



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



**Federal Aviation
Administration**

**Commercial Space Transportation Advisory Committee
COMSTAC**

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Meeting Minutes

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I. Introduction

a. Will Trafton, Chairman

- i. He welcomed members and attendees to the 56th meeting of COMSTAC. He mentioned the change in by-laws to no longer have alternates sit in place of absent members. He also mentioned the meeting format has reverted since last May, when the formal meetings and working groups were mixed on both days.
- ii. He then had the Committee members introduce themselves.
- iii. He thanked the Working Group chairs for holding conference calls in order to make progress between biannual meetings. Conference calls follow all FACA rules, including announcements to facilitate public participation.
- iv. Finally, he recognized that it is an exciting time in commercial space, with events happening rapidly. COMSTAC has submitted some new names for membership, though it may take weeks and months for a reply. He encouraged attendees to introduce themselves and share what's on their mind.
- v. He then introduced the next speaker, George Nield.

b. George Nield, Associate Administrator, FAA Office of Commercial Space Transportation

- i. He congratulated the Washington Nationals on having the best record in baseball this year, and also congratulated Armadillo Aerospace and SpaceX for their launches. He recognized that the pace of commercial space transportation is starting to pick up.
- ii. The FAA recently published a Notice of Proposed Rulemaking to eliminate the requirement to obtain a license or permit for tethered vehicle tests, and a revision to explosive siting requirements that reduces potential duplication with OSHA.
- iii. The FAA also signed a Memorandum of Understanding with NASA on commercial human spaceflight for the upcoming commercial crew missions. Operators will be required to obtain a launch license from the FAA for public safety. Crew safety and mission assurance will be NASA's responsibility.
- iv. In August, the FAA released a study by the Tauri Group which identified several different markets and three scenarios for how they might grow.
- v. The FAA also announced three new spaceport grants.
- vi. The FAA recently completed a Memorandum of Understanding with the Challenger Center to work together on programs to inspire young people to study math and science, and experience the excitement of working on rockets and spacecraft.
- vii. He mentioned the continuing work at the Center of Excellence for Commercial Space Transportation, including flight crew medical standards, space flight participant medical acceptance guidelines, and integration of commercial space

vehicle traffic into the national air space system. In addition to the first nine universities, new schools like McGill University and Florida Institute of Technology are being welcomed in.

- viii. He recounted speaking at the International Astronautical Congress in Naples, Italy and discussing the benefits of licensing as opposed to certification. He sees that many other countries are beginning to understand the merits of the US regulatory regime.
 - ix. He then stated it will be important to have knowledgeable people out in the field as the number of launches starts to increase. Federal employees are currently located at or near both Patrick Air Force Base and the Kennedy Space Center, Johnson Space Center, Mojave and Vandenberg. He anticipates locating an employee at Spaceport America, and anticipating a need at Wallops.
 - x. He also recognized Jim Van Laak, who has served as Deputy Associate Administrator for the past four years, has accepted an extended detail assignment at the National Institute of Aerospace, working on ways to share lessons learned and information on accidents, incidents, mishaps, and close calls in a way that protect proprietary data. A vacancy announcement will be posted, but until then, Pam Melroy will serve as Acting Deputy Associate Administrator.
 - xi. He outlined key issues facing the office, including indemnification renewal, maximizing under-utilized government facilities, finalizing the National Space Transportation Policy, on-orbit debris, space traffic management, and an efficient method to authorize non-launch base related operations in the National Air Space.
 - xii. He thanked COMSTAC members for their help in trying to resolve these issues.
 - xiii. He closed by suggesting that America might replace baseball as the national past-time with parking outside the local spaceport to watch a daily rocket launch.
- c. Will Trafton, Chairman
- i. He announced the next COMSTAC meeting will be May 8 and 9, 2013, and the annual AST conference in DC will be February 6 and 7, 2013.
 - ii. He then introduced the next speaker.
- d. Ed Feddeman, Staff Director, Space and Aeronautics Subcommittee of the House Science Committee
- i. He began by thanking members of COMSTAC for inviting him to speak, and recognized his work with George Nield, Pam Melroy, and Will Trafton over the last several years.
 - ii. He noted that at hearings the Subcommittee is reminded of the safety record for commercial space launch in the United States. Over 200 successful launches under the AST licensing regime, a process that involves working with industry on all the technical issues that allow for a safe and productive launch industry.

