not apply to—

[(1) a launch, operation of a launch vehicle or launch site, or other space activity the Government carries out for the Government; or

[(2) planning or policies related to the launch, operation, or activity.]

(f) LAUNCH NOT AN EXPORT OR IMPORT.—A launch vehicle, reentry vehicle, or payload that is launched or reentered is not, because of the launch or reentry, an export or import for purposes of a law controlling exports or imports.

(g) NONAPPLICATION.—This chapter does not apply to—

(1) a launch, in-space transportation activity, reentry, operation of a launch vehicle, in-space transportation vehicle, or reentry vehicle, or of a launch site, in-space transportation control site, or reentry site, or other space activity the Government carries out for the Government; or

(2) planning or policies related to the launch, in-space transportation activity, reentry, or operation.

§ 70120. Report to Congress

The Secretary of Transportation shall submit to Congress an annual report to accompany the President's budget request that—

(1) describes all activities undertaken under this chapter, including a description of the process for the application for and approval of licenses under this chapter and recommendations for legislation that may further commercial launches and reentries; and

(2) reviews the performance of the regulatory activities and the effectiveness of the Office of Commercial Space Transportation.

○