



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

**SEP 9 2014**

Office of the Associate Administrator for  
Commercial Space Transportation

800 Independence Ave., SW.  
Washington, DC 20591

Mr. Michael N. Gold  
Chairperson  
COMSTAC  
5335 Wisconsin Avenue, NW, Suite 950  
Washington, DC 20015

Dear Chairman Gold: *Mike -*

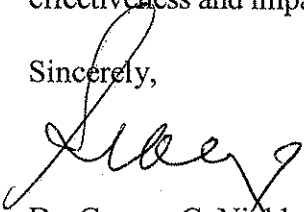
Thank you for providing the observations, findings and recommendations put forth by the COMSTAC Working Groups during the May 2014 COMSTAC meetings. I commend you and the members of the Committee on your outstanding work on many of the critical issues facing the U.S. commercial space transportation industry. The FAA is very appreciative of the time and the expertise that you and your fellow COMSTAC members contribute for the work of the Committee.

I am enclosing AST responses and updates to your observations, findings and recommendations. We have organized the information into the following categories:

- Overview of Issue Organization
- COMSTAC Issue Matrix

We are honored to have your leadership and expertise to carry on the work of COMSTAC, especially at this challenging time for the industry. I look forward to working closely with you and the Committee members, as we continue our shared effort to increase the Committee's effectiveness and impact, and to support of the U.S. commercial space transportation industry.

Sincerely,

  
Dr. George C. Nield  
Associate Administrator for Commercial Space  
Transportation

Enclosure

September 2014

**Key to Working Group Abbreviations Used in Tables Below:**

BLWG Business/Legal Working Group  
 OWG Operations Working Group  
 ISPWG International Space Policy Working Group (formerly the Export Controls Working Group)  
 SWG Systems Working Group

**TABLE 1: Overview of Issue Organization**

Category	Table Number	Issues	COMSTAC Working Groups			
			BLWG	ISPWG	OWG	SWG
COMSTAC Issues	Table 2	Inclusion of Spaceflight Participants in Third-Party Indemnification	X			
		GSO and NGSO Forecasts	X			
		Universal Termination Liability Reform	X			
		Experimental Permits Remain Valid after Licensing	X			
		Publish Proposed NPRM to include SFPs	X			
		Formulations of Industry Standards		X		
		ANSI Technical Committee 20 TAG		X		
		International Regulatory Agencies		X		
		Property Rights and Non-Interference		X		
		Export Controls – Human-Rating		X		
		Commercial Space Launch Cooperation			X	
		AF Capability-Based Assessment of Ranges			X	
		First Class Medical Certificate for Crew			X	
		Medical Standards Review			X	
		Documentation of Flight Effects on Crew			X	
		Establish Repository for Medical Data			X	
		IAASS Input on Suborbital Safety Guidelines				X
FAA AST Funding Levels			Full			

**TABLE 2: Other COMSTAC Issues**

Business/Legal Working Group	AST Response
<p><b>Observation:</b></p> <ul style="list-style-type: none"> <li>COMSTAC observes that prospective spaceflight participants may be deterred from participating in commercial suborbital spaceflight due to the remote possibility of incurring personal liability in the event of damage to third parties as a result of a flight anomaly.</li> </ul> <p><b>Finding:</b></p> <ul style="list-style-type: none"> <li>COMSTAC finds that the inclusion of spaceflight participants in the CSLA indemnification regime would likely have an immediate beneficial effect on the suborbital spaceflight industry. It would likely also result in no additional cost to the federal government due to the improbability of a successful liability suit against a spaceflight participant coupled with the improbability of the damage exceeding the maximum probable loss.</li> </ul>	
<p><b>Recommendations:</b></p> <ul style="list-style-type: none"> <li>COMSTAC recommends that spaceflight participants be included in the CSLA indemnification regime in order to limit the potential liability of spaceflight participants in the event of damage to third parties as a result of a flight anomaly.</li> </ul>	<p><b>Lead: Michael Beavin</b></p> <ul style="list-style-type: none"> <li>The FAA AST continues to pursue interagency and congressional dialogue regarding options for limitation of liability, associated with spaceflight participants' involvement in human spaceflight.</li> </ul>
<ul style="list-style-type: none"> <li>COMSTAC recommends that FAA AST continue to support the annual GSO/NGSO forecasts, as they provide a valuable resource for FAA AST, the global commercial space industry, U.S. government agencies and offices, and many others.</li> </ul>	<p><b>Lead: Mary Carolyn Thies</b></p> <ul style="list-style-type: none"> <li>The FAA AST works with COMSTAC members every year to generate the GSO and NGSO Launch Forecast reports. AST realizes the importance of these reports. The current budget environment has presented AST with challenges, not the least of which is how to fully fund the safety operations in fulfillment of our regulatory mission goals, while also creating industry status reports. Every attempt is being made to continue work in support of both activities.</li> </ul>

