

GOVERNMENT/INDUSTRY CHARTING FORUM
Instrument Procedures Group
May 9, 2005
HISTORY RECORD

FAA Control # 05-01-259

Subject: VCOA (Visual Climb Over Airport)

Background/Discussion: TERPS Change 19, Vol 4, Chapter 4, paragraph 4.0 makes VCOA mandatory when obstacles more than 3 statute miles from the departure end of the runway DER require a greater than 200 ft/NM climb gradient. If the pilot determines that he cannot meet the published climb gradient, for whatever reason, the pilot may elect to execute the VCOA if available. AIM paragraph 5-2-6 Instrument Departure Procedure (DP) states ODPs are recommended for obstruction clearances and may be flown without ATC clearance unless an alternate departure procedure (SID or radar vector) has been specifically assigned by ATC. Additionally the AIM states specified ceiling and visibility minima (VCOA or increased takeoff minima) will allow visual avoidance of obstacles until the pilot enters the standard obstacle protection area. Obstacle avoidance is not guaranteed if the pilot maneuvers farther from the airport than the specified visibility minimum prior to reaching the specified altitude. When TERPS is developing a VCOA the greatest visibility to be published is 3 SM, but the vertical climb area (VCA) can be up to a maximum of 7.3 NM + distance from ARP to most distant DER for obstacle evaluation.

1. The interpretation of the AIM paragraph may lead one to believe that the aircraft has to remain within the visibility distance; however, the procedure specialist designed the VCA to a greater distance. This distance limitation, based on visibility, may place the aircraft in an undesirable situation based on performance capabilities.
2. Currently there are published VCOAs that are sectorized, such as Meeker, CO "Climb visually within 3 miles southeast of the airport to depart 7400." Etc., The regulation does not specifically prohibit nor does it provide guidance to develop the VCOA with sectors.

Recommendations:

1. Publish a remain within distance in the TAKE-OFF MINIMUMS and (OBSTACLE) DEPARTURE PROCEDURES area; e.g., Visibility 1200-2 ½ for climb in visual conditions, Departure Procedure: Rwy 17, for climb in visual conditions **remain within 2.8 NM**, cross General Dewitt Airport at or above 1100 before proceeding on course.
2. Revise criteria to prohibit the use of sectorization.

Comments: This recommendation affects the AIM and FAA Orders 8260.3 and 8260.46.

Submitted by: Mr. Larry Wiseman

Organization: AFFSA/XOI

Phone: (240) 857-2208

FAX: (240) 857-7996

E-mail: larry.wiseman@andrews.af.mil

Date: April 14, 2005

INITIAL DISCUSSION (Meeting 05-01): New issue introduced by Larry Wiseman, AFFSA. AFFSA believes there is a disconnect between the TERPS criteria and the AIM guidance; e.g., criteria provides a VCOA obstacle protection area of up to 7.3 NM + the distance from the ARP to the most distant DER, whereas the visibility maxes out at 3 SM. AIM paragraph 5-2-6 may lead pilots that they must remain within the published visibility distance. Tom Schneider agreed to place the issue on the AFS-400 TRB agenda. Larry stated that AFFSA would like to participate in that TRB. Bill Hammett, AFS-420 (ISI) noted that the second portion of the issue paper regarding VCOA sectorization is a criteria issue and should be brought before the TERPS Working Group (TWG). Larry agreed, and will develop a TWG issue paper for the next TWG meeting. **ACTION: AFS-420.**

MEETING 05-02: Tom Schneider, AFS-420, reported that this issue is actively being worked by the AFS-420 staff specialist responsible for departure criteria; however progress is slow. The issue has not been brought before an AFS-400 Technical Review Board (TRB) yet, pending draft criteria revision. The sectorization issue is also being addressed within AFS-420 and was not presented to the TERPS Working Group. **ACTION: AFS-420.**

MEETING 06-01: Tom Schneider, AFS-420, reported that this issue is being actively worked by Phil Prasse, the AFS-420 staff specialist responsible for departure criteria; however, progress is slow. Draft material has been developed; however, no final conclusions have been reached and the material has not been circulated for comment outside FAA. The issue has not been brought before an AFS-400 Technical Review Board (TRB) yet, because travel requirements have kept key staff members from attending. *Editor's Note: TRB has been scheduled for May 11th.* **ACTION: AFS-420.**

