

NATIONAL CERTIFICATION SCHEME IN IRAN ADVANTAGES AND LIMITATIONS

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Abstract:

Non-Destructive Tests (NDT) plays an important role in Iran's industry. Different industries use these methods for more than 25 years. Many private companies are active beside the governmental sectors and around 2500 people professionally working in this area. According to the quality assurance system requirements of the industrial sectors, different qualification and certification scheme have been implemented so far, mostly based on company-based certification. Mainly, SNT-TC-1A recommendation.

Globalization of world trade, implementation of international standards, and national regulations made it ever more important to make serious steps in establishing a Central Certification Program based on ISO 9712 This issue has been considered in the international standards and is the subject for harmonization and mutual agreements on recognition of qualification of NDT personnel This new approach will cause the foreign companies to employ local experts with the same qualification in national projects.

Due to the importance of the subject and having the technical cooperation with the International Atomic Energy Agency (IAEA), Atomic Energy Organization of Iran (AEOI) has carefully studied the case in last five years of participation in the IAEA regional project. ISO 9712 has been selected and worked out. Now this standard is approved as the national standard for qualification and certification of NDT personnel in Iran. We have started some activities for a smooth over changing the certification scheme providing the necessary technical infrastructure. These activities are discussed in this paper considering the existing problems, advantages and limitations we are faced to and the suitable Certification Program, which is achieved, will be introduced.

Introduction: Decades 80 and 90 are unique period in our Industrial history. Several National projects were started in Reconstruction, and renewal of old industries along with development and mobilization for new industries mainly in Oil and Energy fields. Due to political changes in 1979 foreign companies left the country who, had turn-key contracts and also carried out the quality management including certification schemes. Beside, each industry followed the scheme according to the companies involved in. Similar situation existed after with new projects, this time contracts were changed to architect engineering in some projects baring more responsibilities on local side with no infrastructure in quality management. Practicing of the Certification scheme was started from 1983 based on SNT-TC-1A recommendation since it was the most predominant scheme and easier in implementation. The practice was not so appreciated and lasted due to company base certification to fulfil the existed construction temporary requirements. Individuals continued attempts in developing suitable infrastructure by formation, Welding NDT Society, training and defining terms and developing some National Standards. Still different industrial sectors were following their own system of certifications depending on the original plant design.

Challenges to solve the technical problems from one point of view, increases the safety and reliability of the products during design and operation, decreases the cost of the product by conserving material, labour, and energy enhancing the reputation of manufacturer of quality goods from the other point increased interests on NDT in industries and repeatedly expectation on capability and assurance on the NDT performance which was most dependent on he operators. The first concerns were made on the trainings but results of trainings were evaluated differently. The problem of uncertainty in NDT performance remained in most areas NDT was the last step to check the quality, but how it could be checked?

About 2000 NDT personnel were recognized during these two decades who were trained in different strategy even some were knowledgeable and well experienced without any formal training.

Studies on the situation concerning the new developments in the world showed the necessity of establishment of a relevant and more reliable Qualification and Certification System at least for major national projects.

Regional project of IAEA in West Asia and effective participation of Iran in this project was the new attempt towards establishment of stable infrastructure in formation of a suitable National Certification scheme in NDT field.

Results:

National Certification System establishment started with the implementation of IAEA Regional Project in West Asia Region in 1999. The project was approved for 2 years and then extended for another 2 years. During these 4 years, a stringent program was planned by selected counter partners from the Region in their first meeting in Agency headquarter in Vienna had regular meetings to monitor the progress. Following tasks were observed in the program:

- Selection of ISO 9712 as the reference Standard.
- Establishment of training programs by Agency in the Region.
- Efforts to develop National Standard on the basis of ISO 9712 in member states
- Mobilisation NDT labs and developing National Training Programs in member states
- Establishment of National Certification System in member states.
- Encourage to establish NDT societies in member states

According to the working timetable, the national programs planned accordingly. The program was discussed with existing local experts. Core group was established in Nuclear Safety & Radiation Protection Technological Centre of Regulatory Authority as the coordinator and contact point in the country.

