

WEAPON QUALITY ASSURANCE (WQA) BULLETIN

NNSA WEAPON QUALITY DIVISION (NA-121.3)

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How do products become Mark Quality?

A common misconception is that Mark Quality status can be achieved by inspection only. To become Mark Quality, products must be realized through a *Product Realization Process* that includes the following elements:

- Technical requirements are appropriately managed.
- An iterative design process is utilized to mature the design.
- Design Qualification is accomplished to instill confidence that the design meets all requirements.
- Final designs are documented in appropriate product definition sets.
- Product definition is appropriately authorized and released to the Production Agency (PA) and maintained by utilizing appropriate configuration management methods (i.e., using the NNSA document control repository).
- The PA then manufactures the product under the appropriate controls, including the following: (This is why we utilize PAs instead of DAs for manufacturing)
 - Utilizing their ability to retrieve the authorized product definition from the NNSA document control repository.
 - Utilizing work instructions that have been developed to appropriately manufacture the product.
 - Utilizing production equipment (e.g., jigs, fixtures, and molds) and software programs that are appropriately developed and controlled.
 - Monitoring and control of production utilities and supplies (e.g., water, compressed air, electricity, and chemical products) to the extent they affect conformity to product requirements.
 - Monitoring and control of production environments (e.g., humidity, temperature, etc.) to the extent they affect conformity to product requirements.
 - Utilizing the demonstrated ability for the prevention, detection, and removal of foreign objects from the product.
 - Utilizing measuring and test equipment (MT&E) that is appropriately developed and controlled.
 - Utilizing procured products that are verified to meet procurement requirements and that are purchased from approved suppliers.
 - Capturing the evidence that all production and inspection steps have been completed as planned or as otherwise documented and authorized.
 - Executing process prove-in (PPI) to establish the appropriate production environment that is necessary to execute Mark Quality production.
 - Process qualification to control the processes that are yielding Mark Quality products.
- Product is certified by the PA to meet all requirements.
- Product becomes Mark Quality.

These are elements of the *Product Realization Process* that are in place to ensure that quality is built into products. The definition for Mark Quality in the Defense Programs Business Process System (DPBPS) assumes that all of these controls have been put in place prior to the NNSA's or the Delegated Authority's verification that the product meets requirements.

