



## **CANSO Academy: Understanding Space Launch and Re-entry Operations, International Coordination Needs and Processes – Questions and Answers**

### **1. How far in advance would you be aiming to promulgate those NOTAMs?**

This is subject to local/regional procedures, and potentially also whether the affected airspace is Oceanic or Domestic. *By P.G.*

### **2. Is anyone able to comment on the practicalities of tactical TFR management from an airline's perspective, given that they have to flight plan for that airspace to be closed and carry fuel/offload pax accordingly even if they end up being tracked direct and reduce track miles? Any lessons learnt by the FAA?**

The FAA collaborates with the aviation industry on real-time updates of TFRs and AHAs. *By H.B. & D.F.*

### **3. What kind of info/which details are part of the LoAs between the Operators and the FAA?**

- A) Names and contact information for all parties involved.
- B) For launch/reentry operation LOAs: Description of operation to include vehicle type and characteristics; anticipated frequency of operations; and requested airspace, altitude, vehicle positioning data transmittal, and Aircraft Hazard Area (AHA) information.
- C) For launch/reentry site LOAs: Brief description of the launch/reentry site, types of anticipated operations, and anticipated frequency of proposed operations.
- D) Operating procedures to include communication, real-time coordination, NOTAM content issuance, contingency, and emergency. *By H.B. & D.F.*

Any other measures the FAA deems necessary to ensure the protection of the public. *By S.Z. & E.S.*

### **4. Are the contents of the LoA between the operator and FAA established in a sort of model (with fixed items)?**

FAA uses templates that define roles, responsibilities, and procedures. *By H.B. & D.F.*

### **5. If there are 2 AHA one for launch and one for re-entry. Are there any restrictions to aircraft operating in the area between the structures?**

This is subject to the safety assessment for each launch. *By P.G.*

Generally, there are no restrictions. *By S.Z. & E.S.*

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## **6. What is the % of success of the airspace launches?**

The US launch industry has an impressive success rate overall. SpaceX's Falcon rocket has a success rate of approximately 99%, with the current iteration of the vehicle at 100% success. *By A.C.*

## **7. Is there a convenient dividing line for responsibility between an airspace/launch regulator and an ANSP? The Karman line, for example?**

The division between regulator(s) and ANSP(s) relates primarily to their different functions. Each ANSP works within the remit of its national airspace regulator, each space launch is under the remit of the relevant national space regulator. *By P.G.*

## **8. Does SpaceX have to pay compensation to airlines for the disruption caused by the closure of airspace?**

There is no payment regime between commercial launch providers and commercial airline companies. The National Airspace System is a space for all types of users, and the U.S. endeavors balance the needs of all entities to ensure proper prioritization of airspace use. Importantly, commercial launch providers are working closely with FAA and the aviation community to minimize the impact to the NAS. *By A.C.*

## **9. Are described procedures also applied for the launch from the Cosmic Girl, a Boeing 747 aircraft operated by Virgin Orbit?**

Yes, they are treated the same as other commercial space launch operators. *By H.B. & D.F.*

Virgin Orbit is required to comply with all CFR 400 regulations in accordance with their license. They do have LOAs that meet these regulations. *By S.Z. & E.S.*

## **10. Do AHAs have any extra buffers (e.g. 5NM, 10NM) inside to ensure safe separation with aircraft?**

AHAs in Oceanic Airspace will be subject to external separation standards between the AHA and any aircraft. These may be 30NM / 60NM / 120NM depending on the specific circumstances. Requirements in Domestic Airspace (particularly if Surveillance is available) will be much smaller. *By P.G.*

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**11. About the mission parameters submitted to Space Force and FAA by the spacecraft operator (SpaceX in this case), are there standard data formats? Or the data formats are proprietary? Same question about real time data.**

There is currently no regulation requiring standardized data, but through collaboration, that is the goal. *By H.B. & D.F.*

**12. Do your procedures with AHAs cover other countries FIR or airspace?**

Within Europe, the close proximity of FIRs means that AHAs may cover more than one FIR. *By P.G.*

Letters of agreement should cover procedures between ANSPs for launch operations. *By H.B. & D.F.*

**13. How do you identify AHAs distance to commercial air routes and danger areas where you can say that those AHAs are not a hazard for other activities?**

This is part of the Safety Regulator's safety assessment before approving the launch. *By P.G.*

**14. Is there any ongoing work with ICAO to provide higher level guidance on the international coordination of launches? To help harmonise the process across all member states?**

Yes, within the ICAO NAT region. A draft template LoA has been developed and is going through the ICAO review processes. *By P.G.*

**15. How long ahead of ops are AHAs declared? There appears to be a balance between advance notice of the AHA notification and size of AHAs.**

At the publication of the NOTAM (days before), at the first information from the sponsor to the regulator (weeks / months before), at the regulator's decision that the AHA is appropriate (days/weeks before depending on circumstances), or some other point in the process? (Within Europe, this could include informing the EUROCONTROL Network Manager so that the relevant coordinates can be included in the flight plan processing systems.) *By P.G.*



AHAs are delivered 10-15 days in advance of scheduled missions, requests are then sent to ANSPs for publication. *By H.B. & D.F.*

Per CFR 450.213 the operator has to submit flight safety analysis products to AST 30 days prior to their operation. AST reviews this data as soon as possible and provides the verified AHAs to FAA ATO no later than L-5 days. *By S.Z. & E.S.*

**16. How long ahead of these missions are these NOTAMs issued?**

We request publication 48-72 hours prior to the scheduled mission. *By H.B. & D.F.*

**17. Are these AHAs further revised based on updated info closer to the mission day?**

No, once the analysis is done and finalized the AHAs do not change unless there is a change to the mission trajectory or if the mission slips and the wind data in the analysis needs to be updated. *By S.Z. & E.S.*

**18. What action does the US NOF take in the event that AFTN message to foreign ANSP was not acknowledged / actioned?**

If the US NOF does not receive acknowledgment from the ANSP by five days in advance of launch another notification will be sent to the ANSP. FAA Space Operations will also be notified. *By C.B.*

**19. Is there alternate communication method to release NOTAM in foreign airspace apart from the AFTN messages?**

The AFTN message is a notification to the foreign ANSP of the launch activity. From that message, the ANSP should issue the appropriate NOTAM. The NOTAM will be distributed by the normal NOTAM distribution methods used by the issuing country. *By C.B.*

**Key:**

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