CONFIGURATION CONTROLLED DOCUMENT

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Multi-Program Integrated Milestones

Legend

- Shuttle Flight
- uncrewed COTS flight
- uncrewed/crewed Constellation Flight
- ? facility utilization TBD
- X no further facility utilization identified

CY 2006 | CY 2007 | CY 2008 | CY 2009 | CY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 | FY 2017 | FY 2018 | FY 2019 | FY 2020

FY 2007 | FY 2008 | FY 2009 | FY 2010

Moon

Lunar Reconnaissance Orbiter

VSE Milestone: Human Lunar Return

International Space Station

International Partners: Soyuz, Progress, ATV, HTV

Int'l Partners: Soyuz, Progress, ATV, HTV

Six person crew capability

Assembly complete

Russian purchasing authority ends

NOTE: Orions 7 and 8 and COTS are contingent on ISS end-of-life date and potential for continuing U.S. ISS ops

NOTE: Orions 9 and 10 and COTS are contingent on continuing U.S. ISS ops

NOTE: Orions 11 and 12 and COTS are contingent on continuing U.S. ISS ops

NOTE: Orions 14 and 16 and COTS are contingent on continuing U.S. ISS ops

NOTE: Orions 18 and 20 and COTS are contingent on continuing U.S. ISS ops

NOTE: The potential for ISS operations from 2016 – 2020 is under review

LEO / Space Shuttle

12A.1, 13A, 13A.1, 10A, 1E, 1J/A, 1J, HST SM4, ULF2, 15A, 2J/A, 17A, ULF3, 20A, 19A, ULF4, ULF5

116, 117, 118, 120, 122, 123, 124, 125, 126, 119, 127, 128, 129, 130, 131, 132, 133

NOTE: ULF4 and ULF5 are manifested as contingency ISS logistics flights.

Last SSME on-dock at KSC

NOTE: *Atlantis* retirement under review.

Atlantis retired

Last ET on-dock at KSC

Discovery retired

Endeavour retired

COTS Capability to ISS

COTS

SpaceX: Demo 1 PDR; Financing round 1; Demo 2 SRR; Demo 1 CDR; Demo 3 SRR; Demo 2 PDR; Financing round 2; Demo 3 PDR; Demo 2 CDR; SpaceX Demo 1; Demo 3 CDR; Financing round 3; SpaceX Demo 2; SpaceX Demo 3; IOC

RpK: Alternate Provider

COTS Phase I

COTS Phase II

Facilities

SSP last-need for O&C

SSP last-need for A-1

SSP last-need for LCC Firing Room 1; transfer to Cx for modifications

A-1 ready for Cx testing

LC-39B configuration for last SSP flight off pad

SSP last-need for MLP 1

SSP last-need for VAB HB 2

LC-39B and MLP 1 configuration for Ares I-X

LC-39B configuration for Ares I-Y

SSP last-need for VAB HB 4

SSP last-need date for LC-39A

SSP last-need for VAB HB 3

SSP last-need for VAB LB and HB 1

SSP last-need for CT 1 and 2

SSP last-need for OPF 1,2, and 3

LC-39A configuration for Ares V

SSP last –need for A-2

A-2 ready for Cx testing

SSP last-need for MLP 2

SSP last-need for MLP 3

A-3 ready for Cx testing

Constellation

Sub-Orbital: Pad Abort 1

Sub-Orbital: Ares I-X, *4 seg. 1st stage, dummy u/s*

Sub-Orbital: AA-1, *transonic*

Sub-Orbital: Pad Abort 2

Sub-Orbital: AA-2, *max-q*

Sub-Orbital: AA-3, *tumble*

Sub-Orbital: Ares I-Y, *5 seg 1st stage, dummy u/s*

Orion 1, *5 seg 1st stage, active u/s, active Orion capsule*; Orion 2, *IOC test flight LIDS*; Orion 3, *test flight, LIDS*; Orion 4, *FOC*; Orion, *IOC*; Orion 5, Orion 6, Orion 7, Orion 8, Orion 9, Orion 10, Orion 11, Ares V-Y, Orion 12, Altair 1 / Orion 13, Orion 14, Altair 2 / Orion 15, Orion 16, Altair 3 / Orion 17, Orion 18, Altair 4 / Orion 19, Orion 20

NOTE: Sub-orbital test flights prior to Orion 1 subject to change with test experience and funding requirements.

NOTE: The shadowed Orion 2 IOC flight in 2013 is the programmatic manifest date at the 33% confidence level. The bold Orion IOC in 2015 flight is the current Agency commitment at the 65% funding confidence level for the flight manifest.

Initial Capability (IC) Level 1 SRR; IC Level 1 SDR; IC Level 1 PDR 1; IC Level 1 PDR 2; IC Level 1 CDR; IC Level 1 SAR

Orion SRR; Orion SDR; Orion pre-NAR; Orion PDR; Orion CDR; Orion DCR and SAR

Ares I SRR; J-2X SRR; Ares I 1st stage SRR; Ares I-X PDR; J-2X PDR; Ares 1 U/S SRR; Ares I SDR and pre-NAR; Ares I-X CDR; Ares I U/S SDR; Ares I U/S PDR; Ares I 1st stage PDR; Ares I PDR and NAR; J-2X CDR; Ares I CDR; Ares I U/S CDR; Ares I 1st stage CDR; J-2X MPTA U/S need date; Start of J-2X testing on A3; Ares I U/S DCR; J-2X DCR; Ares I DCR; Ares I 1st stage DCR

Lunar Capability (LC) Level 1 SRR; LC Level 1 SDR; LC Level 1 PDR; LC Level 1 CDR; LC Level 1 SAR

Ares V project SRR; Ares V project PDR; Ares V project CDR; Ares V project DCR

Altair project SRR; Altair project PDR; Altair project CDR; Altair project DCR

RSRM

NOTE: Reusable Solid Rocket Motor segment production

0 Constellation 35 Shuttle | 5 Constellation 35 Shuttle | 10 Constellation 35 Shuttle | 10 Constellation 0 Shuttle | 12 Constellation | 13 Constellation | 15 Constellation | 15 Constellation | 15 Constellation | 19 Constellation | 27 Constellation | 31 Constellation | 36 Constellation | 41 Constellation