MEETING 06-02: Bill Hammett, AFS-420 (ISI), briefed that the issue is still being addressed by Phil Prasse, the AFS-420, staff specialist responsible for departure criteria. An AFS-400 Technical Review Board (TRB) met to discuss the issue on May 11th. The intent is to revise criteria to better align with policy requirements; however progress is slow. Bill added that Order 8260.46, *Departure Procedure (DP) Program*, is again under revision and will allow an exception to the VCOA requirement at high density airports where the maneuver will never be allowed by Air Traffic. Pamela Coopwood, AJT-2300, requested background on the issue. Tom Schneider, AFS-420, provided the information. **ACTION: AFS-420.**

MEETING 07-01: Tom Schneider, AFS-420, briefed that Phil Prasse, the AFS-420, departure criteria specialist has developed new VCOA criteria for TERPS Volume 4, Chapter 4, which will be included in change 21 or 22. A copy of the draft criteria was included as attachment 4 of the meeting minutes. Comments may be forwarded directly to Phil at phil.prasse@faa.gov. **ACTION: AFS-420.**


MEETING 07-02: Tom Schneider, AFS-420, briefed that Phil Prasse, the AFS-420, departure criteria specialist has developed and coordinated new VCOA criteria for TERPS Volume 4, Chapter 4, which will be included in change 21 or 22. Bill Hammett, AFS-420 (ISI), briefed that AFS-420 was exploring new methods of coordinating TERPS changes to

expedite the process. Tom added that he is planning on establishing a 6-month update cycle for 8260.19 similar to the process used for air traffic publication updates. Rich Boll, NBAA, asked the status of the revision to Order 8260.46. Tom replied that he is awaiting forms revisions, which are being prepared by the NFPO. **ACTION: AFS-420.**

MEETING 08-01: Tom Schneider, AFS-420, briefed that with the formation of the USIFPP, a departure working group will be addressing this issue. Since this is a conventional criteria issue, it will not receive a high priority. The next meeting of the departure working group is April 30th. **ACTION: AFS-420.**

MEETING 08-02: Tom Schneider, AFS-420, briefed the following update as provided by Phil Prasse, the AFS-420 departure criteria specialist. "A criteria review group is addressing this issue as well as other departure related criteria and policy issues. This criteria review group has been meeting regularly, most recently on October 1st and 2nd. The comments received regarding VCOA criteria and policy are both extensive and substantial and affect large portions of the current VCOA criteria. A total re-write of TERPS Volume 4, Chapter 4, which includes VCOA criteria, is in progress. The concepts for that re-write were discussed at the October 1st and 2nd meetings with representatives of AFS-420 and 460. While there is agreement on several points, some issues need further review. An updated draft of TERPS Volume 4, Chapter 4 will be completed shortly and then put out for coordination with the departure working group under the USIFPP." AFS-420 will continue to track the VCOA issue and report. **ACTION: AFS-420.**

MEETING 09-01: Tom Schneider, AFS-420, briefed this issue has taken a back seat to higher priorities. Harry Hodges, AFS-420, briefed that after TERPS Change 21 is published, the Order will be revised as Order 8260.3C to meet the new FAA formatting requirements. This re-publication will only contain minor changes to accommodate simultaneous operations. The VCOA issue will be addressed in Change 1, which is approximately 18 months away. AFS-420 will continue to track the issue and provide updates as necessary. **ACTION: AFS-420.**

MEETING 09-02: Tom Schneider, AFS-420, briefed a presentation from Phil Prasse, the AFS-420 departure criteria specialist. A new concept is being considered to develop criteria that will allow VFR climb on a specified route to a fix where the VCOA maneuver may be accomplished to connect to an IFR departure. A copy of the slide presentation is included here . There was quite a discussion on the options for naming of the proposed new procedure. The IPG consensus is "Visual Climb to IFR Departure (VCTID). Rich Boll, NBAA, asked how far the VCOA fix would be from the airport. Tom responded that the concept is still developing and this will be determined as criteria are written. Roy Maxwell, Delta, stated that he liked the concept as it would give airliners flexibility to depart on course when weather was clear and visibility unlimited in lieu of flying an ODP that may take the aircraft 20 miles or more away from the desired routing. Since VCOA is considered an ODP, it satisfies Part 121/135 operator requirements to use an IFR departure procedure. Al Herndon, MITRE, stated that such a procedure is in effect on the NAKED THREE SID at Valdez, Alaska. The procedure requires VMC flight for approximately 28 miles to a point where IFR climb may be initiated. Paul Eure, AJE-31, asked who would be given opportunity to review these procedures. Brad Rush, AJW-372, stated that coordination with

