

25 September 2015  
F500-L15-030

Lic. Manuel Ángel Núñez  
Director General  
Grupo Aeroportuario de la Ciudad de México (GACM)  
Insurgentes Sur 2453, 2do. Piso,  
Col. Tizapán, Del. Álvaro Obregón  
México, D.F., 09730  
México

**Subject: Special Technical Letter: Fuerza Aérea Mexicana (FAM)-Proposed  
Special Use Airspace**

Dear Lic. Núñez:

I respectfully submit to you this technical letter that provides information regarding the Special Use Airspace (SUA) being proposed by Fuerza Aérea Mexicana (FAM) in and around the Valley of Mexico City. MITRE acknowledges receipt of the letter transmitted to Dr. Bernardo Lisker by you (refer to letter GACM/DG/061/2015, dated 10 June 2015), which includes information that was sent to you by General Víctor Manuel Ruesga Ramírez, FAM's Chief of Staff, regarding FAM's proposed SUAs (refer to letter No. A-5/EE/2967/17459, dated 2 June 2015). The letter describes the military Restricted Air Space (MMR) being proposed by FAM for fixed-wing aircraft and helicopter training and operations in relation to Nuevo Aeropuerto Internacional de la Ciudad de México (NAICM) for review and consideration by MITRE in its airspace re-design work.

Additionally, MITRE acknowledges receipt of the letter transmitted to MITRE by Lic. y P.A. Gilberto López Meyer, Director General of Dirección General de Aeronáutica Civil (DGAC) through Dr. Bernardo Lisker (refer to letter 4.1-786, dated 10 July 2015). That letter included the same information contained in the above-mentioned letters.

The objective of this technical letter is to provide background information regarding matters involving the Santa Lucía Military Base (hereafter referred to as Santa Lucía) and its associated SUAs in relation to operations at NAICM, and to provide MITRE's comments and questions regarding FAM's proposed SUAs.

MITRE recommends that this letter be provided to FAM officials for their review and consideration. Also, MITRE requests that FAM officials respond to MITRE's comments and questions contained in this letter so that MITRE can have a better understanding of FAM's proposed SUAs. This is important so that the MITRE team can take FAM's feedback into account as NAICM-related airspace design work advances.

## Background

At the onset, it is important to reiterate MITRE's position regarding Santa Lucía and its associated SUAs in relation to operations at NAICM. MITRE has consistently maintained that in order for NAICM to operate safely, the runway at Santa Lucía must be permanently closed and all associated SUAs (both in the vicinity of the base and farther away) be eliminated. This is because of important airspace interactions that would occur between Santa Lucía, including the associated SUAs, and NAICM operations. Experts from Servicios a la Navegación en el Espacio Aéreo Mexicano (SENEAM), who had collaborated with MITRE on the initial NAICM airspace design, also expressed their technical opinion that the runway at Santa Lucía should be permanently closed.

MITRE met with officials from FAM twice in early 2014, first at MITRE's facilities in McLean, Virginia and soon after at Santa Lucía, to discuss Santa Lucía and NAICM operational matters in more detail. During the two visits, MITRE described in full its NAICM aeronautical feasibility project to FAM. The two encounters, during which you honored us with your presence, resulted in the following understandings:

- All Santa Lucía helicopter operations (including helicopter maintenance) are to remain at the base, pending completion of a MITRE analysis to examine feasibility of this proposal. A preliminary analysis was later completed and transmitted to Aeropuertos y Servicios Auxiliares (ASA), but was never presented by MITRE to FAM for review and discussion. MITRE attempted to coordinate a meeting several times, but all proposed meetings were cancelled.
- All Santa Lucía helicopter training is to relocate to a FAM-recommended area that MITRE will analyze. FAM was to send to MITRE the coordinates of that area by 25 February 2014 for MITRE's immediate analysis. MITRE, however, never received the information. This information, recently provided by General Víctor Manuel Ruesga Ramírez, provides that information and is now being reviewed by MITRE.
- Fixed-wing military non-transport aircraft, such as fighter and trainer aircraft, are to relocate, along with their support facilities, to another airport, possibly a new airport in Hidalgo, or Querétaro Airport. (The Hidalgo option has since been discarded. See below for additional information.)
- Fixed-wing transport aircraft operations are to relocate to NAICM's runway 6 (i.e., the easternmost runway), along with their support facilities.
- All current SUAs associated with Santa Lucía operations are to be eliminated.

