

AERONAUTICAL CHARTING FORUM
Charting Group
Meeting 15-01 – 28 - 30 April 2015

RECOMMENDATION DOCUMENT

FAA Control # ACF-CG RD 15-01-295

Subject: Charting of VORs for the Minimum Operating Network (VOR MON)

Background/Discussion:

The VOR MON program (AJM-324) is discontinuing the service of approximately one third of the VOR facilities in the NAS. The VOR MON Concept of Operations includes the use of “Safe Landing Airports” now referred to as “MON Airports” where ILS or VOR instrument approach procedures will be retained to provide a safe recovery for aircraft in the event of a GPS outage event. Pilots will need to identify MON Airports for their intended route during preflight planning as well as during flight. Therefore, MON airports should be uniquely identified on the charts.

Recommendations:

The ACF should establish appropriate standards to chart MON Airports to enable pilots to easily identify the closest airport where they can safely recover, in the event of a GPS outage.

Comments:

Submitted by: Leo Eldredge, Contract Support, TetraTech, for Rowena Mendez, FAA

Organization: FAA/AJM-324

Phone: (571)359-0053

E-mail: leo.eldredge@tetrattech.com, Rowena.mendez@faa.gov

Date: November 12, 2014

MEETING 15-01

Leo Eldredge, Contract Support, AJM-324, [briefed the audience on the background of the issue](#). Leo stated that there are currently 145 airports that will be designated as MON airports that support instrument approaches independent of GPS.

Vince Massimini, MITRE, showed a presentation on how the proposed VOR discontinuance would impact instrument flight procedures, VOR-based routes within the enroute network, and the availability of VORs within the NAS. The graphics helped illustrate how a NAS with fewer VORs would impact many airports and would subsequently impact the total number of procedures available at those airports that are dependent upon those VORs.

Vince stated that VOR airway segments will be cancelled and replaced with RNAV routes as necessary. Gary McMullin, Southwest Airlines, inquired if the FAA, in their planning for the MON, had a means to see how often/frequently air routes are currently utilized in today's NAS.

Vince replied that yes, the FAA does have the data to be able to see route utilization and is taking that data into account.

Discussion then shifted to the basis of the Recommendation Document (RD), which is the identification of MON airports where instrument approach procedures would be available in the event of a GPS outage. Proposed chart symbology of an airport symbol with an M inside or above the airport symbol was shown to the audience for discussion of its possible depiction on enroute charts. It was also discussed that the MON airports might best be identified only in the AFDs.

The emphasis of the discussion focused on a quick and easy way for a pilot to readily identify airports that are MON Airports and where he could safely land in the event of a GPS outage. The discussion quickly broadened to other implications associated with identifying airports as MON Airports. Kevin Bridges inquired as to whether MON Airports would impact flight planning and filing for alternate airports for IFR Flights.

Michael Stromberg, Air Wisconsin, asked about the rate of GPS outages. Vince responded that there are several hundred outages during the year on a local basis, i.e. near military bases when vast military operations are taking place, however, for the GPS system overall, the chance of a complete GPS outage is virtually zero. WAAS has made the system more robust. The biggest threat is interference.

Dale Courtney, AJW-292, commented that the key is safety. The FAA needs to ensure that, should there be a catastrophic GPS failure, coupled with a loss of ATC, there is a means to get aircraft safely back on the ground.

Discussion shifted as to what was the best way to move forward. The consensus that prevailed was that a workgroup should be formed to research and resolve the multiple facets of implementation of the MON. Vince volunteered to chair the workgroup.

MON Workgroup		
Name	E-mail	Phone
Vince Massimini (WG Chair)	svm@mitre.org	703-883-5893
Leo Eldredge	Leo.eldredge@tetrattech.com	571-359-0053
Valerie Watson	Valerie.s.watson@faa.gov	301-427-5155
Ted Thompson	Ted.thompson@jeppesen.com	303-328-4456
Leonixa Salcedo	Leonixa.Salcedo@faa.gov	202-267-9901
Dale Courtney	Dale.courtney@faa.gov	202-267-4537
John Moore	John.moore@jeppesen.com	703-505-0672
Jeff Gingras	Jeffrey.gingras@jeppesen.com	303-328-4489
Michael Wallin	Michael.wallin@faa.gov	202-267-6494
John Kernaghan	Jkernagh@its.jni.com	610-996-2977
Brad Rush	Brad.w.rush@faa.gov	405-954-0188

STATUS: OPEN

ACTION: The MON Workgroup will meet to discuss the issues and Vince Massimini, MITRE, will report back.

