DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 91

[Docket No. FAA–2002–12261; Notice No. 02–09]

RIN 2120–AH63

Reduced Vertical Separation Minimum in Domestic United States Airspace

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This action proposes to permit Reduced Vertical Separation Minimum (RVSM) flights in the airspace over the contiguous 48 States of the United States (U.S.) and Alaska and that portion of the Gulf of Mexico where the FAA provides air traffic services. The RVSM program would allow the use of reduced vertical separation between aircraft at certain altitudes. This reduction of vertical separation minima would only be applied between those aircraft that meet stringent altimeter and auto-pilot performance requirements. This proposed rule would also require any aircraft that is equipped with Traffic Alert and Collision Avoidance System version II (TCAS II) and flown in RVSM airspace to incorporate a version of TCAS II that is compatible wit RVSM operations. The FAA is proposing this action to enhance airspace capacity and to assist aircraft operators to save fuel and time.

DATES: Comments must be submitted on or before August 8, 2002.

ADDRESSES: Address your comments to the Docket Management System, U.S. Department of Transportation, Room Plaza 401, 400 Seventh Street, SW., Washington, DC 20590–0001. You must identify the docket number FAA–2002–XXXXX at the beginning of your comments, and you should submit two copies of your comments. If you wish to receive confirmation that FAA received your comments, include a self-addressed, stamped postcard.

You may also submit comments through the Internet to *http://dms.dot.gov.* You may review the public docket containing comments to these proposed regulations in person in the Docket Office between 9 a.m. to 5 p.m., Monday through Friday, except Federal holidays. The Dockets Office is on the plaza level of the NASSIF Building at the Department of Transportation at the above address. Also, you may review public dockets on the Internet at *http://dms.dot.gov.*

FOR FURTHER INFORMATION CONTACT: Roy Grimes, Flight Technologies and Procedures Division, Flight Standards Service, AFS–400, Federal Aviation Administration, 600 Independence Avenue, SW., Washington, DC 20591, telephone (202) 267–3734.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites interested persons to participate in this proposed rulemaking by submitting written comments, data, or views. We also invite comments relating to the economic, environmental, energy or federalism impacts that might result from adopting the proposals in this document. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. We ask that you send us two copies of written comments.

We will file in the docket all comments we receive, as well as a report summarizing each substantive public contact with FAA personnel concerning this proposed rulemaking. The docket is available for public inspection before and after the comment closing date. If you wish to review the docket in person, go to the address in the **ADDRESSES** section of this preamble between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. You may also review the docket using the Internet at the web address in the **ADDRESSES** section.

Before acting on this proposal, we will consider all comments we receive on or before the closing date for comments. We will consider comments filed late if it is possible to do so without incurring expense or delay. We may change this proposal in light of the comments we receive.

If you want the FAA to acknowledge receipt of your comments on this proposal, include with your comments a pre-addressed, stamped postcard on which the docket number appears. We will stamp the date on the postcard and mail it to you.

Availability of Rulemaking Documents

You can get an electronic copy of this copy through in Internet by taking the following steps:

(1) Go to the search function of the Department of Transportation's electronic Docket Management System (DMS) web page (*http://dms.dot.gov/search*).

(2) On the search page type in the last four digits of the Docket number shown at the beginning of this notice. Click on ''search.''

(3) On the next page, which contains the Docket summary information for the Docket you selected, click on the document number of the item you wish to view.

You can also get an electronic copy using the Internet through the Office of Rulemaking's web page at *_http://www.faa.gov/avr/armhome.htm* or the Federal Register's web page at *http://www.access.gpo.gov/su_docs/aces/aces140.html.*

You can also get a copy by submitting a request to the Federal Aviation Administration, Office of Rulemaking, ARM–1, 800 Independence Avenue SW., Washington, DC 20591, or by calling (202) 267–9680. Make sure to identify the docket number, notice number, or amendment number of this rulemaking.

Why RVSM Implementation in US and Gulf of Mexico Airspace Is Warranted: Benefits, Proven Safety, Existing Aircraft Eligibility

Statement of the Problem

Air traffic levels were reduced following the events of September 11, 2001. The FAA anticipates, however, that over the next 12–18 months, air traffic will resume the steady increase that has been exhibited in past years. Air traffic at FAA air route traffic control centers is projected to increase over the next ten years at an average annual rate of 1.5 percent. By 2012, FAA air route traffic control centers are projected to be required to manage approximately 9 million more instrument flight rule (IFR) flights than they did in 2000 (55.0 million versus 46.0 million).

As air traffic increases, the opportunity for aircraft to fly the desired time and fuel-efficient flight levels and routes will be significantly diminished. In addition, traffic increases will diminish the capability of the FAA to move aircraft through and around areas affected by significant weather systems. In areas characterized by high-density traffic, the FAA may be required to invoke restrictions that can result in traffic delays and fuel penalties.

National Airspace System Operational Evolution Plan (NAS OEP) Initiatives

In 2001, the FAA began a focused study of initiatives to enhance the efficiency and reliability of air traffic operations in the NAS. This study and inputs from the airspace user community has led the FAA to pursue a variety of options and initiatives to enhance airport capacity and arrival, approach, and enroute operations. The initiatives and FAA plans to pursue them are published in the NAS OEP.

The website address for this document is: *www.faa.gov/programs/oep.*

The FAA believes that the option to implement RVSM in the NAS should be a high priority initiative because RVSM has proven over the past several years to provide significant enhancements to enroute operations in other areas. The RVSM implementation project is listed in the Enroute Congestion Solutions section of the NAS OEP.

Advocacy by User Groups

Organizations and representatives from the aviation community have advocated the implementation of RVSM in U.S. and Gulf of Mexico airspace. The U.S. operators view RVSM as a proven operational program that can mitigate some of the problems encountered in U.S. domestic operations.

RVSM Mitigation of Air Traffic Management Problems

The explanation of the term ''flight levels (FL)'' in this paragraph is provided to introduce the discussion of RVSM benefits below. Flight levels are stated in three digits that represent thousands of feet. The term flight level is used to describe a surface of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury. Flight levels are separated by specific pressure intervals. Rather than adjusting altimeters for changes in atmospheric pressure, pilots base altitude readings above the transition altitude (18,000 feet in the United States) on this standard reference. Thus FL 290 represents the pressure surface equivalent to 29,000 feet based on the 29.92″ Hg datum; FL 310 represents 31,000 feet, and so on.

With air traffic levels increasing annually, FAA airspace planners and their international counterparts have established programs to implement RVSM as a primary measure to enhance air traffic management and operating efficiency. RVSM has been successfully implemented in both oceanic and continental airspace. The RVSM program has been implemented in oceanic airspace in the North and South Atlantic, the Pacific, the South China Sea, and in the portion of the West Atlantic Route System (WATRS) that is in the New York Oceanic Flight Information Region (FIR). The RVSM program has also been implemented in the continental airspace of Australia and Europe.

The RVSM program allows the vertical separation standard that is applied below FL 290 to be applied between FL 290 and 410. Below FL 290 (29,000 feet), air traffic controllers can assign Instrument Flight Rules (IFR) aircraft to flight levels that are separated by 1,000 feet. Above FL 290, however, the Conventional Vertical Separation Minimum (CVSM) is 2,000 feet and IFR aircraft must be assigned to FL's separated by 2,000 feet.

