AGENCY PROGRAM MANAGEMENT COUNCIL

Meeting Minutes and Actions

VITAL MEETING DATA

Date: December 11, 2018, 10:00 a.m. – 5:30 p.m.
Location: NASA Headquarters (HQ), 8Q40 and ViTS
Attendance: APMC members and invited participants. The Associate Administrator chaired.

MEETING ACTIVITIES

The APMC met to :

- Hear the forward plan for Commercial Crew Program (CCP) SpaceX Demonstration Mission-1 (DM-1) and Demonstration Mission (DM-2)

Editor's note: The presentation and full meeting minutes have been marked Sensitive But Unclassified due to inclusion and discussion of proprietary information. The minutes below contain a high level overview of the APMC discussion only. If you have a need for the SBU unredacted minutes, please contact the APMC Executive to discuss.

FIRST ITEM OF BUSINESS: *CCP Forward Plan to DM-1 and DM-2 (Informational)*

Introduction/Executive Summary. As a follow-on to the November 6th APMC where the CCP Program presented their annual checkpoint review, the APMC Chair asked the program to return and to present an assessment of the readiness for SpaceX DM-1 and an understanding of the path to readiness for DM-2. The objective of the assessment is to consider the remaining technical risks for DM-1 which also might affect the design for DM-2, or long term operations of the commercial service. The program presented the top technical risks which might have impacts on DM-2 or beyond, addressed the current state of knowledge around each risk, and steps being taken to further understand, mitigate or accept them prior to DM-1. The APMC Chair, with concurrence of the programmatic and technical authorities, **determined that it was appropriate to proceed towards DM-1** while continuing to aggressively work the risk management activities presented. Further oversight will proceed using the FTRR governance path.

Several of the risks could still have impact on DM-2 or beyond approach, but will be evaluated going into the FTRR based on additional knowledge gained between now and then. The Chair and membership also agreed that a schedule for DM-2 should be established with appropriate consideration of the remaining risks, and that expectations should be set with the partner relative to that schedule. Members discussed whether integration across the individual risks yields a concern over questions of fundamental process control maturity, and what steps have been taken or could be taken with the partner to improve confidence. Crosscutting across many of the issues was the importance of NASA enhancing or developing specific modeling, simulation and analysis tools to address the specific risks.

The Chair asked the CCP **to return in CY19 and present a strategic plan for achieving DM-2 readiness** including plans for further testing, modeling, and utilizing Space X cargo flights to demonstrate design status and plan to achieve flight certification.

Detailed Technical Risk Reviews for DM-1 and DM-2. The APMC reviewed 12 technical risks and open issues in detail.

Meeting Summary and Wrap Up. NASA is in an "insight position" with our commercial crew partners. However, for manned space flight mission safety and mission success are critical and NASA's heritage and experience can help Space X and Boeing achieve success. NASA will use the FTRR process and certifications to help ensure we are ready for launch.

Of the technical issues discussed, the primary concern is with one where the needed analysis capability is still in development; all others have a path in our experience base where we have the needed analysis capability. Members also discussed concerns with process control issues; a challenge will be for NASA to assess items developed using stated standards versus those that didn't.

SpaceX needs to clearly understand that NASA is going to DM-1 with a lot less comfort than we're used to based on our heritage (less maturity and less design cert than we would prefer in a normal program). However, it is important to go to DM-1; we don't know what we don't know and we may find things that are more important than some of these issues today. Learning some of the integrated data that will come out of it will be invaluable.

We need to be clear about what we think is needed for DM-2. We need to stress that our design and solutions will drive the schedule, not the other way around. At the appropriate point in time we have to lay out what our expectations and needs are for DM-2 and have them develop a schedule that meets those needs.

For now, we should proceed towards DM-1 and get the data while continuing to work down the risks. Return in CY19 and present a strategic plan for achieving DM-2 readiness including plans for further testing, modeling, and utilizing Space X cargo flights to demonstrate design status and plan to achieve flight certification.

The meeting was adjourned.

Prepared by:

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