<ul style="list-style-type: none"> <li>• COMSTAC recommends that FAA AST, in its communications with the Administration, NASA, and Congress, support universal termination liability reform for all NASA programs.</li> </ul>	<p><b>Lead: Pam Underwood</b></p> <ul style="list-style-type: none"> <li>• The FAA is given relief from many of the Federal laws governing procurements including CICA, the Small Business Act and the FAR as a result of the 1996 Department of Transportation appropriation legislation. Although not applicable to our agency, FAA AST agrees that universal termination liability reform would be a benefit for the commercial space transportation industry for all NASA or other Government programs seeking to utilize commercial space in the achievement of their missions.</li> </ul>
<ul style="list-style-type: none"> <li>• COMSTAC recommends that FAA AST, in its communications with the Administration and Congress, support the amendment of commercial space launch licensing requirements to allow for experimental permits to be issued after a suborbital rocket or rocket design has been licensed, and for any existing experimental permits to remain valid after a suborbital rocket or rocket design has been licensed.</li> </ul>	<p><b>Lead: Michael Beavin</b></p> <ul style="list-style-type: none"> <li>• The FAA AST continues to work with the Administration and both the U.S. House of Representatives and the Senate on the proposed legislative efforts on these areas.</li> </ul>
<ul style="list-style-type: none"> <li>• COMSTAC recommends that FAA expeditiously move forward with publishing its proposed NPRM to update and rationalize its cross-waiver regime, including SFPs to the extent permitted by statute.</li> </ul>	<p><b>Lead: Stewart Jackson</b></p> <ul style="list-style-type: none"> <li>• The FAA AST will consider this recommendation, to the extent permitted by statute, in future proposed NPRM updates to the cross-waiver regime.</li> </ul>

International Space Policy Working Group	
<p><b>Observation:</b></p> <ul style="list-style-type: none"> <li>National and international standards initiatives are of material interest to COMSTAC members and industry. Although all such standards are developed as voluntary documents, U.S. federal, state, or local bodies are increasingly referring to them for regulatory or procurement purposes.</li> <li>To further the FAA AST's mission of safety and industry promotion, it would be beneficial to directly monitor the activities of the Technical Advisory Group (TAG) for the ISO Technical Committee 20 and communicate to the COMSTAC and the broader industry any relevant national and international "consensus" standards that are or might be adopted as early as possible in the development process.</li> </ul>	
<p><b>Recommendations:</b></p> <ul style="list-style-type: none"> <li>The FAA AST should work with the COMSTAC to influence the formulation of new standards that are beneficial to U.S. industry and to oppose the development of standards that are detrimental.</li> </ul>	<p><b>Lead: Paul Wilde</b></p> <ul style="list-style-type: none"> <li>The FAA AST agrees with this recommendation. AST employees (i.e. Paul Wilde of AST-4 and Kelvin Coleman of AST-3) have been voting TAG members for several years. Although they current do NOT represent FAA/AST in any official capacity on the TAG, they have kept AST abreast of new standards that could impact commercial space transportation. AST encourages COMSTAC members to engage the TAG directly.</li> </ul>
<ul style="list-style-type: none"> <li>The COMSTAC recommends that the FAA AST engage with ANSI as a government member and proactively monitor and/or participate on Technical Committee 20 as a Technical Advisory Group (TAG) member.</li> </ul>	<p><b>Lead: Paul Wilde</b></p> <ul style="list-style-type: none"> <li>The FAA AST plans to investigate the potential benefits and resources required of engagement with the ANSI as a government member. AST plans to continue to support the participation of its staff members on the TAG. AST welcomes any findings or recommendations from the COMSTAC may produce on TAG issues relevant to commercial space transportation.</li> </ul>

