

NASA AEROSPACE SAFETY ADVISORY PANEL
National Aeronautics and Space Administration
Washington, DC 20546
VADM Joseph W. Dyer USN (Ret.), Chair

March 8, 2011

Mr. Charles F. Bolden, Jr.
Administrator
National Aeronautics and Space Administration
Washington, DC 20546

Dear Mr. Bolden:

The Aerospace Safety Advisory Panel held its First 2011 Quarterly Meeting at NASA Headquarters on February 3-4, 2011. We greatly appreciate the participation and support received from the subject matter experts and support staff.

The Panel submits the enclosed Minutes with Recommendations resulting from this meeting for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "J W Dyer". The signature is fluid and cursive, with a large initial "J" and "W" and a smaller "Dyer".

VADM Joseph W. Dyer, USN (Ret.)
Chair

Enclosure

ASAP RECOMMENDATIONS, FIRST QUARTER 2011

2011-01-01 NASA Alcohol Use and Testing Policy

Finding: At its third quarterly meeting in 2006, the ASAP made a recommendation regarding implementation of a post mishap drug and alcohol testing policy. NASA now has in place a drug testing policy for civil servants and contractor employees that addresses that portion of the recommendation. However, NASA has not yet taken action to implement a post-mishap alcohol testing policy.

Recommendation: NASA should implement a post-mishap blood alcohol and drug testing program for all personnel in sensitive positions that are involved in Class A and B mishaps. That includes NASA contractors, civil servants, political appointees, and all affected visitors. This investigative tool will support key organizational learnings and is in line with many legal requirements in the various jurisdictions in which NASA operates. It should be noted that this is NOT a recommendation for a random test program. It is a test for cause after a serious mishap has occurred.

Rationale: Post-mishap alcohol testing will add important information to the mishap analysis as well as provide essential input to formulation of the corrective action plan.

2011-01-02 S&MA Role Descriptions

Finding: At its first quarterly meeting in 2010, the ASAP recommended that S&MA analyze the changing S&MA work and the skills that will be needed for the future. NASA has taken a good first step in addressing this recommendation.

Recommendation: NASA should begin to draft a role description as well as some key job requirements, such as educational background and experience, for the personnel who will have to specify, manage, and assure the S&MA activities under the new program direction. NASA needs to articulate the skills needed as soon as possible.

Rationale: S&MA will need a much broader skill set to address more strategic and system issues than they do today. The STEP can help by adding more detail on what needs to be learned to make this transition. A roles and responsibilities description and early formulation of the key job requirements, such as background and experience, can help shorten the hiring timeline to bring personnel on-board during the transition to the new program direction.

2011-01-03 Safety Metrics

Findings: In response to a recommendation made at the ASAP's third quarterly meeting in 2010, the NASA Safety Center (NSC) has taken the first steps to track safety metrics and do a Center-by-Center comparison of Class A, B, C, and D mishaps in certain targeted areas. NASA stated that performing the analysis on the collected data is time-consuming and labor-intensive.

Recommendations:

(a) The NSC should expand mishap analysis to include all types of mishaps, not just those in certain targeted areas. As this process develops and matures, and as the comparisons make the data more meaningful, the ASAP recommends that the NSC brief the senior leadership of the Centers and the Agency on the results.

(b) The ASAP would like to understand how the IRIS supports causal analysis and include the causations in the periodic reports together with their associated mitigation actions and schedules for completion to management. Steps should be taken to have the system do the analysis and reporting automatically.

Rationale: A reporting system that is more comprehensive, faster, and less labor intensive would be a more useful tool for Center and Agency senior management and would facilitate implementation of corrective actions.

2011-01-04 Document Title for “Commercial Crew Transportation System Certification Requirements for NASA Low Earth Orbit Missions”

Finding: The ASAP discussed the commercial crew transportation system certification with Mr. Doug Cooke, Associate Administrator for the Exploration Systems Mission Directorate (ESMD). Partly as a result of the title addressing “Commercial Crew Transportation System,” there was some confusion as to whether the requirement would be for all commercial human space travel, or just the NASA crew missions. Mr. Cooke clarified that the requirements in the document are strictly intended for NASA.