The 2,000-foot minimum vertical separation restricts the number of flight levels available. Flight levels 310, 330, 350, 370, and 390 are flight levels at which aircraft operate most economically. During peak periods, these FL's can become congested. When all RVSM FL's (FL 290–410) are utilized, six additional flight levels are available: FL's 300, 320, 340, 360, 380, and 400. Increasing the number of FL's available in the U.S. domestic airspace is projected to provide enhancements to aircraft operations similar to those gained in the North Atlantic (NAT) and Pacific (PAC) (i.e., mitigation of fuel penalties attributed to the inability to fly optimum altitudes and tracks and enhanced controller flexibility for air traffic management).

Benefits and Enhancements

Implementation of a 1,000-foot vertical separation standard above FL 290 offers substantial operational benefits to operators, including:

- Greater availability of the most fuel-efficient altitudes. In the RVSM environment, aircraft are more likely to receive their requested altitude enabling them to consistently fly closer to their most fuel efficient FL.
- Greater availability of the most time and fuel-efficient routes (and an increased probability of obtaining these routes). Operators may not be cleared on the route that was filed due to demand for the optimum routes and resultant traffic congestion on those routes. The RVSM program allows the FAA to accommodate a greater number of aircraft on a given track or route. More time and fuel-efficient tracks or routes would therefore be available to more aircraft.
- Increased air traffic controller flexibility. The RVSM program gives the FAA greater flexibility to manage traffic by increasing the number of flight levels available on each track or route. This enhanced flexibility is especially desirable in situations where the FAA must re-route traffic around weather.
- Reduction of air traffic controller workload. The enhanced flexibility described above will reduce controller workload and allow them to work more efficiently.
- Enhanced flexibility to allow aircraft to cross intersecting routes. The RVSM program makes more flight levels available to enable aircraft to cross intersecting flight paths above or below conflicting traffic.
- Enhanced safety in the application of separation standards. Studies show that the RVSM program produces a wider distribution of aircraft among different routes and altitudes.

Example of RVSM Benefits to NAT Operations

Over the past five years, the FAA and the other NAT Air Traffic Service Providers have observed significant benefits provided by RVSM implementation in NAT airspace. Prior to the introduction of RVSM, 27 percent of flights in NAT airspace were issued clearances on tracks and at altitudes other than the optimum tracks and altitudes requested by the operators in their filed flight plans. These flights were, therefore, generally subject to time and fuel penalties.

The NAT Implementation Management Group (IMG) (of which the FAA is a member) observed the following improvements in NAT operations due to the introduction of RVSM:

1. Fifty percent of the fuel penalty attributed to NAT system operation was eliminated. The total NAT system fuel penalty is estimated based on track design, meteorological forecast, cruise level, and traffic congestion penalties.
2. Twenty five percent fewer fixed tracks were required to be published. This allows more airspace for operators to fly preferred tracks.
3. There was a five percent increase in flights cleared to fly at both the altitude and on the track that the operator requested.

Aircraft Operating in U.S. Airspace Already Approved for RVSM

Approximately twenty-two percent of flights in U.S. airspace are already conducted by aircraft that have been approved for RVSM operations. Approximately 2,600 aircraft of U.S. registry have already been FAA-approved for RVSM operations under the existing RVSM regulation. Many U.S. operators have obtained RVSM approval for these aircraft so they can be flown in airspace outside the U.S. where RVSM has been implemented. Aircraft that have been approved for RVSM are currently approved for RVSM operations in any area of the world where RVSM is applied.

Developing of RVSM Programs

Rising traffic volume and fuel costs, which made flight at fuel-efficient altitudes a priority for operators, sparked an interest in the early 1970's in implementing RVSM above FL 290.

In April 1973, the Air Transport Association of America (ATA) petitioned the FAA for a rule change to reduce the vertical separation minimum to 1,000 feet for aircraft operating above FL 290. The petition was denied in 1977 in part because (1) aircraft altimeters had not been improved sufficiently, (2) improved maintenance and operational standards had not been developed, and (3) altitude correction was not available in all aircraft. In addition, the cost of modifying nonconforming aircraft was prohibitive. The FAA concluded that granting the ATA petition at that time would have adversely affect safety.

Forums for Development of RVSM Policy and Procedures

The FAA recognized, however, the potential benefits of RVSM and in the 1980's, focused its efforts and resources on establishing the criteria and policies that would allow RVSM to be implemented safely. In conjunction with this effort, the FAA also considered the economic feasibility of RVSM. These efforts were considered in the following national and international forums.

1. FAA Vertical Studies Program. This program began in mid-1981, with the objectives of collecting and analyzing data on aircraft performance in maintaining assigned altitude, developing program requirements to reduce vertical separation, and providing technical and operational representation on the various working groups studying the issue outside the FAA.

2. RTCA Special Committee (SC)–150. RTCA, Inc., (formerly Radio Technical Commission for Aeronautics) is an industry organization in Washington, D.C., that addresses aviation technical requirements and concepts and produces recommended standards. When the FAA hosted a public meeting in early 1982 on vertical separation, it was recommended that RTCA be the forum for development of minimum system performance standards for RVSM. RTCA SC–150 served as the focal point for the study and development of RVSM criteria and programs in the United States from 1982 to 1987, including analysis of the results of the FAA Vertical Studies Program.

3. International Civil Aviation Organization (ICAO) Review of the General Concept of Separation Panel (RGCSP). In 1987, the FAA concentrated its resources for the development of RVSM programs in the ICAO RGCSP. The U.S. delegation to the ICAO RGCSP used the material developed by RTCA SC–150 as the foundation for U.S. positions and plans on RVSM criteria and programs. The panel's major conclusions were:

- RVSM is technically feasible without imposing unreasonably demanding technical requirements on the equipment.
- RVSM provides significant benefits in terms of economy and enroute airspace capacity.
- Implementation of RVSM on either a regional or global basis requires sound operational judgment supported by an assessment of system performance based on: Aircraft altitude-keeping capability, operational considerations, system performance monitoring, and risk assessment.

The RGCSP developed the ICAO Manual on Implementation of a 300-meter (1,000-foot) Vertical Separation Minimum Between FL 290 and FL 410 (inclusive) (ICAO Document 9574) that was published in 1992. This document provided the FAA with the basis for: The development of detailed aircraft and operator approval documents, planning for required RVSM implementation tasks, and developing programs to monitor aircraft performance and system safety.

4. *North Atlantic System Planning Group (NATSPG) and the NATSPG Vertical Separation Implementation Group (VSIG).*

After developing and reviewing cost/benefit studies, the NATSPG (of which the FAA is a member) concluded in 1991 that RVSM should be implemented in North Atlantic Minimum Navigation Performance Specification airspace and that working groups and programs should be established to implement it in 1996–1997. The NATSPG, thus, became the first ICAO regional group to develop the technical and operational programs to implement RVSM.

