

National Aeronautics and Space Administration

Office of the Administrator
Washington, DC 20546-0001



September 8, 2020

Dr. Patricia Sanders
Chair
NASA Aerospace Safety Advisory Panel
Washington, DC 20546

Dear Dr. Sanders:

Enclosed is NASA's response to the Aerospace Safety Advisory Panel (ASAP) Recommendation 2019-04-01, Required Safety and Mission Assurance Technical Excellence Program (STEP) Training for all NASA personnel. This recommendation resulted from the ASAP 2019 Fourth Quarterly Meeting held at NASA Johnson Space Center on September 6, 2019. Please do not hesitate to contact me if you or the Panel would like further background on this response.

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

Sincerely,

A handwritten signature in black ink that reads "Jim Bridenstine". The signature is written in a cursive style.

James F. Bridenstine
Administrator

Enclosure:
2019-04-01: Required Safety and Mission Assurance Technical Excellence Program
(STEP) Training for all NASA Personnel

NASA Aerospace Safety Advisory Panel Recommendation

2019-04-01: Required Safety and Mission Assurance Technical Excellence Program (STEP) Training for all NASA Personnel

Findings:

The NASA Safety Center supports the Office of Safety and Mission Assurance (OSMA) in four major areas: mishap investigation, audits and assessments, knowledge management, and technical excellence. In short, the Center provides a wide breadth and depth of information, from policy to education, pertaining to maintaining and promoting a safety culture. One of the programs available from the center caught the attention of the Panel: the Safety and Mission Assurance Technical Excellence Program, or STEP. STEP is available as online learning, providing continuing education credits designed to teach safety professionals and the overall workforce about system safety. The program has multiple levels, with the Level 1 curriculum specifically targeted to benefit the engineering workforce. Higher levels provide more advanced content for Safety and Mission Assurance professionals.

Recommendation:

Given the importance of creating a culture of safety across the NASA workforce, and the availability of a resource to promote that goal, the ASAP would like to recommend that NASA adopt an Agency-wide requirement for all employees to complete the STEP Level 1 training course.

Rationale:

There is no requirement across the Agency for the workforce to take the training. Safety and Mission Assurance professionals are only “encouraged” to enroll in the program. With the exception of Kennedy Space Center, where the STEP Level 1 curriculum is required for all new hires, the general workforce remains largely unaware of the offering.

NASA Response:

NASA concurs with the intent of ASAP’s recommendation that NASA adopt an Agency-wide requirement for all employees to complete the STEP Level 1 training curriculum in order to foster a culture of safety across the NASA workforce.

A workforce with a strong safety culture is vital to achieving mission success. To that end, NASA began requiring all new civil servants to take the two-hour course, “Orientation to Safety Culture” in 2016. The mission of the Agency’s Safety Culture program is to create at NASA an environment characterized by safe attitudes and behaviors, open communication and mutual trust, shared lessons and values, and balanced challenges and risks. NASA has a robust safety culture outreach including safety culture surveys at each Center, awareness material, the “caught

doing right” campaign, and “yes if” coins. Additionally, each Center has specific safety training and hosts a safety day to promote various tenets of safety to their workforce.

The “Orientation to Safety Culture” course is part of the STEP Level 1 training curriculum. When considering this recommendation to add 28 hours of the STEP Level 1 curriculum to the training portfolio of the entire NASA workforce, we must balance the benefits to the Agency’s safety culture against the burden of additional mandated training. As a Federal agency, NASA must comply with various Federal training requirements, several of which require periodic reoccurrences of the mandatory training in addition to mandatory training for new hires.

STEP Level 1 training is designed to serve as an orientation to Safety and Mission Assurance (SMA), and while it is a good baseline for SMA employees, it may not be applicable to the entire workforce or relevant to achieving and maintaining an engaged safety culture. After reviewing the learning objectives of each course within the STEP Level 1 training curriculum, we identified a tailored subset of Level 1 coursework that would be applicable to the intent of ASAP’s recommendation.

The below set of courses represent five hours of study that will orient the workforce to the tenets of SMA, the role SMA plays in assuring mission success and the consequences of mission failure. This set of courses will be required for all new NASA civil servants.

- NASA Safety and Mission Assurance Overview – 1 hour
- Introduction to Technical Authority – 1 hour
- Risk Leadership – 1.5 hours
- Overview of Mishap Investigation – 1.5 hours

In addition, new civil servants that support programs and projects will have an additional 5.5 hours of course work required. This includes:

- Hazard Analysis Basics – 1 hour
- NASA Human Factors in Mishap Investigations for Programs and Projects – 1.25 hours
- Introduction to Root Cause Analysis – 1.5 hours
- Probabilistic Risk Assessment Overview – 0.75 hours
- Risk Management Overview – 1 hour

The NASA Safety Center and the Office of the Chief Human Capital Officer are working together to implement this training starting in August 2020. Additionally, each year in conjunction with the Day of Remembrance, NASA is requiring that all NASA civil servants complete a mandatory “lessons learned” course. This year, the Apollo 1 Case Study was assigned to every civil servant. A new case study will be selected annually.

NASA will continue to work to find the optimal balance between requiring training and advancing a robust safety culture.