- iii. He said the subcommittee has had hearings on NASA's budget, ISS utilization, acquisition strategy for commercial crew, and AST's budget. This included a hearing over the summer on space launch markets and indemnification, and also on emerging suborbital markets.
- iv. He noted the passage and enactment of the FAA Authorization Bill, including a provision to extend the regulatory moratorium period until October 2015. The legislative support language stated that FAA and industry should not be prohibited from discussions to prepare for the future regulatory period. He stated his hope and optimism for cooperation between AST and industry, and in their ability to overcome technical, financial, and regulatory challenges to perform safely.
- v. He identified the subcommittee's particular interest in the opportunities that industry presents to the science community in areas of human research, atmospheric, micro-gravity, biological, and physical research, as well as STEM education.
- vi. He recognized that indemnification needs to be renewed before the end of the year, and that the subcommittee is working with both parties and with members in the Senate, and he is optimistic there will be a bill before Congress adjourns. It will likely be a simple extension, with perhaps a couple of minor bells and whistles.
- vii. He noted that due to House rules, the current Chairman of the Science Committee, Rep. Ralph Hall of Texas, will be termed out, and a new Chairman will be selected or nominated in January.
- viii. Questions
 - 1. Member Rachel Yates asked if he could discuss any "bells and whistles" that might accompany indemnification. Ed Feddeman answered that the issue may be term length, ideally two years. At hearings, some members, especially freshmen, ask whether indemnification is still needed. That is a threshold question to answer. He cannot speak for what the Senate will want to hang on the bill.
 - 2. Chairman Will Trafton asked whether members of the House Subcommittee fully understand the competitive disadvantage U.S. companies would face without indemnification. Ed Feddeman answered yes, but there are 435 representatives that need to be convinced. A report by an impartial third party does a lot to quell suspicions.
 - 3. Member John Vinter asked what Ed Feddeman thought of the recent GAO report on indemnification. He answered that it was very instructive, and it has value as a primer to members who do not otherwise understand the program and its significance.
 - 4. Member Mike Gold thanked the speaker for coming, and took a moment to recognize the successful Atlas and Delta launches that occurred since the last COMSTAC meeting. He then asked whether the speaker saw a connection between the moratorium and indemnification, and whether changes to the moratorium would be helpful in getting indemnification extended by Congress. Member Gold saw at the hearing the GAO witness comment on a threat of

backlash if there were to be an accident and government regulation would possibly overreact.

5. George Nield asked how Congress viewed NASA exploration and budgets versus the commercial sector. Ed Feddeman answered that NASA is a bit of a “soap opera” at the moment. Rank and file members of the House do not really understand the industry. Everyone wants a strong domestic launch industry, but are surprised to see business going overseas. There are still tensions over NASA’s direction, either heavy-lift or commercial crew, and an instinct to pick a winner and push it through. NASA and DoD are struggling with launch costs. Commercial Crew has come a long way, against Congressional resistance, and Bill Gerstenmaier is doing an incredible job.
6. Chairman Will Trafton asked why there is resistance to commercial space. Ed Feddeman answered that the Commercial Crew part was accelerated at the expense of the Constellation Program without notice. Some people have gotten over it, others still have a foul taste in their mouth.
7. Ken Gidlow, FAA, asked who will likely replace Rep. Ralph Hall. Ed Feddeman answered Lamar Smith of Texas, Jim Sensenbrenner of Wisconsin, and Dana Rohrabacher of California.
8. Ed Feddeman answered a question about education. Members are keenly aware of the need for STEM education, and for capturing the attention of students in middle school to interest them in aerospace engineering. It is about future competitiveness.
9. George Nield asked whether the commercial space industry can grow beyond the current economic constraints of “flat” budgeting. Ed Feddeman answered that Congress works in the margins, and the departments and agencies indicate where their priorities are. The Administration can send a budget to instruct departments and agencies what the message is. But then 435 members of the House and 100 of the Senate do not adhere to any one message.
10. Member Gold asked about a NASA authorization next year. Ed Feddeman answered that he hopes there will be one, but it will be subject to the usual budgetary pressures, regardless of the outcome of the election.
11. Chairman Will Trafton asked about the proposal for the NASA administrator to serve 10 years. Ed Feddeman answered that they are looking at it, though initial reaction is reluctant. A smaller number might be more acceptable. They are also looking at the proposed board of directors for NASA. There is recognition of a problem at NASA, and there will likely be a discussion on the subject generally.