MEETING 15-02:

Vince Massimini, MITRE, reviewed the issue and stated that since the last ACF, the Workgroup was formed, but did not convene because he was awaiting the release of the list of proposed MON airports. Now that the list of airports has been released, Vince anticipates holding the first meeting of the Workgroup in the coming weeks.

Kevin Bridges, AIR-131, inquired about the impact MON Airports would have on pilots filing for alternate airports. Vince replied that there is not going to be a change to alternate filing requirements. Pilots will not have to file for a MON airport as an alternate for any flight operations. Kevin expressed his opinion that, for safety, alternate filing *should* be based on the MON. He voiced that the FAA will need to ensure that there is very clear guidance in the AIM and the IPH on MON operations.

Vince reassured the audience that those involved in the MON process are thoroughly discussing these and a number of related concerns. He stated that there are a variety of MON issues to be finalized before any language can be inserted in the AIM. Once these issues are finalized, language will be added to the AIM and other publications accordingly.

MON Workgroup		
Name	E-mail	Phone
Vince Massimini (WG Chair)	svm@mitre.org	703-883-5893
Leo Eldredge	Leo.eldredge@tetrattech.com	571-359-0053
Valerie Watson	Valerie.s.watson@faa.gov	301-427-5155
Ted Thompson	Ted.thompson@jeppesen.com	303-328-4456
Leonixa Salcedo	Leonixa.Salcedo@faa.gov	202-267-9901
Dale Courtney	Dale.courtney@faa.gov	202-267-4537
John Moore	John.moore@jeppesen.com	703-505-0672
Jeff Gingras	Jeffrey.gingras@jeppesen.com	303-328-4489
Michael Wallin	Michael.wallin@faa.gov	202-267-6494
John Kernaghan	Jkernagh@its.jnj.com	610-996-2977
Brad Rush	Brad.w.rush@faa.gov	405-954-0188
Rune Duke	Rune.duke@aopa.org	202-509-9515

STATUS: OPEN

ACTION: The MON Workgroup will meet to discuss the issues and Vince Massimini, MITRE, will report back.

MEETING 16-01:

Vince Massimini, MITRE, and Chair of the MON Airport Workgroup [discussed](#) progress made since the last ACF. Vince reported the ACF-sponsored MON Airport Workgroup had met twice since the last ACF. The group recommended that "MON Airport" would be the terminology used in NASR (as a General Airport Remark) for publication and they recommended that the list of MON Airports be published in the NTAP or in the AIM. The group agreed that access to the list of MON Airports would be for pre-flight planning only and would primarily be useful to ATC in a

widespread GPS outage. It was agreed that MON Airports will be uniquely denoted where charted on IFR Enroute Charts only, will be identifiable in the airport entry section of the Chart Supplement by the presence of the airport remark "MON Airport". Vince demonstrated the negative MON symbology proposed to accompany the airport identification text on enroute charts and it was well received by the ACF audience. (See [Slide #10](#)).

Valerie Watson, FAA/AJV-553, asked Vince if the group still desired the listing of MON Airports to be published on the inside back cover of the Chart Supplements. Vince agreed as did the audience that this would make the entire list readily available digitally to all users.

Valerie asked Vince about the source for the "MON Airport" designation. Who is committed to provide (and provide updates to) the listing to NFDC so that the General Airport Remarks can be added to the NASR database? Vince replied that responsibility for "MON Airport" designation resides with the VOR MON Program Office and that coordination has already begun between that office and NFDC regarding publication of the remarks in NASR. Valerie expressed concern about the maintenance of this airport attribute in the long term, after the MON Program is complete and that office disbanded. Vince replied that the VOR MON Program Office would be in existence at least until 2025, at which time the responsibility will need to be transferred, along with other long-term responsibilities created by the program.

