



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



**Federal Aviation
Administration**

Commercial Space Transportation Advisory Committee

COMSTAC

May 10, 2012

Meeting Minutes

COMSTAC Chairman Will Trafton convened the Commercial Space Transportation Advisory Committee (COMSTAC) meeting at 8:00 a.m. The meeting was held at the National Housing Center Auditorium, 1201 15th Street, N.W., Washington, D.C.

Mr. Trafton welcomed COMSTAC members and the public to the 55th COMSTAC meeting. He asked the members to introduce themselves.

Mr. Trafton noted that there were some significant changes to the agenda. This will be a two-day meeting split up by the working groups.

He stated that he continues to pursue the goal making COMSTAC more relevant to the industry and more helpful to FAA/AST. A big step towards the goal was when he was invited along with Dr. George Nield to testify at the FAA/AST budget hearings before Congress. He noted that the working groups have been holding teleconferences in between the full COMSTAC meetings and accomplishing quite a bit.

Mr. Trafton called attention to Charles Precourt, who was recently inducted into the astronaut hall of fame.

He then introduced Dr. George Nield, FAA Associate Administrator for Commercial Space Transportation, who then introduced the guest speaker, Charles Bolden, NASA Administrator.

Remarks by Mr. Bolden

Mr. Bolden noted that when COMSTAC provides good feedback to the FAA, this helps NASA and helps assure the success of the commercial space entity.

He highlighted several times that we are on the brink of a new era. An American company will launch an American capsule atop an American rocket. This will be the first rendezvous and berthing of a private industry owned capsule with the International Space Station. Private industry has always been a critical partner in building rockets and spacecraft for NASA. Soon private spacecraft will be available for hire to transport crew and cargo to the International Space Station. Mr. Bolden expressed his commitment to launching American astronauts and their cargo from U.S. soil on spacecraft built by American companies. The NASA can do what it does best – make it possible for astronauts to go deeper into space than anyone has ever gone before.

Mr. Bolden highlighted several of commercial space achievements. He noted that for NASA to achieve its goals, the key is adequate funding and good, old-fashioned American competition. He commented that some have advocated eliminating competition by down-selecting to a sole commercial space company to provide transport to the International Space Station. He cautioned that this could double the cost of developing a privately-built human spaceflight system, and would leave the U.S. in the same position it is today – having only one option for getting our astronauts to the International Space Station.

Mr. Bolden reviewed the science and technological advances achieved at the International Space Station. He also noted the progress on launch vehicles and spacecraft that will fly missions to the asteroid belt and then to Mars.

He reminded COMSTAC members and the audience that the first ‘A’ in NASA refers to Aeronautics. NASA is invested in assisting the transition to the Next Generation transportation system to make aviation safer, more fuel efficient, quieter, and more environmentally friendly.

Mr. Bolden declared that NASA is not only open for business; its best days are ahead.

Mr. Bolden opened the floor up for questions.

Livingston Holder asked how Mr. Bolden would respond to those who propose down-selecting to one vehicle to provide transport to the International Space Station. Mr. Bolden responded that down-selecting would not be prudent or cost effective because we don’t know who the one would be. There are three different configurations: a classic cone, a bi-conic system, and a winged spacecraft. We don’t yet know enough to make a selection. We want the companies to have the opportunity to innovate and get some tests under their belts. When we do make a selection, we’ll be comfortable with the choice.

Mr. Holder asked if there might be multiple providers in the future. Mr. Bolden replied that he expected there would be two or three providers when NASA moved to a contract. This would preserve competition and would preserve redundancy. If one system goes down, we will not have to sit and wait two years while another comes on line.

Mr. Bolden thanked COMSTAC and Dr. Nield for opportunity to speak.

Remarks by Dr. Nield

Dr. Nield thanked Mr. Bolden for his comments.

He then acknowledged the new format for the COMSTAC meeting. He stated that AST’s goal is to “really transform the activities of this body and the impact it can make.” He asked COMSTAC members for their observations and recommendations on the meeting structure.