Recommendation: NASA should change the document title from “Commercial Crew Transportation System Certification Requirements for NASA Low Earth Orbit Missions” to one that clearly indicates that the document applies to NASA crew transport to LEO only. One of the Panel suggestions is: “Certification Requirements for NASA Crew Commercial Transportation Systems to Low Earth Orbit.”

Rationale: A title that clearly indicates that the document requirements strictly apply to NASA crew missions to LEO would avoid confusion and future misunderstandings with regard to NASA’s role in commercial launch ventures.

AEROSPACE SAFETY ADVISORY PANEL
Public Meeting
February 4, 2011
NASA Headquarters
Washington, DC

2011 First Quarterly Report
Minutes and Recommendations

Aerospace Safety Advisory Panel (ASAP) Members Present

Vice Admiral (VADM) Joseph W. Dyer, USN (Retired), Chair
Dr. James Bagian
Mr. John Frost
Ms. Deborah Grubbe, P.E.
Ms. Joyce McDevitt, P.E.
Mr. John Marshall
Dr. George Nield

ASAP Staff and Support Personnel Present

Ms. Katherine Dakon, ASAP Executive Director
Ms. Susan Burch, ASAP Administrative Officer
Ms. Paula Burnett Frankel, Reports Editor

Attendees, Public Session

Frank Moring, Jr., *Aviation Week & Space Technology*
William Bihner, NASA HQ
Kelly Kabiri, NASA HQ
Allen Li, House Science, Space & Technology Committee
Randall Correll, Ball Aerospace
Paul Eckert, Boeing
Sebastian O’Kelly, Hoffman Silver Gilman & Blasco
Tifarah Thomas (via telecon), NASA HQ

WELCOME/OPENING REMARKS

VADM (Ret.) Joseph W. Dyer, ASAP Chair, called the ASAP’s First Quarterly Public Meeting of 2011 to order at 12:30 pm. After the attendees’ and members’ self-introductions, he made some overall comments about the ASAP’s fact-finding session the previous day. The Panel had a very informative update on the Shuttle from Mr. Bill Gerstenmaier. The ASAP members had an interesting historical and comparative discussion with Mr. Richard Blomberg, who served on the prior ASAP between 1987 and 2002, and was the Panel chair during the last five years of his tenure. The Panel discussed the safety metrics that are being analyzed by the NASA Safety Center (NSC) and feel that progress is being made collecting data Agency-wide. The Panel also spent some time with Mr. Bob Jacobs from the Public Affairs Office (PAO) and discussed the need for “plain speaking” in NASA’s public communications. The Panel members and NASA management engaged in extensive discussions related to commercial space. VADM Dyer noted that there are two phases in all large programs: the “missionary phase” and the “execution phase.” In the missionary phase, people are trying to “sell” the program within the constraints of funds and time available. The transition between the two phases is where programs can be set up to be successful or can be challenged.

At this time, Ms. Tifarah Thomas from the NASA Headquarters Professional Association (IFTPE, local #9) joined the meeting via telecom.

NASA ALCOHOL USE AND TESTING POLICY

On behalf of the Panel, Ms. Deborah Grubbe thanked NASA's Safety and Mission Assurance (S&MA) office for its attention to the subject of post-incident testing. This was spurred by the fatality that occurred at Kennedy Space Center in 2006, after which the ASAP formulated a recommendation on alcohol and drug testing. NASA has implemented a drug testing program, but thus far has not done so for alcohol. Ms. Grubbe recommended that NASA implement a post-mishap blood alcohol and drug testing program for all personnel in sensitive positions that are involved in Class A and B mishaps. That includes NASA contractors, civil servants, political appointees, and all affected visitors. This investigative tool will support key organizational learnings and is in line with many legal requirements in the various jurisdictions in which NASA operates. It should be noted that this is NOT a recommendation for a random test program. It is a test for cause after a serious mishap has occurred. VADM Dyer added that when there is a serious or fatal accident, it is important for any organization to be able to answer whether or not drugs or alcohol was involved. Progress is being made toward policy formulation, but it is not yet in place.

