National Aeronautics and
Space Administration
Office of the Administrator
Washington, DC 20546-0001

June 21, 2010

Vice Admiral Joseph W. Dyer, USN (Ret.)
Chairman
Aerospace Safety Advisory Panel
National Aeronautics and Space Administration
Washington, DC 20546

Dear Admiral Dyer:

Enclosed is NASA's response to Recommendation 2009-04-01 from the 2009 Fourth Quarterly Meeting of the Aerospace Space Safety Advisory Panel (ASAP). Please do not hesitate to contact me if the Panel would like further background on the information provided in the enclosure.

I look forward to receiving continued advice from the ASAP that results from your important fact-finding and quarterly meetings.

Sincerely,

Charles F. Bolden, Jr.
Administrator

Enclosure

Tracking Number 2009-04-01
Formal Governance Process for Kennedy Space Center Safety and Mission Assurance and Shuttle Workforce Management

ASAP Finding
In the face of transition from Space Shuttle to Constellation, the Kennedy Space Center (KSC) and Safety and Mission Assurance (S&MA) leadership team is doing good work in evaluating and maintaining the skill sets. Progress is being made in the right direction. The governance process and interface with the Independent Technical Authority is working well. What would serve the KSC S&MA organization well would be an internal governance process designed for the unique requirements of KSC operations.

Recommendation
The ASAP recommends that the KSC S&MA organization put into place an internal management process that includes clear and transparent metrics with respect to skill sets required for current shuttle and future Constellation, International Space Station (ISS), Commercial Orbital Transportation Services (COTS) and "other program" support. Additionally, there needs to be established a "quick feedback" process that reaches into each of the current near misses and mishaps to examine the role that "lack of right skill at the right time and right place" has had on each incident.

ASAP Rationale
By putting a formalized process into place, there will be more overall attention paid to inherent skills as the workload changes occur, and corrections can be made in a timely manner. This will hopefully prevent repeat incidents with similar cause, and will highlight skill gaps that need to be quickly closed.

NASA Response
NASA agrees with the recommendations offered by the Panel for ensuring that the appropriate skill sets are available to address the changing workload situation brought on by the impending retirement of the Space Shuttle. KSC S&MA currently performs the recommended actions as outlined below.

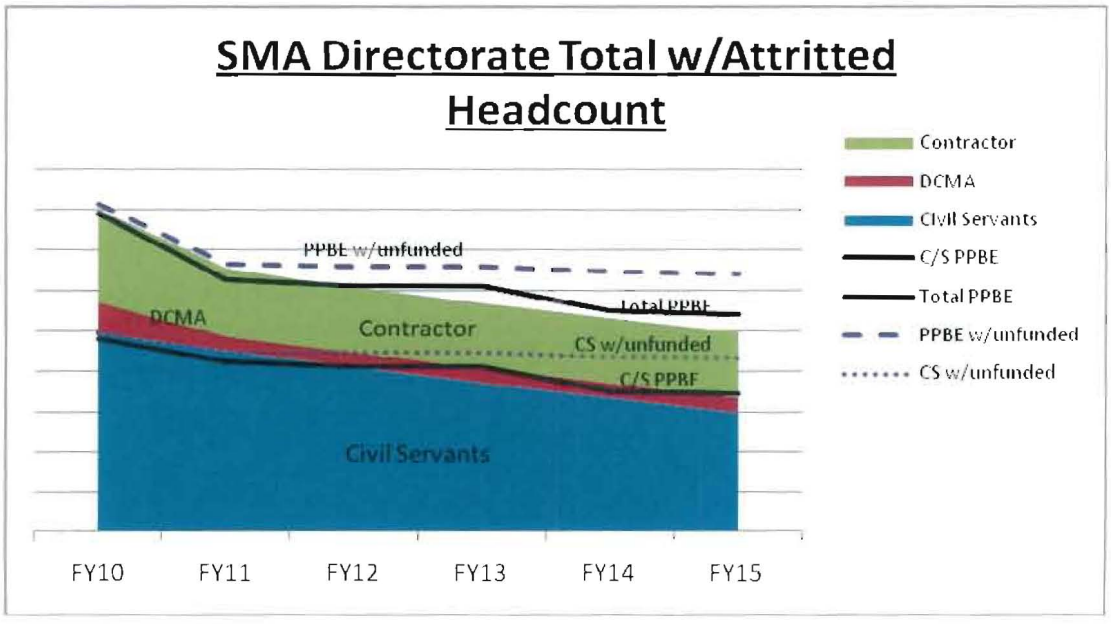
KSC continuously evaluates current and future mission support and processing activities to determine future workforce level and skill needs arising from the phasing out of current programs, such as the Space Shuttle Program and new Agency direction. One of the major issues the Center addresses is to understand how the KSC S&MA workforce should transition to support the changing needs. At the end of calendar year 2006, KSC S&MA management formed a Workforce Analysis Team to develop a process and associated metrics for analyzing the current and future S&MA Directorate workforce. Its initial task was to make recommendations to ensure a successful transition from the Space Shuttle era to the Constellation era.

