Artemis

Goal Leader(s):

Goal Leader: Thomas Whitmeyer, Deputy Associate Administrator, Common Exploration Systems Development Division, Exploration Systems Development Mission Directorate (ESDMD)

Deputy Goal Leader: Mark Kirasich, Deputy Associate Administrator, Artemis Campaign Development Division, ESDMD
Goal Overview

Goal statement
  o  Advance America’s goal to land the first woman and the first person of color on the Moon and pursue a sustainable program of exploration by demonstrating capabilities that advance lunar exploration. By September 30, 2023, NASA will launch Artemis I, deliver the Core Stage for Artemis II to Kennedy Space Center for processing, and have multiple companies under contract to develop systems for sustainable human lunar exploration.

Problem to Be Solved
  o  Successfully execute long-duration space exploration missions – to the Moon and then on towards Mars – while developing new commercial launch capabilities, launch vehicles, spacecraft, and a lunar lander.

What Success Looks Like
  o  Launch Artemis I, the first integrated flight test of the Space Launch System (SLS) rocket and Orion spacecraft, with support from the upgraded Exploration Ground Systems at Kennedy Space Center (KSC)
  o  Deliver the SLS rocket Core Stage to KSC for processing in preparation for Artemis II, the first crewed Artemis mission
  o  Have multiple companies under contract to develop systems for sustainable human lunar exploration
In the table below, please repeat the key metrics included in the goal statement (previous slide) that will be used to track progress.

Please update this column each quarter.

<table>
<thead>
<tr>
<th>By...</th>
<th>We will...</th>
<th>Key indicator(s)</th>
<th>Quantify progress</th>
<th>Frequency</th>
</tr>
</thead>
</table>
| 9/30/2023 | Launch Artemis I  
• Completed Orion/SLS stacking  
• Completed integrated Vehicle Interface verification tests  
• Conducted communications end-to-end test  
• Completed Countdown Sequence Test  
• Completed preparation roll-out to Pad B  
• Complete wet dress rehearsal  
• Complete Termination System tests  
• Complete roll-out to Pad B for launch  
• Launch Artemis I  
• Complete recovery operations | Launch Artemis I | 100% | 0% | 50% | quarterly |
| 9/30/2023 | Deliver the SLS rocket Core Stage to KSC for processing in preparation for Artemis II  
• Completed assembly of upper Core Stage  
• Complete full assembly  
• Deliver by barge to KSC  
• Transport from barge to VAB | Deliver Core Stage | 100% | 0% | 25% | quarterly |
| 9/30/2023 | Have multiple companies under contract to develop systems for sustainable human lunar exploration by announcing awards for sustaining lunar development  
• Completed the HLS Option A award  
• Award contract(s) for xEVA  
• Award contract(s) for sustaining lander development | Companies Under Contract | 100% | 0% | 33% | quarterly |

*Italic* indicates that the task has been completed
Goal Team

Exploration Systems Development Mission Directive
James Free
Associate Administrator

Common Exploration Systems Development
Tom Whitmeyer
Deputy Associate Administrator

- Exploration Ground Systems
  Mike Bolger

- Orion
  Howard Hu

- Space Launch System
  John Honeycutt

Artemis Campaign Development
Mark Kirasich
Deputy Associate Administrator

- Gateway
  Dan Hartman

- Human Landing System
  Lisa Watson-Morgan

- xEVA & Human Surface Mobility
  Lara Kearney
Goal Strategies

• Common Exploration Systems Development will systematically progress through major qualification, testing, and production milestones to ensure the success of the Space Launch System (SLS) and Orion spacecraft on Artemis I (uncrewed test flight), Artemis II (crewed test flight), and Artemis III (crewed mission to the lunar surface)

• Artemis Campaign Development will use innovative procurement and management approaches to develop the core capabilities [Gateway, Human Landing System (HLS), and EVA & Human Surface Mobility] needed to conduct the lunar surface mission and enable multiple launch options for lunar missions.
Key indicators

