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

May 25, 2010

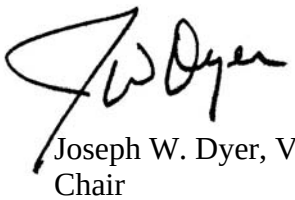
Mr. Charles F. Bolden, Jr.
Administrator
National Aeronautics and Space Administration
Washington, DC 20546

Dear Mr. Bolden:

The Aerospace Safety Advisory Panel held its Second 2010 Quarterly Meeting at NASA Headquarters on April 29-30, 2010. We greatly appreciate the participation and support received from the subject matter experts and support staff.

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

Sincerely,



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

Enclosure

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ASAP RECOMMENDATIONS, SECOND QUARTER 2010

2010-02-01: Budget Authority for Facility Maintenance, Infrastructure Development, and Safety Upgrades for NASA Aircraft.

Finding: The ASAP has identified several areas of concern from a safety perspective, e.g., funding of the NASA Safety Center, funding levels required for maintenance or infrastructure improvements for safety, and funding for NASA aircraft that have safety implications. The ASAP is encouraged that NASA intends to mandate the recommended safety requirement for its aircraft, but is concerned that there is not yet any funding stream. Similarly, for infrastructure development, the concept is understood, but the detailed numbers are missing. While a beginning strategy has been developed, it is very optimistic, requiring huge amounts of infrastructure funding from Congress.

Recommendation: The Mission Support Directorate (MSD) should continue to identify safety-specific issues, not only in the three areas of maintenance, infrastructure improvement, and aircraft, but other areas that will have an impact on quantifying support and justification for further budget requirements. The ASAP requests that NASA finalize the budget numbers and give the Panel a clearer picture on the strategy and timeline to bring those capabilities to NASA aircraft. With respect to infrastructure development, the Panel requests that NASA provide detail in this area as well. The ASAP would like periodic updates on how NASA plans to fund and resolve these issues.

Rationale: Aging infrastructure has safety implications. As noted in the ASAP's 2009 Annual Report, the infrastructure used to launch complex vehicles into space must be reviewed and maintained to remain safe. The ASAP needs to follow this issue more closely to see if the infrastructure development plan is realistic or achievable.

2010-02-02: Mishap Investigation Process and Plan.

Finding: The ASAP has been following NASA's process and metrics on mishap investigations. There is good news: the backlog of outstanding items has been greatly reduced. However, NASA is still not yet where it needs to be. ASAP still continues to ask that the safety metrics Agency-wide be rolled up and shared quarterly (reference Recommendations 2008-02-07 and 2009-03-03); these "roll-up" metrics have not yet been provided to the Panel. Additionally, another question is how commercial will do mishap investigations. For CRS, a decision has been to not treat loss of cargo as a mishap. There are other decisions that should be described in the Mishap Investigation Plan.

Recommendations: Each of the Center Directors should exercise the appropriate leadership to make sure other Centers get mishap information. It is not just central leadership that is required, but leadership at all of the Centers. One activity that is commonly used in industry is a briefing between senior managers, e.g., if there is an injury, the manager reports that to his or her peers and to senior management. NASA should consider implementing such an approach. In addition, the ASAP would like a copy of the commercial mishap investigation plan, when available.

Rationale: Mishap investigation is a leadership effort that the senior leaders have to own. If NASA acts on the lessons learned, the Agency will have fewer incidents in the future.

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2010-02-03: Taurus XL Mishap Documentation.

Finding: Both NASA and the contractor conducted mishap investigations on the Feb. 24 failure of the Taurus XL launch. There were eleven findings from the NASA investigation, some of which were specific to this satellite and some that appear could be applied to other future programs. Although the findings went into the Launch Services database that is maintained at KSC, it was not transmitted to other programs, such as Constellation, nor, more importantly, captured in a standard of some type for future spacecraft designers. The concern is that the ability of the collective space enterprise to learn from its mistakes is not currently in place.

Recommendation: The ASAP recommends that NASA examine these eleven OCO findings and determine which of them can be codified in some way that can benefit other future programs. NASA should then expand the process used to do that and integrate it into mishap investigation procedures to ensure that there is a process for sharing the results of mishap investigations and corrective actions across all programs, both NASA and commercial.

Rationale: If NASA does not find a way of capturing lessons learned and passing them to future designers, we will be destined to keep relearning lessons that have been learned at great expense.