Permanent closure of Santa Lucía's runway (i.e., having the runway marked and published as closed), is one of the essential pre-conditions to enable MITRE and international aviation entities to declare NAICM a safe operation. On 28 April 2014, Lic. López Meyer and Ing. Iván Galán, Director of the Technical Co-operation Bureau of the International Civil Aviation Organization (ICAO), visited MITRE. The primary reason for the visit was to present MITRE's NAICM-related aeronautical work to



Ing. Galán and to discuss important operational and safety issues of concern regarding Santa Lucía and NAICM interactions. The visit was extremely beneficial to both MITRE and Ing. Galán, who then independently analyzed the interaction situation. As a result, Ing. Galán prepared a document that expressed fundamental agreement with MITRE's position (and SENEAM's previous recommendation) that Santa Lucía's runway should be closed, along with the Base's associated SUAs.

Since early 2014, the MITRE team has been examining ways to accommodate the needs of FAM and NAICM, given the above-mentioned understandings. The following preliminary reports were provided to ASA and discussed with experts from SENEAM:

1. **Helicopter Operations at Santa Lucía Military Base in Conjunction with NAICM Operations – Preliminary Report (see Enclosure 1 of Technical Letter F500-14-022, dated March 2014).** This report discusses MITRE's analysis of the feasibility of FAM helicopter arrival and departure operations at Santa Lucía coexisting with operations at NAICM. The objectives of this analysis were to determine whether those helicopter operations can be operated independently from operations at NAICM, as well as to determine what restrictions would need to be placed on helicopter operations to avoid capacity-limiting airspace interactions at NAICM.
2. **Helicopter Routes Between NAICM and Santa Lucía Military Base – Preliminary Report (Enclosure 1 of Technical Letter F500-L14-033, dated June 2014).** This report describes MITRE's analysis to determine the feasibility of developing low altitude Visual Flight Rules helicopter routes between Santa Lucía and NAICM. The objective of this analysis was to develop helicopter routes to allow FAM helicopters to transit between Santa Lucía and NAICM that are independent from operations at NAICM.
3. **Analysis of Potential Airport Sites in the State of Hidalgo – Preliminary Findings (Enclosure 4 of Technical Letter F500-L14-033, dated June 2014).** A large team of MITRE experts conducted intense analyses of six potential airport sites in the State of Hidalgo: Tepeji del Río-Tlahuelilpan (Tepeji del Río), Tulancingo, Zempoala, Apan, Tetepango, and Actopan-Santiago de Anaya (Actopan). The goal of MITRE's investigation was to assist ASA, officials from Hidalgo, and other stakeholders (e.g., FAM), in selecting the three best sites (out of six) for the development of an airport. Those three selected potential airport sites would then be investigated further by MITRE.

Note that although a significant amount of work regarding a new airport in Hidalgo was conducted, MITRE was informed by aviation authorities that FAM was not interested in relocating its fixed-wing military non-transport aircraft to a new airport in Hidalgo. The airport to which such FAM aircraft would be relocated needs to be examined in great detail to determine the feasibility and impact of such a move on the airport, as well as potential impact of military operations on NAICM.

4. *Feasibility of Relocating Military Operations to Querétaro Airport – Preliminary Report (Enclosure 1 of Technical Letter F500-L14-047, dated September 2014).*

This report describes MITRE's analysis to determine the principal changes that may be needed to Querétaro Airport's airspace, routes and published arrival and departure procedures to accommodate FAM fixed-wing military operations, such as fighter jets, while also continuing to accommodate existing and future civil operations.

The SUAs need to be located in areas that do not interfere with civil air traffic flows when the SUAs are active, especially if those civil airways serve the larger airports around Mexico City, such as NAICM and Toluca Airport. This report also includes potential areas around the Mexico City basin where new SUAs may potentially be located to support FAM fixed-wing military operations, including MMR-101 which is close to Querétaro Airport.

It is critical that MITRE discusses and reviews the contents of the above-mentioned reports with FAM officials, Mexican aviation authorities and other stakeholders in a collaborative manner so that appropriate feedback can be obtained, and additional more detailed analyses can be conducted.

### **MITRE Comments and Questions Regarding FAM's SUA Proposal**

A specially assigned MITRE team has started to review the FAM-proposed SUAs (i.e., MMRs). The MITRE team is currently reviewing the information provided by FAM to develop an understanding of the material. In addition, MITRE is inputting the FAM-provided coordinates of the proposed MMRs into its airspace design tool. This allows MITRE to compare the dimensions of the FAM-proposed MMRs with the MITRE-designed conceptual routes for NAICM.