Progress as of FY 2022 Q2

- Launch Artemis I: 50%
- Deliver Core Stage: 20%
- Companies Under Contract: 30%
<table>
<thead>
<tr>
<th>Key Milestone</th>
<th>Milestone Due Date</th>
<th>Milestone Status</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the Artemis II Crew Module Adapter/Service Module mate</td>
<td>FY 2022 Q1</td>
<td>Completed</td>
<td>Completed in October 2021.</td>
</tr>
<tr>
<td>Complete the Artemis II Interim Cryogenic Propulsion Stage</td>
<td>FY 2022 Q2</td>
<td>Delayed</td>
<td>Progress on the Artemis II ICPS continues, but completion deadline has slipped into FY 2023.</td>
</tr>
<tr>
<td>Deliver the Artemis III Core Stage Forward Skirt</td>
<td>FY 2022 Q3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Launch Artemis I</td>
<td>FY 2022 Q4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Artemis II Booster Segment stacking</td>
<td>FY 2023 Q1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Announce awards for sustaining lander development</td>
<td>FY 2023 Q2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deliver the Artemis II Core Stage to Kennedy Space Center</td>
<td>FY 2023 Q3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hold for a Gateway initial capability milestone (TBD)</td>
<td>FY 2023 Q4</td>
<td></td>
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</tbody>
</table>
The programs in **Artemis Campaign Development (ACD)** division completed key milestones in Q2:

- The Exploration Extravehicular Activity (xEVA) project conducted partial gravity mobility tests of the Extravehicular Mobility Unit (xEMU) design verification test Pressure Garment Subsystem in the Johnson Space Center’s Active Response Gravity Offload System (ARGOS) facility. One of the major objectives of this test series was to assess the impacts of the updated Environmental Protection Garment on overall suit mobility.

- The Human Landing System (HLS) Program team conducted a series of Interim Reviews with each of the five providers under the NextSTEP Broad Agency Announcement (BAA) Appendix N contracts in late January. At the provider-led events, the team focused on the work associated with the four-month period of evaluation. The Interim Reviews represent the culmination of these activities and are a performance-based payment milestone for each of the Appendix N providers.

- The Gateway Program completed all 33 planned Level 2 subsystem Preliminary Design Reviews (e.g., Power, Environmental Control and Life Support, Thermal) in support of the Program-level Preliminary Design Review-informed sync review, which is on track for completion in Q3.

- On March 23, NASA held a media teleconference to provide an update on the Agency’s approach for obtaining sustaining lunar landing services for missions beyond Artemis III. While the overall strategy remains the same, NASA will separate the development of sustaining landers from the purchase of recurring services, increasing competition and flexibility to achieve the Agency’s exploration goals under Artemis. (More information is available in NASA’s press release.)

- NASA released the draft Request for Proposal for HLS Sustaining Lunar Development on March 31.
The programs in the Common Exploration System Development (CESD) division completed key milestones in Q2:

- NASA conducted Countdown Sequence test runs for Artemis I throughout Q2, testing protocols and procedures, as well as the console functions. The tests moved the team closer to the Wet Dress Rehearsal (WDR) for Artemis I, which is expected to occur in late Q3. (Find out more about preparations for WDR.)

- The Orion Program successfully completed the Orion Artemis I Pre-Flight Readiness Review (FRR). The review included the Orion integrated spacecraft, payloads manifested on Orion, and the engineering support team and support facilities. The review board concurred that the system meets the Pre-FRR success criteria, the Orion integrated flight system is ready to meet all mission phases and objectives, the payloads are safe to fly and operate, and the support personnel and facilities are ready to support the mission.

- In February, Orion was powered up and down for the last time prior to the WDR. Following the power down, the Crew Module internal access platforms were removed, and the hatch was closed. The Launch Abort System (LAS) hatch was closed in March and prepared for rollout.

- Artemis I arrived at launch Pad 39B on March 18, after completing a four-mile (ten hours and 28 minutes) journey from the Vehicle Assembly Building atop the crawler-transporter. The launch team will conduct final testing during the WDR.

- Throughout Q3, NASA has continued to manufacture, integrate, and prepare for the Artemis II mission. The teams have continued to focus on hardware as well as the crew and operations team training activities, in preparation for the first crewed mission to the vicinity of the Moon.