2010-02-04: Public Affairs Office Role.

Finding: PAO offers good advice to NASA's Program Offices: tell your own bad news; bad news does not get better with age; and shining light on things is good. PAO has identified seven communications issues and have highlighted some potential solutions—all are possible. The technical managers have a role to play and if PAO steps out and starts the process, the technical people should come on board. Public Affairs involves the entire Agency, including program managers and executive leadership. The public affairs operation can be improved.

Recommendation: ASAP suggests that PAO follow the advice that they give to NASA's Program Offices. The PAO needs to become more integrated with the technical people. It should aggressively pursue the solutions to the issues that they have already identified. The ASAP encourages PAO to take more direct control of their work and to play a bigger role than just the messenger.

Rationale: NASA can only benefit if more straightforward communications come out of PAO. The "spin" in NASA's public communications is not constructive to transparency, or to clear communications about safety and the changing nature of risk.

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AEROSPACE SAFETY ADVISORY PANEL
2010 Second Quarterly Report
Minutes and Recommendations

Aerospace Safety Advisory Panel (ASAP)
Public Meeting
April 30, 2010
NASA Headquarters
Washington, DC

ASAP Members Present
Vice Admiral Joseph W. Dyer, USN (Retired), Chair
Dr. James Bagian
Mr. John C. Frost
Ms. Deborah Grubbe, P.E.
Mr. John C. Marshall
Ms. Joyce A. McDevitt, P.E.
Dr. Donald McErlean

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

William Bihner	NASA/SOMD
Ray Tolomeo	NASA IG
Matt Isakowitz	CSF
Keith Worley	SPI
Dan Murray	FAA
Kelly Kabiri	OSMA
Trish Morrisey	NASA/ARC
Yolanda Marshall	OSMA
David Frankel	[self]
Amy Klemper	Space News

WELCOME/OPENING REMARKS

Adm. Joseph Dyer, ASAP Chair, called the ASAP second quarterly Public Meeting to order at 12:30 pm. The Panel introduced themselves and the public attendees were identified. He noted that Dr. George Nield, ASAP member from the Federal Aviation Administration (FAA), had been present during the fact-finding session, but had to depart before the Public Meeting started.

NASA AERONAUTICS RESEARCH FOR UNMANNED AIRCRAFT SYSTEMS (UAS)

Dr. Don McErlean reported on the UAS topic. One of the NASA Administrator's challenges is the potential for developing technologies that would assist unmanned systems to operate within the national airspace. The Panel received a briefing on UAS from Mr. John A. Cavolowsky, Director of the Airspace Systems Program in NASA's Aeronautics Research Mission Directorate (ARMD). This briefing was two-

fold: an overview of the Directorate projects; and an initial discussion on the UAS National Airspace Systems (NAS) Program, which is just getting underway. There are about 50,000 flights a day in the U.S., with many participants in the process—operators, service providers, national and community needs (primarily safety), and passengers on the manned aircraft that would encounter the UAS as part of the traffic pattern. The NAS Program has two aspects: Concept and Technology Development Projects (currently directed towards NextGen to enable significant increases in capacity and efficiency); and a series of projects on Systems Analysis, Integration, and Evaluation, which examines how technologies are integrated into the overall system. The current proposed budget for the UAS Project is about $30M per year, primarily executed at the four Aeronautics Centers—Ames, Dryden, Glenn, and Langley—with a balance of people from various competencies. They have put together a strategy for technologies that have the highest payoff and address the biggest needs, mostly oriented toward the see-and-avoid problem and the loss-of-link aspect. The ASAP agrees these are the primary safety concerns and are the principal barriers to entry for UAS. The organization has also put together a Technology Transfer Strategy (one of the most difficult things to do), using cross-Agency research transition teams. Those teams will include the FAA Research and Technology Development Office, the FAA Technical Centers, the UAS program office, Flight Standards, Avionics, and Air Traffic organizations. All of this sounded very promising. Because it is a new program, there was not a lot of progress to report at this point. The ASAP has tentatively agreed with Mr. Cavolowsky that he will come back in about a year and brief the Panel on progress to date.