ix. Chairman Will Trafton thanked Ed Feddeman for speaking.

II. Out-Briefs

a. Operations Working Group

- i. Chairman Will Trafton introduced Member Debra Facktor Lepore. She thanked the Chairman, everyone in attendance, and everyone who participated in the previous day's working group meeting at 8am.
- ii. She recognized how packed the agenda was, and thanked the Business and Legal Working Group for delaying the start of their meeting.
- iii. She acknowledged that from the new meeting format, they got an additional action from AST to look at on-orbit authority, alongside commercial spaceport licensing, international development in the United Nations, and others.
- iv. The working group also held two telecons, and added a new topic on ISO actions by China on launch vehicle standards, with a guest speaker.
- v. On-Orbit Authority
 1. For on-orbit authority, a number of COMSTAC members and members of the public volunteered to form a small sub-group. A charter was created to define the problem and definitions. After a number of discussions, they said the scope was beyond what they could solve. They needed data, analysis, and a specific problem or range to look at.
 2. The focus was changed to ask what the need for on-orbit authority is, and if the FAA plays a role in satisfying that need.
 3. The sub-group relayed their findings to the working group:
 - a. Is there a need for on-orbit authority? The only area everyone could agree on was the facilitation of space traffic coordination.
 - b. Does FAA/AST play a role in this need? They answered yes, FAA/AST would be an appropriate entity to lead this effort.
 4. The sub-group requested more information and definitions. For space traffic coordination, it was coordination between on-orbit operators, both foreign and domestic, commercial, civil, and military, to avoid physical or radio frequency interference.
 5. Yesterday, after this input, there was discussion and feedback from AST, on the sub-groups request for guidance to narrow the scope.
- vi. Observations/Findings/Recommendations
 1. Observation #1: On-orbit authority is very complex with many questions, numerous stakeholders, and there is no consensus on why or how to address such authority in the broadest sense.
 2. Observation #2: This involves international stakeholders and this issue may have interactions with other international issues this Working Group is addressing.

3. Finding #1: Examining on-orbit authority related to space traffic coordination is a reasonable place to start.
4. Recommendation #1: FAA/AST examine the use case of space traffic coordination and create a scenario and analysis outlining how FAA/AST would propose on-orbit authority.
5. Recommendation #2: AST conduct a study addressing the questions it originally proposed to COMSTAC and share that analysis with COMSTAC, considering the big picture of international interactions.
6. Recommendation #3: The working group continue the dialogue with COMSTAC, because this is an issue that will keep living and evolving.
7. Member Mark Campbell asked whether Recommendation #3 is redundant. Member Lepore responded it's a formality to show continuing interest.
8. Member Jeff Greason said Finding #1 should include the input that no other area of on-orbit authority was agreed on as necessary. Member Lepore edited Finding #1 to include that input.
9. Member Lepore held a vote on both Observations and the amended Finding, all passing.
10. Member Rachel Yates asked to hear from AST on Recommendation #1 about whether they are permitted to outline such a proposition. Member Greason seconded that, but also said the sub-group struggled with not knowing what space traffic management should look like, and the recommendation was worded to direct the discussion.
11. Greg Rasnake, Office of Commercial Space Transportation, mentioned that it was difficult for AST to discuss any uncleared legislative fix to the issue, and frankly would be difficult for AST to clear a legislative position on the Recommendation that would be fruitful.
12. Member Lepore responded that a cleared position is not the intent of the working group, but rather to have AST use their resources and technical expertise to analyze the issue.
13. Member Greason suggested not using the phrase "on-orbit authority," and instead focusing on space traffic management.
14. Member Lepore began editing Recommendation #1 to limit to an analysis of how AST would address the issue. She held a vote on Recommendation #1, and it passed.
15. Member Greason said Recommendation #2 is duplicative of #1. Member Lepore asked to delete #2, and has it removed.
16. Member Lepore then brought up Recommendation #3. Member Campbell suggested making it more specific. Member Lepore added to #3 that AST share the results of Recommendation #1. Member Greason moved for approval, Member Lepore held a vote, and it passed.