He proceeded to outline five issues on which AST would like feedback from COMSTAC. These are as follows.

On-orbit Authority – Dr. Nield stated this is his highest priority in terms of potential legislative changes for three reasons. First, issues of orbital debris, collision avoidance, and first steps towards space traffic management are receiving significant attention. Second, it makes sense to talk about basic health and safety guidance for our industry as

we approach seeing commercial human spaceflight on orbital missions. Third, there is no government entity identified as having oversight responsibility for commercial space transportation. Dr. Nield requested that COMSTAC look at the issue. What kind of on-orbit authority would be helpful to industry? What would it look like?

Human Spaceflight Support – Dr. Nield acknowledged that Congress recently extended the moratorium on the FAA issuing proposed regulations intended to support the safety of crew or spaceflight participants until October 1, 2015. At the same time, Congress directed the FAA to work with industry to prepare for eventual regulations. While the FAA cannot show industry an idea for a proposed regulation, industry can certainly express the kinds of basic regulations and standards it believes would be appropriate for human spaceflight. The FAA wants to know industry's thoughts on this subject.

Spaceport Licensing – Dr. Nield noted that several states are stepping forward to ask how they can establish a spaceport. Does the FAA need to establish standards for spaceports? Does there need to be consistency between spaceports? The FAA established the Space Transportation Match Grant Program and has awarded a small number of grants to spaceports. Should this program continue? The FAA wants to hear industry input on this.

Lessons Learned Database – Dr. Nield observed that the difference in where commercial space transportation is today and how aviation developed is in experience and data. The FAA does not want to see operators relearning mistakes that have already been made. The challenge is to share the lessons learned without compromising proprietary information.

How to Operate Going Forward – Dr. Nield asked several questions. Are COMSTAC and the FAA dealing with the right issues on a number of changes that have been implemented recently? How should new COMSTAC members be selected? How should the COMSTAC agenda be set? How should communication between COMSTAC and the FAA be effected?

A discussion followed with questions on the five issues Dr. Nield presented. Livingston Holder asked why have a discussion on human spaceflight regulations. When the NPRM is published in 2015, industry will have a chance to comment on an actual proposal rather than engaging in a general discussion on the topic now. Dr. Nield noted that industry feedback has been that an NPRM may go one direction and industry may feel strongly the proposed regulation should go another direction. If AST can get a sense of industry thinking, perhaps that can be incorporated into the rulemaking process. Also, it is possible that between now and 2020 there may well be an accident. When and if that occurs, pressure from the media and Congress may dictate that AST promulgate a regulation immediately. These are not the ideal circumstances for rulemaking and bad rules could result.

There were several questions concerning on-orbit authority. There were suggestions that AST might prepare some examples of what the implications of the authority would be. Industry could then better see the problems the authority might solve. It was noted that there may be legislative opportunities coming up where COMSTAC could step forward and participate in the dialog on this issue.

Dr. Nield concluded by expressing his confidence that this new approach to working with COMSTAC will enhance AST's relationship with COMSTAC and allow for discussion of a variety of issues. He looked forward to the working group discussions of these issues.

Remarks by Mr. Trafton

Mr. Trafton thanked Dr. Nield and expressed his pleasure with the written, clear guidance AST provided on what COMSTAC could do for AST and for the industry. He then noted that following the afternoon working group sessions, he and the working group chairs would meet to discuss potential new COMSTAC members and the criteria for selecting new members.

Mr. Trafton went through the five issues Dr. Nield presented. There was some discussion about which working group would take responsibility for each issue. It was noted that the issues were large enough that while one working group might take the lead, other working groups would provide support. They were as follows:

On-Orbit Authority – Operations Working Group

Human Spaceflight Support – Business/Legal Working Group

Spaceport Licensing – Operations Working Group

Lessons Learned Database – Systems Group with support from the other working groups

COMSTAC Work Planning – the issue of indemnification will be a topic for discussion in the Business/Legal Working Group

The meeting dismissed in order to hold the working group meetings.

