

COMSTAC Panel: Operations Working Group

16th Annual FAA Commercial Space
Transportation Conference

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Federal Aviation
Administration



What is the Operations Working Group (OWG)

- Identifies key launch operations, support, and processing issues affecting U.S. commercial space competitiveness
- Supports accessibility of new commercial space ventures to launch sites and services
- Investigates options for commercialization/privatization of launch services, support, and facilities

The OWG was formerly the Space Transportation Working Group (STOWG). Topics can be introduced by FAA/AST, COMSTAC members, or the public. Participation is voluntary and open to the public. We hold periodic email exchanges and telecons.



FAA/AST Priorities related to Operations & Current topics of OWG

- **#1: On-Orbit Authority for FAA/AST**
- **#3: Spaceport Licensing**
- **Code of Conduct & Long Term Sustainability of Space**
- **Global Regulations**
- **Range Commercial Investment**
- **Standards crafted by Human Spaceflight Industry**
- **(new) Launch Vehicle Standards & Best Practices**



On-Orbit Authority

- **Address request from FAA/AST that COMSTAC draft a recommendation on how the US government should address on-orbit authority**
- **Working Group formed to address "what is the need for On-orbit authority" and "does the FAA play a role in satisfying this need"**
 - Tim Hughes
 - Brett Alexander
 - Jeff Greason
 - Billie Reed
 - Chris Kunstadter
 - Oscar Garcia
 - Brad Cheetham
 - Aaron Orsterle
 - Diane Howard
 - Richard Rankin
 - Mary Lynne Dittmar
- **Sub Working Group developed specific input**



On-Orbit Authority Observation & Finding

- **OBSERVATION #1:** COMSTAC observes that On-Orbit Authority is a complex issue, with many questions, numerous stakeholders, and no consensus on why or how to address such authority in the broadest sense.
- **OBSERVATION #2:** On-Orbit Authority involves international stakeholders and this issue may have interactions with other international issues (long term sustainability of space, standards, etc).
- **FINDING #1:** A need for on-orbit authority was identified in order to facilitate *space traffic coordination**. No other justification was identified for such on-orbit authority by this group at this time.

*Defined here as the coordination between on-orbit operators both foreign and domestic, spanning commercial, civil, and military missions to avoid physical or radiofrequency interference.



On-Orbit Authority Recommendations

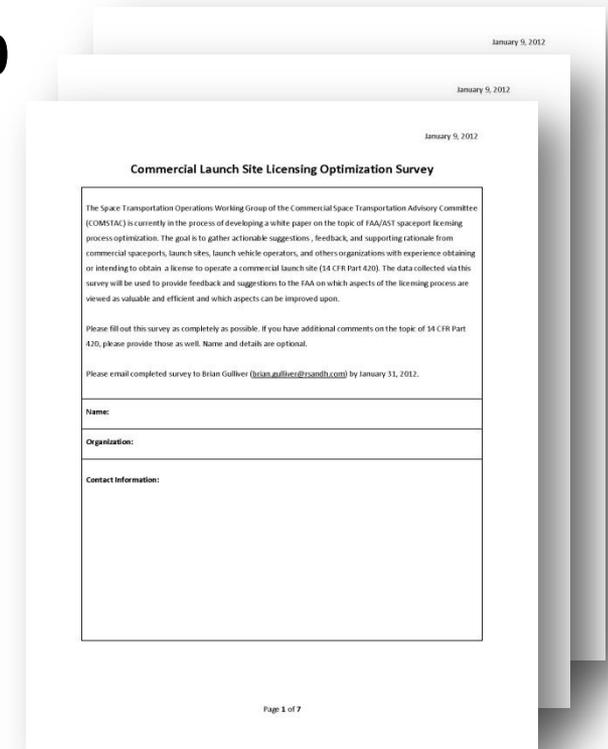
- **RECOMMENDATION #1:** FAA/AST examine the use case of “space traffic coordination” and create a scenario and analysis addressing this issue.
- **RECOMMENDATION #2:** FAA/AST share the results of recommendation #1, and continue this dialogue with COMSTAC.



