AMENDMENT TO H.R. 4412

OFFERED BY MS. EDWARDS OF MARYLAND AND MR. PALAZZO OF MISSISSIPPI

Page 14, line 2, strike ''is to enable'' and insert '', including an upper stage needed to go beyond low-Earth orbit, is to safely carry a total payload to enable''.

Page 18, lines 8 through 10, strike ''to begin not later'' and all that follows through ''under paragraph (1)'' and insert ''to begin as soon as practicable after the development of the upper stage has been initiated''.

Page 21, line 20, through page 26, line 14, redesignate subsections (a) through (f) as subsections (b) through (g), respectively.

Page 21, after line 19, insert the following new subsection:

(a) FINDINGS.—Congress finds the following:

(1) The International Space Station is an ideal testbed for future exploration systems development, including long-duration space travel.

(2) The use of the private market to provide cargo and crew transportation services is currently the most expeditious process to restore domestic ac-

cess to the International Space Station and low-Earth orbit.

(3) Government access to low-Earth orbit is paramount to the continued success of the International Space Station and National Laboratory.

Page 30, line 20, redesignate section 212 as section 215 (and conform the table of contents accordingly).

Page 30, after line 19, insert the following new sections (and conform the table of contents accordingly):

SEC. 212. BARRIERS IMPEDING ENHANCED UTILIZATION OF THE ISS'S NATIONAL LABORATORY BY COMMERCIAL COMPANIES.

(a) SENSE OF CONGRESS.—It is the sense of Congress that—

(1) enhanced utilization of the International Space Station's National Laboratory requires a full understanding of the barriers impeding such utilization and actions needed to be taken to remove or mitigate them to the maximum extent practicable; and

(2) doing so will allow the Administration to encourage commercial companies to invest in microgravity research using National Laboratory research facilities.

(b) ASSESSMENT.—The Administrator shall enter into an arrangement with the National Academies for an assessment to—

(1) identify barriers impeding enhanced utilization of the International Space Station's National Laboratory;

(2) recommend ways to encourage commercial companies to make greater use of the International Space Station's National Laboratory, including corporate investment in microgravity research; and

(3) identify any legislative changes that may be required.

(c) TRANSMITTAL.—Not later than one year after the date of enactment of this Act, the Administrator shall transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate the results of the assessment described in subsection (b).

SEC. 213. UTILIZATION OF INTERNATIONAL SPACE STATION FOR SCIENCE MISSIONS.

The Administrator shall utilize the International Space Station for Science Mission Directorate missions in low-Earth orbit wherever it is practical and cost effective to do so.

SEC. 214. INTERNATIONAL SPACE STATION CARGO RESUPPLY SERVICES LESSONS LEARNED.

Not later than 120 days after the date of enactment of this Act, the Administrator shall transmit a report to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate that—

(1) identifies the lessons learned to date from the Commercial Resupply Services contract;

(2) indicates whether changes are needed to the manner in which the Administration procures and manages similar services upon the expiration of the existing Commercial Resupply Services contract; and

(3) identifies any lessons learned from the Commercial Resupply Services contract that should be applied to the procurement and management of commercially provided crew transfer services to and from the International Space Station.

Page 35, after line 20, insert the following new section (and conform the table of contents accordingly):

SEC. 216. SPACE COMMUNICATIONS.

(a) PLAN.—The Administrator shall develop a plan, in consultation with relevant Federal agencies, for updating the Administration's space communications and navigation architecture for low-Earth orbital and deep space

operations so that it is capable of meeting the Administration's communications needs over the next 20 years. The plan shall include lifecycle cost estimates, milestones, estimated performance capabilities, and 5-year funding profiles. The plan shall also include an estimate of the amounts of any reimbursements the Administration is likely to receive from other Federal agencies during the expected life of the upgrades described in the plan. At a minimum, the plan shall include a description of the following:

(1) Steps to sustain the existing space communications and navigation network and infrastructure and priorities for how resources will be applied and cost estimates for the maintenance of existing space communications network capabilities.

(2) Upgrades needed to support space communications and navigation network and infrastructure requirements, including cost estimates and schedules and an assessment of the impact on missions if resources are not secured at the level needed.

(3) Projected space communications and navigation network requirements for the next 20 years, including those in support of human space exploration missions.

(4) Projected Tracking and Data Relay Satellite System requirements for the next 20 years, including those in support of other relevant Federal agencies, and cost and schedule estimates to maintain and upgrade the Tracking and Data Relay Satellite System to meet projected requirements.

(5) Steps the Administration is taking to meet future space communications requirements after all Tracking and Data Relay Satellite System third-generation communications satellites are operational.

(6) Steps the Administration is taking to mitigate threats to electromagnetic spectrum use.

(b) SCHEDULE.—The Administrator shall transmit the plan developed under this section to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than 1 year after the date of enactment of this Act.