vii. Spaceport Licensing White Paper and Survey, Recommendation/Observation

1. Since reporting last May, the survey was reopened for more input, getting five more responses on top of the original 28, including operators and engaged industry consultants.
2. A full white paper was made available, and accepted by the working group. The paper outlined four options, but the working group will not choose an option. The most important conclusion was that one size doesn't fit all, and the best approach may be modularity.
3. Member Lepore held a vote for Recommendation #1: AST accept the final report and survey findings as inputs to the process and engage in open dialogue throughout. Members voted, and it passed.
4. Member Lepore brought up Observation #1. Member Lou Gomez asked whether COMSTAC would vote on the four options. Member Janet Sadler asked whether COMSTAC could include a hint in their Observation. Member Greason said the observation already reads as suggestion of options 3 or 4. Finally, Member Campbell suggested amending Recommendation #1 to reflect Observation #1, since the recommendation does not mention modularity.
5. Member Yates suggested removing the word additional from the observation, since the observation pertains to the survey as a whole.
6. Member Lepore held a vote for Observation #1, and it passed.
7. Member Lepore then brought back up Recommendation #1 for amendment, to reflect the observation. Member Greason suggested the amendment be broader than modularity, and instead use flexibility to amend or rewrite. Member Daniel Collins suggested defining flexibility as in regards to emerging launch operations and sites.
8. Member Lepore held a vote on the amended Recommendation #1. It passed, with one opposing vote from Member Gomez.

viii. International Developments in Space Operations

1. Member Lepore recalled yesterday's presentation by Dick Buenneke, US Department of State, and John Sloan, Office of Commercial Space Transportation, on observations from the recent International Astronautical Congress in Naples, Italy. The desire is to develop some best practice guidelines with relation to long-term sustainability of space. Another formal meeting will be held in Vienna, February 2013.
2. The Finding and Recommendation are the same, reiterating that the private sector engagement and communication are working, and COMSTAC should continue the process of participation, and FAA continue facilitation. Member Lepore considered those items good.

- ix. Title X changes on Commercial Space Launch Cooperation at Federal Ranges
 - 1. Member Lepore recalled yesterday's talk with Major Horn from SAF/AQSL. The process continues slowly, and the Finding was the same, to keep COMSTAC engaged on the issue as it progresses.

- x. Launch Vehicle International Standards and Best Practices, Observations/Recommendation
 - 1. This issue was originally raised by Dick Buenneke to AST, and subsequently to COMSTAC, along with actions in the ISO community on launch vehicle standards begin introduced by the Cina Advanced Launch Vehicles Technology Institute.
 - 2. Member Lepore recounted the invitation to Fred Slane, Executive Director of the Space Infrastructure Foundation and Head of the U.S. delegation to ISO, to speak yesterday.
 - 3. Member Lepore brought up Observation #1: These standards are a very interesting development internationally and worthy of following and continuing dialogue.
 - 4. Member Lepore continued with Observation #2, by discussing all of the things active in the international community, including space traffic coordination and long-term sustainability of space, both with international stakeholders, just like the issue of launch vehicle sites.
 - 5. Finally, Member Lepore brought up Recommendation #1: FAA/AST follow this subject and facilitate in exactly the same role they are doing right now on the long-term sustainability of space. This is a great role where FAA is involved on the international level. Then they can inform COMSTAC, which can still be a mechanism for informing others.
 - 6. Member Gold commented that if China is involved, everyone needs to be extraordinarily cautious relative to ITAR restrictions on discussing standards, especially so close to possible changes to ITAR. Member Lepore responded that issue was discussed yesterday, in that ISO standards may be written in way not subject to ITAR. Member Gold reiterated a cautious approach for everyone.
 - 7. Member Sadler suggested amending Recommendation #1 to reflect the characterization that these topics are not separate, but holistic.
 - 8. Member Lepore brought up Observations #1 and #2 for a vote, and they passed. Then she brought up Recommendation #1 with changes, held a vote, and it passed.

