4.1.21. NORMATIVE – METHODOLOGICAL MAINTENANCE OF QUALITY OF WELDED DESIGNS

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Quality management is important part of industrial process. The exact finding and identification of defects underlies safe and trouble-free operation of blocks of all units, including units maintained on hazardous industrial facilities. Various kinds of nondestructive testing are applied to receive qualitative welding designs. Relevant normative – methodological base should be foundation of use for all of them. It directly influences results of quality assurance of designs. There are a lot of regulatory and procedural documents regulating choice of equipment, preparation and carrying out of nondestructive testing, but thus there is a considerable blank in the field of rationing of an estimation of results of the control. And meanwhile, the new problem arises after detection of defect and an estimation of its sizes: it is necessary to determinate hazard rate and sometimes to determinate probability of imperfection enlargement. It is essential to make check calculation of designs on durability taking into account of the found out defect to predict it. Specialist on nondestructive testing usually has to use regulatory and procedural documents on the object being tested in that moment.

Imperfection of system of technical maintenance of nondestructive testing at this moment is one of serious obstacles on a way of increase of reliability and safe operation of production. It is necessary to notice that the specifications and technical documentation available at present on some objects of the control, including the design documentation, badly designs possible defects and their danger. Experts of nondestructive testing should use norms of an admissibility of defects in their work. The majority of existing norms of deficiency are focused on possibilities of welding manufacture (technological norms). It is impossible to estimate danger of defects being based only on these norms. Norms of an admissibility of the imperfection sizes scientifically-proved from positions of mechanics of destruction are applied rather seldom in wide practice. The given approach causes some problems: the over-expenditure of material means for correction of defects, difficulties in introduction of highly effective methods of nondestructive testing and others. The demanded degree of quality should be considered while rejecting the products. For this purpose it is possible to use EN 25817. The given norms establish three degrees of quality designated as D – low, C – average, B – high.

It is necessary to estimate danger of welding defects to work out settlement norms of an admissibility of imperfections in welded connections. Influence of defects on working capacity of welded connections depends on a considerable quantity of various constructive, technological and operational factors. The main factors are: type and the sizes of welded connection; a kind, a configuration and a defect arrangement; character and size of operating loadings; level of residual pressure.

As a whole nondestructive testing should be considered as an element of complex process of an estimation of risk and a residual resource of object.