Ukrainian NDT personnel qualification evaluation systems

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This report describes the systems of NDT personnel qualification evaluation that are used in various fields of Ukrainian industry; the issues of the examination and certification bodies' independence and application of foreign and national regulatory documentation in the process of training, examination and certification.

Nowadays, there are two main schemes of NDT specialists' competence evaluation in Ukraine. First of all, it's the employers' examination to the grades according to the "Common Wage Rate Book" (CWRB) in force in Ukraine (without the certification in contrast to foreign employers' schemes). Secondly, it's the examination by independent personnel certification bodies in NDT field (PCB) to proficiency levels in conformity with DK 003-95 "Occupational Classification" and EN 473 standard or departmental documents, harmonized with this standard, in force in Ukraine.

Personnel examination by the grades is performed by the companies' certification committees headed by the chiefs of these companies or the heads of their product inspection departments. These committees work is accomplished without any common knowledge evaluation rules, methods, programs or test procedures, as well as with no common examination question base, sample demands etc. One of the largest disadvantages of such system is testing committees' subjectivity factor and their dependence on the employer, which was numerously pointed out by the foreign specialists on international NDT conferences and meetings, while signing supply contracts, concluding service provision agreements or investing into Ukrainian industry. The last issue is particularly emphasized after Ukraine joined WTO; considering government policy of Euro Integration and after making more than 40 European NDT techniques and certification procedure standards national. To improve the effectiveness of the employers' NDT personnel examination system, the centralized training and examination of the certification committee members were introduced in some branches of industry, which slightly optimized this system within this field, but did not solve the major problems of the testing committees' independence and their subjectivity. The employers' NDT personal examination system is still in force in such Ukrainian branches of industry as nuclear power engineering, metallurgy and railway transport, but even in these fields there is a tendency of carrying out the examinations by independent personnel certification bodies.

NDT personnel certification by the independent PCB is widely used both in optional certification and in legislation regulated certification fields in Ukraine.

Apart from EN 473:2000 and ISO 9712 standards some European countries' and other countries' branches of industry apply the standards, establishing specific requirements to personnel qualification (in other words – departmental rules) for NDT personnel certification. ISO 11484 standard specify the requirements for qualification and certification of personnel, employed in nondestructive testing of seamless and welded pipes, including flat-rolled products, used in manufacturing the pressure pipes. This standard presupposes performing NDT personnel certification both by the employer and by the independent Certification bodies. According to the analysis, ISO 11484 standard structure is much alike the EN 473 standard. NDT personnel, employed in aviation branch, is certified according to EN 4179:2000 standard, certain positions of which are considerably different from EN 473:2000. There are also several documents dealing with NDT personnel certification in power engineering.

As a rule, NDT personnel in optional certification field is certified in accordance with EN 473 standard and according to departmental rules harmonized with this standard in legislation regulated certification field. Three-level NDT personnel certification system is applied for the State Committee for Labor Protection supervised objects in aviation, shipbuilding and engineering industries.

Main NDT personnel certification procedures used by Ukrainian PCB are similar to foreign ones, although there is one issue to be pointed out. Certain foreign accreditation bodies view PCB

accreditation in compliance with ISO/IEC 17024:2003 and EN 473 standards as a requirement to apply only European EN standards on testing techniques while performing speciality and practical examinations, not the domestic RD in force in the given country. Nevertheless, the texts of the abovementioned standards do not contain any requirements or specifications on performing examinations on a particular RD for NDT and ability to test the products according to this RD. This demand is definitely reasonable from the certified specialists' point of view, whose objects inspection is restricted by EN standards (mainly in European countries), but it is not suitable for those countries, which are not using or just starting to implement EN standards and where the NDT is mainly applied according to domestic RD (Ukraine, Russia, Belarus and other East European countries). As a result of such approach, during PCB audit most of PCB activities, its training (TC) and examinational (ECNDT) centers, which are training, examining and certifying specialists in accordance to the regional NDT RD, are left out from foreign accreditation authorities' view. An alternative to this method is the creation of departmental documentation for NDT personnel certification, harmonized with ISO/IEC 17024:2003 and EN 473 demands, presupposing the usage of advanced procedures of this standards in application to the regional RD structure demands, taking into account the specifications of the field or an agency. Naturally, the production sectors structure in these documents would be different from EN 473:2008 standard restrictions.

The most appropriate and promising from the point of view of realization of modern requirements for NDT quality and considering specifications of a certain branch is formation of Ukrainian departmental documentation, harmonized with EN 473 standard. This can be done before transition to wide recognition and application of EN standards in testing, which seems to be quite a remote prospect for now.

The European Pressure Equipment Directive 97/23/EC (PED), acting in EU countries, presupposes execution of nondestructive testing of weld joints in III and IV category pressurized equipment (boilers, vessels, pipelines etc.) by specially qualified personnel. Such experts have to be certified according to EN 473-2000 standard by the so-called "Third party organization"(RTPO), which is the organization, recognized by EU member state in compliance with article 13 of PED (i.e. having authority to certify NDT inspectors in legislation regulated field). Testing of the abovementioned weld joints can also be performed by NDT inspectors, certified according to EN 473-2000 standards by other PCB, not RTPO organizations, but still the inspectors' competence for NDT execution has to be approved by RTPO organization according to special procedures. One of the prerequisites for such approval is presence of PCB accredited certificate, complying with requirements of EN 473 standards. RTPO approval can also be obtained by the experts, certified by the standard other than EN 473, but this significantly complicates the process. The abovementioned RTPO approval procedure for certificates issued by Ukrainian PCB is applied in Ukraine, with the British Institute of Nondestructive Testing acting as an RTPO organization.

It should be noted, that most foreign and national PCBs have their own TC and ECNDT or examinational centers, which are functioning as parts of the same organizations, associations or as a separate PCB organization departments. The in-house TC and ECNDT ensure PCB self-sufficiency and competitiveness, as well as its independence from external influences, especially from the attracted TC and ECNDT. As we can see, PCB that does not have its own TC and ECNDT cannot be considered fully independent, because it has to take in account the interests of attracted TC and ECNDT in its activity which do not always coincide with the PCB's policy.

At the moment there are four NDT personnel certification bodies functioning in Ukraine. They are all accredited by the National Accreditation Agency of Ukraine (NAAU). These PCBs are accredited in compliance with ISO/IEC 17024-2003 standard and are acknowledged competent in executing the personnel certification according to EN 473 standard. At the beginning of November 2009 the regular EA session has acknowledged NAAU and has admitted it to participation in EA in the sphere of personnel certification. The multilateral agreement on mutual recognition of personnel certification documents was signed on November 25th. In such a way, the NDT personnel certification system, applied in Ukraine, has received European recognition.