SHUTTLE UPDATE

Mr. John Frost reported on this topic, which has been a mainstay at every meeting. It is critical to the Agency, and still has considerable focused activity. The first topic was on the current assessment of the risk of flying the Shuttle. The Shuttle Probabilistic Risk Assessment (PRA) has grown to be a highly refined tool that has become more and more accurate. The current risk estimate for the next launch is 1:90 (i.e., one chance in 90 of losing the crew during the mission), with a band of uncertainty ranging from as good as 1:127 to as poor as 1:63. With respect to specific risks that the Program is tracking, micrometeoroid and orbital debris (MMOD) continues to be the most significant issue to both the Shuttle and the International Space Station (ISS). The Program mitigates this risk with shielding and orientation, but does not have the ability to eliminate this risk with current designs. The number two risk is main engine failure; number three is ascent debris, such as the foam dispersion; number four is crew error during entry. Those have not changed. The Program has gone back and taken a look at all past risk assessments. It is important to understand that the PRA can only assess the risks that are known; it cannot assess those that are unknown. The actual risk will seldom be better than that predicted by the PRA, and it will normally be worse. Using the current tool as a means to quantify hindsight, NASA has traced the risk level associated with the various vehicle modifications beginning with the current estimate and working back to STS-1. At that time, the official risk estimate for STS-1 was 1:100. Knowing what we know today, probably the risk was closer to 1:9 on that first launch—about a tenfold difference—and this is not surprising. It is a realistic range. The lesson here is that PRAs are relative; they should not be treated as “gospel.” They are good for comparing “plan A” to “plan B.” The Program, in looking at all the ways that risks have been reduced over the years, from 1:9 to 1:90, has identified different classes of improvements. This information will be passed on to programs that follow. The Panel was pleased to see that happen. The range between what the risk is estimated to be and what it really is is important to remember as the Agency works on a prior ASAP recommendation regarding “how safe is safe enough.” In this regard, the ASAP continues to ask the Agency to relook at the current numbers for crew thresholds and requirements for follow-on vehicles to make sure they are as safe as they should be.

The ASAP previously had identified a concern over the administrative need to issue lay-off notifications to contractor personnel that might be needed for STS-135. NASA has found a way to not have to issue those letters prematurely and therefore not disturb the workforce. The ASAP is happy to see that action. Of course, at some point, funding decisions will have to be made and lay-off notifications will need to be issued.

There was a quick review of the stringer cracks on the external tank for STS-133. Although cracking of something important like the external tank is not good news, the way that NASA handled it is—the problem was pursued with precision, diligence and persistence. The team dug deeper and deeper until they found what they believe to be the actual cause: improper heat treating of the raw material combined with assembly induced stresses. They are also examining the root cause of how that happened and why stress analyses did not predict these areas to be in need of fracture toughness requirements.

The Panel also looked at the ISS manifest—it is a very busy time, and this will create additional stress on the team; however, the Program is monitoring this situation carefully.

Mr. John Marshall noted that the Panel has taken great interest in PRAs and the thresholds that they represent in terms of commercial programs or follow-on systems. Many variables go into the determination of a PRA, and the historical analysis has great relevance as we look at the future. The ASAP hopes that NASA will share the processes and thoughts with its commercial partners as the threshold requirements for future systems are developed.

Ms. Grubbe commented that these kinds of numbers are commonly misunderstood and misconstrued. There is a difference between precise and accurate. These PRA numbers are precise, but they may not be accurate. What happens is that people think a number is accurate when it is not.

VADM Dyer gave high complements to Mr. Gerstenmaier, Associate Administrator for the Space Operations Mission Directorate (SOMD), not only in terms of the work being done to safely manage the Shuttle to the end of its operational life, but for retrospectively looking at engineering systems and analysis and making these data available to commercial space providers and others.

Ms. Joyce McDevitt observed that PRAs were not used as a tool until after Columbia. The significance of some of the Shuttle modifications that were put in place was not realized at the time. Only in hindsight are they appreciated for how much they contributed to safety. What Mr. Gerstenmaier's team did was an enlightening piece of work.

VADM Dyer noted that in the 2010 Annual Report, the ASAP expressed some concern about the level of safety to which NASA intends to design the next vehicle—the question of how safe is safe enough. The experience base of the Panel is in many programs. They realize that it is an unfortunate truth that you seldom are able to deliver a future that is as good as you plan it to be. Therefore, it is important to set a higher bar. What does today's PRA say about the risk in the first Shuttle flight? It was actually 1:9 when everyone thought it was 1:100. Design margin is a good thing.

