

Novel Use of a Quality Assurance Tool for Integrating Technology to HSE

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Abstract : The Product Development Process (PDP) in the technology group plays a very important role in the launch of any product. While a manufacturing process encourages the use of certain measures to reduce Health, Safety and Environmental (HSE) risks on the shop floor, the PDP concentrates on the use of Geometric Dimensioning and Tolerancing (GD&T) to develop a flawless design. Furthermore, PDP distributes and coordinates activities between different departments such as marketing, purchasing, and manufacturing. However, it is seldom realized that PDP makes a significant contribution to developing a product that reduces HSE risks by encouraging the Technology group to use effective GD&T. The GD&T is a precise communication tool that uses a set of symbols, rules, and definitions to mathematically define parts to be manufactured. It is a quality assurance method widely used in the oil and gas sector. Traditionally it is used to ensure the interchangeability of a part without affecting its form, fit, and function. Parts that do not meet these requirements are rejected during quality audits. This paper discusses how the Technology group integrates this quality assurance tool into the PDP and how the tool plays a major role in helping the HSE department in its goal towards eliminating HSE incidents. The PDP involves a thorough risk assessment and establishes a method to address those risks during the design stage. An illustration shows how GD&T helped reduce safety risks by ergonomically improving assembling operations. A brief discussion explains how tolerances provided on a part help prevent finger injury. This tool has equipped Technology to produce fixtures, which are used daily in operations as well as manufacturing. By applying GD&T to create good fits, HSE risks are mitigated for operating personnel. Both customers and service providers benefit from reduced safety risks.

Keywords : HSE risks, product development process, geometric dimensioning and tolerances, mechanical engineering

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