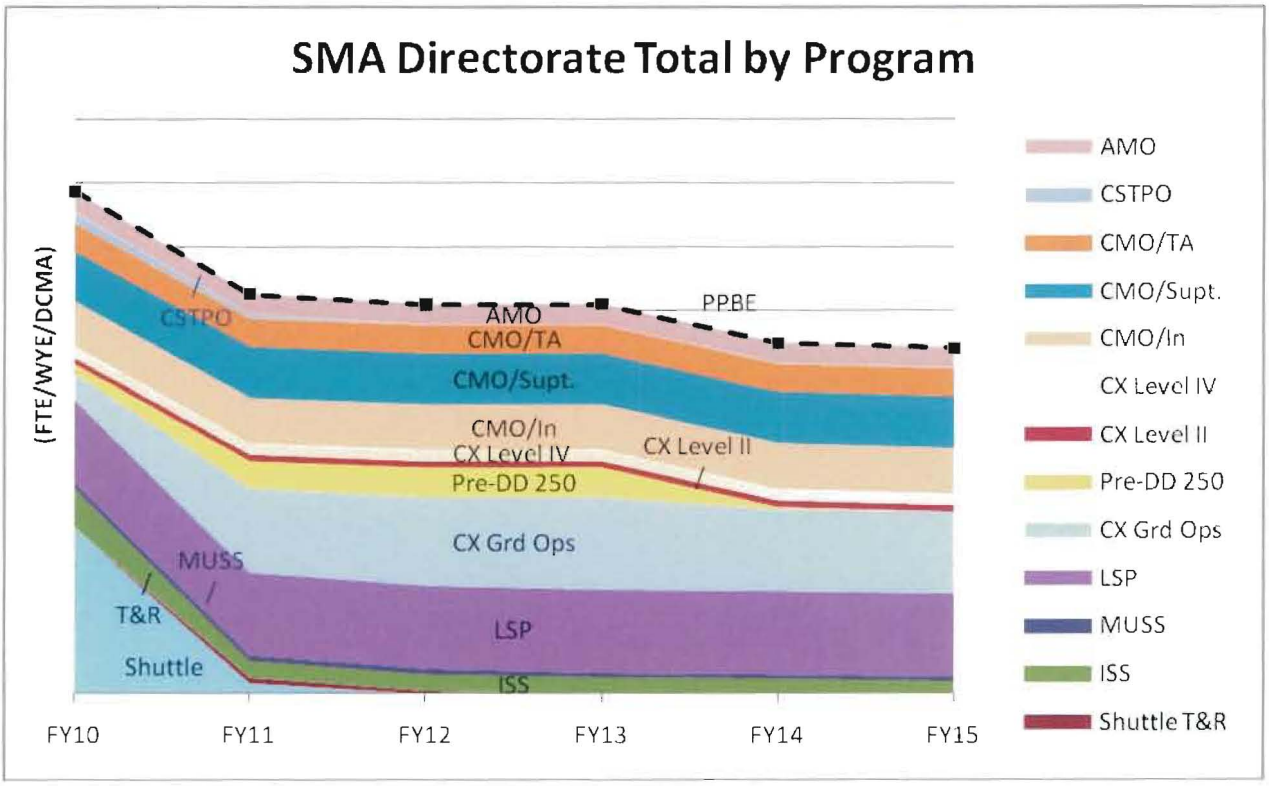
The primary charter for this Workforce Analysis Team is to obtain data and perform the appropriate gap analyses of the skills in the workforce to allow critical skill needs assessment of the current, transitional, and future S&MA workforce on a periodic basis. Additionally, the team