Commercial Space Transportation Advisory Committee
COMSTAC
May 11, 2012
Meeting Minutes

Mr. Trafton called the full COMSTAC to order 10:45 am following the meeting of the Systems Working Group. He then expressed his thanks to the people who put this COMSTAC meeting together.

Mr. Trafton noted he was pleased with the content and discussions in the four working group meetings.

Business/Legal Working Group (BLWG) Report

Chris Kunstadter reported on the Business/Legal Working Group. He stated it was one of the most interesting working group meetings he had had the pleasure of attending. To get a reaction to the new meeting format, he will work with Sue Lender to conduct a follow-up survey of the members and attendees.

Mr. Kunstadter then presented the two findings and two recommendations from this working group. There was some discussion on the language for each of these.

Finding #1

COMSTAC finds that “spaceflight participants” are not covered by Tier 2 of the CSLA liability regime, while “crew” are covered. The BLWG will examine the subtlety of this distinction.

Finding #2

COMSTAC finds that the AST contributions to:

- The work on liability limitation for human spaceflight
- The NASA insurance task
- The GAO indemnification study
- The extension of the CSLA liability regime

are all critical components of the changing landscape of commercial space activity. COMSTAC strongly encourages AST’s continuation of – and, in particular, coordination among – these efforts.

Recommendation #1

COMSTAC recommends that AST facilitate the release of the AST report for the NASA insurance task. This document is a useful and comprehensive reference for the commercial space industry, among others.

Recommendation #2

COMSTAC strongly recommends that AST uses all reasonable efforts to support extension of the CSLA liability risk-sharing regime. COMSTAC urges extension and offers the support of its members to assist in this effort.

There was some discussion on the best way to support AST on the issue of extending the liability risk-sharing regime.

The membership voted to accept these findings and recommendations.

Mr. Kunstadter urged COMSTAC members to review the GAO report.

Export Controls Working Group (ECWG)

Mr. Gold presented the Export Control Working Group report. He noted the finding COMSTAC submitted at a previous meeting to post the results of Commodity Jurisdiction Request decisions on the DDTC website. This has been done. He also noted that the Section 1248 Report determined that COMSATS that do not contain classified components or exceed certain performance parameters can be administered under the CCL without harming national security.

Finding #1:

COMSTAC members strongly support the recommendations of the Section 1248 report, including that Congress must return to the President authority to determine the export control jurisdictional status of satellites and related items.

Finding #2

The COMSTAC supports the Directorate of Defense Trade Controls decision to deem 'passenger [spaceflight participant] participation in space travel' as a non-licensable activity under the ITAR via responses to Commodity Jurisdiction requests and the Section 1248 report.

Finding #3

COMSTAC members strongly support the transfer of suborbital human spacecraft to the Commerce Control List.

The membership voted to accept these findings.

Mr. Trafton called a break in the meeting to allow for a lunch break. The Committee reconvened at 1:00 pm.

Operations Working Group Report

Debra Facktor Lepore presented the Operations Working Group report. She noted there was a very good discussion of FAA/AST's priorities.

On Orbit Authority – There was some discussion on the issues surrounding this subject.

Observation #1

COMSTAC agrees that On-Orbit Authority is worthy of consideration and discussion, given the uncertainties surrounding jurisdiction and regulation questions of on-orbit operations involving space transportation.

The working group takes the action to explore the issue further. Several individuals volunteered to take the lead on this.

Spaceport Licensing – Ms. Lepore noted that the working group has already been looking at this issue and prepared a draft white paper. She thanked Brian Gulliver, Oscar Garcia, and Jeff Greason for their work on the draft white paper.

Observation #2

The Spaceport Licensing survey has provided further insights to the diversity of issues involved with multiple types of vehicles and operations (e.g., vertical orbital, horizontal suborbital) and spaceport licensing. COMSTAC is encouraged that FAA/AST is conducting a broader review of Part 420.

