NOTICE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Air Traffic Organization Policy

N JO 7210.725

Effective Date:
August 27, 2009

Cancellation Date:
August 26, 2010

SUBJ: Minimum Vectoring Altitude Charts (MVAC)

1. Purpose of This Notice. This notice provides guidance to terminal facility managers and those managers at en route and oceanic facilities responsible for providing terminal approach control services using MVACs to supplement minimum instrument flight rules (IFR) altitude (MIA) charts and for the development, annual review, and certification of MVACs, as prescribed by Federal Aviation Administration (FAA) Order JO 7210.3, Facility Operation and Administration, paragraphs 3-9-1 and 3-9-2. This notice also suspends the requirement to use FAA-approved software for precipitous terrain determinations as previously outlined in N 8260.64, paragraph 10-5-5, until new MVAC precipitous terrain software is developed.

2. Audience. This notice applies to the following Air Traffic Organization (ATO) service units: Terminal, En Route, Technical Operations, and System Operations Services; service center offices; the William J. Hughes Technical Center; the Mike Monroney Aeronautical Center; and all terminal and applicable combined terminal and en route air traffic control (ATC) field facilities.

3. Where Can I Find This Notice? The notice is available on the MYFAA employee Web site at https://employees.faa.gov/tools_resources/orders_notices/ and on the air traffic publications Web site at http://www.faa.gov/air_traffic/publications.

4. Procedures/Responsibilities/Action.

a. Air traffic managers must prepare MVAC in coordination with the National Flight Procedures Office (NFPO) using the Sector Design and Analysis Tool (SDAT) and FAA Order 8260.3, United States Standard for Terminal Instrument Procedures. The Airspace and Aeronautical Information Management Office oversees the SDAT program and provides user support.

b. At a minimum, the airspace considered for providing obstacle clearance information on MVACs must accommodate the facility's delegated area of control as well as adjacent airspace where control responsibility is assumed because of early handoff or track initiation.

c. Preparation and facility submission of MVACs using SDAT must be completed by March 31, 2010, using the following procedures:

(1) Air traffic managers must submit the request for MVACs to the appropriate Service Center Operations Support Group (OSG) for initial review. The Service Center OSG must then forward the requested MVAC to the Service Center Flight Procedures Office for processing.

(2) Each request must indicate the MVAC was accomplished and stored in SDAT.

(3) Each request must include a copy of the SDAT-generated Form 7210-9 with the manager's signature and point of contact at the submitting facility. Form 7210-9 must be an electronic copy with

the manager's signature and imported into the MVA project file. When applicable, each Form 7210-9 must include explanations/justifications for both required obstacle clearance (ROC) reductions and adverse assumed obstacle (AAO) additive rounding requests.

d. When more than one chart is used, prepare those charts with the oldest review/certification date(s) first to help avoid lapses in annual review/certification requirements.

e. Facility requests for reduced ROC in an area designated as mountainous in accordance with Title 14 of the Code of Federal Regulations (14 CFR), Part 95, Subpart B, must conform to the following procedures:

(1) Designated mountainous terrain must be evaluated for precipitous terrain characteristics and the associated negative affects. Facility managers must use FAA Order 8260.3, paragraph 1720, as a guide when considering ROC reductions in designated mountainous areas. ROC reductions are not authorized where negative effects of precipitous terrain are documented or known having followed the process contained in paragraph 4e(2) and (3) below. ROC reductions within designated mountainous areas not containing precipitous terrain are only authorized by complying with at least one of the following criteria:

REFERENCE-
FAA Order 8260.3, Appendix 1, Glossary Term, Precipitous Terrain

(a) Where lower altitudes are required to achieve compatibility with terminal routes.

(b) To permit vectoring within the airport radar traffic pattern area for either a departure procedure, an instrument approach procedure, or a visual approach to an airport. Air traffic managers must define each airport's radar traffic pattern area within which ROC reductions are sought. These areas must include sufficient maneuvering airspace necessary for ATC sequencing and spacing of traffic in the vicinity of an airport.