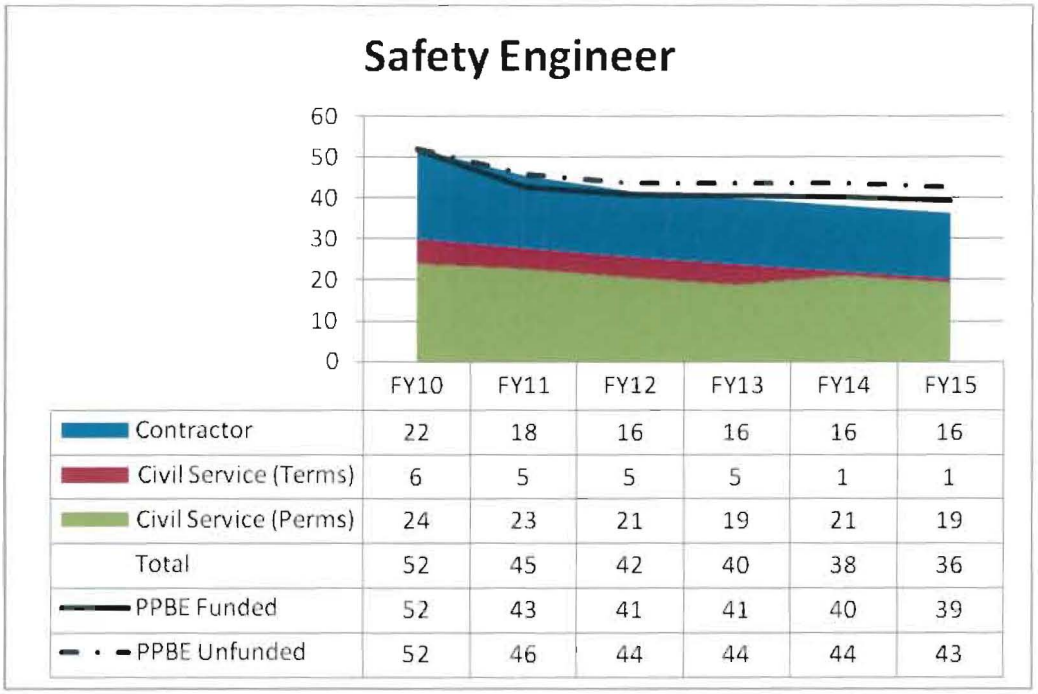
has benchmarked the S&MA organizations of other government agencies and large, high-risk companies from both the aerospace and non-aerospace industries such as 3M, Boeing's Space Exploration, the U.S. Air Force, and NASA Centers, including the Marshall Space Flight Center and the Jet Propulsion Laboratory. The team also developed an S&MA discipline training plan and researched and documented the history of S&MA at KSC. These efforts would have allowed KSC S&MA to retain, develop, and maintain the critical skills to appropriately fulfill the needs of the new proposed projects/programs.

This process establishes requirements for the KSC S&MA workforce during the annual Program Planning Budget and Execution (PPBE) process and periodically reviews these forecasts through the Workforce Analysis process with updated data. Twice a year, the Workforce Analysis Team conducts a needs assessment of the core disciplines/critical skills based on requirements, including the civil service, contractor, and the Defense Contract Management Agency (DCMA) workforce levels and skills. The S&MA workforce requirements are categorized into 13 disciplines based on the actual skill used to perform the job. The S&MA workforce requirements are compared to the onboard headcount to determine gaps or surpluses for the current mission and future projects/programs. Historical attrition rates are applied to the current workforce to determine future staffing levels. Unfunded requirements, which include known future work which is not currently funded and deltas between requirements and approved budget levels, are also incorporated into the analysis.