Recommendation #1

COMSTAC recommends that FAA/AST accept the white paper and survey findings as input to this process and continue in an open dialogue with industry, through COMSTAC and OWG, to gather as much input as possible prior to any rulemaking process.

International Code of Conduct and UN Long Term Sustainability of Space – Ms. Lepore noted that Frank Rose from the State Department spoke at the working group meeting. She also noted that COMSTAC input to the UN COPUOUS has been an ongoing process.

Finding #1

- Visibility into the International Code of Conduct is necessary.
- The communication mechanisms being used by FAA/AST to keep industry informed and engaged are working well.
- COMSTAC participation in the UN COPUOUS process on Group B and Group D is appreciated and welcome, and should continue.

Recommendation #2

FAA/AST continue to play this facilitation role and keep COMSTAC informed of key issues.

DoD Proposal to Enhance Commercial Interactions at Federal Ranges – Tom Shearer gave an update on the progress of the DoD proposal.

Finding #2

It remains useful for COMSTAC and FAA/AST to remain apprised of this process. The communication process is working. When the time is right, COMSTAC remains the right place to engage in industry dialogue on next steps.

The membership voted to accept these observations, findings, and recommendations.

There was a discussion on input to the UN Long-Term Sustainability of Space (LTSSA) working group. COMSTAC submittals to the State Department on Group B and Group D were discussed. A vote was taken to approve the submittals.

Ms. Lepore noted that two teleconferences are planned during the summer. Notification will be sent out.

Systems Working Group Report

Livingston Holder reported on the Systems Working Group. He noted that Mike Kelly updated the working group on the Lessons Learned Database, Pam Melroy briefed the working group on the human spaceflight requirements effort, and Kate Maliga reported on the Suborbital Market Report being prepared for the FAA.

Mr. Holder observed that this is a new working group. He identified the kinds of issues the group would tackle as key safety, technical, policy, and regulatory issues concerning the range of hardware and software involved with commercial space transportation.

Lessons Learned Database – COMSTAC developed a finding during the October 2011 meeting that it would be beneficial for AST to develop a process to capture and disclose pertinent industry data, especially about anomalies. Protecting proprietary data is key to this effort. The database is populated at the same level as when it was created and therefore is really not used. Companies may share data with AST, but not with other companies. Mr. Holder recommended looking at other models, such as the Space Quality Improvement Council managed by Aerospace. He also encouraged AST to look beyond the current database and explore other options. He also recommended that AST expand exposure to the current system and conduct face-to-face meetings with potential suppliers of the data and additional public meetings. He proposed some working group teleconferences to explore at this topic and make suggestions for AST to consider.

Observation #1

The Commercial Space Transportation Lessons Learned (CSTLLS) Database has gone largely unpopulated and unused. Companies that share data with AST have not been willing to share with other companies.

Recommendation #1

COMSTAC recommends AST work with COMSTAC to look at a framework for data sharing.

Human Spaceflight Requirements – Mr. Holder noted that the effort required to generate regulations is very time-consuming. AST is motivated to work with industry sooner rather than later and to avoid the scenario of developing rushed regulations in response to an accident. Pam Melroy provided a Needs Statement in her presentation. The goal is to draft a set of regulations which neither stifle technology development nor expose occupants to avoidable risks. COMSTAC can discuss the concepts of what a rule should include without actually drafting language. This would allow input to the rulemaking process and any resulting NPRM would not come as a surprise to industry.

Observation #2

COMSTAC observes that the Administrative Procedures Act restrictions present challenges to rulemaking.

Recommendation #2

COMSTAC recommends AST continue to work with industry to assess and develop human spaceflight requirements. These interactions should include face to face meetings and telephone calls with COMSTAC members.

The membership voted to accept these findings and recommendations.

New Business

Mr. Trafton called attention to the proposed next meeting dates for COMSTAC – October 10 and 11, 2012.