ASAP HISTORY

Dr. George Nield reported on the ASAP's discussion with Mr. Blomberg. He served on the ASAP panel for fifteen years, from 1987 to 2002, and the last five years served as the chairman. The Panel was interested in his observations. It was very interesting to hear how the previous Panel was structured. It was larger, there were three levels of members, and it had more staff and support from technical experts. They viewed themselves as engineers helping NASA with problems. There were many visits to the NASA Centers and discussions with employees. The Panel members tended to serve for relatively long periods of time. That was a positive thing in terms of trust and its relationship with NASA managers and the workforce; on the other hand, that structure did not lend itself to objective and senior-level advice. Administrator Sean O'Keefe felt that this type of structure did not produce the type of advice he was looking for. He started with a clean sheet, and what we have today is targeted at providing senior level safety advice and observations to the NASA Administrator and the Congress as opposed to providing technical, working-level advice on issues. Mr. Blomberg felt that the ASAP's 2011 Annual Report did a good job of identifying the important themes and issues. He agreed that clarity and constancy of purpose is extremely important. It is also important that technical input on the programs come from technical people, and we don't always see that. He felt that the Apollo Program is a good template for the way NASA should work. His greatest concern today relates to the suggestion by some to continue to fly the Shuttle for an extended period of time. In his opinion, that would be a mistake. Mr. Blomberg noted that many suppliers have disappeared and even the larger companies have their focus on other customers and products.

Mr. Frost added that another topic that was discussed is the importance to match mission and funding. If they don't match (i.e., the mission is underfunded), safety is at risk. This fact of life must be remembered as budget reductions are being considered.

UPDATE ON ASAP RECOMMENDATION 2008-03-04—BASE REALIGNMENT AND CLOSURE (BRAC) IMPACT ON MARSHALL SPACE FLIGHT CENTER (MSFC)

Ms. Devitt reported on the ASAP's discussion with Mr. Jay Henn, Acting Assistant Administrator for Human Capital Management at NASA Headquarters. As a result of DoD's BRAC activity, 4700 people were moving into the Huntsville area. The Panel was concerned that the MSFC workforce could be adversely impacted because the DoD positions required similar competencies to those needed at MSFC, and there was the potential for a serious staffing drain. The DoD positions afforded employees greater promotion opportunities because 67% of the BRAC positions were in the GS-13 to GS-15 grade levels. Also, DoD didn't employ salary offsets for re-hired retirees.

The first ASAP recommendation was that the Center [MSFC] should review Constellation and other core ongoing programs to identify key and critical personnel whom the Center absolutely must retain to deliver required Constellation Program services. A Strategic Workforce Planning Process was established, and this supported the accomplishment of the recommendation by identifying competencies that needed to be retained. Workforce transition planning began to take place at that time and is still underway. There is a Space Launch System (SLS) team that is addressing workforce issues, and other teams have been established to address technical capabilities that NASA needs to retain. The second recommendation advised MSFC to immediately request government waivers from term appointment constraints and from retirement salary offsets. MSFC took an action to request this waiver from NASA Headquarters, and NASA Headquarters requested it from the federal Office of Personnel Management (OPM). Although this specific request was unsuccessful, the issue was eventually resolved by a government-wide authority under the National Defense Authorization Act of 2010. Term appointment constraints were removed by the Agency, and all MSFC term employees eligible for conversion have been converted.

Overall, MSFC took positive action to manage the risk of potential loss of personnel. MSFC is continuing to monitor the area, and is keeping detailed information on civil servants. Losses are minimal to date (9 per year). Looking at the contractor side, the data is more anecdotal. On the positive side of this issue, the BRAC presented opportunities in Huntsville that mitigated the current downturn in jobs. The BRAC activity spanned the period 2006 to 2011. About 75% of the positions have been filled; about 55% come from outside the Huntsville area. Many of those positions require specific DOD experience. Overall, the impact on MSFC has not been as large as the Panel had originally thought it would be.