Page 40, after line 5, insert the following new sections (and conform the table of contents accordingly):

SEC. 304. UNIVERSITY CLASS SCIENCE MISSIONS.

(a) SENSE OF CONGRESS.—It is the sense of Congress that principal investigator-led small orbital science missions, including CubeSat class, University Explorer (UNEX) class, Small Explorer (SMEX) class, and Ven-

ture class, offer valuable opportunities to advance science at low cost, train the next generation of scientists and engineers, and enable participants in the program to acquire skills in systems engineering and systems integration that are critical to maintaining the Nation's leadership in space and to enhancing the United States innovation and competitiveness abroad.

(b) REVIEW OF PRINCIPAL INVESTIGATOR-LED SMALL ORBITAL SCIENCE MISSIONS.—The Administrator shall conduct a review of the science missions described in subsection (a). The review shall include—

(1) the status, capability, and availability of existing small orbital science mission programs and the extent to which each program enables the participation of university scientists and students;

(2) the opportunities such mission programs provide for scientific research;

(3) the opportunities such mission programs provide for training and education, including scientific and engineering workforce development, including for the Administration's scientific and engineering workforce; and

(4) the extent to which commercial applications such as hosted payloads, free flyers, and data buys could provide measurable benefits for such mission

programs, while preserving the principle of independent peer review as the basis for mission selection.

(c) REPORT.—Not later than 270 days after the date of enactment of this Act, the Administrator shall transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on the review required under subsection (b) and on recommendations to enhance principal investigator-led small orbital science missions conducted by the Administration in accordance with the results of the review required by subsection (b).

SEC. 305. ASSESSMENT OF SCIENCE MISSION EXTENSIONS.

Section 30504 of title 51, United States Code, is amended to read as follows:

"§ 30504. Assessment of science mission extensions

''(a) ASSESSMENT.—The Administrator shall carry out biennial reviews within each of the Science divisions to assess the cost and benefits of extending the date of the termination of data collection for those missions that exceed their planned missions' lifetime. The assessment shall take into consideration how extending missions impacts the start of future missions.

''(b) CONSULTATION AND CONSIDERATION OF POTENTIAL BENEFITS OF INSTRUMENTS ON MISSIONS.—When deciding whether to extend a mission that has an operational component, the Administrator shall consult with any affected Federal agency and shall take into account the potential benefits of instruments on missions that are beyond their planned mission lifetime.

''(c) REPORT.—The Administrator shall transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, at the same time as the submission to Congress of the Administration's annual budget request for each fiscal year, a report detailing any assessment required by subsection (a) that was carried out during the previous year.''.

Page 43, after line 17, insert the following new sections (and conform the table of contents accordingly):

SEC. 315. WIDE-FIELD INFRARED SURVEY TELESCOPE.

(a) SENSE OF CONGRESS.—It is the sense of Congress that the Administrator, to the extent practicable, should make progress on the technologies and capabilities needed to position the Administration to meet the objectives of the Wide-Field Infrared Survey Telescope mission, as outlined in the 2010 National Academies' astronomy and astrophysics decadal survey, in a way that maximizes

the scientific productivity of meeting those objectives for the resources invested. It is further the sense of Congress that the Wide-Field Infrared Survey Telescope mission has the potential to enable scientific discoveries that will transform our understanding of the universe.

(b) CONTINUITY OF DEVELOPMENT.—The Administrator shall ensure that the concept definition and preformulation activities of a Wide-Field Infrared Survey Telescope mission continue while the James Webb Space Telescope is being completed.

SEC. 316. STRATOSPHERIC OBSERVATORY FOR INFRARED ASTRONOMY.

The Administrator shall not use any funding appropriated to the Administration for fiscal year 2014 for the shutdown of the Stratospheric Observatory for Infrared Astronomy or for the preparation therefor.

Page 44, line 6, strike ''starting with'' and insert ''including''.

Page 48, after line 18, insert the following new section (and redesignate succeeding sections and conform the table of contents accordingly):

SEC. 324. RESEARCH ON NEAR-EARTH OBJECT TSUNAMI EFFECTS.

(a) REPORT ON POTENTIAL TSUNAMI EFFECTS FROM NEAR-EARTH OBJECT IMPACT.—The Administrator, in collaboration with the Administrator of the National Oceanic and Atmospheric Administration and other relevant agencies, shall prepare a report identifying and describing existing research activities and further research objectives that would increase our understanding of the nature of the effects of potential tsunamis that could occur if a near-Earth object were to impact an ocean of Earth.

(b) TRANSMITTAL.—Not later than 180 days after the date of enactment of this Act, the Administrator shall transmit the report required and prepared under subsection (a) to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

Page 51, after line 5, insert the following new section (and conform the table of contents accordingly):

SEC. 332. REVIEW OF SPACE WEATHER.