- xi. Closing
 - 1. Member Lepore recounted the end of yesterday's working group, recalling the presentation by Herb Bachner on the activities by FAA's Centers of Excellence

in collecting a body of knowledge for commercial spaceport practices. The presentation is open to everyone, and anyone can submit input.

2. Member Lepore also mentioned the working group's informal suggestion to have an update at the next May COMSTAC meeting from the Center of Excellence, to bring everyone up to speed on the research activity. An annual update would frankly be useful.
3. There was also a special presentation by the FastForward Project, a volunteer group looking at point-to-point transportation.
4. Member Lepore invited everyone to join the Operations Working Group. She thanked COMSTAC members and the public for their input. She especially noted the volunteers who put in significant time to help the group make progress.

b. Business/Legal Working Group

- i. Chairman Trafton then introduced COMSTAC Vice Chairman Chris Kunstadter. He thanked everyone for their participation, and acknowledged they were able to give extra time to the Operations Working Group.

ii. GSO Forecast

1. Vice Chair Kunstadter acknowledged the GSO Forecast, which did not come out in time for the May meeting. He also thanked Aerospace Corporation for hosting the group's meeting this year, and for agreeing to host next year's meeting. Finally, he thanked Tauri Group for producing their report.
2. He noted the change to an online survey, since paper survey results have not been adequate. They will also work to get increased participation in the face-to-face meeting during the first quarter, in order to gain more feedback on the content of the report.

iii. CSLA Indemnification

1. Vice Chair Kunstadter acknowledged the discussion so far today, and thanked Ed Feddeman for sharing his perspective. The GAO report unambiguously stressed the importance of indemnification. He also thanked Greg Rasnake for updating everyone on the status of indemnification.

iv. FAA & NASA Insurance Task

1. Vice Chair Kunstadter thanked Pam Underwood, Office of Commercial Space Transportation, for her update on the FAA and NASA insurance task, and

suggested they come back to the insurance industry for more input, and encouraged releasing it before the next COMSTAC meeting.

2. The presentation focused on the issue of cross-waivers, which can be very unwieldy for a flight with many payloads and different users, and is something to consider.

v. GAO Report on MPL Methodology

1. Vice Chair Kunstadter also recalled the presentation by Randy Repcheck, Office of Commercial Space Transportation, walking through the history and implementation of the current methodology. There was a lot of discussion in the group. The original work was done 24 years ago, and is worth looking at whether it should be changed.

vi. Observations/Findings/Recommendations

1. Vice Chair Kunstadter brought up Recommendation #1: COMSTAC recommends that FAA/AST continue to support the annual GSO forecast, as an important and highly regarded product of COMSTAC and FAA/AST. He asked for comment, and hearing none, held a vote. It passed.
2. He then brought up Observation #1: COMSTAC observes that the CSLA indemnification regime enhances many aspects of U.S. industry, including commercial launches and reentries, supporting telecommunications, earth imaging, science, national security, and ISS cargo missions. He asked for comment, and hearing none, held a vote. It passed.
3. He then brought up Observation #2: COMSTAC continues to stress the singular importance of the CSLA indemnification regime to the U.S. aerospace industry from the standpoint of international competitiveness, and this position is supported by the recent GAO report on commercial space launches. He asked for comment, and hearing none, held a vote. It passed.
4. He then brought up Recommendation #2: COMSTAC recommends that FAA/AST continue to actively support, closely monitor, update COMSTAC on the CSLA indemnification regime extension that's currently in Congress. He asked for comment, and hearing none, held a vote. It passed.
5. He then brought up Recommendation #3: COMSTAC recommends that FAA/AST continue to seek the input of the insurance industry in its ongoing revision of the FAA & NASA Insurance Task Report. He asked for comment, and hearing none, held a vote. It passed.
6. He then brought up Finding #1: COMSTAC finds that it would be beneficial for the FAA & NASA Insurance Task Report to be completed and available for public release by the time of the next COMSTAC meeting. He acknowledged that there was a lot out of everyone's control, which is why it was only a finding. He asked for comment, and hearing none, held a vote. It passed.