The completed analysis and resulting metrics are presented to the KSC S&MA Leadership Forum (KSC SMA Director and direct reports) to assist in planning for future skill needs and transition issue resolution. The workforce requirements established during the PPBE process are analyzed by program, by organization, and by discipline (skill). The following charts are examples (with no numbers) of some of the metrics that were produced by the initial analysis of the 2006 NASA direction to transition to the Constellation Program (the safety engineer chart displays actual data from the latest analysis). These charts show how the KSC S&MA workforce would have changed over time compared to requirements imposed by the Constellation Program.







	FY10	FY11	FY12	FY13	FY14	FY15
Contractor	22	18	16	16	16	16
Civil Service (Terms)	6	5	5	5	1	1
Civil Service (Perms)	24	23	21	19	21	19
Total	52	45	42	40	38	36
PPBE Funded	52	43	41	41	40	39
PPBE Unfunded	52	46	44	44	44	43

Observations:

- Safety Engineer's attrition at historic rates closely align with the FY2011 requirements for the Discipline.
- With the unfunded requirements included, requirements are greater than Available resources beginning in the FY2011/2012 timeframe.

Recommendations:

- Look at pool of Available for New Work (AFNW) to close gap.
- Hire contractors based on the availability of civil servants.

Utilizing the data from the Workforce Analysis, KSC S&MA has employed different strategies to mitigate the gaps and surpluses within the disciplines. One example of utilizing a surplus to fill a gap is where KSC S&MA successfully retrained Quality Assurance Specialists to alleviate identified gap areas in the Safety Specialist and Software Specialist disciplines. KSC S&MA also eliminated its need for onsite DCMA support post Shuttle program termination. Targeted buyouts have also been employed to reduce disciplines with projected surpluses. For future gap areas, S&MA will look at the civil service population "Available for New Work" when the Shuttle Program ends or will hire contractors when civil service employees are not available.

The KSC S&MA Directorate has put into place an additional means to manage the support it provides to KSC project/programs. From a tactical standpoint, the Director of S&MA holds weekly staff meetings with not only direct reports (programmatic and institutional division chiefs) but also key personnel within the directorate. In addition to this, however, the Director of S&MA holds a weekly Leadership Forum with only the direct reports. The Leadership Forum is a strategic forum for the Director and the division chiefs to discuss issues where the future of KSC S&MA depends upon appropriate present day action. Key workforce composition, training, and skill mix issues are routinely explored during the Leadership Forums. In addition, the Workforce Analysis Team presents a full report twice a year. The report includes skill mix needs, attrition rates and projections, and budget projections sorted by programs, organizations, and each of the S&MA disciplines. The Workforce Analysis Team and the S&MA Leadership Forum form a dynamic internal governance process that ensures the KSC S&MA Directorate is able to meet its defined mission requirements.

A similar effort is now being used to determine workforce levels and skills for the recently announced Agency's new proposed direction embedded in the President's budget. This process will identify KSC requirements in support of the 21st Century Space Launch Complex, the extension of the International Space Station to 2020, the commercial crew and cargo projects/program, and other proposed new initiatives.

Regarding the second recommendation, KSC also agrees that it is beneficial to establish a "quick feedback" process that will communicate to the Center and, if appropriate, to the Agency any indication that the lack of proper skill set had any causality in mishaps or close calls.

Currently at KSC, the investigating authorities examine the training of employees that were involved in an incident. This leads to looking at the skill level of the employees as a by-product of looking at training. In order to positively affect the current process relative to mishaps and near misses and to establish a "quick feedback" mechanism to explore whether or not the lack of the right skills could have contributed to an incident, the S&MA Directorate will alter its investigation guidance to the investigating authority to examine the skills of the individuals as a primary objective of looking at training. The S&MA Directorate feels strongly that this will provide benefit and, as a result, will have KSC boards explore skills quickly and, in turn, publish appropriate Mishap Warning-Action-Response to other Centers.

NASA will share the information from the recommendation with the other Centers and urge them to focus attention on the maintenance of skill sets in our ever changing work environments.

In summary, we believe the ASAP recommendations are salient and trust that KSC S&MA has fully responded to the ASAP's suggested course of action.