

Re: GO FEVER IS WELL ENTRENCHED:(

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Groups reported schedule concerns

BY JOHN KELLY
FLORIDA TODAY MULTIMEDIA

NASA's decision to clear shuttle Discovery for last July's return to flight raised questions for independent reviewers inside and outside the space agency.

Here's a look at outside reviews that FLORIDA TODAY consulted in studying the Discovery launch decision and the space agency's handling of the foam debris problem.

In addition to those noted below, the newspaper examined post-flight inspection documents, reports to program managers and minutes from shuttle-safety review panel meetings, some of which were obtained under the Freedom of Information Act. Tiger Team October 2005 reportAfter the loss of big pieces of foam from Discovery's external tank, NASA assigned multiple teams to look into the cause, the decisions made before flight and what needed to be done to make the foam safer.

The lead group was called the External Tank Tiger Team. It included leaders from the NASA Engineering and Safety Center as well as astronaut Don Pettit. They issued a report in October outlining what went wrong.

The technical cause of the largest piece of foam that came off (from the Protuberance Air Load ramp) was cracks NASA thinks formed during repeated filling and draining of supercold propellants.

The Tiger Team noted a lack of rigorous analysis prior to key decisions to modify or not modify parts of the tank's foam insulation. The team said it found evidence schedule pressure played a role.

It reported that some engineers disagreed with managers' decision not to remove and replace the suspect PAL ramp foam using a new, improved process the space agency believed made foam less likely to break off.

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The engineers were overruled. Return To Flight Task Group August 2005 minority report NASA picked a team of astronauts, spaceflight experts and safety gurus from a wide variety of industries to monitor the agency's progress on the recommendations of the Columbia Accident Investigation Board.

The Stafford–Covey Return To Flight Task Group attended internal meetings and simulations, and met to get status reports from managers about various safety improvements.

In the end, the panel found NASA met most of the investigators' recommendations and did its best to meet others, including reducing dangerous launch debris.

Seven members signed an addendum some called a "minority report." The dissenters included veteran space engineers, astronaut and future commander of the 45th Space Wing Col. Susan Helms and former director of the Congressional Budget Office Dan Crippen.

They, too, saw schedule pressure driving decisions. They said better safety fixes might have been chosen if managers were not always facing an artificial launch date just weeks or months away.

The group faulted NASA's review of foam and ice debris. It said that when the external tank did not meet new safety requirements for debris, managers changed the rules of the analysis. Even then, some parts of the tank did not meet the safety requirements.

The minority group questioned whether NASA's shipment of a redesigned external tank to the launch site before the analyses were complete played a role. They said that the agency was reluctant to make more changes to a tank already on hand. NESC Peer Review Summer 2005 The new Safety Center reviewed the space agency's methods for analyzing whether enough had been done to prevent large pieces of foam and ice from popping off the external tanks in flight and hitting the delicate orbiter heat–shielding materials.

In the end, NESC leaders agreed with NASA's "flight rationale." However, they noted several concerns, including serious limitations in the methods used to study the potential dangers posed by ice debris.

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