<ul style="list-style-type: none"> <li>The COMSTAC recommends that the FAA AST work with foreign legislative bodies and regulatory agencies to reduce the aggregate regulatory burden on space transportation operators.</li> </ul>	<p><b>Lead: John Sloan</b></p> <ul style="list-style-type: none"> <li>The FAA/AST agrees with this recommendation to the extent the FAA can promote the international adoption of FAA commercial space transportation regulations which have been part of AST outreach activity since 2008. To reduce burdens on U.S. operators because of existing or future foreign regulations or legislation, AST would work with the FAA International Affairs office (API) and the U.S. State Department. It is important to note that AST does not have authority to sign binding international agreements.</li> </ul>
<ul style="list-style-type: none"> <li>The COMSTAC recommends that the FAA AST work to build consensus abroad regarding the right of private entities to operate without interference on celestial bodies and to assert ownership over extracted natural resources.</li> </ul>	<p><b>Lead: John Sloan</b></p> <ul style="list-style-type: none"> <li>The FAA/AST agrees with this recommendation and will provide information to the U.S. State Department and other U.S. agencies about the U.S. industry activity and interest in this area. The development of international consensus would be led by the State Department.</li> </ul>
<ul style="list-style-type: none"> <li>The COMSTAC recommends that in its communications with the Administration and Congress, the FAA AST emphasize that human-rating should not be used as a metric for export controls. Instead, export control regulations should focus on the nature of specific systems and subsystems, not on whether a spacecraft has been human-rated.</li> </ul>	<p><b>Lead: John Sloan</b></p> <ul style="list-style-type: none"> <li>The FAA/AST agrees with this recommendation.</li> </ul>

Operations Working Group	AST Response
<p><b>Observation:</b></p> <p>Title 10 USC, Sec 2276 provides the Secretary of Defense authority to enter into agreements with private sector entities to provide space transportation infrastructure support and services through the acceptance of non-federal contributions requires congressional appropriation to use deposited funds.</p> <p><b>Finding:</b></p> <p>This provision could allow private industry to enable "smart business" contributions to launch/range infrastructure.</p>	
<p><b>Recommendation:</b></p> <ul style="list-style-type: none"> <li>• FAA AST continue to monitor this effort, request COMSTAC briefings once this provision begins being leveraged by the private sector to better assess commercial industry's interest.</li> </ul>	<p><b>Lead: Al Wassel</b></p> <ul style="list-style-type: none"> <li>• The FAA AST continues to monitor the commercial industry interest in participating in the Space Transportation Infrastructure services. To date, no operators have expressed interest in this program according to range personnel.</li> </ul>
<p><b>Air Force Capability-Based Assessment of Launch Ranges Update</b></p> <p><b>Observations:</b></p> <ul style="list-style-type: none"> <li>• AFSPC is examining requirements at their federal launch ranges for opportunities to decrease cost and maintain same risk levels. <ul style="list-style-type: none"> <li>○ Part 1 identifies opportunities to right-size the range.</li> <li>○ Part 2 in-depth analysis by The Aerospace Corp to examine more material options, including input from commercial space launch industry.</li> </ul> </li> <li>• Per NSTP, the U.S. shall seek to foster and ensure the availability of domestic space transportation capabilities that are reliable, efficient, affordable, innovative, and competitive for all users.</li> <li>• 30SW and 45SW are the busiest ranges in the U.S. their effectiveness affect all users.</li> <li>• The decisions resulting from the CBA matter to all users.</li> </ul>	