To pursue implementation, the NATSPG established the VSIG in June 1991 to take the necessary actions to implement RVSM in the NAT. These actions included:

- Aircraft and Operator Approval. The Operations and Airworthiness Group (chaired by the FAA) developed a detailed document containing the criteria and process to approve aircraft and operators for RVSM operations. The document addressed issues related to aircraft airworthiness, maintenance, and operations. The ICAO regional implementation groups and civil aviation authorities world-wide have adopted this document as the basis for aircraft airworthiness and operations programs.
- Safety Analysis and Monitoring Aircraft Altitude-keeping performance. The VSIG provided the forum to develop criteria and process for safety analysis and for the development and use of two different, but complementary, monitoring systems to assess aircraft altitude-keeping in-service performance. These systems are the ground-based Height Monitoring Unit (HMU) and the Global Position System Monitoring System (GMS). The NATSPG used these systems to observe the performance of individual airframes and groups of aircraft with the objective of confirming that the approval process was uniformly effective and that the airspace system was safe.
- Air Traffic Policy and Procedures. The NATSPG Air Traffic Management Group developed ATC procedures for RVSM, conducted simulation studies to assess the effect of RVSM on ATC, and developed documents to address ATC issues.

Policy, procedures and documents developed in the NATSPG forum are used as the basis for RVSM program implementation worldwide.

Safety Observed in RVSM Operations

Application of 1,000-foot Vertical Separation Below FL 290. Before discussing the safety observed in the application, over the past several years, of 1,000-foot vertical separation at and above FL 290, it is important to note that 1,000-foot vertical has been applied safety below FL 290 for over 40 years. The 1,000-foot vertical separation of aircraft below FL 290 is an ICAO separation standard and since the 1960's, it has been applied below FL 290 worldwide, including in the U.S. The RVSM program enables the use of 1,000-foot vertical separation to be expanded above FL 290 to FL 410.

Existing and Proposed Regulations: Criteria for Aircraft and Operator Approval

Part 91, § 91.706 (Operations within airspace designated as Reduced Vertical Separation Minimum Airspace) and part 91, Appendix G (Operations in Reduced Vertical Separation Minimum (RVSM) Airspace) contain the FAA requirements for aircraft and operator approval for RVSM operations outside the U.S. They have been applied to operations outside the U.S. since they were published in April of 1997. A major objective of the proposed part 91 amendment is to add § 91.180 (Operations Within Reduced Vertical Separation Minimum Airspace in the United States) to make the standards of Appendix G applicable to RVSM operations within the U.S.

The aircraft and operator approval requirements published in part 91, Appendix G, and European Joint Airworthiness Authorities (JAA) RVSM documents was developed in a joint

FAA/JAA working group. In that group, technical and operational experts from the FAA, the European Joint Airworthiness Authorities (JAA), the aircraft manufacturers, and pilot associations developed detailed criteria and procedures for RVSM approval using the ICAO RVSM Manual (Doc 9574) as the starting point. These FAA and JAA regulations and standards have been used worldwide for RVSM aircraft and operator approval.

Section 91.706 requires that aircraft and operators meet the standards of Appendix G and receive authorization from the Administrator prior to flying in airspace where RVSM is applied. Appendix G contains requirements in eight sections:

1. Definitions
2. Aircraft Approval
3. Operator Authorization
4. RVSM operations (flight planning into RVSM airspace)
5. Deviation Authority Approval
6. Reporting Altitude-keeping Errors
7. Removal or Amendment of Authority
8. Airspace Designation

The criteria and procedures published in FAA Appendix G and in JAA and ICAO documents have produced aircraft performance that is significantly better than the minimum required for safety in the ICAO RVSM Manual.

Observed Altitude-Keeping Performance

For the past several years, the FAA, in conjunction with the NATSPG, has evaluated (or monitored) the altitude-keeping performance of RVSM approved aircraft. The GMS and the ground-based HMU have been used to observe aircraft performance in both oceanic and continental airspace.

Altimeter system error (ASE) is the major component of aircraft altitude-keeping performance. The ASE is the difference between the pressure altitude displayed on the altimeter (assuming a correct altitude barometric setting) and the true pressure altitude.

Measurements have shown that the altitude-keeping performance of the population of aircraft approved for RVSM operations is significantly better than the minimum requirement established by the ICAO RGCSP in the ICAO RVSM Manual. The ICAO RVSM Manual calls for average or mean ASE for groups of aircraft not to exceed 80 feet and 99.9% of ASE measurements not to exceed 245 feet. To date, over 120,000 measurements of ASE taken for approximately 6,000 airframes has shown that the observed average ASE is −4.69 feet and 99.9% of ASE is within approximately 165 feet.

RVSM Safety Analysis

Over the past several years, the on-going assessment of RVSM risk in various areas worldwide has shown that operational safety is maintained. All sources of aircraft, pilot, and controller error in RVSM operations have been assessed using safety analysis processes. The FAA and other civil aviation authorities have concluded that RVSM operations are safe.

Proposed Implementation Plans and Schedules

Domestic RVSM (DRVSM) Implementation Team

The FAA has established a Domestic RVSM Implementation Team to develop U.S. Domestic RVSM implementation plans and programs. It is the objective of the FAA team to develop and coordinate the DRVSM program and to complete the necessary tasks to implement RVSM in U.S. and Gulf of Mexico airspace.

Proposed DRVSM Implementation Plan

The FAA proposes to implement DRVSM in the airspace of the continguous 48 states, Alaska and Gulf of Mexico airspace where the FAA provides air traffic service in December of 2004 between FL 290–410 (inclusive). When DRVSM is implemented, with limited exceptions described below, to fly in that airspace, civil operators and aircraft must comply with the standards of part 91 Appendix G and the operator must be authorized by the Administrator or, if a foreign operator, the country of registry to conduct RVSM operations. Implementing DRVSM in this manner enhances safety by requiring the aircraft/operator population to be approved to common standards, thus, enabling controllers to apply, in normal operations, a single vertical separation standard. It also enables a significant majority of operators to consistently flight plan, fuel plan and fly RVSM FL's and, therefore to maximize RVSM benefits.

In accordance with Appendix G, Section 5 (Deviation Authority Approval), the FAA proposes to allow the following exceptions to RVSM standards for civil aircraft operating in DRVSM airspace:

- The FAA will accommodate unapproved aircraft conducting air ambulance flights using a Lifeguard call sign as described in the Aeronautical Information Manual.
- Unapproved aircraft may be allowed to climb through RVSM FL's to operate above RVSM airspace at FL 430 and above, traffic permitting.

When such aircraft operate in RVSM aircraft, their lack of RVSM approval status will be displayed to FAA controllers and 2,000-foot vertical or the appropriate lateral or longitudinal separation standard will be applied to them.

