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110TH CONGRESS
1ST SESSION

H. R. 4917

To formulate situation and decision analyses, and to select procedures and systems, for deflecting and mitigating potentially hazardous near-Earth objects.

IN THE HOUSE OF REPRESENTATIVES

DECEMBER 19, 2007

Mr. ROHRABACHER introduced the following bill; which was referred to the Committee on Science and Technology

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A BILL

To formulate situation and decision analyses, and to select procedures and systems, for deflecting and mitigating potentially hazardous near-Earth objects.

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

SECTION 1. SHORT TITLE.

This Act may be cited as the ''NEO Preparedness Act''.

SEC. 2. FINDINGS.

The Congress finds the following:

(1) Asteroid and comet collisions rank as one of the most costly natural disasters that can occur.

(2) According to the October 2007 report to Congress by the National Aeronautics and Space Administration (in this Act referred to as ''NASA''), 140-meter-in-diameter asteroid collision will generate the equivalent power of a 100 megaton TNT explosion.

(3) There are approximately 100,000 near-Earth objects 140 meters wide or larger.

(4) The time needed to eliminate or mitigate the threat of a collision of a potentially hazardous near-Earth object with Earth is measured in decades.

(5) Unlike earthquakes and hurricanes, asteroids and comets can provide adequate collision information, enabling the United States to include both asteroid- and comet-collision disaster recovery and disaster avoidance in its public-safety structure.

(6) Basic information is needed for technical and policy decisionmaking for the United States to create a comprehensive program in order to be ready to eliminate and mitigate the serious and credible threats to humankind posed by potentially hazardous near-Earth asteroids and comets.

(7) As a first step to eliminate and to mitigate the risk of such collisions, situation and decision-

analysis processes, as well as procedures and system resources, must be in place well before a collision threat becomes known.

(8) Without establishing such processes, procedures, and resources, the full range of options to eliminate and to mitigate the risk of such collisions is restricted or even lost.

(9) The public safety of the United States and the planet requires the competence and expertise found in NASA to prepare and to validate the potentially hazardous near-Earth object deflection situation and decisionmaking analysis, as well as to select systems and procedures, to prepare the United States for readiness to avoid or to mitigate collisions with potentially hazardous near-Earth objects.

SEC. 3. DEFINITIONS.

As used in this Act—

(1) ''potentially hazardous near-Earth object'' means an asteroid or comet with a trajectory that passes less than 0.05 Astronomical Units from Earth's orbit;

(2) ''Administrator'' means the Administrator of NASA;

(3) ''adequate-warning'' refers to a time period starting from the time that the near-Earth object is

considered potentially haradous to the predicted time of possible collision, which allows the full range of readiness options to be implemented;

(4) ''short-warning'' refers to a time period that allows only limited options to be implemented; and

(5) ''comet'' means near-Earth or short-warning comets.

SEC. 4. ESTABLISHMENT OF THE OFFICE OF POTENTIALLY HARADOUS NEAR-EARTH OBJECTS, IDENTIFICATION OF SITUATION- AND DECISION-ANALYSIS FACTORS, AND SELECTION OF PROCEDURES AND SYSTEMS.

(a) ESTABLISHMENT.—The Administrator shall establish the Office of Potentially Hazardous Near-Earth Object Preparedness (in this Act referred to as ''Office''). The purpose of the Office shall be to prepare the United States for readiness to avoid and to mitigate collisions with potentially hazardous near-Earth objects in collaboration with other Agencies through the identification of situation- and decision-analysis factors and selection of procedures and systems.

(b) IDENTIFICATION OF SITUATION- AND DECISION-ANALYSIS FACTORS.—The Office shall identify situation- and decision-analysis factors, in collaboration with other Agencies, by determining—

(1) the needed objective technical and nontechnical criteria upon which to analyze potentially hazardous near-Earth object collision information and to base key threat elimination-decisions and options;

(2) the implications of such decisions and options;

(3) the human skills needed to make key threat elimination-decisions and the preparation required for individuals making such decisions;

(4) the factors needed to formulate key techical and policy questions involving such decisions;

(5) methods for determining and sequencing the minimum possible time periods needed to make such decisions;

(6) a model deflection and mitigation decision logic flow, including provisions for minimizing—

(A) human exposure,

(B) energy, cost, and time, and

(C) the risk of return of potentially hazardous near-Earth objects; and

(7) additional critical information needs, technological developments, public confidence building initiatives, and any other needs involving the threat of collisons of potentially hazardous near-Earth objects with Earth.

(c) SELECTION OF PROCEDURES AND SYSTEMS.—The Office shall select procedures and systems by—

(1) surveying the existing deflection proposals and examining each proposal for critical elements including capability, suitability, feasibility, cost, cost effectiveness, required human and capital resources, and maturity of needed key technologies;

(2) with the results from subsection (a) and input from other appropriate sources, performing an architectural tradeoff assessment and selecting a set of deflection proposals as primary procedures and systems that will provide the best opportunities for deflection-preparation, taking into account adequate- and short-warning collision timelines, as well as relevant asteroid and comet characteristics;

(3) for each selected primary procedure and system—

(A) identifying the best backup;

(B) defining the steps needed to realize immature key technologies;

(C) developing preliminary models;

(D) performing a predicted results error-analysis in order to confirm the characteristics described in subsection (a);

(E) projecting time to readiness;

(F) formulating an implementation phase to achieve full deflection readiness;

(G) establishing implementation timelines with measurable interim goals, and steps to transfer the procedure and system resources to the implementation phase; and

(H) identifying the crucial policy decisions needed for implemention; and

(4) indicating possible coordination with other Agencies to facilitate such activities.

SEC. 5. REPORTS.

The Administrator shall submit to the Congress the following reports:

(1) Not later than 1 year after the date of enactment of this Act, an interim report that summarizes a preliminary result of the activities of the Office carried out under sections 4(b) and 4(c)(1)–(2).

(2) Not later than 2 years after the date of enactment of this Act, a concluding report that summarizes all activities of the Office carried out under section 4.

SEC. 6. NASA ADVISORY COUNSEL.

The Administrator shall convene the NASA Advisory Council—

(1) not later than 90 days after submitting the interim report required by section 5(1), to provide the Administrator with advice for the concluding report; and

(2) not later than 90 days after submitting concluding report required by section 5(2), to provide the Administrator with advice for subsequent activities under section 4.

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