COMMERCIAL SPACE

Mr. John Marshall noted that this topic is a continuation of the discussion that the Panel has had for a number of quarterly meetings relating to Human Rating for any potential commercially developed vehicle that will carry NASA astronauts. The ASAP has reported on this numerous times and has recommended aggressive action by NASA to develop and promulgate these standards because industry needs this information as the development of new vehicles or modification of existing vehicles is contemplated. The ASAP had asked for an update at this meeting. Mr. Marshall noted that this is continuing to be a very interesting dialog, brought to the forefront again by a Congressional panel in which ASAP member Mr. John Frost participated. One of the questions asked of Administrator Bolden by Senator Mikulski was: Is there one standard of safety for NASA-developed programs and commercial programs? The answer is "yes"—there is one level of safety, although there may be different paths on which to get there. There is no change in the philosophy of needing or addressing one level of safety.

Mr. Phil McAlister, who replaced Mr. Geoff Yoder, introduced the discussion. The Panel received a presentation by Mr. Mark Erminger on the status of human rating. The issue of human rating starts with NPR 8715.3C which is the general safety requirement, then transitions into the human rating requirements (HRR) for NPR 8705.2B. From a commercial venue, it will be tailored to meet the specific mission objective for the vehicle.

NASA formed a tiger team in response to the President's budget announcement on February 1. This team is working on formalizing baseline human rating criteria, which are expected to go out for industry comment in May. Mr. Marshall noted that this is a little later than the date that was given to the ASAP the last time, but is still within a couple of months. The ASAP did not hear anything dramatically new in the discussion. It is a complex issue. Numerous technical documents, processes, and procedures are being reviewed for applicability. From recent reports, it appears that NASA is now attempting to put the right resources and level of effort on the task to produce a well-balanced and useful document for industry.

Mr. John Frost noted that the commercial and government programs are heading toward a common top level safety requirement. One of the key requirements that will drive that is the loss of crew (LOC) probability. The ASAP learned today that the LOC requirements for Constellation are in the final stages of being modified. The requirements for the ISS mission are being divided into ascent, descent, and on-orbit

mission phase probabilities. More importantly, the overall LOC requirement is being significantly reduced due, in large part, to new assessments of on orbit hazards such as Micro Meteorite and Orbital Debris (MMOD). The new numbers will be examined to further understand them and assess whether they are appropriate for broader application.

BUDGET

The second topic Mr. Marshall reported on concerned the presentation and discussion on budget authority. The ASAP has talked about areas of concern from a safety perspective, e.g., funding of the NASA Safety Center, funding levels required for maintenance or infrastructure improvements for safety, and funding for NASA aircraft that have safety implications. The NASA Chief Financial Officer, Dr. Elizabeth Robinson, was asked to help the Panel understand the process that will be used to fund these deficiencies once the details of the 2011 budget are finalized. The ASAP had an interesting discussion with Dr. Robinson, but in the end felt she was either not prepared to discuss or did not have the necessary tools to identify safety-related funding requirements in the 2011 budget and beyond. The ASAP believes further work needs to be done in this regard.

The ASAP recommendation is that the Mission Support Directorate (MSD) continue to identify safety-specific issues, not only in the three areas of maintenance, infrastructure improvement, and aircraft, but other areas that will have an impact on quantifying support and justification for further budget requirements as the next year's budget goes forward. The ASAP talked with Dr. Woodrow Whitlow, the new Associate Administrator for MSD and former Director of the Glenn Research Center. The ASAP is encouraged that NASA intends to mandate the recommended safety requirements for its aircraft, but is concerned that the funding requirement and funding stream have not yet been developed. This continues to be an open item. The ASAP requests that NASA finalize the budget numbers and give the Panel a clearer picture of what the strategy and timelines will be to bring those capabilities to NASA aircraft. Similarly, for infrastructure development, the concept is understood, but the detailed numbers are missing. While a beginning strategy has been developed, it is very optimistic, requiring huge amounts of infrastructure funding from Congress. The ASAP needs to follow this issue more closely to see if the plan is realistic or achievable. Mr. Marshall indicated that he was concerned that the right level of detail has not yet been provided. He requested that NASA provide this information as well as provide updates on how the organization intends to fund and resolve these issues.

Adm. Dyer added that the Panel can appreciate that it is frustrating to develop a plan when many things are in flux. However, if one has a plan, it can be modified to the realities. If one waits for stability, it puts things way behind where they should be.

Ms. Deb Grubbe commented that the problems NASA is facing with regard to aging infrastructure are not unlike what many "smokestack" industries have faced here in the U.S. There are lots of models out there and some good benchmarks are available. She remarked that she did not come away with a feeling that there is a true understanding of the issues and how to address them. Mr. Marshall agreed. His experience with installations and facilities comes from the DOD. They have struggled with these for years and are light years ahead of where NASA is. He was surprised and disappointed that the information was not readily available in the briefing package.