Factors Considered in Developing the Implementation Plan

In proposing a FL stratum and implementation date, the FAA has considered the following factors:

- Feasibility of phased implementation
- Timeframe for significant majority of flights to be conducted by approved aircraft
- Justification to avoid further delay of RVSM benefits
- Capability and timeframe for the majority of operators and aircraft to obtain approval
- Options for unapproved aircraft to continue to operate

These implementation factors are discussed below:

Phased implementation. The FAA does not consider phased implementation to be feasible. Prior to reaching this conclusion, the FAA conducted real-time simulations at the William J. Hughes Technical Center to assess the feasibility of implementing RVSM initially between FL 350–390 or between 330–390. In the simulations of these implementation scenarios, the FAA analyzed controller workload, the potential for controller error and the impact on airspace complexity. Observations were made of qualified FAA controllers managing representative air traffic flows in three RVSM airspace scenarios: FL 350–390, FL 350–390, and FL 290–410. The FAA concluded that the FL 290–410 implementation scenario offered significant advantages in that it provided reductions in controller workload, airspace complexity and potential for error. Controllers were required to vector aircraft significantly less frequently and required coordination between air route centers was significantly reduced.

Timeframe for a significant majority of flights to be conducted by RVSM approved aircraft. In preparation for RVSM implementation, the FAA has worked with U.S. operators to establish a timeframe when a significant majority of flights would be conducted by RVSM approved aircraft. The FAA conducted a survey of U.S. operators to determine their plans to schedule and complete RVSM aircraft engineering tasks. The FAA found that many U.S. aircraft and operators have already obtained RVSM approval in order to operate in RVSM

airspace outside the U.S. In addition, anticipating DRVSM implementation, many operators are planning for completion of RVSM engineering work in late 2004. A significant motivation noted was the desire to accomplish RVSM aircraft work during scheduled maintenance checks to avoid costs associated with special inspections outside the normal maintenance cycle.

The FAA used the operator survey information in combination with data obtained from the Enhanced Traffic Management System (ETMS) to project the percentage of flights to be conducted in domestic airspace in December of 2004 by individual aircraft types. The FAA has projected that by December of 2004 over 90% of flights conducted between FL 290–410 will be conducted by RVSM approved aircraft.

Justification to avoid further delay. The FAA believes that further delay beyond December 2004 would result in an unwarranted loss of benefits. Based on the enhanced capability for aircraft to operate at more fuel-efficient altitudes, the FAA has projected $388 million dollars in fuel savings for the period from December 2004 through calendar year 2005, assuming DRVSM is implemented in December 2004. In addition, as noted previously, the FAA has projected that the addition of six FL's between FL 290–410 would significantly enhance controller flexibility to manage traffic in situations such as weather re-routes and increase the number of aircraft that can traverse a sector. These benefits would be lost if implementation were delayed.

Capability for operators to obtain aircraft approval. First, aircraft certification authorities have approved RVSM aircraft engineering packages for all major aircraft types used in either airline or general aviation operations. Second, Appendix G provides operators with the option of obtaining approval for their aircraft in a non-group or individual airframe status. Third, the FAA is working with Aircraft Service Centers and other organizations that provide RVSM engineering service, as well as operator organizations, to standardize and clarify the aircraft approval process, as necessary. In addition, the FAA will conduct RVSM seminars and enhance the FAA RVSM information network to ensure that operators have ready access to information on the RVSM approval process.

Options for unapproved aircraft to continue to operate. Operators unable or unwilling to obtain RVSM approval for their aircraft by the proposed December 2004 implementation date would still be able to operate at and below FL 280. The FAA recognizes that aircraft operating at and below FL 280 would not be operating at fuel-efficient altitudes. In addition, aircraft that can operate at and above FL 430 would be allowed to climb through to operate above RVSM airspace, traffic permitting. Finally, the FAA will plan to accommodate civilian air ambulance flights conducted by unapproved aircraft operating under a ''Lifeguard'' call sign. (Guidance on Lifeguard flights is published in the Aeronautical Information Manual).

Specific Airspace Issues

Coordination with Mexico and Canada. The FAA has established contact with representatives from the civil aviation authorities of Canada and Mexico and is coordinating RVSM implementation plans with them. Canadian representatives have informed the FAA that RVSM will be implemented in Northern Canadian Domestic airspace in April 2002, and Canada is planning to implement RVSM implementation in Canadian Southern Domestic airspace at the time that it is implemented in the U.S.

Gulf of Mexico Airspace. The airspace in the Gulf of Mexico for which the FAA provides air traffic services has been included in this proposal. The regulations, at 14 CFR 71.33(c), already designate portions of Houston and Miami Oceanic and Jacksonville Offshore Airspace as Class A airspace ''within which domestic ATC procedures are applied.'' The offshore airspace is treated in the regulations as an extension of the Class A airspace of the continental U.S. In addition, certain routes where RVSM is proposed begin in continental U.S. airspace, cross the Gulf of Mexico and then re-enter continental airspace on the other side. Inclusion of Gulf of Mexico airspace in the proposal will mitigate unwarranted air traffic management complexity and contribute to maximizing benefits to the operators.

Hawaiian Airspace. The airspace of the Hawaiian Islands is surrounded by Pacific Oceanic RVSM airspace. RVSM approved aircraft operate to and from Hawaiian airspace, however, there is currently no plan to require RVSM approval for all aircraft to operate within that airspace. Instead, 1,000-foot vertical separation is applied between FL 290–410 when two passing aircraft are both RVSM approved and 2,000-foot vertical or horizontal separation is applied if either of the passing aircraft is not RVSM approved.

Exploration of Tactical RVSM

The FAA is exploring allowing controllers to apply ''tactical RVSM'' prior to the proposed DRVSM implementation date of December 2004. Prior to December 2004, RVSM approval would not be mandatory for operation in U.S. domestic airspace. Application of tactical RVSM would allow controllers to use 1,000-foot vertical separation between FL 290–410, at controller's discretion, if both passing aircraft are RVSM approved. In this situation, the approval status would be displayed to the controller. This provision has been used successfully in Europe since April 2001.

DRVSM Aircraft and Operator Approval Factors

The intent of this rulemaking is to expand the application of the RVSM aircraft and operator approval requirements to all aircraft operating in the U.S. and Gulf of Mexico airspace. Currently, 14 CFR 91.706 addresses RVSM operations for U.S. registered civil aircraft outside of the U.S. The FAA proposes to locate new RVSM § 91.180 in part 91, subpart B (Flight Rules). Section 91.180 would, therefore, apply to RVSM operations conducted in the NAS. The new section instructs domestic operators and their aircraft to comply with part 91, Appendix G and obtain an authorization from the Administrator prior to conducting RVSM operations. In addition, proposed § 91.180 would provide that foreign operators and their aircraft would comply with appendix G and be authorized by the country of registry prior to conducting flight in RVSM airspace of the U.S.

Eligibility of Aircraft Approved for RVSM Operations Outside the U.S. Aircraft that have already received RVSM airworthiness approval in accordance with Appendix G that have been used in RVSM operations outside the U.S. are eligible for RVSM operations within the NAS. Prior to conducting NAS RVSM operations, however, operators will be required to adopt RVSM operational policies and procedures unique to the U.S. for pilots and, if applicable, dispatchers.