(a) REVIEW.—The Director of the Office of Science and Technology Policy, in consultation with the Administrator, the Administrator of the National Oceanic and Atmospheric Administration, the Director of the National Science Foundation, and heads of other relevant Federal

agencies, shall enter into an arrangement with the National Academies to provide a comprehensive study that reviews current and planned ground-based and space-based space weather monitoring requirements and capabilities, identifies gaps, and identifies options for a robust and resilient capability. The study shall inform the process of identifying national needs for future space weather monitoring, forecasts, and mitigation. The National Academies shall give consideration to international and private sector efforts and collaboration that could potentially contribute to national space weather needs. The study shall also review the current state of research capabilities in observing, modeling, and prediction and provide recommendations to ensure future advancement of predictive capability.

(b) REPORT TO CONGRESS.—Not later than 14 months after the date of enactment of this Act, the National Academies shall transmit a report containing the results of the study provided under subsection (a) to the Director of the Office of Science and Technology Policy, and to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

Page 51, lines 6 through 20, amend subtitle E to read as follows:

Subtitle E—Earth Science

SEC. 341. GOAL.

(a) SENSE OF CONGRESS.—It is the sense of Congress that the Administration is being asked to undertake important Earth science activities in an environment of increasingly constrained fiscal resources, and that any transfer of additional responsibilities to the Administration, such as climate instrument development and measurements that are currently part of the portfolio of the National Oceanic and Atmospheric Administration, should be accompanied by the provision of additional resources to allow the Administration to carry out the increased responsibilities without adversely impacting its implementation of its existing Earth science programs and priorities.

(b) GENERAL.—The Administrator shall continue to carry out a balanced Earth science program that includes Earth science research, Earth systematic missions, competitive Venture class missions, other missions and data analysis, mission operations, technology development, and applied sciences, consistent with the recommendations and priorities established in the National Academies' Earth Science Decadal Survey.

(c) COLLABORATION.—The Administrator shall collaborate with other Federal agencies, including the National Oceanic and Atmospheric Administration, non-gov-

ernment entities, and international partners, as appropriate, in carrying out the Administration's Earth science program. The Administration shall continue to develop first-of-a-kind instruments that, once proved, can be transitioned to other agencies for operations.

(d) REIMBURSEMENT.—Whenever responsibilities for the development of sensors or for measurements are transferred to the Administration from another agency, the Administration shall seek, to the extent possible, to be reimbursed for the assumption of such responsibilities.

SEC. 342. DECADAL CADENCE.

In carrying out section 341(b), the Administrator shall seek to ensure to the extent practicable a steady cadence of large, medium, and small Earth science missions.

SEC. 343. VENTURE CLASS MISSIONS.

It is the sense of Congress that the Administration's Venture class missions provide opportunities for innovation in the Earth science program, offer low-cost approaches for high-quality competitive science investigations, enable frequent flight opportunities to engage the Earth science and applications community, and serve as a training ground for students and young scientists. It is further the sense of Congress that the Administration should seek to increase the number of Venture class

projects to the extent practicable as part of a balanced Earth science program.

SEC. 344. ASSESSMENT.

The Administrator shall carry out a scientific assessment of the Administration's Earth science global datasets for the purpose of identifying those datasets that are useful for understanding regional changes and variability, and for informing applied science research. The Administrator shall complete and transmit the assessment to the Committee on Science, Space, and Technology in the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than 180 days after the date of enactment of this Act.

Page 66, line 1, through page 92, line 22, redesignate title VI as title VII, redesignate the sections therein accordingly (and conform the table of contents accordingly).

Page 65, after line 25, insert the following new title:

TITLE VI—EDUCATION

SEC. 601. EDUCATION.

(a) SENSE OF CONGRESS.—It is the sense of Congress that—

(1) the Administration's missions are an inspiration for Americans and in particular for the next

generation, and that this inspiration has a powerful effect in stimulating interest in science, technology, engineering, and mathematics (in this section referred to as ''STEM'') education and careers;

(2) the Administration's Office of Education and mission directorates have been effective in delivering Administration educational content because of the strong engagement of Administration scientists and engineers in the Administration's education and outreach activities; and

(3) the Administration should be a central partner in contributing to the goals of the National Science and Technology Council's Federal Science, Technology, Engineering, and Mathematics (STEM) Education 5-Year Strategic Plan.

(b) IN GENERAL.—The Administration shall continue its education and outreach efforts to—

(1) increase student interest and participation in STEM education;

(2) improve public literacy in STEM;

(3) employ proven strategies for improving student learning and teaching;

(4) provide curriculum support materials; and

(5) create and support opportunities for professional development for STEM teachers.