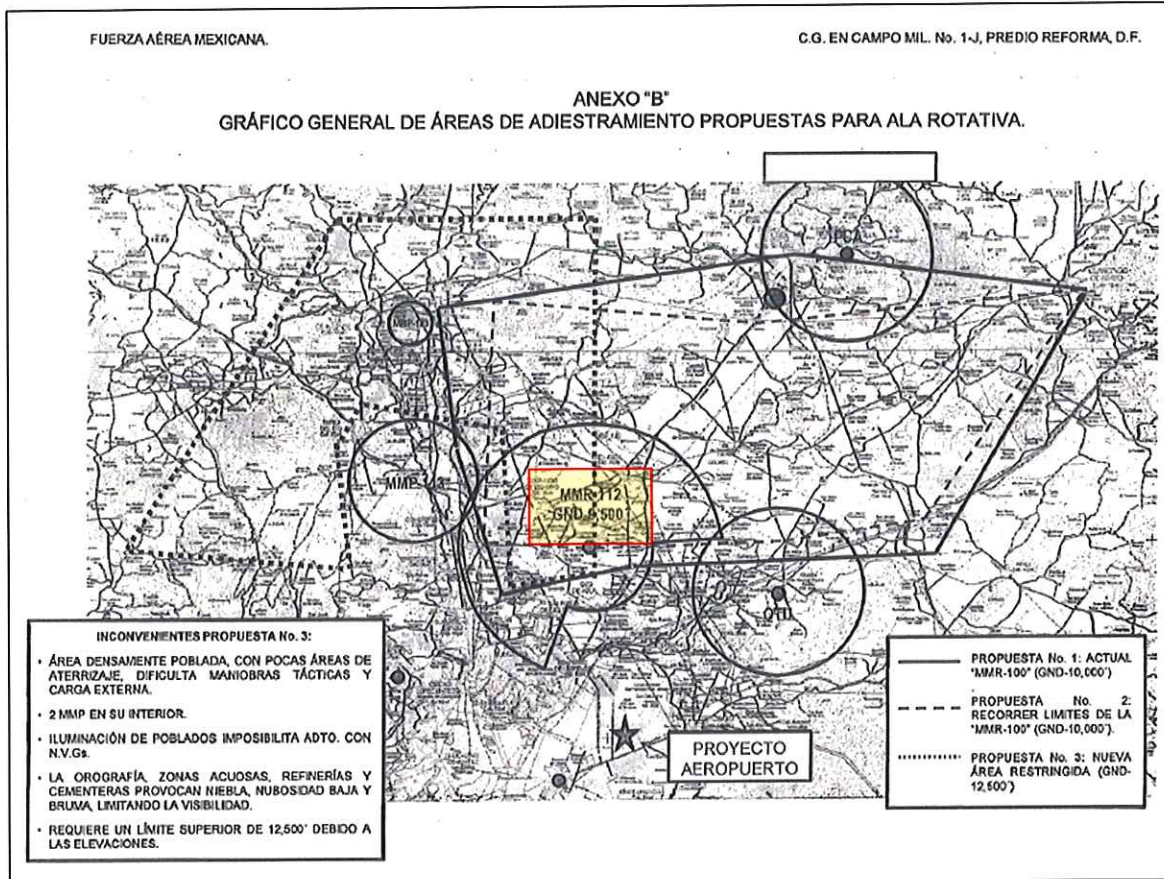
MITRE's review of the information and data provided by FAM has resulted in some questions that need to be answered and additional data that is required. The questions and data being requested are listed below. **MITRE requests that the responses to the questions and data requests be provided to MITRE no later than Friday 30 October 2015 in order for MITRE to advance with its review in a timely manner.**

1. Page 1 of the FAM letter states that there will be training conducted at NAICM and that traffic would continue to fly to MMR-102 and MMR-103. This causes MITRE concern due to the impact on operations, efficiency, and possibly safety at NAICM. Therefore, this matter needs to be discussed further before any final decisions are made. Please clarify what types of training would be conducted at NAICM and what types of aircraft would the training involve.
2. It is not clear to MITRE what vertical ceiling is being proposed by FAM for MMR-112. For example, the FAM's proposal for MMR-112 on page 4 states that MMR-112 would continue with its present dimensions; only reducing the distance between radials 085° to 200° from 5 nautical miles to 3 nautical miles. However, on the picture in ANEXO "B" GRÁFICO GENERAL DE ÁREAS



DE ADIESTRAMIENTO PROPUESTAS PARA ALA ROTATIVA on page 7 of FAM’s proposal, the MMR-112 area is labeled as “GND 9,500”. See Figure 1 below.