7. He then brought up Finding #2: COMSTAC finds that FAA/AST may wish to provide a specific task to COMSTAC based on FAA/AST's interest in pursuing a simplified process for putting in place cross-waivers for flights with many payloads. He said COMSTAC would happily take this on and report back.
 - a. Member Sadler mentioned the issue more important than number of payloads is number of stakeholders, or as described in the presentation, customers. Vice Chair Kunstadter changed the word payloads to customers.
 - b. Member Collins asked whether the word many is too ambiguous and open to argument. Vice Chair Kunstadter changed the word many to multiple.
 - c. Pam Melroy hesitated because there were many issues involved, and if the finding could be broadened to optimizing the cross-waiver process, it would be better. Vice Chair Kunstadter changed the finding by taking out the phrase "for flights with multiple customers."
 - d. He then asked for further comment, and hearing none, held a vote. It passed.
8. He then brought up Observation #3: COMSTAC observes that the MPL process for evaluation as recommended by GAO in its recent report is a top priority for FAA/AST, and the Business/Legal Working Group will convene to develop a response to the task. He mentioned that after discussion the working group would likely respond with some telecons and work as expeditiously as possible. He asked for comment, and hearing none, held a vote. It passed.

vii. Closing

1. Vice Chair Kunstadter again thanked everyone for their participation. It was a productive meeting, and he looks forward to seeing everyone at the next meeting.

viii. Break

1. Chairman Trafton then reminded everyone there were two more working groups to report, and perhaps would go through lunch. The meeting then took a break for approximately 15 minutes.

c. Systems Working Group

- i. Chairman Trafton introduced Member Charlie Precourt, standing in for Member Livingston Holder. He began recalling updates from yesterday.

ii. Human Spaceflight Requirements

1. Member Precourt recalled Pam Melroy's talk about human space flight requirements activities. There have been a couple of telecons, discussing target

thresholds of safety, level of protection required, what oversight would look like, certification, and what definitions get used. Participation has been strong, and they continue to encourage more. It gets issues raised and articulated and it educates a broader part of the community, including industry designers and operators. Previous charts are available online, and comments can be submitted confidentially. The next telecom will be on October 23rd at 1pm.

iii. Integration of Commercial Space Launch and Reentry Operations into the National Air Space System

1. Member Precourt recalled the talk by Dan Murray, Office of Commercial Space Transportation, about the goal of providing equitable access to the National Air Space system, as use rate expectations go up, existing users up by 90 percent in the next 20 years, and space use by an order of magnitude in the next ten years.
2. The group will solicit stakeholder input into policies and processes. There was discussion about a national approach versus local, where spaceports are working things out as they go. But the intent is to stop reinventing the wheel for new users.

iv. Lessons Learned Database

1. Member Precourt recalled the action from COMSTAC in May to look at a lessons learned database to track anomalies in operations while protecting proprietary information. A website was opened, but according to yesterday's talk by Mike Kelly, Office of Commercial Space Transportation, there have been only three inputs. Mike Kelly is looking at an existing STAR database with more than 5600 launches and pursuing making information more public, and accessible to the community. He is also looking to interface with industry for establishing boundaries for proprietary information and responsible reporting.
2. Member Precourt acknowledged what Associate Administrator Nield mentioned earlier, that Jim van Lack, Office of Commercial Space Transportation, has been assigned to the National Institute of Aerospace to develop a safety culture in the commercial space community.

v. Recommendation

1. Member Precourt mentioned that this topic led to a recommendation that some work on definitions would be useful, to limit reporting in a useful way that also protects proprietary information. Member Campbell asked to hear from industry leaders what they thought about a database.