all concerned ATC facilities would take place approximately 4-6 months prior to procedure development. Rich Boll, NBAA, asked whether ATC would know when an aircraft is opting to use the VCOA maneuver since it is an option on many ODPs. For example, many ODPs offer a specified route followed by “or (minimums) for climb in visual conditions.” This prompted a lively discussion. Gary Fiske, AJT-28, stated that there should be a requirement for the pilot to request the VCOA so controllers know what to expect. Rich responded that the AIM guidance states that the pilot can use any ODP without ATC clearance (unless a SID or vector has been assigned) and the VCOA is included in the ODP. Many suggestions were offered. Roy emphasized that there is no current guidance for the pilot to advise ATC when a VCOA is used. Deke Abbott, AFS-220, suggested that perhaps a note in the ODP text requiring the pilot to advise ATC when the VCOA maneuver is used. Tom agreed to take this issue back to AFS-420 as the discussion indicates that policy (Order 8260.46), criteria (Order 8260.3), and AIM guidance are impacted.

Status: AFS-420 will continue to track the VCOA issue and report. **Item Open (AFS-420).**

Editor’s Note: *Post meeting research reveals that the Air Traffic Terminal Service Unit published controller educational material relating to VCOA procedures in February 2006 in Air Traffic Bulletin 06-1. The following excerpt relates directly to comments that there should be a requirement for the pilot to request the VCOA so controllers know what to expect and is provided for review and possible discussion at the next meeting. Emphasis added.*

Visual Climb Over the Airport (VCOA)

/TREF/ “What the heck is this pilot doing?” are always good words to get a tower full of controllers to rapidly scan the sky. And, if the local controller (or watch supervisor) who just cleared the aircraft for takeoff is asking the question, perhaps all is not well. On the other hand, safety and traffic flow could well be under control. It all depends on if the controllers understand the VCOA clearance.

VCOA is a visual, IFR departure procedure. Similar to other instrument departure procedures, VCOAs are developed and published for individual locations with greater than the standard IFR (200 feet/nautical miles (NM)) climb gradients caused by obstacles more than 3 statute miles (SM) from the departure end of the runway.

The purpose of the VCOA is to provide an IFR departure procedure for aircraft that cannot meet the greater-than-standard climb gradient “specified” by the procedure. Imagine a Cessna 172 at an airfield in mountainous terrain. Having a VCOA allows the aircraft to visually spiral up to a specified altitude to cross a fix/location over the airport. Once the aircraft reaches this fix/location at the specified altitude, it can proceed on course in either visual meteorological conditions or instrument meteorological conditions via specific routing and altitude instructions to the en route structure.

The principle is a simplistic instruction: “See that obstacle? Don’t hit it.” Terminal Instrument Procedures (TERPS) specialists “build” the procedure by evaluating the airfield and the outlying areas. TERPS specialists not only determine the minimum altitude required to clear terrain, but also determine the minimum ceiling and visibility required (to “see and avoid the obstacle”). Unlike a graphic standard instrument departure (SID), the published VCOA procedure is in text format and found in the “Take-Off Minimums and (Obstacle) Departure Procedures” section of the appropriate Terminal Procedures volume. Additionally, airfields that have other than standard takeoff minimums or obstacle departure procedures (to include VCOAs) will have the symbol on the briefing strip section of their approach plates. One example is at Hemet-Ryan Airport, California. (The VCOA portion is underlined/italics.)