Please indicate which vertical ceiling FAM is considering for MMR-112.



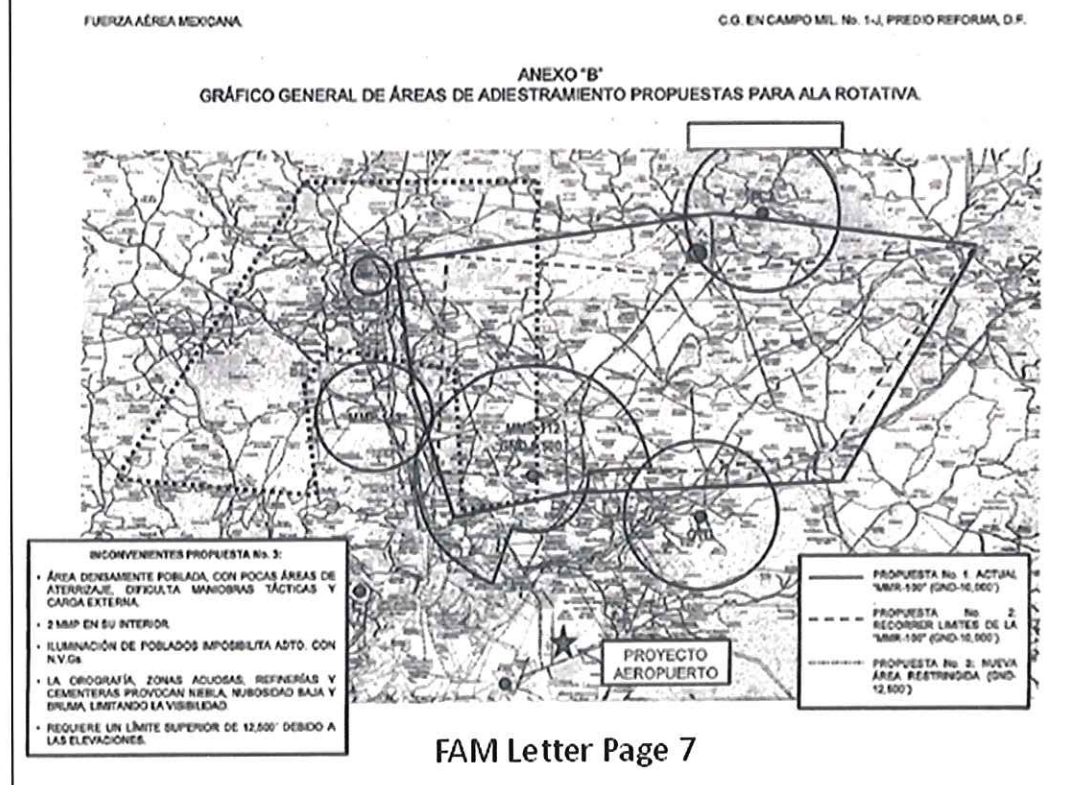
Source: FAM letter No. A-5/EE/2967/17459, dated 2 June 2015.

**Figure 1. Vertical Ceiling for MMR-112**

3. Please provide MITRE with the coordinates for the proposed helicopter areas numbers 2 and 3 that are depicted in ANEXO “B” on page 7 of the FAM letter.
4. What is the difference between the figures on pages 6 and 7 of the FAM letter? Note that both figures are labeled ANEXO “B” GRÁFICO GENERAL DE ÁREAS DE ADIESTRAMIENTO PROPUESTAS PARA ALA ROTATIVA. See Figure 2 below. The figures on these pages are different, but the titles are the same and it is not clear from the text what is being referred to.