2. Member Greason said the challenge is the lack of consensus within the industry, and that the discussion should not be led from within the industry. Clear rules of the road before reporting starts will make it harder to complain about. But industry will clearly have to participate in the reporting.
3. Member Campbell responded he believed the mechanism would still need to be industry led. But Member Greason said he has tried to lead efforts within the industry, and without a referee, consensus will not emerge.
4. Member Precourt said the first step is to define what constitutes a reportable incident, and then deference will be given to the industry to enable them to protect proprietary information. Some models, like in military and civil aviation, use a guide-up system, dealing with parts in the supply chain common to all users. Such models may or may not be effective, and Mike Kelly will have to help take the lead, including interfacing with the industry.
5. Member Precourt compared it to aviation, in which a declaration of emergency can shut down a runway, and an incident gets reported that way. The opportunity in the unique operations of commercial space is to provide the baseline definition of circumstances that should be reported.
6. Member Campbell asked whether the recommendation for AST to work with industry is too vague, or purposely vague. Member Precourt asked in response whether a sub-committee could address it. Member Campbell agreed, saying it could make more rapid progress. Member Precourt asked Mike Kelly how he has been progressing since May.
7. Mike Kelly responded that there have not been many one-on-one meetings with industry, and not many of those have been productive. The work has been concentrated on revamping the STAR database.
8. Member Collins suggested supporting Jim Van Laak's work with the National Institute of Aerospace, and providing him direct access. Member Precourt agreed.
9. Member Greason stated again the importance of recognizing the limits of what can be done from within the industry. Whatever the next step, AST must lead the effort to develop it, including defining what is and isn't reportable.
10. Member Collins asked whether the National Institute of Aerospace counts as AST or not. Member Greason has no opinion, deferring to AST's choice on how to conduct its work. He concludes that industry itself cannot resolve the question in a timely fashion. But consensus will emerge only when industry has to react to proposed reporting standards.
11. Member Bretton Alexander added it is also important why certain things should be reportable or not. The rationale for expanding reporting is the first thing that needs to be understood. Member Precourt accepted the input, and added it to the recommendation.
12. Chairman Trafton suggested AST find a way to give industry something to work with, perhaps calling them in one at a time.

13. Member Precourt restated the recommendation based on comment, for the support and encouragement of Mike Kelly and AST to continuing their process, and including the work Jim Van Lack will be doing, to package something that the working group can then review. He asked for further comment, and hearing none, held a vote. It passed.

vi. Closing

1. Member Precourt then recalled yesterday's presentation on the market demand assessment going forward the next ten years for suborbital reusable vehicles. The forecast estimates that the baseline demand will support daily flights in six distinct market areas. The most dominant market was commercial human space flight, and they did three scenarios based on future economies. The report is on both the FAA/AST and Space Florida website.

d. Export Controls Working Group

- i. Chairman Trafton introduced Member Mike Gold. He congratulated Tim Hughes, SpaceX, for the berthing of the Dragon capsule with ISS.
- ii. Member Gold described the recent history of Export Controls, with the 1999 accident involving a Hughes and Loral satellite on top a Chinese Long March rocket. When information was shared with insurers, there was confusion between the Department of Commerce and Department of State, followed by an overreaction from Congress that put everything to do with satellites and related items onto the U.S. Munitions List. This has been the scenario for the space industry for 13 years now. There was hope last year, but key legislation that was part of a Department of State Reauthorization bill eventually died.
- iii. He then turned to discuss the 2013 National Defense Authorization Act (NDAA), which currently contains export control reform language. He stressed this is the time to rally behind a reform effort, and call your Senator, Congressman, whomever. If it does not pass now, it may be another two to three years, before action is taken. There is bi-partisan support for reform in the House, which may not happen again for quite a while.
- iv. In the reforms, there will be explicit provisions carving out China from being impacted by revised regulations. Also, the effort to combine the Munitions List and Commerce Control list has been put on hold, if not dropped entirely.
- v. The NDAA reforms would normalize the status of satellites and related items, so you could ask for Congressional permission to make a change to the list, through something called a 38(f) procedure, taking the industry back to a pre-1999 situation.
- vi. Member Gold recalled the panel of experts who spoke yesterday, including Patricia Cooper, President of the Satellite Industry Association, Tom Moore, Staff Member on the Senate Foreign Relations Committee, and Undersecretary Eric Hirschhorn, Department of Commerce BIS.