VADM Dyer explained that the concern expressed earlier centered on the fact that with the DoD's ability to waive offset, one could retire from NASA, go to work for DoD, and get full salary plus retirement salary. Program changes at NASA coupled with the changes in the economy helped to relieve a serious impact. Mr. Frost noted that NASA has taken proactive steps in response to the ASAP recommendations, and this should come off the Panel's screen as a major threat.

UPDATE ON RECOMMENDATION 2010-01-03—S&MA TO ANALYZE CHANGING WORK AND SKILLS NEEDED FOR THE FUTURE

Ms. Grubbe reported on the update that the ASAP received from Mr. Bryan O'Connor. The Panel made a recommendation last year that NASA S&MA should take a leadership role in beginning to analyze how the S&MA work is going to change and what kinds of skills are going to be needed in the future. S&MA will need to transition from the work they now do, which involves engineering flight test skills (Shuttle), to an organization that will be focusing on early development (technology development, the SLS, and the Multi-Purpose Crew Vehicle). The transition from "doing" to "managing and assuring" is a different skill set. Management is closely watching the head count (both civil service and contractor) and the skill mix. S&MA has required skill mix assessments from each of the Centers. To have an effective process, it has to be bottom up and top down. As the program is currently evolving (NASA-led heavy lift vehicle and commercial space), it is adding uncertainty, and the dual direction will make the future S&MA role more difficult. Common themes have begun to be identified. This is good and the team is to be commended. Still, the Shuttle and ISS work must be managed. Headquarters S&MA is in communication with the affected Centers; however, it has yet to show a crystallized delineation of roles. This poses a potential risk to the commercial space effort.

Ms. Grubbe recommended that NASA begin to draft a role description as well as some written job requirements and background for the personnel who will have to specify, manage, and assure the S&MA activities under the new program direction. NASA needs to articulate the skills needed as soon as possible. Ms. McDevitt noted that some of this information may already be developed as part of the STEP program. In the quality assurance area, the skills could be quite different, and work needs to be done to pull this together.

Ms. Grubbe observed that identifying the common themes is necessary, but not sufficient. There needs to be a further delineation with more detail. Dr. Nield added that it will be challenging for NASA to describe today the specific duties for the commercial program, since NASA's role on some of those programs has not yet been fully defined. For cargo, NASA has a "hands off" attitude for operations; therefore the S&MA role would be different. We won't be in the same situation for commercial crew, but it will not be the same as Shuttle and Station either. This will impact the estimated cost and the proposals from the companies. Ms. Grubbe agreed that it will be an iterative process.

Mr. Frost observed that the comment about cargo versus crew has merit, but now is the time to start articulating and discussing these issues. The Panel has been critical of NASA in not getting ahead of the power curve on crew requirements; it recommends that NASA get underway on this issue so that a similar situation doesn't happen here. It is an iterative process that needs to start now.

SAFETY METRICS

Mr. Marshall discussed the three different but integrated presentations from Mr. Alan Phillips, Director of the NSC. This update concerned the previous recommendations that Panel had made in 2008 and 2009. The Panel asked NSC to do a Center-by-Center comparison of safety metrics, and the NSC proceeded to respond with what the analysis shows for 2010. There were 725 mishaps (Class A, B, C, and D). The Panel had asked the NSC to report on areas it felt had the potential to lead to serious injury or loss of life. The entire idea is to be proactive rather than reactive.

The NSC looked at areas of motor vehicle safety, aviation safety, water operations safety, lifting device safety, hazardous material handling, fire and fire prevention/protection, machine safeguarding, pressure systems, electrical safety, radiological safety, and confined space. In addition, they took a look at the particular activity that was being engaged in at the time of the incident. The Panel feels that this is just the beginning. The hard part is not the data collection—it is the analysis. One thing that is worrisome is that the safety metrics reporting showed symptoms rather than causes. The ASAP was unable to tell what those were—it is not clear whether the information is there and the NSC couldn't pull it out easily, or it just wasn't there. The ASAP believes the NSC is on the right path, but needs to go further. Dr. Bagian said that he would like to see how the IRIS system supports causal analysis and how the knowledge of the underlying causes of mishaps is translated into corrective action plans. The next step is to have a system that could do the analysis automatically. Mr. Philips noted that this presentation has not yet gone to NASA senior leadership, nor have they put together recommendations. The ASAP was pleased with this start. Mr. Marshall recommended that as this process develops and matures, the NSC brief the senior leadership of the Centers and the Agency as they compare data to make it more meaningful.