John Collins, GA Pilot, inquired if the category of aircraft was part of the decision in the designation of a MON Airport. Vince responded that the designation has to do with the availability of terminal instrument approaches that do not require GPS, but NOT with respect to the specific aircraft that can fly those approaches.

Rune Duke, AOPA, commented that AOPA saw a lot a value in both having access to the full list of MON airports on the ground and in showing them on the enroute charts and voiced support for the directions proposed.

Valerie summarized stating that she would begin writing an IACC Specification change to support the charting of MON Airports on the enroute charts and for publication of the complete MON Airport list on the inside back cover of the Chart Supplements. The MON Airport list will thus become a part of the digital Chart Supplement files available online. She will also work with Vince to coordinate source flow from the VOR MON Program Office to NFDC. Vince will work with the VOR MON Program office to coordinate publication of the listing into the NTAP and/or AIM.

MON Workgroup		
Name	E-mail	Phone
Vince Massimini (WG Chair)	svm@mitre.org	703-883-5893
Leo Eldredge	Leo.eldredge@tetrattech.com	571-359-0053
Valerie Watson	Valerie.s.watson@faa.gov	301-427-5155
Ted Thompson	Ted.thompson@jeppesen.com	303-328-4456
Leonixa Salcedo	Leonixa.Salcedo@faa.gov	202-267-9901
Dale Courtney	Dale.courtney@faa.gov	202-267-4537
John Moore	John.moore@jeppesen.com	703-505-0672
Jeff Gingras	Jeffrey.gingras@jeppesen.com	303-328-4489
Michael Wallin	Michael.wallin@faa.gov	202-267-6494
John Kernaghan	Jkernagh@its.inj.com	610-996-2977
Brad Rush	Brad.w.rush@faa.gov	405-954-0188

STATUS: OPEN

ACTION: Valerie Watson, FAA/AJV-553, to draft a new Requirement Document for the IACC Specifications.

ACTION: Valerie Watson, FAA/AJV-553, and Vince Massimini, MITRE, will coordinate with NFDC and the VOR MON Program Office to begin the process of populating NASR with the MON Airport designations.

MEETING 16-02:

Valerie Watson, FAA/AJV-553, reviewed the topic. Valerie reported that the charting specification (IACC Requirement Document 770) supporting MON Airports on/in FAA products has been signed and is in place. She showed the audience [prototypes](#) of how MON Airports will be depicted on Enroute charts and in the Chart Supplement. What remains to be worked out is the process by which the list of MON Airports is sourced, updated, maintained and databased within the FAA. The MON Program Office has verbally agreed to serve as the source for the MON Airports list while that office exists (2025). Valerie voiced concern within her organization (AJV-5) that the source flow be established by order for now and the future after the MON Program Office no longer exists.

Dale Courtney, FAA/AJW-292, stated that the initial submission of the list to the National Flight Data Center (NFDC) is easy for the MON Office. What will become an issue in the future is when an IFR procedure is amended that may have an impact on the MON status of an airport. There needs to be a process ensuring that the MON office is notified that something has changed. Valerie suggested that perhaps after the initial submission, the Instrument Flight Procedures (IFP) Group of AJV-5 should have a role in maintaining the list.

Tony Lawson, FAA/AJV-542, agreed that either the Flight Procedures team take ownership of the list, or establish a process for notifying the owners of the list of changes that would revise the MON status of an airport. He suggested that a field could be added to the procedure review checklist to ensure designers consider MON airport qualification and voiced that he would give the matter further thought.

John Moore, Jeppesen, agreed with engaging the IFP Group, but said there is more than just procedure type and availability that determine the MON status of an airport. He stated that final determination will have to be made by the MON office, but echoed Valerie's concern about what happens after the MON Program Office no longer exists.

Valerie suggested that, in the meantime, the FAA obligate in writing that the MON Program Office is the authoritative source for MON Airport status. Scott Jerdan, FAA/AJV-533, agreed and said his office will work with the MON Program Office to ensure the source flow is captured in an Order. Once this is accomplished, NFDC will begin publishing the MON Airport designations.