“TAKE-OFF MINIMUMS: ...**Rwy 5** std (standard) with a min climb of 526’ per NM to 5200, or *1400-2 ½ for climb In visual conditions.*”

Other airports with VCOA procedures include: Luray Caverns Airport, Virginia; Napa County Airport, Charles M. Schulz-Sonoma County Airport, and Fullerton Municipal Airport, California; Meeker Airport, Colorado; and Gastonia Municipal Airport, North Carolina.

Knowing that the local procedure exists is part of the situational awareness; knowing what the aircraft will do is the critical part. While terrain and weather may determine the prudent course of flight, controllers should query aircrews if there are concerns of potential traffic conflict. As VCOA is an IFR procedure, IFR separation is required from inbound (and overflight) traffic. Be aware that an aircraft may fly the obstacle departure procedure (ODP), including a VCOA, WITHOUT a specific ATC clearance. For example, an aircraft "cleared to ABC airport, direct XYZ VOR, as filed, maintain 6000....." may, in fact, need to fly the textual departure route (including a VCOA) for obstruction clearance. Bottom line: If controllers are unsure of the aircraft's departure path, they should confirm it with the pilot.

Thus, the three points of this article are:

- 1) Controllers should be aware of VCOA procedures if they are published at their location or at an uncontrolled airfield for which they provide IFR service.**
- 2) Controllers should know that an ATC clearance is not required nor is the pilot required to notify controllers if the intent is to execute the ODP or VCOA.**
- 3) Pilots are authorized to execute the ODP unless specific navigational guidance is provided by the controller via vectors or a SID.**

FAAO 7110.65, Paragraph 4-3-2c, Departure Procedures, discusses departures for both controlled and uncontrolled airfields and IFR alternate takeoff minimums. The following definition will be published in the February 2006 pilot controller glossary:

VISUAL CLIMB OVER AIRPORT

(VCOA)- A departure option for an IFR aircraft, operating in visual meteorological conditions equal to or greater than the specified visibility and ceiling, to visually conduct climbing turns over the airport to the published "climb-to" altitude from which to proceed with the instrument portion of the departure. VCOA procedures are developed to avoid obstacles greater than 3 SM from the departure end of the runway as an alternative to complying with climb gradients greater than 200 feet per nautical mile. These procedures are published in the "Take-Off Minimums and (Obstacle) Departure Procedures" section of the Terminal Procedures Publications [See AIM].

Additional information can be found in the Aeronautical Information Manual, Chapter 5; the Instrument Procedures Handbook, FAA-H-8261-1, Chapter 2; and the guidance for developing VCOA procedures is in FAAO 8260.3B, United States Standards for Terminal Instrument Procedures (TERPS), Change 19, Volume 4, Chapter 4. **(ATO-T)**

Air Traffic Bulletins may be seen at: http://www.faa.gov/air_traffic/publications/bulletins/

MEETING 10-01: Tom Schneider, AFS-420, briefed the following update as received from Jack Corman, AFS-420: "A draft Order titled *Visual Climb to IFR Departure (VCID)* is 90% complete. The name/acronym change is a result of conversation on this issue at ACF-IPG meeting 09-02. The new Order will replace the current VCOA criteria in TERPS Volume 4, Chapter 4,. The conventional navigation portion is complete and work is underway to develop RNAV criteria for VCID. The estimated completion date for a draft that can be forwarded to the US-IFPP departure working group members is 26 Apr 2010."

Bill Hammett briefed that research after the last meeting indicated that Air Traffic had published controller awareness material in Air Traffic Bulletin (ATB) 06-01. An excerpt from the ATB was included in the minutes of meeting 09-02. Roy Maxwell, Delta, stated that the use of a VCOA option as an ODP, when weather allowed, was important for air carriers as it often resulted in shorter distances to be flown, which in turn, saved fuel. Roy added that pilots should be required to advise ATC when using the VCOA option if that would lessen the ATC impact. Tom responded that this option will be considered under new issue 10-01-292. Brad Rush stated that some military ODPs currently contain a note for pilots to advise ATC when using the VCOA; e.g., "Aircrews must notify ATC prior to executing this VCOA procedure.". Tom stated that AFS-420 will continue to track the VCOA issue through the US-IFPP and report. **ACTION: AFS-420 (US-IFPP).**