STANDARD FOR MODELS AND SIMULATIONS UPDATE

Dr. McErlean reported on the development of the standard for models and simulations. He noted that engineering has determined that modeling and simulation is more and more becoming a tool that ultimately goes to decision-makers and therefore should conform to some standard of fidelity. Some of the reasons

for this increase in simulation are the expense of the hardware and equipment, and "test/break/fix" is no longer a viable strategy due to both the scarcity of hardware and the expense of testing. The ASAP began working with the NASA Office of Chief Engineer over a year ago with regard to concerns about the level of standardization when modeling is presented for use by decision-makers--specifically, its credibility, limits, parameters, assumptions, etc. Dr. McErlean indicated that he had looked over the relatively new standard for Modeling and Simulation—NASA Standard 7009. It is a very good document. Even more importantly, Mr. Steel (connecting via telecon from the Kennedy Space Center) briefed the Panel on his task to develop a Specification Guide to go along with the standard that will help engineers and scientists to apply the standard in practical terms. This is another good step forward. Overall, this goes directly to the heart of the matter--to establish and present the credibility of a model. The document goes a long way toward explaining, categorizing, and standardizing (to some extent) the definitions and how they should be presented to management. NASA has approved this for public release, which is a good thing because it has broader applicability than just within NASA. It is an important topic across the entire industry. The ASAP will continue to work with NASA to improve this. It has been a great start, and the Panel is very pleased that NASA has incorporated its recommendation.

CEV PARACHUTE ASSEMBLY SYSTEM

Dr. James Bagian discussed the test anomaly of the Orion Parachute Assembly System Test that was conducted on February 9. At that time, it was reported by the press as a "failure." This was a misnomer—it was a test of a testing technique that would ultimately be used as a way to test the parachute. Two tests of the technique had already been performed successfully; this was the third. The extraction chute did not pull out the main chute, and the "dummy" payload impacted the ground with much greater velocity than planned. As the results were examined, it was noted that there was a piece of hardware, the extraction force transfer coupling (EFTC), that was originally designed to release the pilot chute immediately as the payload cleared the plane. In this particular case, they wanted to test the effects of a ten second delay. This delay allowed forces to be placed along a direction that was beyond capabilities of the design of the EFTC hardware. The third test provided information to enable the refinement of the test technique being evaluated, which was the intended purpose of the test. The ASAP was glad to hear that it was a test of a test technique, not a test of an article. The concern is that NASA did not clearly communicate the nature of the test. If this event had been handled properly in public communications, i.e., that it was an anticipated failure during a test evaluation, it would not have been an agenda item for the ASAP.

MISHAP INVESTIGATION PROCESS AND METRICS

Ms. Deb Grubbe reported on the discussion related to the mishap investigation process. The ASAP was briefed on the process and the metrics that NASA has been following to clean up and learn from mishaps that have occurred over the years. There is good news and there are challenges yet ahead. The good news is that the backlog of outstanding items has been greatly reduced. This is a real positive. However, NASA is not yet where it needs to be. For incidents that have occurred, there is still some miscommunication, e.g., the parachute test. Also, NASA is not effectively learning from the mishaps as an organization—information is still very slow in getting out to the programs so that the findings and fixes can be incorporated. There is no process at this point in time to ensure that the organization has learned from the outstanding items. The ASAP recognizes that this is a difficult thing for any organization to do, and NASA is no exception. Additionally, the Panel still continues to ask for safety metrics to be rolled up and shared at each quarterly meeting. This has not yet been provided.

There were six Type A & B mishaps that have occurred so far in 2010. In examining those mishaps, Ms. Grubbe noted that five of the six were at Centers where the workforce is experiencing significant concerns due to the recent announcements. This should get management attention; yet, it was not