FAM Letter Page 6



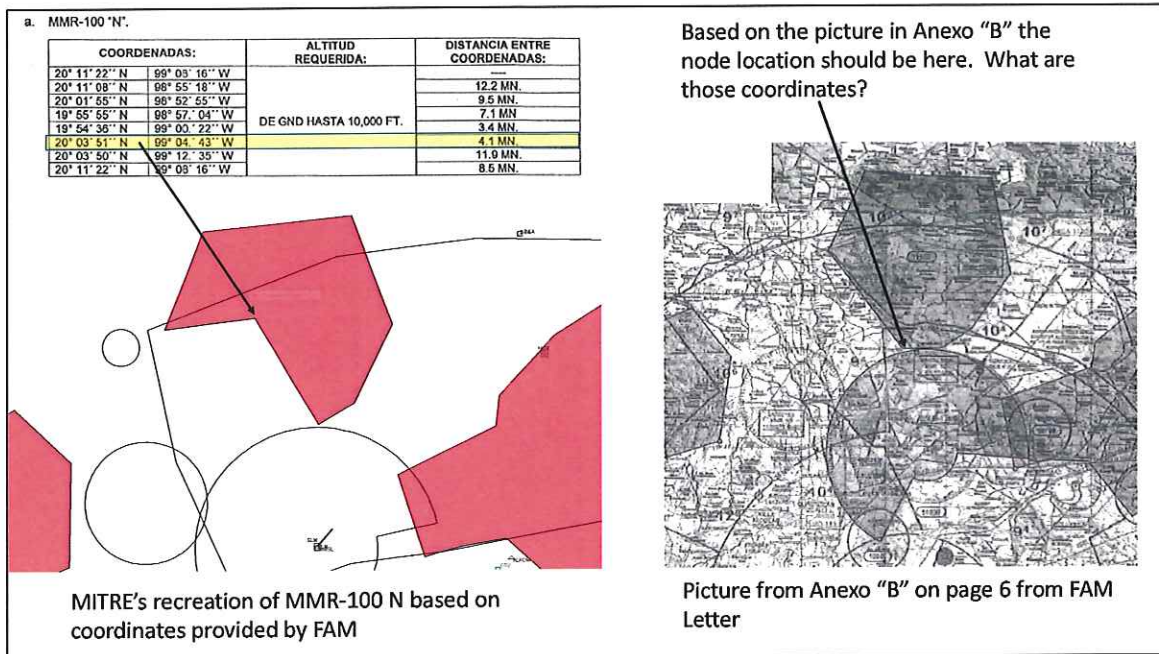
FAM Letter Page 7

Source: FAM letter No. A-5/EE/2967/17459, dated 2 June 2015.

Figure 2. Confusion Regarding ANEXO B



5. How often does FAM expect training area “II” to be active?
6. What is the correct latitude and longitude for the sixth node of FAM-proposed MMR-100 N? The latitude and longitude information for this node does not match what is depicted in the picture on page 6 of the FAM letter. See Figure 4 below for a more detailed explanation.



**Figure 4. Incorrect Node Coordinate for MMR-100 N**

## Closing Remarks

Once the answers to the above questions are answered and the requested data provided (please no later than 30 October 2015), MITRE can continue with its review of the FAM-proposed MMRs in conjunction with the MITRE-developed airspace design concept of NAICM. It is important to mention, however, that the NAICM design effort is expected to last many years and the final redesign and location of the MMRs will need to be carefully integrated with the overall Mexico City/Toluca Terminal Maneuvering Area (TMA) airspace. In addition, the MMR redesign effort will need to be done in a manner that does not cause operational interactions at NAICM.

In order to achieve the above-mentioned goal, it is important that MITRE work closely with both FAM and SENEAM to develop an airspace design for the Mexico City/Toluca TMA that accommodates the needs of its varied stakeholders as much as possible. Therefore, MITRE would like to take this opportunity to invite FAM officials to visit MITRE at a mutually agreed upon time to discuss important aeronautical matters in more detail.

Finally, MITRE does have some concerns because parts of FAM’s proposal are in conflict with MITRE’s and other aviation officials understanding of Santa Lucía SUA

elimination and aircraft relocation matters. For example, FAM's proposal indicates or infers that MMR-112, MMR-102, MMR-103, MMR-100 will remain with some modifications; MMR-101 will remain as it exists today; and training operations would occur at NAICM. These items create issues for NAICM and must be discussed further.

If you have any additional questions please do not hesitate to contact me if you need any clarification or any other assistance.

Sincerely,



Ing. Robert W. Kleinhans  
Project Technical Coordinator

cc:

Ing. Roberto Kobeh  
Lic. y P.A. Gilberto López Meyer  
Lic. Manuel Ángel Núñez  
Lic. Alfonso Sarabia  
Dr. Bernardo Lisker