Spaceport Licensing White Paper and Survey

- **October 2011: STOWG accepted task to develop white paper to recommend changes to regulations 14 CFR Part 420**
- **Online survey received 28 responses**
- **Deliberations in May 2012 concluded more input needed**
- **Re-opened Survey and received 5 additional responses**
- **Final white paper prepared**

THANK YOU to: Brian Gulliver (RS&H), Oscar Garcia (Interflight Global), and Jeff Greason (XCOR) and all who responded



Summary of Survey Results

- **Difference in perspective of the relevance of launch site licensing requirements between spaceports and consultants**
 - Spaceports- Express more change needed
 - Consultants- Express less change needed
- **The results lean toward the conclusion that current regulations are a better fit for vertical launch orbital launch sites than for horizontal suborbital launch sites**
 - The latter can benefit from modular “right fit” approach
- **The least relevant requirements were identified as:**
 - Propellant Handling / Lightning Protection
- **Some difference in opinion within spaceport/operator community (NEW)**
 - *This became more clear in the final analysis*

See full white paper for details

Spaceport Licensing White Paper Summary

Suggests 4 possible options, to review potential methods for re-aligning the regulations with the commercial spaceflight industry. Views of which option to pursue depend on the viewpoint of the system and the spaceport.

- Option 1 { • No action
- Option 2 { • Develop appendix to Part 420 or guidelines
- Option 3 { • Modify Part 420 to be modular
- Option 4 { • Start Over

Spaceport Licensing Observation & Recommendation

- **OBSERVATION:** The Spaceport Licensing survey results affirm that “one size does not fit all” with regards to spaceport licensing, as the perspective depends on the system and the spaceport. One way to handle this is create modularity in the regulations.
- **RECOMMENDATION:** COMSTAC recommends that FAA/AST accept the FINAL white paper and survey findings as input to the expected rule-making process and that the rule be amended or rewritten to include maximum flexibility with regards to emerging launch operations and sites. The dialogue with industry should continue.



International Developments in Space Operations

- **Long-Term Sustainability of Space (A United Nations COPOUS Activity). COMSTAC has been following this since it started.**
 - Dick Buenneke, State Dept (Update and Group B report)
 - John Sloan, FAA/AST (Update and Group D report)
 - Rachel Yates, COMSTAC (Group D rep)
 - Chris Kunstadter, COMSTAC (Group B rep)
- **International dialogue continues on this subject, with political not legal commitments being discussed**
- **Goal is “best practice guidelines,” but this is hard!**
 - Many guidelines are common sense but not common practice
- **Various draft papers being worked, and private sector continues to have a voice**
- **Next formal UN meeting in February 2013**



Long-Term Sustainability of Space (LTSSA)

- **United Nations Committee on the Peaceful Uses of Outer Space (UN COPUOS)**
 - Working group on long-term sustainability of space activities now underway
 - Expert group reviews of “best practice” guidelines in four areas:
 - A. Sustainable space utilization supporting sustainable development on Earth
 - B. Space debris, space operations and tools to support collaborative space situational awareness**
 - C. Space weather
 - D. Regulatory regimes and guidance for actors in the space arena**
- **LTSSA working group will guilds on ongoing work in existing international organizations and bodies, including:**
 - Inter-Agency Space Debris Coordination Committee
 - Consultative Committee for Space Data Systems
 - International Organization for Standardization



DOD Proposal to Enhance Commercial Interactions at Federal Ranges

- **Following activities of proposed FY12 NDAA addition of Section 2275 “Commercial Space Launch Cooperation” to “U.S.C. Title 10 Armed Forces” will:**
 - Synchronize Title 10 with Title 15 (Commerce) and Title 49 (Transportation)
 - Enable DoD partnerships with states and commercial users to Increase capacity, Share resources, Combine resources, Enable commercial space augmentation
- **Legislative updates in process (as of October 2012)**
- **Once through the Hill, DOD will engage with industry for further engagement**
- **COMSTAC and FAA/AST continue to follow this issue**



Launch Vehicle International Standards and Best Practices (new topic)

- **Speaker: Fred Slane, Executive Director, Space Infrastructure Foundation and head of US Delegation to ISO**
- **Report on at least 3 ISO standards proposals offered by China**
 - Determining and communicating post deployment trajectories of multiple payloads deployed from same launch vehicle
 - Launch vehicle failure mode analysis and booster burnout state
 - Proposed by China Advanced Launch Vehicles Technology Institute



ISO Standards Observation & Recommendations

- **OBSERVATION #1:** The international standards developments are interesting and worthy of following and continuing dialogue.
- **OBSERVATION #2:** This activity, plus the LTSSA and on-orbit authority, indicate that the international community will play an increasing role in space operations of the future.
- **RECOMMENDATION #1:** FAA/AST follow this subject and use COMSTAC as a venue for discussion and a mechanism to keep industry informed and seek responses as necessary. This would parallel the role that FAA/AST is playing on the international development topic. The international subjects should be addressed at a holistic level.



OWG Contact

Send your email to get on the distribution list

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