The next update concerned a briefing received by the ASAP a number of years ago—how to get mishap investigation recommendations out to the Centers to prevent injuries or save lives. Today, NASA says that the target timeline is to complete the investigation and mishap report in 75 days, complete the review in 30 days, and develop a corrective action plan and put it in place by 15 days after being tasked. The total timeline is 120 days from the occurrence of the incident. In 2005, the mishap investigation and report process took an average 271 days to complete; in 2010, it was down to 59. In 2005, the review and endorsement process took an average 752 days; in 2010, it was down to 68 days, but still missed the goal of 30 days. More work needs to be done in this area. Dr. Bagian agreed that the ASAP has seen improvement, but there is still a long way to go.

Mr. Frost agreed that the ASAP has seen improvement on the timeliness of the mishap investigation process; however, a final step still needs much work—putting the results out to the public. A large number of older mishap investigations are still waiting for security review and redaction to allow release to those outside of NASA, including the contractors that could learn from the findings.

UPDATE ON RECOMMENDATION 2010-02-04—PUBLIC AFFAIRS ROLE

Mr. Marshall reported on the Public Affairs discussion with Mr. Bob Jacobs who is now the Deputy Associate Administrator for News and Multimedia at NASA Headquarters. Last year, the ASAP recommended that PAO follow the advice that they give to NASA's program offices: tell your own bad news; bad news does not get better with age; and tell your own story or someone else will. This issue is important because the Agency needs to have total transparency as well as manage the public's expectations. For example, the MMOD threat is a primary risk that is always there, but it is not communicated well to the public or the Congress. NASA needs to stop the "spin;" it needs honest and truthful dialogue and discussion.

VADM Dyer commented that there is the real, near-term risk of MMOD, but there is also a forward-looking aspect. Consider the design goal of 1:270 for future systems, which means that this level of risk represents a successful program. The Panel believes that the public and the media don't appreciate this level of risk. Dr. Bagian added that one should look at the ISS, which will be there over the next ten years. It is likely that the Station will take a MMOD hit sometime within this timeframe. We should say that we know about this risk and are willing to accept it. It is important that Congress and the public understand this. There is a perception that low Earth orbit (LEO) is easy to do; there is not common knowledge that the risk is 1:117 over a six-month period.

For comparison, Mr. Frost commented on army aviation. There are very serious incidents with fatalities, and the public understands that. When a helicopter crashes, it is investigated, but aviation goes on. It is the same with public aviation accidents. If we unfairly paint space travel as an activity that we know how to do and is "easy," then when something does go wrong, an overreaction occurs. Risk expectation is critical; we need to communicate that over and over again.

COMMERCIAL SPACE UPDATE

Dr. Nield reported on the commercial space briefings by Mr. Ed Mango and discussions with Mr. Phil McAlister. The objective of the commercial crew initiative is to facilitate the development of a U.S. commercial space transportation capability with the goal of achieving safe, reliable, and cost effective access to and from LEO and the ISS. Once that capability has matured, NASA plans to purchase commercial services to meet the ISS crew transportation needs. NASA plans to use non-traditional acquisition and partnering approaches. Competition is a fundamental aspect of the strategy—it will incentivize performance, support cost effectiveness, and eliminate dependence on a single provider. The 2010 NASA Authorization Act established commercial crew as the primary means for ISS crew transportation. An important milestone that needs to take place prior to Commercial Crew Development 2 (CCDev 2) execution is the approval of Program Authority for the Commercial Crew Program. NASA is hoping for this in the March 2011 timeframe. Mr. Mango discussed the program structure levels and talked briefly about the partnership with FAA. He also discussed some of the challenges, one of which is making sure that the funds are appropriate to the objectives. What will NASA do if the funding available doesn't match the need? This could result in an undesirable outcome.

The Panel was concerned about the realism of the schedule, and asked Mr. Mango to take a comparative look at past programs. The ASAP will discuss this subject at its next meeting.

Dr. Nield noted that the Program is setting new thresholds; it is not yet well understood, but he commended the team for their efforts. It is very important that they work closely with the FAA, and they are doing that.