Following activities were carried out in this respect:

- ISO 9712 was introduced in the industrial sectors of the country through Technical Meetings, National seminars, along with paper presentations in the conferences.
- Training programs were conducted through IAEA Regional training program in member states. Over 250 experts were trained in different techniques and respected levels of NDT and National Training Programs, and the Qualification Certificates issued by the Agency.
- A reference NDT lab. Consisting of different compartments, darkrooms, shielded exposure room and outdoor shielded area is established in the Centre to be mobilized for National Certification Examinations. Before, the NDT lab was designed for limited activities of inter-organization jobs.
- Basic equipments for major NDT techniques ordered and some obtained. Now, the lab is equipped with 3 X-ray machines up to 300 k.V, 4 digital and analogue UT, 3 universal and multi-channel ET device and several MT and PT. Relevant accessories for the tests are also available
- Relevant working standards and Technical documents were purchased.
- Standard and Training reference test pieces for RT,UT,PT,MT were purchased along with fabrication of some in the workshops.
- Model training programs were conducted in National level according to the ISO 9712 and IAEA TECDOC 628

- National Standard draft was developed on the basis of ISO 9712 and handed over to Bureau of Standard.
- National Standard based on ISO9712 was issued by Institute of Standard and Industrial Research of Iran (ISIRI) under the number 6725.
- NDT was introduced to the universities also and now 5 universities are offering NDT courses in their programs.
- The AEOI was recognized by ISIRI as Certification Body for Qualification and Certification of NDT personnel.
- Certification Program is under development and respected working committees are to be established soon.

Regional Training Programs

Type of Training program	Participants no	Methods	Level	Pass	Year
Regional Training Course	13	Industrial Radiography	2	8	1999
Regional Training Course	3	Ultrasonic	2	3	1999
Regional Training Course	1	Fabrication of NDT Test Pieces	-	1	1999
Regional Training Course	5	Ultrasonic		5	2000
Regional Training Course	3	Industrial Radiography			2000
Regional Training Course	2	Liquid Penetrant& Magnetic Particle			2000
Regional Training Course	3	Liquid Penetrant& Magnetic Particle	3	3	2001
Regional Training Course	3	Concrete Structures	-	3	2002
Regional Training Course	14	Industrial Radiography	2	14	2002

National Training Programs

No.	Type of Training program	Participants no.	Methods	Level	Pass	Year
1						
7	National Training Course	14	Industrial Radiography	2	12	2000
8	National Training Course	12	Ultrasonic	2	7	2001
10	National Training Course	19	Industrial Radiography	2	16	2001
11	National Training Course	18	Ultrasonic	2	11	2001
13	National Training Course	11	Introduction to NDT Methods	-	-	2002
15	National Training Course	11	Ultrasonic	2	3	2002
16	National Training Course	14	Industrial Radiography	2	14	2002
17	National Training Course	14	Liquid Penetrant & Magnetic Particle	2	PT 11 MT 13	2003
18	National Training Course	15	Industrial Radiography	2	9	2003
19	National Training Course	12	Ultrasonic	2	8	2003
20	Conference on Nuclear Technology , SHIRAZ	50	NDT Workshop	-	-	2004

Discussion:

Implementation of a system in National level needs more consideration of social behaviour and the historical background of development of technique. Quality is a user-dependent subject, not all the users go for sophisticated and expensive procedures unless in some cases they are obligated to. For a successful program, suitable infrastructure is required. There shall be some developments in regulations as well as developing the culture. Even Iran followed the Regional program, but still not all the tasks are fulfilled yet. Certification Program is continues and progressive activity. 4 year is not sufficient in achieving the prospects Effective international connections are required to get the benefits of experiences in developed countries.

Mobilisation need adequate budget, which may not be easy for under developing countries. Over \$900,000 of national budget has been spent during 5 years and still much has to be expended for.

Conclusions:

Up to now, it seems that ISO 9712 was more suitable for the systems who have experienced a National Certification scheme before. For countries that are going to establish the National Certification System, for the first time, the National Standard has to be supported with relevant technical documents which have not yet been developed.

- An effective international assessment is vital for success of implementation of the ISO 9712. Otherwise, Certification system will not be so successful. Technical and documentary support should be received by developing countries.
- IAEA has supported the Central Certification Schemes for limited period which is not enough in the National scale
- ICNDT is the major reference in this respect to take more responsibility in establishment of Central Certification System with feasible planning and effective actions.
- Harmonization is vital in successful implementation of ISO 9712 in the world. So more collaboration is required among the countries.

References:

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