Mr. Trafton asked if any COMSTAC members had new business to bring to the Committee. Mr. Kunstadter noted that he, Jim Muncy, and Livingston Holder had drafted a finding on NASA's Commercial Crew Program that reads:

COMSTAC finds that the timely and affordable achievement of NASA's Commercial Crew Program goals require the preservation of competition and the use of Space Act Agreements through system development and crewed orbital demonstrations.

He observed that there had not been time to discuss this beyond the rushed discussion at the end of the BLWG briefing. He asked if there was any discussion at this time. The object was to preserve multiple players in the Commercial Crew Program. Mr. Trafton stated that this should be an observation, not a finding.

There was a question on procedure. The Business/Legal Working Group (BLWG) had not had the opportunity to discuss this. Perhaps it deserves more thought than a hurried discussion at the end of this meeting. It was noted that the urgency of this issue was driven by the Congressional process. Congress may act on this issue in the next 90 days. If COMSTAC could state that it supports competition, that would provide support for the FAA.

Considerable discussion followed on specifying the vehicle of Space Act Agreements and ensuring the safety of any humans on board a spacecraft.

There was a proposal to remove the wording "Space Act Agreement" from the observation, and to end the statement after the word "development." The final wording was then written:

COMSTAC observes that the timely and affordable achievement of NASA's Commercial Crew Program goals requires the preservation of competition through system development.

Mr. Trafton called for a vote. He polled each member for an indication of approval or disapproval. All votes were in favor of accepting the observation.

Mr. Kunstadter noted that this BLWG observation passed unanimously.

Mr. Kunstadter called for discussion on the second statement. The question was asked if this was necessary, given the first observation. Then there was a suggestion to make the observation a finding. The FAA would have the choice of whether or how to respond. The wording now read:

COMSTAC observes that the timely and affordable achievement of NASA's Commercial Crew Program goals requires the preservation of competition through system development.

Mr. Kunstadter called for a vote on changing the observation to a finding. The membership voted to accept the finding.

Public Comment

Mr. Trafton asked Mr. Van Laak to lead the public comment session. There were no comments.

Mr. Trafton expressed his satisfaction with the new meeting format and the activity and responsiveness of the working groups.

Dr. Nield acknowledged that the new format presented more work for COMSTAC. He appreciated the responsiveness of the membership and thanked the members for their support.

Mr. Trafton adjourned the meeting at approximately 2:30 p.m.

Signed by

Wilbur C. Trafton

Chairman, COMSTAC

COMSTAC Members Present

1. Wilbur Trafton, Will Trafton Associates, Chair
2. Christopher Kunstadter, XL Insurance, COMSTAC Deputy Chair
3. Eleanor Aldrich, American Institute of Aeronautics and Astronautics
4. Bretton Alexander, Independent Consultant
5. Mark Bitterman (for Dan Collins), United Launch Alliance
6. William Claybaugh (for Frank Culbertson, Jr.), Orbital Sciences Corporation
7. Michael N. Gold, Bigelow Aerospace
8. Lou Gomez, New Mexico Spaceport Authority
9. Livingston L. Holder, Jr., Holder Aerospace
10. Timothy Hughes, Space Exploration Technologies Corporation (SpaceX)
11. Ray F. Johnson, The Aerospace Corporation
12. Bill N. Khourie, Oklahoma Space Industry Development Authority (OSIDA)
13. Debra Facktor Lepore, DFL Space LLC
14. James Muncy (for Jeff Greason), XCOR Aerospace
15. Charles Precourt, ATK Launch Systems
16. Billie M. Reed, Virginia Commercial Space Flight Authority
17. Carl Rising, Stellar Solutions
18. Janet Sadler, Chartis Insurance
19. Peter Stier, SeaLaunch
20. Berin M. Szoka, TechFreedom
21. John W. Vinter, Consultant
22. Rachel Yates, Holland & Hart

Federal Aviation Administration Representatives

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

James Van Laak, Deputy Associate Administrator for Commercial Space Transportation

Susan M. Lender, COMSTAC Executive Director, Federal Aviation Administration