(c) ORGANIZATION.—In order to ensure the inspiration and engagement of children and the general public, the Administration shall continue its STEM education and outreach activities within the Science, Aeronautics Research, Space Operations, and Exploration Mission Directorates.

(d) CONTINUATION OF EDUCATION AND OUTREACH ACTIVITIES AND PROGRAMS.—The Administrator shall continue to carry out education and outreach programs and activities through the Office of Education and the Administration mission directorates and shall continue to engage, to the maximum extent practicable, Administration and Administration-supported researchers and engineers in carrying out those programs and activities.

(e) CONTINUATION OF SPACE GRANT PROGRAM.—The Administrator shall continue to operate the National Space Grant College and Fellowship program through a national network consisting of a State-based consortium in each State that provides flexibility to the States, with the objective of providing hands-on research, training, and education programs, with measurable outcomes, to enhance America's STEM education and workforce.

(f) REAFFIRMATION OF POLICY.—Congress reaffirms its commitment to informal science education at science centers and planetariums as set forth in section 616 of

the National Aeronautics and Space Administration Authorization Act of 2005 (51 U.S.C. 40907).

SEC. 602. INDEPENDENT REVIEW OF THE NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM.

(a) SENSE OF CONGRESS.—It is the sense of Congress that the National Space Grant College and Fellowship Program, which was established in the National Aeronautics and Space Administration Authorization Act of 1988 (42 U.S.C. 2486 et seq.), has been an important program by which the Federal Government has partnered with State and local governments, universities, private industry, and other organizations to enhance the understanding and use of space and aeronautics activities and their benefits through education, fostering of interdisciplinary and multidisciplinary space research and training, and supporting Federal funding for graduate fellowships in space-related fields, among other purposes.

(b) REVIEW.—The Administrator shall enter into an arrangement with the National Academies for—

(1) a review of the National Space Grant College and Fellowship Program, including its structure and capabilities for supporting science, technology, engineering, and mathematics education and training consistent with the National Science and Tech-

nology Council's Federal Science, Technology, Engineering, and Mathematics (STEM) Education 5-Year Strategic Plan; and

(2) recommendations on measures, if needed, to enhance the Program's effectiveness and mechanisms by which any increases in funding appropriated by Congress can be applied.

(c) NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM AMENDMENTS.—

(1) PURPOSES.—Section 40301 of title 51, United States Code, is amended—

(A) by striking ''and'' at the end of paragraph (5);

(B) by striking the period at the end of paragraph (6) and inserting ''; and''; and

(C) by adding at the end the following new paragraph:

''(7) support outreach to primary and secondary schools to help support STEM engagement and learning at the K-12 level and to encourage K-12 students to pursue postsecondary degrees in fields related to space.''.

(2) REGIONAL CONSORTIUM.—Section 40306 of title 51, United States Code, is amended—

(A) in subsection (a)—

(i) by redesignating paragraphs (2) and (3) as paragraphs (3) and (4), respectively; and

(ii) by inserting after paragraph (1) the following new paragraph:

''(2) INCLUSION OF 2-YEAR INSTITUTIONS.—A space grant regional consortium designated in paragraph (1)(B) may include one or more 2-year institutions of higher education.''; and

(B) in subsection (b)(1), by striking ''paragraphs (2)(C) and (3)(D)'' and inserting ''paragraphs (3)(C) and (4)(D)''.

Page 71, line 7, strike ''12 months'' and insert ''120 days''.

Page 76, strike lines 14 through 20, and insert the following:

(a) STUDY.—The Administrator shall enter into an arrangement with the National Academy of Public Administration to assess the effectiveness of the NASA Advisory Council and to make recommendations to Congress for any change to—

(1) the functions of the Council;

(2) the appointment of members to the Council;

(3) qualifications for members of the Council;

(4) duration of terms of office for members of the Council;

(5) frequency of meetings of the Council;

(6) the structure of leadership and Committees of the Council; and

(7) levels of professional staffing for the Council.

In carrying out the assessment, the Academy shall also assess the impacts of broadening the Council's role to advising Congress, and any other issues that the Academy determines could potentially impact the effectiveness of the Council. The Academy shall consider the past activities of the NASA Advisory Council, as well as the activities of other analogous federal advisory bodies in conducting its assessment. The results of the assessment, including any recommendations, shall be transmitted to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

Page 85, line 10, through page 89, line 20, amend section 711 (as so redesignated) to read as follows:

SEC. 711. DETECTION AND AVOIDANCE OF COUNTERFEIT ELECTRONIC PARTS.

(a) REGULATIONS.—

(1) IN GENERAL.—Not later than 270 days after the date of enactment of this Act, the Administrator shall revise the National Aeronautics and Space Administration Supplement to the Federal Acquisition Regulation to address the detection and avoidance of counterfeit electronic parts.