<p><b>Recommendation:</b></p> <ul style="list-style-type: none"> <li>• FAA AST continue to advocate for commercial users and for “outbriefs” to stakeholders to occur before decisions are finalized by AFSPC.</li> </ul>	<p><b>Lead: Al Wassel</b></p> <ul style="list-style-type: none"> <li>• The FAA AST continues to advocate for clear and open communication with commercial launch operators on AF Ranges. Air Force Space Command has completed the Capabilities Based Assessment and will provide the final report when complete. Additional discussions outside of the CBA construct, but in line with the intent of the CBA, continue and the Air Force will provide updates as requested.</li> </ul>
<p><b>Medical Issues for Commercial Suborbital Spaceflight Crewmembers</b></p> <p><b>Observation:</b></p> <ul style="list-style-type: none"> <li>• Minimal suborbital flight operational experience above 100 km exists.</li> </ul> <p><b>Finding:</b></p> <ul style="list-style-type: none"> <li>• Database needs to be expanded; medical evaluations and an independent data repository would be helpful.</li> </ul>	
<p><b>Recommendations:</b></p> <ul style="list-style-type: none"> <li>• FAA AST should require an FAA First Class medical certificate for pilots with a well-defined, documented, and communicated waiver process inherent to medical certification similar to past spaceflight experience.</li> </ul>	<p><b>Lead: Randy Repcheck</b></p> <ul style="list-style-type: none"> <li>• It is unclear whether COMSTAC is recommending that we modify our current regulations, which currently requires a second-class certificate. In our Recommended Practices for Human Space Flight Occupant Safety document, we have moved away from a specific type of certificate towards a more performance based recommendation. We look forward to further discussions on this topic.</li> </ul>
<ul style="list-style-type: none"> <li>• FAA AST should periodically re-evaluate medical standards for flight critical crewmembers.</li> </ul>	<p><b>Lead: Randy Repcheck</b></p> <ul style="list-style-type: none"> <li>• The FAA/AST agrees with this recommendation. Medical standards for flight crew members will continue to evolve as the industry gains flight history.</li> </ul>



<ul style="list-style-type: none"> <li>• FAA AST should advocate to the suborbital industry for investigation and documentation on the effects on flight critical crewmembers' performance from effects of multiple suborbital flights.</li> </ul>	<p><b>Lead: Randy Repcheck</b></p> <ul style="list-style-type: none"> <li>• The FAA/AST agrees with this recommendation. Such data would be beneficial to the industry as a whole and AST will plan to advocate for it.</li> </ul>
<ul style="list-style-type: none"> <li>• FAA AST should establish a non-attributable repository for flight critical crewmember medical data.</li> </ul>	<p><b>Lead: Randy Repcheck</b></p> <ul style="list-style-type: none"> <li>• The FAA/AST agrees with this recommendation. A non-attributable repository for flight crew medical data could benefit the industry.</li> </ul>
<p><b>Systems Working Group</b></p>	<p><b>AST Response</b></p>
<p><b>IAASS Input on Suborbital Safety Guidelines</b></p> <p>Finding:</p> <ul style="list-style-type: none"> <li>• There are distinct differences in the approach taken by IAASS regarding Spaceflight Safety and future regulation than that taken by the U.S.</li> </ul>	<p><b>Lead: Michael Beavin</b></p> <ul style="list-style-type: none"> <li>• The FAA AST acknowledges the COMSTAC finding regarding IAASS suborbital safety guidelines.</li> </ul>
<p><b>Full Committee</b></p>	<p><b>AST Response</b></p>
<p>Recommendation:</p> <ul style="list-style-type: none"> <li>• COMSTAC supports full funding of the FY 2015 Presidential Budget Request for the FAA Office of Commercial Space Transportation (FAA AST) to ensure that the FAA AST can meet its responsibilities in an effective and timely fashion.</li> </ul>	<p><b>Lead: Michael Beavin</b></p> <ul style="list-style-type: none"> <li>• The FAA AST acknowledges COMSTAC support for the President's FY2015 Presidential Budget Request for the office.</li> </ul>