- vii. Member Gold again stressed the importance of communication, and highlighted the lack thereof between the Administration and Congress, as well as the Armed Services Committee and Foreign Affairs and Relations Committees.
- viii. There is bipartisan support in the House, now under Republican control, who have historically not embraced export control reform. There may be problems, e.g., a compromise bill could cover a subset of satellites, like com sats. By orphaning some satellites on the Munitions List, it may lead to a great deal of confusion later.
- ix. He noted the Senate will take up the bill after the election, so there are four to five weeks before then to influence the process.
- x. Findings
 - 1. Member Gold then brought up Finding #1: COMSTAC strongly supports the inclusion of bipartisan satellite export control reform provisions within the FY 2013 National Defense Authorization Act that would return Category XV export control jurisdictional authority to the President. He noted this would normalize the process for treating commercial space technology like any other.
 - 2. Member Yates asked why the word bipartisan is used. Member John Vinter responded it was an effort to prevent a partisan fight in Congress. Member Gold agreed that it was a statement enabling support of the bill from both sides.
 - 3. Chairman Trafton asked Associate Administrator Nield whether he was comfortable with FAA/AST not being mentioned in the finding, to which he responded yes. Member Gold confirmed the finding was meant to give AST the option to take action or not, and describe the direction of COMSTAC when AST is in interagency discussions.
 - 4. Member Gold then asked for further comment, and hearing none, held a vote. It passed.
 - 5. He then brought up Finding #2: COMSTAC supports the adoption of legislative language within the FY 2013 NDAA explicitly referring to satellites and related items in order to properly address the 1999 NDAA's language and avoid confusion relative to different types of spacecraft. He characterized this as asking for what we ultimately want, a full reversal of the language put in place in 1999. This would be best for all satellites. And a finding again gives AST the flexibility to take a position. He asked for comment, and hearing none, held a vote. It passed.
- xi. Closing
 - 1. Member Gold expressed his hope that by the next meeting he will be able to report on a substantially different environment, and celebrating the Nationals World Series victory. Well, one out of two ain't so bad ☺.

III. New Business/Public Comment

- a. Chairman Trafton moved the meeting to New Business. He had polled the Members, and found no new business. He then opened the floor for public comment.
- b. Al Koller, SpaceTec
 - i. He announced the company was filing two proposals to the National Science Foundation. The first is to renew the grant for aerospace technical education in an effort to help develop lessons learned and best practices databases that tie into the NIA. They will work with the Center of Excellence and others, and have solicited letters of support. They have also spun off CertTEC, certifying technical employee competence, to take lessons from aerospace on working quality and safety issues into the commercial sector across the board. They already have substantial interest from companies like Toyota, and from the aviation industry, primarily manufacturing.
 - ii. They will take the lessons learned and try to go forward with the second grant to develop commercial certifications that are all hands-on, performance-based. He invites COMSTAC, commercial and industry participants, to call on them for any assistance needed.
 - iii. They have moved offices outside the gates the Kennedy Space Center, into the city of Cape Canaveral, accessible to the public. This has opened them up to new STEM opportunities, where they can entertain graduate students from universities all over the country, some of which have foreign students in the classroom.
- c. Chairman Trafton asked for more comment, and hearing none, moved to wrap up.

IV. Conclusion

- a. Chairman Trafton was pleased with the results of the working groups and the participation. He welcomed any input on the changing format and agenda. The next COMSTAC meeting is tentatively scheduled for May 8 and 9. And the AST Conference is February 6 and 7. He thanked everyone again, and moved to the closed session.

Signed by



Wilbur C. Trafton
Chairman, COMSTAC