(2) CONTRACTOR RESPONSIBILITIES.—The revised regulations issued pursuant to paragraph (1) shall provide that—

(A) Administration contractors who supply electronic parts or products that include electronic parts are responsible for detecting and avoiding the use or inclusion of counterfeit electronic parts or suspect counterfeit electronic parts in such products and for any rework or corrective action that may be required to remedy the use or inclusion of such parts; and

(B) the cost of counterfeit electronic parts and suspect counterfeit electronic parts and the cost of rework or corrective action that may be required to remedy the use or inclusion of such parts are not allowable costs under Administration contracts, unless—

(i) the covered contractor has an operational system to detect and avoid counter-

feit parts and suspect counterfeit electronic parts that has been reviewed and approved by the Administration or the Department of Defense;

(ii) the covered contractor provides timely notice to the Administration pursuant to paragraph (4); or

(iii) the counterfeit electronic parts or suspect counterfeit electronic parts were provided to the contractor as Government property in accordance with part 45 of the Federal Acquisition Regulation.

(3) SUPPLIERS OF ELECTRONIC PARTS.—The revised regulations issued pursuant to paragraph (1) shall—

(A) require that the Administration and Administration contractors and subcontractors at all tiers—

(i) obtain electronic parts that are in production or currently available in stock from the original manufacturers of the parts or their authorized dealers, or from suppliers who obtain such parts exclusively from the original manufacturers of the parts or their authorized dealers; and

(ii) obtain electronic parts that are not in production or currently available in stock from suppliers that meet qualification requirements established pursuant to subparagraph (C);

(B) establish documented requirements consistent with published industry standards or Government contract requirements for—

(i) notification of the Administration; and

(ii) inspection, testing, and authentication of electronic parts that the Administration or an Administration contractor or subcontractor obtains from any source other than a source described in subparagraph (A);

(C) establish qualification requirements, consistent with the requirements of section 2319 of title 10, United States Code, pursuant to which the Administration may identify suppliers that have appropriate policies and procedures in place to detect and avoid counterfeit electronic parts and suspect counterfeit electronic parts; and

(D) authorize Administration contractors and subcontractors to identify and use additional suppliers beyond those identified pursuant to subparagraph (C) provided that—

(i) the standards and processes for identifying such suppliers comply with established industry standards;

(ii) the contractor or subcontractor assumes responsibility for the authenticity of parts provided by such suppliers as provided in paragraph (2); and

(iii) the selection of such suppliers is subject to review and audit by appropriate Administration officials.

(4) TIMELY NOTIFICATION.—The revised regulations issued pursuant to paragraph (1) shall require that any Administration contractor or subcontractor who becomes aware, or has reason to suspect, that any end item, component, part, or material contained in supplies purchased by the Administration, or purchased by a contractor or subcontractor for delivery to, or on behalf of, the Administration, contains counterfeit electronic parts or suspect counterfeit electronic parts, shall provide notifi-

cation to the applicable Administration contracting officer within 30 calendar days.

(b) REPORT.—Not later than 120 days after the revised regulations specified in subsection (a) have been implemented, the Administrator shall submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report updating the Administration's actions to prevent counterfeit electronic parts from entering the supply chain as described in its October 2011 report pursuant to section 1206(d) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18444(d)).

(c) DEFINITION.—In this section, the term ''electronic part'' means a discrete electronic component, including a microcircuit, transistor, capacitor, resistor, or diode that is intended for use in a safety or mission critical application.

Page 92, after line 22, add the following new sections (and conform the table of contents accordingly):

SEC. 713. HUMAN SPACEFLIGHT ACCIDENT INVESTIGATIONS.

Section 70702(a) of title 51, United States Code, is amended by striking paragraph (3) and inserting the following:

''(3) any other orbital or suborbital space vehicle carrying humans—

''(A) that is owned by the Federal Government; or

''(B) that is being used pursuant to a contract or Space Act Agreement, as defined in section 2 of the National Aeronautics and Space Administration Authorization Act of 2014, with the Federal Government for carrying a researcher or payload funded by the Federal Government; or''.

SEC. 714. FULLEST COMMERCIAL USE OF SPACE.

(a) REPORT.—Not later than 90 days after the date of enactment of this Act, the Administrator shall transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on current and continuing efforts by the Administration to ''seek and encourage, to the maximum extent possible, the fullest commercial use of space,'' as described in section 20102(c) of title 51, United States Code.

(b) ELEMENTS.—The report required under subsection (a) shall include—

(1) an assessment of the Administration's efforts to comply with the policy;

(2) an explanation of criteria used to define compliance;

(3) a description of programs, policies, and activities the Administration is using, and will continue to use, to ensure compliance;

(4) an explanation of how the Administration could expand on the efforts to comply; and

(5) a summary of all current and planned activities pursuant to this policy.