STATUS: OPEN

ACTION: Scott Jerdan, FAA/AJV-533, will work with the VOR MON Program Office, FAA/AJM-324, to secure an authoritative source flow process for MON Airport Data.

ACTION: Scott Jerdan, FAA/AJV-533, will begin populating NASR with the MON Airport designations once the source documentation is in place.

MEETING 17-01

Meeting was cancelled.

MEETING 17-02

Scott Jerdan, FAA/AJV-533, provided an update on progress made since last ACF. Scott stated that a request has been submitted for a National Airspace System Resource (NASR) update to accommodate the MON Airport designation. Brian Murphy, FAA/AJV-562, stated that the NASR enhancement request is expected to be complete Spring 2018. Once in place, Scott reported his team will populate NASR from the list that has been provided by the MON Program Office.

Scott expressed his concerns over the long-term ownership and maintenance of the MON Airport data after the MON Program Office sunsets in 2025. Tony Lawson, FAA/AJV-553, stated that ownership of the MON Airport Data would likely transition to the FAA Service Centers. Scott said that he would like to see that responsibility documented in an FAA order. Tony said that it has not yet been finalized how the MON airports or procedures will be tracked. Dale Courtney, FAA/AJW-292, stated that after 2025, the list of MON airports or procedures will only change if there is a procedure change and he believes the Flight Procedures Teams or the Instrument Flight Procedures group will need to take responsibility for the list. Tony stated that these issues are still being discussed.

Valerie Watson, FAA/AJV-553, [shared the published AIM language](#) with the audience. She said that comments received at the prior ACF had not yet been incorporated. Leonixa Salcedo, FAA/AJM-324, stated that the AIM guidance is expected to undergo update. Valerie asked that the audience take another look at the AIM language (to be posted on the ACF website) and provide comments to Leonixa so she can consider updates.

STATUS: OPEN

ACTION: Tony Lawson, FAA/AJV-553, will report on discussions regarding the long term maintenance of the MON Airport list after the MON Program Office closes in 2025.

ACTION: Valerie Watson, FAA/AJV-553, will post the existing AIM language on the ACF website to allow comment to the MON Program Office.

ACTION: Scott Jerdan, FAA/AJV-533, will work on NASR and NFDC Portal updates to accommodate the MON Airport designation. Once in place, he will populate NASR initially from the list provided by the MON Program Office.

MEETING 18-01

Valerie Watson, FAA/AJV-553, reviewed the item. Valerie stated that a request has been submitted for a National Airspace System Resource (NASR) update to accommodate the MON Airport designation. It is expected that the NASR enhancement request will be complete by July 2018. Once in place, Scott Jerdan, FAA/AJV-533, reported that his team will populate NASR from the list that has been provided by the MON Program Office. In the meantime, he said that he will work with the MON Program Office to establish a Memorandum of Agreement (MOA) for the maintenance of the list until the MON Program Office is sunset in 2025.

Scott then expressed his concern over the long-term ownership and maintenance of the MON Airport designation attribute after the MON Program Office sunsets in 2025. Tony Lawson, FAA/AJV-553, stated that AJV-5 is still working this issue, but he expects that the ownership of the MON Airport designation would likely transition to the FAA Service Centers. He said AJV-5 is working to enhance internal AJV-5 processes that will identify an airport as MON so that instrument approach developers do not inadvertently make a change/deletion to an instrument procedure that negates the MON status. He did, however, state that though he believes AJV-5 needs to have a role in the process, he does not think AJV-5 should inherit the ultimate responsibility for maintenance of the MON Airport list. Tony committed to setting up a meeting with NFDC, the VOR MON Program Office and the AJV-5 IFP Group to discuss the short-term and long-term maintenance of the MON Airport designation.

Valerie asked Vince if the MON Program Office has received any further comments on the MON Airport Aeronautical Information Manual (AIM) language. Vince said that he was not aware of any comments or of any forthcoming changes to the AIM, but that he would ask Leonixa Salcedo, FAA/AJM-324, if she had received any feedback.