TCAS II Version 7.0 Requirement. A significant majority of the aircraft that operate in the domestic U.S. at and above flight level 290 area already required to be equipped with TCAS II, Version 6.04a. Requirements for aircraft TCAS equipage are published in 14 CFR parts 121, 125, 129 and 135. Approximately 85% of domestic operations above FL 290 are conducted by large jet aircraft operating under parts 121 or 129. These parts call for aircraft equipage with an approved TCAS II if the aircraft has seating capacity of more than 30 seats. FAA

Airworthiness Directives published in 1994 mandate TCAS II, Version 6.04a for TCAS II installations.

Part 91, appendix G, section 2, paragraph (g) states that ''after March 31, 2002, unless otherwise authorized by the Administrator, if you operate an aircraft that is equipped with TCAS II in RVSM airspace, it must be a TCAS II that meets TSO C–119b (Version 7.0), or a later version.'' This provision was adopted because Version 7.0 incorporates Traffic Alert and Resolution Advisory thresholds that mitigate unnecessary alerts when 1,000-foot vertical separation is applied above FL 290. Version 7.0 generally requires a software modification that is not a major system modification. The cost for this modification has been accounted for in the cost-benefit analysis. Operators of aircraft equipped with TCAS II must consider this provision when planning for the proposed DRVSM implementation date of December 2004.

Eligibility of turbo-propeller Aircraft Operated Under Part 91 and Equipped with a single RVSM Compliant Altimeter. In the proposed amendment, the FAA proposes operational and airworthiness criteria for turbo-propeller aircraft operated under part 91 to conduct RVSM operations when equipped with a single RVSM compliant altimeter. The FAA believes that aircraft can be used in RVSM operations conducted under part 91 in US operations for the following reasons:

Frequency of Single Altimeter Operations. General aviation (part 91) operations account for approximately ten percent of the total flights in the U.S. between FL 290–410. Of these flights, only a small percentage of flights operating above FL 290 would be conducted by turbo-propeller aircraft equipped with a single RVSM compliant altimeter.

NAS Communications/Navigation/Surveillance (CNS) capabilities. Direct pilot-controller communications, a robust navigation aid structure, and ATC radar surveillance are available in US domestic airspace. ATC will have the CNS tools to aid a pilot experiencing a failure or malfunction of the primary altimeter in exiting RVSM airspace, to apply the appropriate separation to the aircraft, and to aid the pilot in diverting to an alternate airport, if necessary.

Continued Airworthiness. Aircraft approved for RVSM operations must be maintained under the Continued airworthiness requirements of appendix G, section 3 (Operator Authorization).

Altitude-keeping Performance Monitoring. Part 91 aircraft have participated in the altitude-keeping performance monitoring program established for RVSM implementation in oceanic operations and have demonstrated satisfactory RVSM performance. Aircraft equipped with a single RVSM compliant altimeter will participate in the monitoring program for domestic RVSM.

Loss of function and integrity. The single RVSM compliant altimeter/second or stand by altimeter installation detailed in the proposed Appendix G amendment would meet airworthiness requirements for availability and integrity of the RVSM altitude function.

Air Traffic Control Factors Related to RVSM Operations

RVSM implementation will require that certain air traffic policies and procedures be implemented to address issues related to the introduction of a reduced vertical separation standard. Policies and procedures will be established for the following:

- As discussed previously, unapproved aircraft will be allowed to climb or descend through RVSM airspace to operate above or below it, traffic permitting.
- Limited accommodation will be made for unapproved aircraft conducting air ambulance flights under a ''Lifeguard'' call sign.
- In areas when and where mountain wave is active, ATC will establish policies for the use of appropriate separation.

Wake turbulence events experienced in the past five years of RVSM operations have shown wake turbulence at RVSM FL's to be generally moderate or less than moderate. FL changes or aircraft lateral path offsets have been shown to mitigate the effect of wake turbulence.

Proposed Amendment to Part 91, Appendix G, Section 5 (Deviation Authority Approval). First, the FAA would only grant authority to deviate from the requirements of part 91 § 91.706 or the proposed § 91.180 in limited circumstances. The FAA may choose not to grant a deviation if the operator has elected not to equip its aircraft for RVSM operations because the presence of an unapproved aircraft could affect traffic flow and increase controller workload. Second, the FAA proposes to require the operator to submit an appropriate request in a time and manner acceptable to the Administrator, as published in the Aeronautical Information Manual and appropriate FAA orders. Section 5 currently calls for the operator to submit a request at least 48 hours in advance. However, several years of RVSM experience has shown that air traffic has been able, in certain circumstances, to accommodate the operation of unapproved aircraft with less lead-time. The proposed wording would allow the FAA to prescribe more appropriate policy when warranted by operational circumstances.

Proposed Amendment to VFR and IFR Cruising Altitudes At and Above FL 290. The FAA proposes to revise part 91, § 91.159 (VFR cruising altitude or flight level) and § 91.179 (IFR cruising altitude or flight level). The proposed revision to § 91.159 would eliminate reference to VFR FL's above FL 180. Airspace above FL 180 is established as Positive Control Airspace where aircraft must maintain the altitude or flight level assigned by ATC.

The proposed revision to § 91.179 would revise the altitudes or FL's that are considered to be appropriate for IFR flight in uncontrolled airspace above FL 290 in airspace where RVSM is implemented. In accordance with RVSM policy, this revision would provide FL's that are separated by 1,000 feet vertically based on the direction of flight.

Factors Related to Safety Analysis and Monitoring of Altitude-keeping Performance in the Pre-and Post Implementation Phases

Necessity for Monitoring Programs. DRVSM implementation would require RVSM standards to be applied to the thousands of aircraft and operators that operate above FL 290 in domestic airspace. In order to assess the uniform effectiveness of aircraft and operator actions and identify adverse trends that may arise, the FAA would establish a DRVSM monitoring program similar to those established for oceanic RVSM implementation.

Monitoring Experience. The altitude-keeping performance of RVSM approved aircraft has generally been significantly better than the minimum required by RVSM standards, however, in the past five years of RVSM operations, a few individual airframes and aircraft groups have demonstrated altitude-keeping that has not met RVSM standards. A major purpose of monitoring is to identify performance that does not meet RVSM standards and, when necessary, to ensure that operators and/or manufacturers take appropriate corrective actions.

Justification for Sampling Process and Monitoring After Approval Granted. Altitude-keeping performance monitoring began in 1996. Since that time, the FAA and other authorities responsible for monitoring have obtained approximately 120,000 measurements for appropriately 6,000 individual airframes and 80 individual

aircraft types. To date only seven airframes have been observed exhibiting performance that exceeded RVSM standards. In addition, altimetry system error for the aircraft population as a whole has been demonstrated to be significantly better than the minimum standards. These results have given the FAA and other authorities confidence in RVSM aircraft engineering processes. Based on the monitoring results, authorities have adopted the position that monitoring may take the form of a sampling of newly approved airframes and, for most aircraft, it was not necessary for operators to complete monitoring prior to RVSM operating authority being granted.

Systems Developed to Monitor Aircraft Performance. Two systems have been deployed to perform monitoring for RVSM purposes. One is the ground-based Height Monitoring Unit (HMU). The other is the GPS-based Monitoring Unit (GMU). HMU's are now placed in strategic locations in Canada, the UK and Europe so that a large percentage of flights will be observed. At least three FAA HMU's will be deployed by the FAA in the U.S. for the same purpose. Only aircraft that fly in close proximity to the HMU location can be observed.