(2) Where mountainous terrain has been deemed precipitous by the air traffic manager, each ROC reduction request must include a query to an independent data source, such as National Aeronautics and Space Administration's Aviation Safety Reporting System to determine if any ground proximity warnings have been reported in the subject area. After completing the query, consider the facility's history and experiences with turbulence at the minimum altitude requested. Avoid ROC reductions where reported ground proximity warnings relate to both existing MVA sector altitude ROC reductions and rapid terrain elevation changes. ROC reduction requests in these areas may require additional evaluation and review.

REFERENCE-
FAA Order 8260.3, Appendix 1, Glossary Term, Precipitous Terrain

(3) The facility MVAC package must include a detailed account of the steps taken by the facility to determine if the sector will qualify for taking a ROC reduction in the sector. This data will be reviewed by the Service Center OSG and NFPO personnel for ROC reduction approval. Service Center Operations Support personnel must be the approving authority for ROC reduction criteria compliance with paragraph 4e(1)(a) and (b). Previously approved reductions in ROC justifications must be resubmitted for annual approval during a facility's recurring certification process.

NOTE-
Should a ROC reduction request be denied by Service Center Operations Support personnel, the manager may appeal the decision to the Terminal Safety and Operations Support Directorate for review.

(4) Ensure MVA areas submitted for ROC reductions do not cover large geographical areas that include locations that, individually, would not meet ROC reduction standards. In such cases, NFPO may work with the Service Center and the facility to design a sector that will pass the approval process for a particular approach/departure route.

(5) Whenever a ROC reduction is taken, the rationale/justification for taking the ROC reduction, as defined in paragraph 4e(1), must be included in the MVAC package by facility managers.

(6) ROC reductions should only be requested when there is a demonstrated operational need, and in no event will requested reductions result in an MVA that does not comply with 14 CFR 91.177.

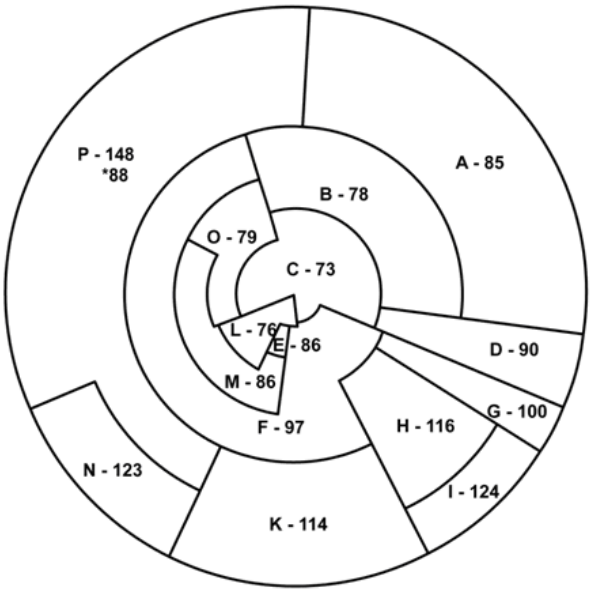
f. An AAO additive is required in areas not designated as mountainous (ROC 1,000 feet) and in designated mountainous terrain areas when any ROC reduction is requested.

g. Where an operational need is demonstrated and documented, managers are permitted to round a resulting MVA with an AAO additive to the nearest 100-foot increment, provided the minimum ROC is maintained for other non-AAO obstacles; for example, 3,049 feet rounds to 3,000 feet to support glide slope intercept requirements.

h. Managers requesting to waive criteria contained in FAA Order 8260.3 must submit FAA Form 8260-1, Flight Procedures/Standards Waiver. This waiver form will contain the criteria requested to be waived, the operational need fully explained, and examples of how the facility will achieve an equivalent level of safety if approved. The waiver package will also include the SDAT-derived FAA Form 7210-9. This package will be sent to the Service Center OSG for forwarding to the NFPO. The regional FPO is not included in this process. The NFPO forwards the package to the Flight Procedure Implementation and Oversight Branch. For the Flight Standards Waiver process, facility managers do not need to complete a Safety Management System evaluation. An electronic copy of the completed package must be sent to the OSG and Terminal Safety and Operations Support.