recognized. The reason for the slowness is that people don't necessarily know who to send information to or what they are supposed to do about it. Mishap investigation and the subsequent follow-up require a leadership effort that the senior leaders have to own. If NASA acts on the lessons learned, the Agency will have fewer incidents in the future. It is incumbent upon this organization and the senior leadership to step up to it. They have made progress, but there is further to go. Adm. Dyer commented that the Panel also noted another issue that it has highlighted many times--that there are ten relatively independent Centers without strong central union and leadership. This makes the challenge harder. Ms. Grubbe agreed that this is a leadership issue. Each of the Center Directors should demonstrate the appropriate leadership and should not only worry about their Center, but should have a work process where other Centers quickly receive the information so that they could analyze it and see how it would apply to them. It is not just central leadership that is required, but leadership at all of the Centers. Ms. McDevitt added that Administrator Bolden has recognized that there are problems in this area and has asked for a briefing to him every six months. Ms. Grubbe agreed that there may be some changes as a result of those discussions. One thing that is commonly used in industry is a briefing between senior managers, e.g., if there is an injury, the manager reports that to his or her peers as well as senior management. This might help step up the interest.

Dr. Bagian noted that although the situation is improving, a process in still not in place. For close calls, there is no clear or standardized prioritization technique. NASA indicated that this had been considered, but it had been too hard to try to have common criteria. This aspect needs further examination. There are techniques that can be used to enable common language at all of the Centers. The concern is that in many areas, close calls are not discussed. Another concern regards mishaps that occur in a contractor facility. It appears that NASA doesn't get those results if it is not spelled out in the contract. This should be thought about during contract negotiations. There may be a gap there that needs to be closed. Another concern is the timeliness of doing the investigation as well as reporting it out. There is a system for tracking, but there is no deadline for proving out, e.g., answering the question: did the corrective action work?

If there is not a good process, then there will be issues for any commercial rocket that carries humans. The concern is that the ability of the collective space enterprise to learn from its mistakes is not in place now. Mr. Frost added that the ASAP did have a good discussion on how Commercial Resupply Services (CRS) will do mishap investigations. For CRS, loss of cargo will not be treated as a NASA mishap—it is considered a relatively high-risk operation and only class D payloads will be used. That decision has been made up front. There are a lot of other decisions like that, and those should be covered in a Mishap Investigation Plan. As soon as it is available, the ASAP would like a copy of this Plan to see how well this issue is covered. These kinds of programs may or may not be covered by a Federal Acquisition Regulation (FAR) clause on mishap investigations, and the ASAP would like to know what those are.

FAA ROLES AND RESPONSIBILITIES

Ms. Joyce McDevitt noted that the ASAP had an overview discussion on FAA roles and responsibilities with Dr. Nield. This was the first time the Panel had a formal briefing from the FAA. Dr. Nield started his presentation with a brief history of the Office of Commercial Space Transportation, which is now one of four lines of business within the FAA. It has a twofold mission: to ensure safety of the public during launches, and to encourage and promote U.S. commercial space transportation. Because there is a potential conflict of interest between these two objectives, separate organizations within the Office lead the activities in these two areas; however, Dr. Nield emphasized that everyone is sensitized to safety.

The Commercial Space Launch Act requires U.S. citizens to obtain a license prior to launching a vehicle. The only exceptions to that are launches carried out by NASA or the Air Force. Over the past 20 years, there have been 201 licensed launches. There are also regulations for the launch site licensing. The Act was amended in 2004 to expand the role of the FAA to establish an informed consent regime for carrying

passengers. This put Congress and the Administration on the record for supporting development of commercial human spaceflight. In addition, a new experimental launch permit was created for testing reusable suborbital launch vehicles. The market for the FAA is an ambitious area. A recent market study for space tourism found that suborbital launches could general more than $1B per year in revenues by 2021. There is potential for 15,000 passengers per year. Orbital flights could include up to 60 passengers per year. Within the next few years, we are looking at multiple launch companies, perhaps launching as frequently as two or three times a week. This study was based on polling affluent Americans that would be interested in taking the ride. In 2005, to further promote the commercialization of space, the U.S. Space Transportation Policy was issued. It states that the U.S. government must capitalize on the entrepreneurial spirit in the U.S. private sector, and the U.S. government must purchase commercially available space transportation services to the maximum extent possible. Some of the activities undertaken to promote the policy have been the XPrize competition and the Lunar Lander challenge.

One of the new areas of accomplishment in the FAA office has been the safety approval of an element that contributes to the safety of a launch vehicle operation. Once a system is approved, it is available to any launch operator and can greatly simplify the licensing process. Approval was granted to NASTAR for the STS400 Centrifuge Simulation System. Another new initiative currently underway is the establishment of the Commercial Space Transportation Center of Excellence, which will support science, technology, engineering and mathematics (STEM) education and the development of a highly qualified aerospace workforce. A team of colleges or universities will be funded at $1M per year for next 10 years to enable faculty members and students to work on projects that are of interest to the FAA. The FAA has been working with NASA on the commercial space programs and is a member of several working groups. It will work closely with NASA in the future to ensure the safety of commercial human spaceflight.