To obtain performance measurements with the GMU system, a GMU unit is temporarily installed, in accordance with appropriate certification documents, on an aircraft for a flight. The unit contain a GPS to obtain the geometric height of the aircraft in flight. This data is processed after the flight by the FAA Technical Center to obtain measurement of ASE, Total Vertical Error (TVE) and Assigned Altitude Deviation (AAD).

Operators have had and will have for DRVSM, the options of overflying an HMU at no cost or contracting for service to have the GMU installed on the aircraft and data processed.

Operators have been notified of monitoring program processes and procedures in the following formats: letters to State authorities issued by ICAO Regional Offices, NOTAMS, FAA and JAA guidance and the FAA RVSM website.

Pre-Implementation Programs

In the 2–3 year period leading to RVSM implementation, operators will begin to obtain RVSM airworthiness approval for aircraft that have not already been approved for RVSM. During this period, the FAA will review aircraft operations with the overall objections of:

1. Confirming that operators are conducting RVSM operations safely.

2. Confirming through observation (monitoring) that aircraft approved for RVSM operation demonstrate altitude-keeping performance that meets RVSM standards. This will be achieved by:

- Identifying and eliminating any causes of out-of-tolerance altitude-keeping performance, in general or for specific aircraft groups; and
- Monitoring a sample of RVSM-approved aircraft and operators that is representative of the total population.

3. Verifying that operational procedures adopted for RVSM are effective and appropriate.

4. Confirming that the altitude-monitoring program is effective.

Post Implementation Programs

After DRVSM is implemented, the FAA will continue to:

1. Collect altitude-keeping performance data relying primarily on the ground-based HMU.

2. Monitor to confirm that safety goals are being met.

3. Monitor to establish that there are no unresolved adverse trends in DRVSM operations.

Conclusion

The FAA has examined the success of existing RVSM programs, the costs and benefits for DRVSM implementation, the measures to be taken to protect operational safety, the factors bearing on the implementation schedule and implementation scenario and the factors related to aircraft and operator approval and air traffic programs. The FAA proposes that RVSM should be implemented between FL 290–410 (inclusive) in December 2004.

Regulatory Impact Analysis Summary

Executive Order 12866 directs federal agencies to promulgate new regulations or modify existing regulations after consideration of the expected benefits to society and the expected costs. Each federal agency shall assess both the costs and the benefits of proposed regulations while recognizing that some costs and benefits are difficult to quantify. A proposed rule is promulgated only upon a reasoned determination that the benefits of the proposed rule justify its costs.

The order also requires federal agencies to assess whether a proposed rule is considered a ''significant regulatory action''. The Regulatory Flexibility Act of 1980 requires agencies to analyze the economic impact of regulatory changes on small entities. The Office of Management and Budget directs agencies to assess the effect of regulatory changes on international trade. Finally, Public Law 104–4 requires federal agencies to assess the impact of any federal mandates on state, local, tribal governments, and the private sector.

In conducting these analyses, the FAA has determined that this rule: (1) Generates benefits that justify its costs for the significant majority of U.S. operators and is ''a significant regulatory action'' as defined in the Executive Order; (2) is significant as defined in Department of Transportation's Regulatory Policies and Procedures; (3) does not have a significant impact on a substantial number of small entities; and (4) does not constitute a barrier to international trade. These analyses, available in the docket, are summarized below.

This proposal expands Reduced Vertical Separation Minimum (RVSM) operations to aircraft operating between FL 290–410 (inclusive) in the airspace of the 48 contiguous States of the U.S., Alaska and the FIR's in the Gulf of Mexico where the FAA provides air traffic services. The benefits of this proposed rulemaking are: (1) An increase in the number of available flight levels; (2) enhanced airspace capacity; (3) permits operators to operate more fuel/time efficient routes and altitudes; and (4) enhanced air traffic controller flexibility by increasing the number of available flight levels, while maintaining an equivalent level of safety.

The FAA estimates that this proposed rule would cost U.S. operators $634.0 million for the fifteen-year period 2002–2016 or $539.9 million, discounted. For the purposes of this cost analysis, the FAA assumed that operators would choose to upgrade all of their aircraft to meet RVSM standards. Operators of non-RVSM approved aircraft would, however, retain the option of flying above or below RVSM airspace. Benefits would begin accruing in December 2004. Estimated benefits, based on fuel savings for the commercial aircraft fleet over the years 2004 to 2018, would be $5.8 billion or discounted at $2.9 billion.

In addition to fuel savings, many non-quantifiable or value-added benefits would result from the implementation of RVSM in domestic U.S. airspace. Input from air traffic managers, controllers, and operators has identified numerous additional benefits.

Through implementation of RVSM in the NAT and PAC regions, operators and controllers have realized some additional benefits. The major additional benefits as identified by air traffic managers and controllers are:

- Enhanced capacity

• Decreased operational errors in these regions
• Reduction of user-requested off course climbs for altitude changes
• Improved flexibility for peak traffic demands
• More options in deviating aircraft during period of adverse weather.

The benefits outlined above for RVSM in the NAT and PAC regions ae anticipated in domestic U. S. airspace. There should be expected efficiencies through reduced airspace complexity, increased flight levels, and fewer altitude changes with crossing traffic.

Operators can also expect enhanced operating efficiency and the potential for decreased departure delays due to improved airspace efficiency. Specific benefits cited by aircraft operators are:
• Decreased flight delays
• Improved access to desired flight levels
• Reduced average flight times
• Increased likelihood of receiving a clearance for weather deviations
• Seamless, transparent, and harmonious operations between the NAT and WATRS regions
• Consistent procedural environment throughout the entire flight
• Reduced impact of adverse weather by permitting aircraft deviations to other airways without any efficiency loss.

Implementation of RVSM in U.S. domestic airspace should increase user satisfaction. The benefits described in this section are compelling in number and operational impact. These benefits are also important in that they are enjoyed both by air traffic and aircraft operators.

Analysis of Alternatives

This NPRM is a ''significant regulatory action'' as defined by Executive Order (E.O.) 12866 (Regulatory Planning and Review) because this NPRM would impose costs exceeding $100 million annually. The E.O. requires that agencies promulgating economically significant rules provide an assessment of feasible alternatives to their respective rulemaking actions. In addition, the E.O. requires that an explanation of why the final rule, which is significant, is preferable to the identified potential alternatives. The FAA identified and considered three alternatives to the proposed rule.

Alternative One—The Status Quo

The alternative would maintain the 2,000-foot separation above FL 290 and would avoid the equipment and testing requirements of this NPRM, which impose a cost of $634.0 million ($539.9 million, discounted) from 2002 to 2004 on the aviation industry and the FAA. But maintaining the status quo also means that aviation industry would not receive any of the cost-savings afforded by Domestic RVSM.

As mentioned earlier, the cost-savings afforded by this NPRM are estimated to be $5.8 billion ($2.9 billion, discounted) in fuel savings over the same period. Since the foregone cost-savings of the alternative greatly exceed the avoided NPRM costs, the FAA rejects this alternative in favor of the proposed rule.