(c) BARRIERS TO FULLEST COMMERCIAL USE OF SPACE.—Not later than 90 days after the date of enactment of this Act, the Administrator shall transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on current and continuing efforts by the Administration to reduce impediments, bureaucracy, redundancy, and burdens to ensure the fullest commercial use of space as required by section 20102(c) of title 51, United States Code.

SEC. 715. ORBITAL DEBRIS.

(a) FINDINGS.—Congress finds that orbital debris poses serious risks to the operational space capabilities of the United States and that an international commitment and integrated strategic plan are needed to mitigate the

growth of orbital debris wherever possible. Congress finds the delay in the Office of Science and Technology Policy's submission of a report on the status of international coordination and development of mitigation strategies to be inconsistent with such risks.

(b) REPORTS.—

(1) COORDINATION.—Not later than 90 days after the date of enactment of this Act, the Administrator shall provide the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate with a report on the status of efforts to coordinate with countries within the Inter-Agency Space Debris Coordination Committee to mitigate the effects and growth of orbital debris as required by section 1202(b)(1) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18441(b)(1)).

(2) MITIGATION STRATEGY.—Not later than 90 days after the date of enactment of this Act, the Director of the Office of Science and Technology Policy shall provide the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate with a report on the status of

the orbital debris mitigation strategy required under section 1202(b)(2) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18441(b)(2)).

SEC. 716. REVIEW OF ORBITAL DEBRIS REMOVAL CONCEPTS.

(a) SENSE OF CONGRESS.—It is the sense of Congress that the amount of orbital debris in low-Earth orbit poses risks for human activities and robotic spacecraft and that this debris may increase due to collisions between existing debris objects. Understanding options to address and remove orbital debris is important for ensuring safe and effective spacecraft operations in low-Earth orbit.

(b) REVIEW.—The Administrator, in collaboration with other relevant Federal agencies, shall solicit and review concepts and technological options for removing orbital debris from low-Earth orbit. The solicitation and review shall also address the requirements for and feasibility of developing and implementing each of the options.

(c) TRANSMITTAL.—Not later than 270 days after the date of enactment of this Act, the Administrator shall provide a report to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the

Senate on the solicitation and review required under subsection (b).

SEC. 717. USE OF OPERATIONAL COMMERCIAL SUBORBITAL VEHICLES FOR RESEARCH, DEVELOPMENT, AND EDUCATION.

(a) POLICY.—The Administrator shall develop a policy on the use of operational commercial reusable suborbital flight vehicles for carrying out scientific and engineering investigations and educational activities.

(b) PLAN.—The Administrator shall prepare a plan on the Administration's use of operational commercial reusable suborbital flight vehicles for carrying out scientific and engineering investigations and educational activities. The plan shall—

(1) describe the purposes for which the Administration intends to use such vehicles;

(2) describe the processes required to support such use, including the criteria used to determine which scientific and engineering investigations and educational activities are selected for a suborbital flight;

(3) describe Administration, space flight operator, and supporting contractor responsibilities for developing standard payload interfaces and conducting payload safety analyses, payload integration

and processing, payload operations, and safety assurance for Administration-sponsored space flight participants, among other functions required to fly Administration-sponsored payloads and space flight participants on operational commercial suborbital vehicles;

(4) identify Administration-provided hardware, software, or services that may be provided to commercial reusable suborbital space flight operators on a cost-reimbursable basis, through agreements or contracts entered into under section 20113(e) of title 51, United States Code; and

(5) describe the United States Government and space flight operator responsibilities for liability and indemnification with respect to commercial suborbital vehicle flights that involve Administration-sponsored payloads or activities, Administration-supported space flight participants, or other Administration-related contributions.

(c) ASSESSMENT OF CAPABILITIES AND RISKS.—The Administrator shall assess and characterize the potential capabilities and performance of commercial reusable suborbital vehicles for addressing scientific research, including research requiring access to low-gravity and microgravity environments, for carrying out technology dem-

onstrations related to science, exploration, or space operations requirements, and for providing opportunities for educating and training space scientists and engineers, once those vehicles become operational. The assessment shall also characterize the risks of using potential commercial reusable suborbital flights to Administration-sponsored researchers and scientific investigations and flight hardware.

(d) TRANSMITTAL.—Not later than 1 year after the date of enactment of this Act, the Administrator shall transmit the plan and assessment described in subsections (b) and (c) to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

(e) ANNUAL PROGRESS REPORTS.—In conjunction with the Administration's annual budget request justification for each fiscal year, the Administrator shall transmit a report to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate describing progress in carrying out the Commercial Reusable Suborbital Research Program, including the number and type of suborbital missions planned in each fiscal year.

