

**Q242: Manufacturing Qualification Test (MQT), Effective Date: 02/04/2011
Manufacturing Process Verifications (MPV)**

MANUFACTURING QUALIFICATION

Manufacturing qualification is required under certain conditions identified for Key processes. Manufacturing qualification shall consist of a combination of Manufacturing Process Verification (MPV) and Manufacturing Qualification Test (MQT).

Manufacturing Process Verifications (MPVs) consists of the following:

1. Documentation Review
2. Process witnessing

Pratt and Whitney Rocketdyne Key Processes are as follows:

- Attitude Control System (ACS) and Divert Valve/Injectors Acceptance Test Procedures
- Pressurant Tanks Composite Overwrapped Pressure Vessel
- Assembly & Acceptance Test Procedures
- Propellant Tanks – Tank Assy Center Body forging Process
- Propellant Tanks – Tank Assy Visual Inspection of Girth Welds
- Propellant Tanks – Assembly & Acceptance Test Procedures
- Valve Driver Assembly (VDA) Final Assembly & Acceptance Test Procedures

PWR Buyer will be notified a minimum of 14 calendar days prior to commencing with the process to be witnessed for the MPV and MQT. PWR along with their customer, Lockheed Martin and the government THAAD Project Office will support the witnessing activity. It shall reflect the documentation/tooling used during fabrication of the manufacturing hardware, key manufacturing process witnessing, and include actual inspection data for each dimension identified in the design documentation, including evidence of compliance to drawing note requirements. MPVs are required when conditions include:

- A break in continuous manufacturing of more than twelve months for Key processes
- Where there has been degradation in hardware quality
- Substantial change to manufacturing processes
- Substantial change to equipment and or facilities

MPVs for Breaks in production for Key Processes

Break in Production Definition: The time between completions of a key process in production to the following initiation of that same key process.

Manufacturing Qualification Test (MQT)

An MQT can be performed at the same time as an MPV and consists of:

- 1 Production ATP (the same ATP as used for the MPV)
- 2) A Facility Verification, if a move occurs or equipment is changed

When an MQT is required the MPV ATP shall be used to meet the MQT requirement. If a move has occurred or equipment has been changed, a Facility Verification shall be used to verify facilities. The objective of the MQT is to provide confidence that the change(s) does (do) not adversely affect use. MQT items shall be fabricated using the planned manufacturing methods. MQTs will be conducted on redesigned assemblies resulting from design and/or process changes, obsolescence redesign/replacement, and/or hardware quality issues.