Alternative Two—Implement Domestic RVSM Without the Equipment and Testing Requirements

This alternative would allow RVSM between FL 290 and FL 410 without requiring aircraft system engineering to 14 CFR part 91, appendix G. This alternative would allow the aviation industry to receive the estimated $5.8 billion ($2.9 billion, discounted) in fuel savings while the aviation industry and the FAA avoids the NPRM costs of $634.0 million ($539.9 million, discounted). Unfortunately, this is not a viable alternative due to safety considerations.

Studies by the FAA and European civil aviation authorities have shown that many aircraft that have not been calibrated to the proposed RVSM standards exhibit altitude-keeping errors that exceed the Standards established for RVSM safety. In these studies, non-RVSM calibrated aircraft were observed with errors of up to 700 feet. Under RVSM aircraft are allowed to operate with only 1,000 feet vertical separation. If non-RVSM calibrated aircraft were allowed to operate with only 1,000 feet vertical separation, there could be a 400 foot altitude overlap in altitude-keeping errors for two non-RVSM calibrated aircraft operating in close proximity to each other. Thus, there is an increase risk of midair collisions if non-RVSM calibrated aircraft are allowed to operate under RVSM. Sine there are some aviation safety concerns with this alternative, this alternative is also rejected in favor of the proposed rule.

Alternative Three—Delay Implementation of the RVSM by Seven or Eight Years

This alternative would delay implementation of the proposed rule by seven or eight years. This would allow the costs to be spread over a longer period of time so that costs in any one-year would be below $100 million. This would make the proposed rule no longer economically significant under E.O. 12866. The cost of this alternative would still be the same as the cost of the proposed rule, although the discounted costs would be lower than the discounted costs of the proposed rule. However, if implementation of the rule is delayed by seven or eight years, the estimated cost-savings would be reduced by $2.0 billion or $2.4 billion, respectively ($1.5 billion, discounted or $1.8 billion, discounted, respectively). This is a considerable amount of cost-savings to forego in order for the FAA to avoid issuing an economically significant rule. For this reason, this alternative is rejected in favor of the proposed rule.

Initial Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 establishes as a principle of regulatory issuance that agencies shall endeavor, consistent with the objective of the rule and applicable status, to fit regulatory and informational requirements to the scale of the business, organizations, and governmental jurisdictions subject to regulation. To achieve that principle, the Act requires agencies to solicit and consider flexible regulatory proposals and to explain the rationale for their actions. The Act covers a wide-range of small entities including small businesses, not-for-profit organizations, and small governmental jurisdictions.

Agencies must perform a review to determine whether a proposed or final rule will have a significant economic impact on a substantial number of small entities. If the determination is that it will, the agency must prepare a regulatory flexibility analysis (RFA) as described in the Act.

However, if an agency determines that a proposed or final rule is not expected to have a significant economic impact on a substantial number of small entities, section 605(b) of the 1980 Act provides that the head of the agency may so certify and an RFA is not required. The certification must include a statement providing the factual basis for this determination, and the reasoning should be clear.

Only two small operators were found to have significant costs of compliance. This is not a substantial number of small entities that would be significantly affected by this proposed rulemaking. Therefore, the FAA certifies that this proposed rulemaking does not have a significant impact on a substantial number of small entities. The FAA requests comments from small operators affected by this rulemaking concerning the findings of this regulatory flexibility determination.

International Trade Impact Statement

The FAA has assessed the potential effect of this rulemaking and has determined that it would impose the

same costs on domestic and international entities and thus has a neutral trade impact.

Federalism Implications

The regulations proposed herein would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this proposal would not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

Paperwork Reduction Act of 1995

This proposal contains the following new information collection requirements. As required by the Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)), the Department of Transportation has submitted the information requirements associated with this proposal to the Office of Management and Budget for its review.

Title: Reduced Vertical Separation Minimum.

Summary: This proposal requires aircraft operators seeking operational approval to conduct RVSM operations within the 48 contiguous States of the United States (U.S.), Alaska and that portion of the Gulf of Mexico where the FAA provides air traffic services to submit application to their Certificate-Holding District Office (CHDO).

Use of: This proposal would support the information needs of the operator's CHDO as they register RVSM approved airframes in the FAA RVSM Approvals Database. When operators complete airworthiness, continued airworthiness and operations program requirements, the CHDO grants operational approval.

Respondents: The 2,275 likely respondents to this proposed information requirement are scheduled and non-scheduled commercial air carriers, and corporations or individuals operating RVSM-capable aircraft.

Frequency: The FAA estimates that this proposed information requirement would be a one-time submission of application for operational approval. Thus, the frequency of an annual requirement is zero.

Annual Burden Estimate: This proposal would result in a one-time recordkeeping and reporting burden. The proposed rule, while imposing additional reporting and recordkeeping requirements on those operators, would have the following impacts:

- The estimated preparation time for an operator to complete and submit an application for operational approval to their CHDO would be 16 hours.
- All pilots would need to be trained to ensure familiarity with RVSM operations. Each organization would have a navigation specialist prepare a document. The FAA anticipates that it would take this specialist approximately 14 hours to prepare the document; and
- Each pilot would have to receive a copy of the 4-page training document. To be conservative, the FAA is assuming that each pilot's document has been photostated. Each organization would need to spend 30 hours on paperwork at a cost of approximately $950 each. The total hours and costs sum to 68,250 hours and $2,147,052.40.

The FAA estimates that aircraft upgrade costs for this proposed rule would cost U.S. operators $578.3 million. While it is impossible to accurately isolate the equipment costs associated with these upgrade costs, the FAA estimates that approximately 50% or $289.2 million of the upgrade costs will be due to equipment costs. In addition, all aircraft equipped with TCAS version 6.04 would be required to upgrade to TCAS II Version 7.0 at a cost of $45.6 million. The total equipment costs for this proposed rule are estimated at $334.8 million.

The regulation will increase paperwork for the Federal government:

The FAA assumes that it would take either an avionics inspector or an operations inspector 8 hours to process each applicant submission. The time and cost to the Federal government for processing 2,275 application packages is 18,200 and $981,162.00.

The FAA is soliciting comments to—(1) Evaluate whether the proposed information requirement is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility; (2) evaluate the accuracy of the agency's estimate of the burden; (3) enhance the quality, utility, and clarity of the information to be collected; and (4) minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology.

Individuals and organizations may submit comments on the information collection requirement by July 9, 2002, and should direct them to the address listed in the **ADDRESSES** section of this document.

According to the regulations implementing the Paperwork Reduction Act of 1995, (5 CFR 1320.8(b)(2)(vi)), an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control number for this information collection will be published in the **Federal Register**, after the Office of Management and Budget approves it.

Unfunded Mandates Reform Act of 1995 Assessment

The Unfunded Mandates Reform Act of 1995 (the Act), enacted as Public Law 104–4 on March 22, 1995, is intended, among other things, to curb the practice of imposing unfunded Federal mandates on State, local, and tribal governments.