(f) INDEMNIFICATION AND LIABILITY.—The Administrator shall not proceed with a request for proposals, award any contract, commit any United States Government funds, or enter into any other agreement for the provision of a commercial reusable suborbital vehicle launch service for an Administration-sponsored spaceflight participant until transmittal of the plan and assessment specified in subsections (b) and (c), the liability issues associated with the use of such systems by the United States Government have been addressed, and the liability and indemnification provisions that are planned to be included in such contracts or agreements have been provided to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

SEC. 718. FUNDAMENTAL SPACE LIFE AND PHYSICAL SCIENCES RESEARCH.

(a) SENSE OF CONGRESS.—It the sense of Congress that fundamental, discovery-based space life and physical sciences research is critical for enabling space exploration, protecting humans in space, and providing societal benefits, and that the space environment facilitates the advancement of understanding of the life sciences and physical sciences. Space life and physical science research contributes to advancing science, technology, engineering, and

mathematics research, and provides careers and training opportunities in academia, Federal laboratories, and commercial industry. Congress encourages the Administrator to augment discovery-based fundamental research and to establish requirements reflecting the importance of such research in keeping with the priorities established in the National Academies' decadal survey entitled ''Recapturing a Future for Space Exploration: Life and Physical Sciences Research for a New Era''.

(b) BUDGET REQUEST.—The Administrator shall include as part of the Administration's annual budget request for each fiscal year a budget line for fundamental space life and physical sciences research, devoted to competitive, peer-reviewed grants, that is separate from the International Space Station Operations account.

(c) STRATEGIC PLAN.—

(1) DEVELOPMENT.—The Administrator, in consultation with academia, other Federal agencies, and other potential stakeholders, shall develop a strategic plan for carrying out competitive, peer-reviewed fundamental space life science and physical sciences and related technology research, among other activities, consistent with the priorities in the National Academies' decadal survey described in subsection (a).

(2) TRANSMITTAL.—Not later than 270 days after the date of enactment of this Act, the Administrator shall transmit the strategic plan developed under paragraph (1) to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

SEC. 719. RESTORING COMMITMENT TO ENGINEERING RESEARCH.

(a) SENSE OF CONGRESS.—It is the sense of Congress that engineering excellence has long been a hallmark of the Administration's ability to make significant advances in aeronautics and space exploration. However, as has been noted in recent National Academies reports, increasingly constrained funding and competing priorities have led to an erosion of the Administration's commitment to basic engineering research. This research provides the basis for the technology development that enables the Administration's many challenging missions to succeed. If current trends continue, the Administration's ability to attract and maintain the best and brightest engineering workforce at its Centers as well as its ability to remain on the cutting edge of aeronautical and space technology will continue to erode and will threaten the Administra-

tion's ability to be a world leader in aeronautics research and development and space exploration.

(b) PLAN.—The Administrator shall develop a plan for restoring a meaningful basic engineering research program at the Administration's Centers, including, as appropriate, collaborations with industry, universities, and other relevant organizations. The plan shall identify the organizational approach to be followed, an initial set of basic research priorities, and a proposed budget.

(c) REPORT.—Not later than 180 days after the date of enactment of this Act, the Administrator shall transmit the plan specified in subsection (b) to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

SEC. 720. LIQUID ROCKET ENGINE DEVELOPMENT PROGRAM.

The Administrator shall consult with the Secretary of Defense to ensure that any next generation liquid rocket engine made in the United States for national security space launch objectives can contribute, to the extent practicable, to the space programs and missions carried out by the Administration.

SEC. 721 REMOTE SATELLITE SERVICING DEMONSTRATIONS.

(a) SENSE OF CONGRESS.—It is the sense of Congress that—

(1) the Administration plays a key role in demonstrating the feasibility of using robotic technologies for a spacecraft that could autonomously access, inspect, repair, and refuel satellites;

(2) demonstrating this feasibility would both assist the Administration in its future missions and provide other Federal agencies and private sector entities with enhanced confidence in the feasibility to robotically refuel, inspect, repair, and maintain their satellites in both near and distant orbits; and

(3) the capability to refuel, inspect, repair, and maintain satellites robotically could add years of functional life to satellites.

(b) REPORT.—Not later than 120 days after the date of enactment of this Act, the Administrator shall transmit a report to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate describing the Administration's—

(1) activities, tools, and techniques associated with the ultimate goal of autonomously servicing satellites using robotic spacecraft;

(2) efforts to coordinate its technology development and demonstrations with other Federal agencies and private sector entities that conduct programs, projects, or activities on on-orbit satellite inspection and servicing capabilities;

(3) efforts to leverage the work of these Federal agencies and private sector entities into the Administration's plans;

(4) accomplishments to date in demonstrating various servicing technologies;

(5) major technical and operational challenges encountered and mitigation measures taken; and

(6) demonstrations needed to increase confidence in the use of the technologies for operational missions, and the timeframe for these demonstrations.

SEC. 722. INFORMATION TECHNOLOGY GOVERNANCE.

