In February, NASA began an effort looking at the feasibility of putting crew aboard the first integrated flight of the Space Launch System rocket and Orion spacecraft -- Exploration Mission-1, or EM-1. After weighing the data and assessing all implications, the agency will continue pursuing the original plan for the first launch, as a rigorous flight test of the integrated systems without crew. However, engineers will apply insights gained from the effort to the first flight test and the integrated systems to strengthen the long-term push to extend human presence deeper into the solar system.

NASA determined it is technically capable of launching crew on EM-1, but after evaluating cost, risk and technical factors in a project of this magnitude, it would be difficult to accommodate changes needed to add crew at this point in mission planning. The effort confirmed that the baseline plan to fly EM-1 without crew is still the best approach to enable humans to move sustainably beyond low Earth orbit.

"We appreciate the opportunity to evaluate the possibility of this crewed flight," said NASA acting Administrator Robert Lightfoot. "The bi-partisan support of Congress and the President for our efforts to send astronauts deeper into the solar system than we have ever gone before is valued and does not go unnoticed. Presidential support for space has been strong."

Exploration Mission-1 is the first in a broad series of exploration missions that will take humans to deep space, and eventually to Mars. It is designed to be a flight test of our entire system -- one that is challenging in itself and will offer the opportunity to better understand our capabilities and limitations and ultimately build confidence in our ability to safely send crew into deep space.

"We’re considering additional ground testing of the heat shield prior to EM-1 as well as the possibility of advancing the ascent abort test for the Orion launch abort system based on findings from the study," said William Gerstenmaier, associate administrator for NASA’s Human Exploration and Operations Mission Directorate. "Conducting these tests in advance of EM-1 would provide additional data that will advance our systems knowledge faster and possibly improve the robustness of the overall plan for sending humans into deep space."

As part of the assessment, NASA also reviewed the schedule for EM-1, including production schedules across the enterprise, anticipated budgets and appropriations, projected delivery of the European Service Module, first time production issues related to the core stage that is at the leading edge of new manufacturing, and the ongoing impact of the February tornado that directly affected the Michoud Assembly Facility in Louisiana. As a result of these factors, NASA will adjust the target launch date for the EM-1 mission to 2019, and will execute its normal process in the coming weeks to determine an official revised launch date.

NASA continues to keep each part of the enterprise – Orion, SLS, and ground systems – moving at their best possible pace toward the first integrated test mission. While components for EM-1 are being delivered, contractors can turn to the next phase of their work for the second flight, Exploration Mission-2, which will carry crew beyond the moon.
Flight hardware for SLS and Orion is currently in production for both the first and second missions, and progress continues across the country. The SLS engine section structural test hardware is currently aboard a barge on its way to the Marshall Space Flight Center in Alabama for testing, a series of engine tests is taking place in Mississippi, and the Orion abort attitude control system was tested in Maryland. An abort motor for the launch abort system will soon be tested in Utah, and avionics systems for the Orion European Service Module have been integrated into the Orion testing laboratory near Denver. Meanwhile at the Kennedy Space Center, Orion’s heat shield is being installed, and ground systems and software continue development. In addition, deep space habitation and propulsion system development activities also are underway and life support and related technologies are being tested 250 miles above the Earth aboard the International Space Station now.

“We are building both systems and supporting infrastructure to ensure a sustained cadence of missions beginning with EM-1 and continuing thereafter,” said Lightfoot. “NASA will continue to work with the Administration and Congress as we move toward a crewed flight test on EM-2 and, right now, we are very focused on accomplishing the EM-1 flight test.”

NASA continues to lead the way in sending humans into deep space beyond the moon through building a flexible, reusable and sustainable capability and infrastructure that will last multiple decades and support missions of increasing complexity. This infrastructure will be available for use by others both domestic and international as they want to join in the effort to advance human presence into the solar system. These systems create an incredible capability from which future generations will continue to benefit.