Mr. Frost added that the ASAP had recommended that the commercial program adopt the Agency approach for the risk improvement goal, and they have.

The ASAP discussed the commercial crew transportation system certification with Mr. Doug Cooke, Associate Administrator for the Exploration Systems Mission Directorate (ESMD). Partly as a result of the title addressing “Commercial Crew Transportation System,” there was some confusion as to whether the requirement would be for all commercial human space travel, or just the NASA LEO missions. Mr. Cooke clarified that the certification requirements are for NASA missions only. To avoid future misunderstanding, the Panel suggested that NASA change the name of the document from “Commercial Crew Transportation System Certification Requirements for NASA Low Earth Orbit Missions” to one that clearly indicates that the document applies to NASA crew transport to LEO only. One of the Panel suggestions was “Certification Requirements for NASA Crew Commercial Transportation System.”

Although these requirements are specifically for NASA missions, Mr. Mango noted in his presentation that he and Mr. McAlister hope that many of these requirements will be adopted for others. The requirements were issued in December. They appear to be very top-level requirements. There are three levels of standards, and it will be a challenge to determine the impact of all of these. Type 1 requirements are mandatory. Type 2 are those requirements that must be met, or the provider must propose an alternate that meets the intent of the requirement; approximately 85% are assumed to be in this category. Type 3 requirements are “best practices.” The challenge as expressed by Mr. Cooke and concurred with by the ASAP will be in how to consistently and appropriately determine whether the items in the Type 2 category meet the intent. Another challenge is the issue of fault-tolerant design. The Program recognizes that they have to watch this area closely.

VADM Dyer noted that at this quarterly meeting, the Panel has seen progress: with the FAA; with the human rating requirements and communication of those to industry; and with acquisition strategy. Nevertheless, he also noted that there still are not answers to many issues, but that NASA is focused on the subject and is conscientiously working it.

VADM Dyer also commented that the ASAP spent some time with the NASA Administrator, Mr. Charles Bolden, as well as the NASA Deputy Administrator, Ms. Lori Garver, on the previous day. The Panel complimented them for their strength of leadership. It was noted that Mr. Bolden was a former member of the ASAP and has good technical competence and conscience. The Panel was also glad to hear that Mr. Mark Kelly will resume training for STS-134 mission. His wife, Representative Gifford, is a good friend of this Panel and everyone wishes her the best in her recovery.

QUESTIONS/COMMENTS

VADM Dyer invited questions or comments from the public attendees. Mr. Allen Li from the House Science, Space and Technology Committee asked about the synergy between the NAC and the ASAP. Also, he noted that the Panel didn’t mention anything about the proposed ESMD/SOMD organization merger. Is the ASAP concerned about people focusing on the reorganization instead of their work? Mr. Li suggested that the ASAP might start looking at a methodology to assess how safety could be impacted when the “budget onslaught” comes.

VADM Dyer noted that he has a good relationship with the NAC Chair, and they regularly exchange materials. Frequently, the NAC has had an ASAP member in attendance at its open meeting and likewise, the ASAP has had an attending NAC member. With regard to the budget issue, this is what he was speaking to in his comments on the transition between the missionary effort and the execution effort. With respect to the proposed organizational change, the Panel has not received a NASA briefing on this subject, but it sounds like something the ASAP would find of interest.

Mr. Randall Correll from Ball Aerospace commended the ASAP on its 2011 Annual Report. He asked how much the ASAP has looked into the safety of operations around ISS. He specifically questioned whether there was a need for a “harbormaster” function relating to ISS’s approaches. VADM Dyer indicated that the ISS will be one of the Panel’s focus areas this year. Mr. Marshall added that he participated in the congressionally-directed study of the safety of the ISS, and the ASAP continues to have involvement in that aspect. Last year, the Panel had two sessions with Mr. Mike Suffredini, the ISS Program Manager, and has

had good dialog and exchange of ideas on what has happened since the initial safety study. Mr. Frost noted that in the previous day's fact-finding session, the Panel looked at the commercial cargo resupply program, where NASA is using a unique, almost "hands off" approach. Thus far for this program, the NASA team has carefully chosen cargo that they can afford to lose, and they are managing risk that way.

There were no other comments, and the meeting was adjourned at 1:05 pm.