

Independent Comprehensive Review Panel

November 5, 2010

John R. Casani
Chair, Independent Comprehensive Review Panel
4800 Oak Grove Drive
Pasadena, CA 91109

Administrator Charles Bolden (Maj. General, Ret.)
National Aeronautics and Space Administration
300 E Street, SW
Washington, DC

Dear Mr. Administrator,

The JWST Independent Comprehensive Review Panel (ICRP) has completed its work and herewith submits its Report. As Senator Barbara Mikulski noted in her letter requesting an independent review of JWST, “The James Webb Space Telescope will be the most scientifically powerful telescope NASA has ever built—100 times more powerful than the Hubble, which has already rewritten our textbooks.” Given the acknowledged importance of this Project, the Panel invested considerable effort in delivering an independent, objective and unbiased management and programmatic assessment of the issues raised in the letter.

In summary, the Panel concluded that the JWST Project is in very good technical shape. There is no reason to question the technical integrity of the design or of the team’s ability to deliver a quality product to orbit. The problems causing cost growth and schedule delays have been associated with budgeting and program management, not technical performance. The Panel took its guidance from Senator Mikulski’s letter to you dated June 29, 2010, including the careful examination of the four areas described in the Chairwoman’s letter, i.e., root causes, current plans to complete, changes to diminish the risk of continued cost growth and schedule delay, and minimum cost to launch.

The root causes of cost growth and schedule delay on JWST were:

1. The JWST Budget presented to Headquarters in support of the Confirmation Review was badly flawed, principally because it was not supported by a bottoms-up estimate, nor did it include provision for the threats and liens that the Project knew about at the time.
2. The Agency did not fully recognize this, partly because the cost and program analysis capability in existence at that time did not penetrate the flaws in the Project Budget. The Agency did recognize some of the problems with the profile presented at Confirmation and added funds to compensate, but the full extent of flawed budget remained undetected and so the added funding was insufficient to solve the problem.
3. The institutional cost and program analysis capability at the Directorate and Agency level continues to function without the skill and authority required. Consequently, since Confirmation, demand for corrective action was absent, and poor management practices on the JWST Project went unquestioned for too long.

The issues with the current plans to complete mainly revolve around uncertainties in the integration and test plan, which, as noted in the TAT Report of August 2010, can be remedied by careful and thorough test planning.

The Panel offers several suggestions on how to remedy the root cause issues and diminish the risk of continued cost growth and schedule delay.

1. Restructure the Project Organization at GSFC and improve the accounting of costs, threats and reserves.
2. Realign the Program office at HQ, e.g., have it report directly to the Associate Administrator for Science with stronger program oversight capability.
3. Improve the independent cost and program analysis capabilities at the Center and at HQ.
4. Clarify the governance structure as needed to establish the Center as fully responsible for Project execution and clearly accountable to HQ for proper execution.

The Panel estimated the minimum cost to launch JWST will be \$6.5 billion for an earliest launch date of September 2015. This can be compared to \$5.1 billion in the FY 2011 President's Budget Request. Assuming adequate reserves and allowance for threats and liens, this budget profile will likely require over \$200 million more in FY 2011 and FY 2012.

The Panel wishes to thank you for the opportunity to be of service in carrying out what will be the most exciting and scientifically promising mission ever undertaken by the Science Mission Directorate. It is just the kind of technological and scientific challenge that NASA was created for. As noted by President Kennedy at the dawn of the space age, "... we do these things and others, not because they easy, but because they are hard."

Respectfully yours,



John R. Casani, Chair

Jet Propulsion Laboratory

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Attachment.