Adm. Dyer noted that he learned that following a commercial airline accident several years ago, there was a policy change at FAA that removed the advocacy task from the agency and left it with the task of public safety. This was intended to remove the potential or perceived conflict of interest. However, in commercial space flight, once again the FAA has the dual responsibilities of public safety as well as advocacy. Ms. Grubbe agreed that it is important to remember this fact as the ASAP continues to deliberate on the larger issue.

TAURUS XL RETURN TO FLIGHT (RTF) STATUS

Mr. Frost presented an overview of the topic and the ASAP discussion of the issue. The Taurus XL is returning to flight after a mishap on an earlier launch—the Orbiting Carbon Observatory (OCO)—on February 24, 2009. OCO failed to reach orbit and the $209M satellite was lost. A Mishap Investigation Board (MIB) was convened, and they did a very good job. It was a mishap where no debris was recovered and telemetry was limited. The MIB was headed by Mr. Rick Obenshein. The MIB spent considerable time and effort, and narrowed the cause of the mishap down to four potential causes. They did not have sufficient data to single out only one of those. The contractor, under different rules, felt confident which of those potential causes was causative. Both boards were in general agreement, and very positive steps were taken on all of the potential causes to prevent a recurrence. There were eleven specific findings and corrective actions for the next launch.

The reason the ASAP asked for this briefing (and several similar ones previously), is that the Panel sees what appears to be a common thread in the utilization of MIB results. In each case, after rigorous study, the MIB has determined what went wrong in a given mishap and taken steps to solve or prevent recurrence on the program at hand. Where the ASAP is seeing a weakness is in the documentation and dissemination of these lessons to programs beyond the program at hand. OCO appears to be another example of this phenomenon. It is recognized that the findings for OCO do go into a database program which is used by the Launch Services elements at KSC; however, not everybody will be able to get to the data. For example,

the data did not get transmitted to the Constellation Program. It is also not available to commercial vendors because the database contains proprietary information that cannot be used by everyone.

Mr. Frost suggested raising the topic again as a recommendation. There were eleven findings in the OCO investigation, some of which were specific to this satellite and some that appear to be applicable to other programs, e.g. component pedigree traceability, component markings, heat treat lot control, telemetry scaling, igniter current monitoring during acceptance, etc.—either OCO failed to meet existing standards, or the existing standards were not good enough. Briefers reported that these requirements are not documented in existing standards. The question is how to improve the investigation process so that future lessons can be captured and shared with future spacecraft designers. There is a need to find a better way of passing on these multimillion dollar lessons to the next generation. Specifically, Mr. Frost suggested that NASA take these eleven recommendations, evaluate them one by one, and determine which can be codified in some way for permanent use, and then take that process and implement it Agency-wide for future investigations.

Ms. McDevitt added that in the development of the Corrective Action Plan, one of the best efforts to look at is the processes and procedures of the organization and how they can be changed to prevent the mishap. The Launch Services Program has done a very good job at looking at their own practices, and the ASAP was briefed on the actions that are underway. This kind of learning experience would be directly applicable to the organizations for Commercial Orbital Transportation Services (COTS) and other delivery systems.

PUBLIC AFFAIRS OFFICE (PAO) ON COMMUNICATIONS

Adm. Dyer noted that PAO is related to safety in important ways. It is the path with which NASA communicates with taxpayers and Congress, and it is an important aspect of a full systems approach. Ms. Grubbe reported on the Panel's discussion with Ms. Beth Dickey, Public Affairs Officer, and Mr. Robert Jacobs, Acting Associate Administrator for the Office of Communications. She noted that the failure to share is an example of an internal communications process that needs improving. Although the focus of the ASAP discussions were on external communications, there are issues both externally and internally. The PAO knows what it has to do. The Acting Associate Administrator said it very succinctly: tell your own bad news, news does not get better with age, and shining a "light" on yourself is a good thing. The ASAP totally agrees. Ms. Grubbe encouraged the PAO to be much more pro-active with this advice—start doing what they say needs to be done. They showed an excellent understanding of the issue. Their focused remarks offered seven problems and seven sets of potential solutions, and all of those are possible. They have reorganized from four groups to two groups to become more focused, and they have implemented an internal communications team to help move things in the right direction. They need to step out to become more integrated with the technical people. Ms. Grubbe encouraged PAO to take more direct control of their work and to play a bigger role than just the messenger. Mr. Frost added that this involves the entire Agency, including program managers and executive leadership. The operation can be improved.