STATUS: OPEN

ACTION: Tony Lawson, FAA/AJV-553, will report on discussions regarding the short- and long-term (after the MON Program Office sunsets in 2025) maintenance of the MON Airport list.

ACTION: Vince Massimini, MITRE, will report on any forthcoming changes to the existing AIM language.

ACTION: Scott Jerdan, FAA/AJV-533, will work on NASR and NFDC Portal updates to accommodate the MON Airport designation. Once in place, he will populate NASR initially from the list provided by the MON Program Office.

ACTION: Scott Jerdan, FAA/AJV-533, will work with the MON Program Office to establish a Memorandum of Agreement (MOA) for maintenance of the MON Airport list until the MON Program Office is sunset in 2025.

MEETING 18-02

Valerie Watson, FAA/AJV-553, reviewed the topic. Valerie stated that the National Airspace System Resource (NASR) database has been updated to accommodate VOR MON designated airports. Scott Jerdan, FAA/AJV-533, reported that he is still working

with the MON Program Office to establish a Memorandum of Agreement (MOA) for maintenance of the MON Airport list until the MON Program Office is sunset in 2025. He said that it has been written and is currently with Leonixa Salcedo, FAA/AJM-324, for signature.

Valerie then discussed the long-term ownership and maintenance of the MON Airport list after the MON Program Office sunsets in 2025. She said that this issue is still under discussion, but Lonnie Everhart, FAA/AJV-5430, reported to her that the ownership will most likely go to the Flight Procedures Teams (FPTs).

STATUS: OPEN

ACTION: Scott Jerdan, FAA/AJV-533, will continue to work with the MON Program Office to establish a Memorandum of Agreement (MOA) for maintenance of the MON Airport list until the MON Program Office is sunset in 2025. Once this MOA is signed, Scott will authorize NASR to be updated with MON airport designation per the listing provided by the MON Program Office.

ACTION: Lonnie Everhart, FAA/AJV-5430, will report on discussions regarding the long-term ownership and maintenance of the MON Airport list after the MON Program Office sunsets in 2025.

MEETING 19-01

Valerie Watson, FAA/AJV-A250, reviewed the topic and items outstanding from the last ACM. She reported that the Interagency Air Committee (IAC) Specifications for publication of a MON Airport indication on Enroute charts and in the Chart Supplement are in place. Scott Jerdan, FAA/AJV-A310, reported that the National Airspace System Resource (NASR) database has been updated to accommodate MON-designated airports. He also reported that the Memorandum of Agreement (MOA) for maintenance of the MON Airport list is in place. It is expected that the MON Program Office will submit an updated list of MON Airports to AJV-A for the June 20, 2019 publication date.

STATUS: OPEN

ACTION: Scott Jerdan, FAA/AJV-A310, will report on the status of the population of the MON Airport List in the NASR database.

ACTION: Guy Copeland, FAA/AJV-A210, and Jeffrey Lamphier, FAA/AJV-A240, will report on the subsequent publication of MON Airports on the Enroute charts and in the Chart Supplements.

MEETING 19-02

Samer Massarueh, FAA/AJV-A221, reviewed the issue. Scott Jerdan, FAA/AJV-A310, stated that all actions are now complete. The MON Airports are now in NASR and the MON designations are published on the Enroute charts and in the Chart Supplements, both in individual airport entries and in a consolidated list format.

Jeffrey Lamphier, FAA/AJV-A240, reiterated that, in the Chart Supplement, MON Airports are now identified in the Airport/Facility Directory entry, as well as published as a MON Airport list in the back of the Supplement. He stated this is a duplication of information and recommends that the MON Airport list be considered for removal.

Vince Massimini, MITRE, stated that the list makes it easier to find a MON Airport for flight planning purposes. He thinks that the publication of the list is essential. Rune Dike, AOPA, agreed that the list is important, but suggested that this topic could be discussed further in the Chart Supplement Workgroup to see if it could be published in another location. Rich Boll, NBAA, also agreed that the list is important for pilots. Jeff agreed that the listing will remain in the Chart Supplements and that its proposed removal will be discussed within the Chart Supplement Workgroup.

There was agreement to close this item since all actions are now complete.

STATUS: CLOSED