(a) SENSE OF CONGRESS.—It is the sense of Congress that information security is central to the Administration's ability to protect information and information systems vital to its mission.

(b) STUDY.—The Comptroller General of the United States shall conduct a study to assess the effectiveness of the Administration's Information Technology Governance. The study shall include an assessment of—

(1) the resources available for overseeing Administration-wide information technology operations, investments, and security measures and the Chief Information Officer's visibility into and access to those resources;

(2) the effectiveness of the Administration's decentralized information technology structure, decisionmaking processes and authorities and its ability to enforce information security; and

(3) the impact of providing the Chief Information Officer approval authority over information technology investments that exceed a defined monetary threshold and any potential impacts of the Chief Information Officer having such authority on the Administration's missions, flights programs and projects, research activities, and Center operations.

(c) REPORT.—Not later than 1 year after the date of enactment of this Act, the Comptroller General shall transmit a report detailing the results of the study conducted under subsection (b) to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

SEC. 723. STRENGTHENING ADMINISTRATION SECURITY.

(a) FINDINGS.—Congress makes the following findings:

(1) Following the public disclosure of security and export control violations at its research centers, the Administration contracted with the National Academy of Public Administration to conduct an independent assessment of how the Administration carried out Foreign National Access Management practices and other security matters.

(2) The assessment by the National Academy of Public Administration concluded that ''NASA networks are compromised'', that the Administration lacked a standardized and systematic approach to export compliance, and that individuals within the Administration were not held accountable when making serious, preventable errors in carrying out Foreign National Access Management practices and other security matters.

(b) REPORT.—Not later than 90 days after the date of enactment of this Act, the Administration shall report to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on how it plans to address each of the recommendations made in

the security assessment by the National Academy of Public Administration.

(c) REVIEW.—Within one year of enactment of this Act, the Comptroller General of the United States shall report to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate its assessment of how the Administration has complied with the recommendations of the National Academy of Public Administration.

SEC. 724. PROHIBITION ON USE OF FUNDS FOR CONTRACTORS THAT HAVE COMMITTED FRAUD OR OTHER CRIMES.

None of the funds authorized to be appropriated or otherwise made available for fiscal year 2014 or any fiscal year thereafter for the Administration may be used to enter into a contract with any offeror or any of its principals if the offeror certifies, pursuant to the Federal Acquisition Regulation, that the offeror or any of its principals—

(1) within a three-year period preceding this offer has been convicted of or had a civil judgment rendered against it for—

(A) commission of fraud or a criminal offense in connection with obtaining, attempting

to obtain, or performing a public (Federal, State, or local) contract or subcontract;

(B) violation of Federal or State antitrust statutes relating to the submission of offers; or

(C) commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating Federal criminal tax laws, or receiving stolen property;

(2) are presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in paragraph (1); or

(3) within a three-year period preceding this offer, has been notified of any delinquent Federal taxes in an amount that exceeds $3,000 for which the liability remains unsatisfied.

SEC. 725. PROTECTION OF APOLLO LANDING SITES.

(a) ASSESSMENT.—The Director of the Office of Science and Technology Policy, in consultation with all relevant agencies of the Federal Government and other appropriate entities and individuals, shall carry out a review and assessment of the issues involved in protecting and preserving historically important Apollo Program lunar landing sites and Apollo program artifacts residing on the

lunar surface, including those pertaining to Apollo 11 and Apollo 17. The review and assessment shall, at a minimum, include determination of what risks to the protection and preservation of those sites and artifacts exist or may exist in the future, what measures are required to ensure such protection and preservation, the extent to which additional domestic legislation or international treaties or agreements will be required, and specific recommendations for protecting and preserving those lunar landing sites and artifacts.

(b) REPORT.—Not later than one year after the date of enactment of this Act, the Director shall transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate the results of the assessment required under subsection (a).

SEC. 726. ASTRONAUT OCCUPATIONAL HEALTHCARE.

(a) IN GENERAL.—The National Academies' Institute of Medicine report ''Health Standards for Long Duration and Exploration Spaceflight: Ethics Principles, Responsibilities, and Decision Framework'' found that the Administration has ethical responsibilities for and should adopt policies and processes related to health standards for long duration and exploration spaceflights that recognize those ethical responsibilities. In particular, the report

recommended that the Administration ''provide preventative long-term health screening and surveillance of astronauts and lifetime health care to protect their health, support ongoing evaluation of health standards, improve mission safety, and reduce risks for current and future astronauts''.

(b) RESPONSE.—The Administration shall prepare a response to the National Academies report recommendation described in subsection (a). The response shall include the estimated budgetary resources required for the implementation of those recommendations, and any options that might be considered as part of the response.

(c) TRANSMITTAL.—The response required under subsection (b) shall be transmitted to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than 6 months after the date of enactment of this Act.

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