Ms. Grubbe noted that the technical managers have a role to play also. If PAO steps out and starts the process, the technical people will come on board. The technical people, especially the key managers who know that they will face a microphone or camera, may need more training in authentic communications. Mr. Frost added that there have been two recent events that have brought this to the ASAP's attention: (1) the Ares 1-X flight, where everyone thought there was a malfunction, but the test acted as expected; and (2) the Orion Parachute Assembly Test, which was actually good news with respect to test technique. These are two examples of where there was a much better story that should have gotten out quickly. Sometimes NASA opts to be silent, and that may not be the best approach.

Adm. Dyer commented that there is still a lot of "spin" in NASA's public communications. In the 2009 Annual Report, the ASAP contrasted this with the "plain speaking" that had found its way into NASA's technical world, where spin has largely abated from the internal technical dialog. The Panel has not seen a similar plain speaking from PAO. Adm. Dyer noted that he had posed a question to which he did not get an answer: Why is it that the Panel's Annual Report was purposely released late on a Friday of a three-day weekend? This is an example of spin. It is not constructive to transparency.

SHUTTLE AND INTERNATIONAL SPACE STATION (ISS) UPDATES

Adm. Dyer addressed the last topic, which included a discussion about the workforce, its focus, and the tumult in the workforce impacting safety. NASA is managing the challenge as best able. Overall, the ASAP would give them a good mark on keeping people challenged and focused. There are three planned flights remaining, and there is informal discussion of an additional flight of the launch-on-need aircraft. The Panel will engage on this topic in the coming months. The last flight was reported to be a very clean one with respect to debris; however, the Ku-band antenna system was inoperable. Like the Shuttle itself, it was an old system of old design. Another topic of interest was loss of tile from the rudder section. This is still being researched and bears watching. As Mr. Gerstenmaier noted a number of times, NASA continues to learn things about the Shuttle. There was active discussion about recertification of the Shuttle and what it would take to recertify it to operate beyond its design life. There are differences of opinion. On one hand, NASA has been accomplishing what might be called incremental recertification for portions of the vehicle during "phased maintenance," but there are things that haven't been done, e.g., looking at hydraulic actuators and some imbedded systems that do not ordinarily see the light of day. There is also an interesting question: If the Shuttle were to be recertified, should it be certified to the standards of 30 years ago or to today's standards? Although the design doesn't support today's standards, in the opinion of the Panel, it would be best to certify it to modern standards and seek waivers if they are required.

Adm. Dyer highlighted one other topic regarding ISS: probabilistic risk assessment (PRA). The ASAP took a good look at the NASA process and methodology used to establish PRA, as well as the scope and the approach to ISS. The ASAP was impressed. A later version (2.1) of the PRA model was used to look at Station with visiting vehicles in place. This is timely, because the traffic to and from the ISS over the next several months will be very high tempo. The results of that model, which looked at a six-month forward period, were expressed for loss of crew (LOC) during Extravehicular Activity (EVA), LOC, and the LOC and vehicle. The results were expressed, not only as a finite estimate, but perhaps more importantly in terms of the band of uncertainty. LOC during EVA was the highest risk, the LOC of any single crew member exclusive of EVA was next, and significantly lower in terms of risk status was LOC and vehicle. Other discussions included the "graceful degradation" of the Station. Mr. Gerstenmaier explained that if the program is challenged in delivering logistics needs, it would first reduce research, then reduce crew members, and finally, leave ISS unattended for a period of time. The ASAP was heartened at the thoroughness of the risk model and the discussion.

Ms. Grubbe noted that it is easy to communicate to people who understand the technical aspects; it becomes much more difficult to try to articulate risk to a world that is not technical. It provides a challenge not only to NASA and its PAO, but also to the receiving reporters to ensure that they thoroughly understand the data. Adm. Dyer agreed that it is a challenge to take a very technical, engineering-oriented decision-making process and effectively share it with the media and others.

Adm. Dyer concluded the formal portion of the meeting, and after receiving no questions or comments from the audience, adjourned at 1:45 pm.