1.8.22. THE ADVANTAGE OF NDT IN COST REDUCTION AND PREVENTION OF POSSIBLE INTEGRITY DAMAGES OF ROTOR TURBINE PARTS

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The processes of casting, forging, and rolling-welding combinations are the three main processes utilized for production of Turbine body parts, utilized in power plants. Rolling and welding combination process is mainly used to produce the outer body parts of turbine casings. However, the more critical parts such as rotors and internal parts are produced by forging and casting processes. Obviously, the criticality of these parts requires a higher degree of knowledge, experience, and tighter quality control/assurance procedures. Realization of the production shortcomings and sensitivity requirements for flawless performance of these parts when in operation demands comprehensive quality programs at the manufacturing facilities. The key component of these quality programs is utilization of the fit for purpose nondestructive testing method. This paper investigates several nondestructive methods utilized for testing turbine rotor parts and prescribes the best method based on actual testing utilized and evaluation of the results. It further provides the result of limited research and evaluation in finding the fit for purpose criteria when utilizing different nondestructive method and its role on Cost Reduction and Prevention of Possible Integrity Damages of Casting Turbine Parts for Power Plants.