MEETING 10-02: Tom Schneider, AFS-420, briefed that an Order providing new criteria for evaluating a VCOA, which will be re-named Visual Climb to IFR Departure (VCID) per ACF recommendation, is in internal AFS-420/AJV-3B coordination. The new criteria is expected in 2011. **ACTION: AFS-420 (US-IFPP).**

MEETING 11-01: Tom Schneider, AFS-420, briefed the following update as provided by John Bordy, AFS-420 (ISI), the specialist assigned to assist in the development of the new criteria for evaluating a VCOA (which will be re-named Visual Climb to IFR Departure (VCID) per ACF recommendation): "The new criteria is expected in 2011. A meeting was held between AFS-420 and AJV-3 on March 28 to discuss the draft VCID order. Based on comments received during the meeting, the draft VCID order is being revised. Estimated date for completion of the new revision is April 29, 2011. Once complete, the revised criteria will be submitted to AFS-460 and AJV-3 for informal review and to solicit final comments before presenting the draft to the US-IFPP Departure Working Group. A target date for posting the draft on the US-IFPP DWG online forum is June 1, 2011. A date for convening the DWG to discuss the order is to be determined." Tom also briefed the following proposed VCOA definition change from Jim Rose, the AFS-420 OPR for the Instrument procedures Handbook (IPH):

"A visual climb over airport (VCOA) is a departure option for an IFR aircraft, operating in VMC equal to or greater than the specified visibility and ceiling, to visually conduct climbing turns over the airport to the published "climb-to" altitude from which to proceed with the instrument portion of the departure. A VCOA is a departure option developed when obstacles, greater than 3 SM, require a CG of more than 200 FPNM. These procedures are published in the Take-Off Minimums and (Obstacle) Departure Procedures section of the TPP. [Figure 1-31] Prior to departure, pilots are required to notify ATC when executing the VCOA."

Lastly, Tom added that Change 1 to Order 8260.46, which was effective on April 14, 2011 requires all future ODPs with a VCOA option to be annotated "When executing VCOA, notify ATC prior to departure". Currently published ODPs will receive this annotation as reviewed. **ACTION: AFS-420 (US-IFPP).**

MEETING 11-02: Bill Hammett, AFS-420 (ISI), briefed the following from John Bordy, AFS-420 (ISI), the specialist addressing VCOA issues. "The discussion for this issue has diverged from the original submission and recommendations. Those original

recommendations were: (1) *Publish a remain within distance in the Take-Off Minimums and (Obstacle) Departure Procedures* section of the TPP , and (2) *Revise the criteria to prohibit the use of sectorization*. AFS-420 does not support either recommendation for the following reasons: (1) The pilot is required to see and avoid all obstacles until the aircraft crosses the specified point (normally the airport) at or above the specified altitude in accordance with the VCOA departure instructions. Publishing a "remain within distance" equal to the visual climb area radius wouldn't provide any additional measure of protection nor relieve the pilot in seeing and avoiding all obstacles. In addition, the intent of the current criteria is for the aircraft to remain in the vicinity of the airport as it climbs to the specified altitude. We should not encourage aircraft to routinely fly more than 3 NM from the airport during the visual climb by publishing distances of up to 7.3 NM. (2) Criteria are designed to detail construction that is permissible; it wouldn't be practical to also explicitly prohibit everything that is impermissible. Since the VCOA criteria do not describe any method to sectorize the areas, they cannot be constructed with sectors. The example at Meeker, CO, which was previously cited, was an unusual case that has since been corrected. It should be noted that discussion of the original issue has resulted in a change in VCOA definition for the Instrument Procedures Handbook requiring pilots to notify ATC prior to departure if a VCOA maneuver will be used. Order 8260.46 has also been revised to require a charted note specifying this provision. The discussions also prompted the development of new VCOA criteria for TERPS tentatively to be named Visual Climb to IFR Departure (VCID). The new criteria will be circulated for comment when complete. Since the concerns raised by the original issue have been addressed, AFS-420 recommends this issue be closed." Rich Boll, NBAA, questioned whether applicable pilot guidance in the AIM is affected. After discussion and a review of the AIM it was determined that the AIM language is satisfactory. The group agreed with closure. **ACTION: CLOSED.**
