

National Aeronautics and
Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



Reply to Attn of: FD31-01 (033)

June 4, 2001

TO: DA01/A. G. Stephenson
THRU: AD33/Amanda Rasco *aw*
FD01/N. Jan Davis, Ph.D.
QS01/Amanda Goodson *AG*
DE01/Axel Roth *ax* *AG*
FROM: FD31/Paul A. Gilbert
SUBJECT: Request for Deviation/Waiver

Deviation/Waiver Number: MWI 7120.6--WAV03

In accordance with MPG 1410.2, FD31 requests approval for deviation/waiver from MWI 7120.6 "Program/Project Risk Management."

Define the proposed departure from the requirement(s):

The EXpedite the PROcessing of Experiments to Space Station (EXPRESS) Rack and Derivative Rack Projects request departure from the requirement to utilize Fault Tree Analysis (FTA) as a risk management tool.

Justification for deviation/waiver (waiver must include references to any applicable nonconformance, discrepancy, or deficiency reports):

The justification is attached to this waiver request.

Applicability, impacts, and conditions (if any) of deviation/waiver:

This waiver request applies to all EXPRESS Rack and Derivative Rack Projects risk management activities. Risk management tools and techniques to be used by the EXPRESS Rack Project are Failure Mode, and Effect Analysis (FMEA), lessons learned, expert interviews, detailed analysis of work breakdown structure, and analysis of resources and schedule.

Handwritten signature of Paul A. Gilbert in black ink.

Paul A. Gilbert, Lead
Multi-Use Payload Group

Handwritten signature of A. G. Stephenson in black ink.

A. G. Stephenson
Director

Enclosure



Reply to Attn of:

QS30

October 30, 2000

TO: FD31/Paul Gilbert
FROM: QS30/James E. Hatfield
SUBJECT: EXPRESS Rack Fault Tree Analysis Rationale

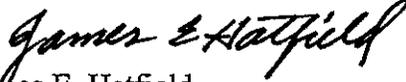
S&MA was requested by Mr. Paul Gilbert/FD31 to provide rationale for performing, or not performing, an FTA for EXPRESS Racks and derivatives. We feel there would be no benefit in performing a Fault Tree Analysis (FTA) of EXPRESS Rack Hardware. Rationale is as follows:

1. The only reason for performing an FTA at this late point in the life of the project would be to find a hazard or control or failure mode that may have been missed in the preparation of the hazard reports or FMEA/CIL. EXPRESS Rack Hardware has been through a number of safety reviews where all the potential hazards are well known and have been analyzed in great detail by MSFC S&MA and the JSC Payload Safety Review Panel (PSRP). The EXPRESS Rack FMEA/CIL has been reviewed/approved by MSFC S&MA.
2. EXPRESS Racks do not have complex structures. EXPRESS Rack Hardware has a limited amount of avionics consisting primarily of 4 subsystems, the Solid State Power Controller Module (SSPCM), Rack Interface Controller (RIC), Payload Ethernet Hub-Bridge (PEHB), and EXPRESS Memory Unit (EMU). All of these subsystems are Orbital Replacement Units (ORU's).
3. EXPRESS Racks 1 and 2 have already been designed, built and shipped to KSC for integration. These two racks have been through the design review process (PDR, CDR, COFR) where design flaws or problems have had an opportunity to be detected and corrected by engineering and S&MA. Racks 1 and 2 have also successfully completed all the phased safety reviews by the JSC PSRP.
4. The designs of EXPRESS Racks 1, 2, and 3 have been approved and there is little difference in design among the EXPRESS Rack derivative configurations that will be developed.

5. EXPRESS Rack Hardware does not contain any propulsion/reaction control systems or any flight/landing control systems, which normally require FTA's to be performed.

In summary, the EXPRESS Rack design is mature, the hardware has successfully completed the phased safety reviews and design reviews, there is a lack of structural complexity, and a limited amount of avionics ORU's. QS30 feels that an FTA performed on EXPRESS Rack Hardware would not result in the finding of any new design or safety concerns and would require S&MA resources, which are in short supply.

Please address questions to Al Clark, 4-6967 or Keith Layne, 4-4801.



James E. Hatfield
Manager
Space Cargo Assurance Office

cc:

FD01/A. Roth/J. Davis
FD30/T. Vanhooser
QS01/A. Goodson/J. Ellis
QS30/A. Clark/K. Layne
HEI/C. Newton/K. Skinner