i. MVAs must not be below the floor of controlled airspace and should provide a 300-ft buffer above the floor of controlled airspace. In some cases, this application will result in an exceptionally high MVA; for example, in areas where the floor of controlled airspace is 14,500 Mean Sea Level. When operationally required to vector aircraft in underlying Class G (uncontrolled) airspace, two MVAs may be established. The primary MVA must be based on obstruction clearance and the floor of controlled airspace. A second, lower MVA that provides obstruction clearance only may be established. The obstruction clearance MVA must be uniquely identified; for example, by an asterisk (*). The 14,800/*8,800 ft P MVA sector in Figure 4-1 provides an example of this application. Do not consider buffer areas for controlled airspace evaluations.

Figure 4-1.
Minimum Vectoring Altitude Chart (MVAC)
Terminal, Single-Sensor Operations



j. If new charts prepared using SDAT create a significant impact on a facility's operation, the impact must be coordinated with ATO Terminal Safety and Operations Support for joint coordination with System Operations.

NOTE-
Significant impacts include changes to flight tracks for turbine-powered aircraft, multiple losses of cardinal altitudes, and/or reductions in airport arrival/departure rates.

k. Air traffic managers may request to merge adjoining, like altitude MVA sectors that resulted from using differing design criteria, provided the merged sectors are identified in the remarks on FAA Form 7210-9 and a statement is included with each affected sector that the merged sectors are for Radar Video Map (RVM) presentation only. (For example, Sectors B, B1, and B2 are to be merged in SDAT shape files for RVM presentation only.)

l. New charts that result in significant operational impacts must not be implemented by air traffic managers until associated changes to facility directives, letters of agreement, and controller training are completed within a period not to exceed 6 months from new chart certification.

m. Once a chart without significant operational impacts has been approved, it must be implemented as soon as possible. MVAC installations projected to be more than 60 days from date of approval must be coordinated with and approved by the Service Center OSG.

5. Distribution. This notice is distributed to the following ATO service units: Terminal, En Route, Technical Operations, and System Operations Services; Service Center OSG and Safety Assurance Group; Service Center FPO; the William J. Hughes Technical Center; the Mike Monroney Aeronautical Center; and all terminal and applicable combined terminal and en route ATC field facilities.

6. Background. MVAC have traditionally been manually developed by using sectional charts for reference and applying the criteria prescribed by several different directives; for example, latest editions of FAA Order 8260.3, United States Standard for Terminal Instrument Procedures; FAA Order 8260.19, Flight Procedures and Airspace; and FAA Order JO 7210.3, Facility Operation and Administration. In response to National Transportation Safety Board recommendations, the FAA developed an automated method using digital terrain elevation data to properly apply obstruction clearance criteria in future MVAC design. Software developed for use by SDAT was deployed and is currently available for use by terminal and en route facilities for MVAC development.

While SDAT properly applies general obstruction clearance criteria as prescribed by 14 CFR, Part 91.177, Minimum Altitudes for IFR Operations, precipitous terrain algorithms optimized for MVAC design have not yet been developed for SDAT. Instead, a separate automated tool, Instrument Approach Procedures Automation (IAPA), was used to provide precipitous terrain evaluations for MVACs. Joint evaluations by ATO and the Office of Flight Standards have concluded that the variables used and the weighting factors of the algorithms used by IAPA are not suitable for the evaluation of terrain underlying a large volume of airspace, such as an MVAC sector. Additionally, recent developments associated with the design of MVACs using SDAT have brought to light inconsistencies and unexpected results that raise questions on the suitability of the subject precipitous terrain algorithms in MVAC evaluations. We have concluded that the mandatory use of automated precipitous terrain algorithms intended for instrument approach procedure segments was premature and should be discontinued until algorithms optimized for MVAC design are developed.

7. Related Publications.

a. FAA Order 8260.3, United States Standard for Terminal Instrument Procedures

b. FAA Order 8260.19, Flight Procedures and Airspace

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8/24/09
Date Signed