Title II of the Act requires each Federal agency to prepare a written statement assessing the effects of any Federal mandate in a proposed or final agency rule that may result in a $100 million or more expenditure (adjusted annually for inflation) in any one year by State, local, and tribal governments in the aggregate, or by the private sector; such as a mandate is deemed to be a ''significant regulatory action.''

This proposed rule does not contain such a mandate. Therefore, the requirements of Title II of the Unfunded Mandates Reform Act of 1995 do not apply.

International Civil Aviation Organization and Joint Aviation Requirements

In keeping with U.S. obligations under the Convention on ICAO, it is FAA policy to comply with ICAO Standards and Recommended Practices (SARP) to maximum extent practicable. The operator and aircraft approval process was developed jointly by the FAA and the JAA under the auspices of NATSPG. The FAA has determined that this amendment does not present any difference.

Environmental Analysis

FAA Order 1050.1D defines FAA actions that may be categorically excluded from preparation of a National Environmental Policy Act (NEPA) environmental assessment or environmental impact statement. In accordance with FAA Order 1050.1D, appendix 4, paragraph 4(j), regulations, standards, and exemptions (excluding those, which if implemented may cause a significant impact on the human environment) qualify for a categorical exclusion. The FAA proposes that this rule qualifies for a categorical exclusion because no significant impacts to the environment are expected to result from its finalization or implementation.

Energy Impact

The energy impact of this proposed rule has been assessed in accordance with the Energy Policy and Conservation Act (EPCA) and Public Law 94–163, as amended (42 U.S.C. 6362). It has been determined that this proposed rule is not a major regulatory action under the provisions of the EPCA.

List of Subjects in 14 CFR Part 91

Air-traffic control, Aircraft, Airmen, Airports, Aviation safety. Reporting and record-keeping requirements.

The Proposed Amendment

For the reasons discussed in the preamble, the Federal Aviation Administration proposes to amend part 91 of Title 14 of the Code of Federal Regulations (14 CFR Part 91) as follows:

PART 91—GENERAL OPERATING AND FLIGHT RULES

1. The authority citation for part 91 continues to read as follows:

Authority: 49 U.S.C. 106(g), 1155, 40103, 40113, 40120, 44101, 44111, 44701, 44709, 44711, 44712, 44715, 44716, 44717, 44722, 46306, 46315, 46316, 46504, 46506–46507, 47122, 47508, 47528,–47531, articles 12 and 29 of the Convention on International Civil Aviation (61 stat. 1180).

* * * * *

Subpart B—Flight Rules

1. Amend § 91.159 by revising paragraph (b) to read as follows and by removing paragraph (c):

* * * * *

§ 91.159 VFR cruising altitude or flight level.

* * * * *

(b) When operating above 18,000 feet MSL, maintain the altitude or flight level assigned by ATC.

* * * * *

2. Amend § 91.179 by revising paragraph (b)(3), introductory text, and adding a new paragraph (b)(4) to read as follows:

§ 91.179 IFR cruising altitude or flight level.

* * * * *

(b) *In uncontrolled airspace.* * * *

(3) When operating at flight level 290 and above in non-RVSM airspace, and—

* * * * *

(4) When operating at flight level 290 and above in airspace designated as Reduced Vertical Separate Minimum (RVSM) airspace and—

(i) On a magnetic course of zero degrees through 179 degrees, any odd flight level, at 2,000-foot intervals beginning at and including flight level 290 (such as flight level 290, 310, 330, 350, 370, 390, 410); or

(ii) On a magnetic course of 180 degrees through 359 degrees, any even flight level, at 2000-foot intervals beginning at and including flight level 300 (such as 300, 320, 340, 360, 380 or 400).

3. Add section 91.180 to subpart B to read as follows:

* * * * *

§ 91.180 Operations within airspace designated as Reduced Vertical Separation Minimum airspace.

(a) Except as provided in paragraph (b) of this section, no person may operate a civil aircraft in airspace designated as Reduced Vertical Separation Minimum (RVSM) airspace unless:

(1) The operator and the operator's aircraft comply with the minimum standards of appendix G of this part; and

(2) The operator is authorized by the Administrator of the country of registry to conduct such operations.

(b) The Administrator may authorize a deveration from the requirements of this section.

4. Amend Appendix G as follows:

a. Amend Section 2 by revising paragraph (c)(1) and paragraph (h) and adding a new paragraph (i).

b. Amend Section 5 by revising the introductory text; redesignating paragraph (2) as paragraph (a) and by revising newly redesignated (a);

c. Amend Section 8 by adding new paragraphs (d) and (e).

The revisions and additions read as follows:

Appendix G To Part 91—Operations in Reduced Vertical Separation Minimum (RVSM) Airspace

Section 2. Aircraft Approval

* * * * *

(c) Altitude-keeping equipment: All aircraft. * * *

(1) The aircraft must be equipped with two operational independent altitude measurement systems that meet the requirements of paragraphs (d), (e) or (f), as appropriate, unless the aircraft is approved and operated in accordance with the provisions of paragraph (h) of this section.

* * * * *

(h) Turbo-propeller Aircraft Operated Under Part 91 Equipped With a Single RVSM Compliant Altitude Measurement System. Such aircraft will be considered eligible for RVSM operations conducted under part 91 within the airspace of the U.S. and within the airspace of foreign countries that authorize such a provision, provided that:

(1) Altimeters are installed in the aircraft in accordance with the provisions of part 23 or part 25, as appropriate; and

(2) The Administrator finds that at least one of the installed altitude measurement systems meets the standards for altimetry system error containment detailed in paragraphs (d), (e), or (f), as appropriate, of this section; and

(3) A second altitude measurement system is installed and the pilot provided with a means (such as correction cards) to correct for the inaccuracy in that altimeter when operating in RVSM airspace; and

(4) Procedures are established for pilots to:

(1) Use the appropriate means (e.g., correction cards), after initial level off, to compare the accuracy of the RVSM compliant altitude measurement system to the second system; and

(ii) Report as soon as practical to ATC any malfunction of the installed RVSM compliant altimeter occurring in flight that would prevent the aircraft from maintaining altitude to the degree of accuracy required for RVSM operations.

(i) If the Administrator finds that the applicant's aircraft complies with this section, the Administrator will notify the applicant in writing.

* * * * *

Section 5. Deviation Authority Approval

The Administrator may authorize an aircraft operator to deviate from the requirements of § 91.180 or 91.706 for a specific flight in RVSM airspace if that operator has not been approved in accordance with Section 3 of this appendix if:

(a) The operator submits a request in a time and manner acceptable to the Administrator; and

* * * * *

Section 8. Airspace Designation

* * * * *

(d) *RVSM in the United States.* (1) RVSM may be applied in the airspace of the 48 contiguous states and Alaska, including that airspace overlying the waters within 12 nautical miles of the coast.

(e) *RVSM in the Gulf of Mexico.* (1) RVSM may be applied in the Gulf of Mexico in the following areas: Houston Oceanic ICAO FIR, Miami Oceanic ICAO FIR, and the Jacksonville Offshore Airspace.

Issued in Washington, DC, on May 6, 2002.

James J. Ballough,

Director, Flight Standards Service.

[FR Doc. 02–11704 Filed 5–7–02; 12:00 pm]

BILLING CODE 4910–13–M