

# **Operator Testing & Certification**

## **1. Introduction**

Trenchless technology provides opportunities to develop, maintain, or manage subsurface utilities networks without excavating continuous trenches and damaging the existing infrastructure. With majority construction activities taking place below ground surface, human interface at the exact construction location is least leading to the heightened risk of damage to existing subsurface structures. It gets enhanced further, should the operating procedures and the project execution process fail to address the safety requirements. Operator's technical competence has a major role in the success of projects and prevention of damages. It is therefore important that only qualified persons be allowed to operate trenchless equipment as key operators while executing trenchless projects. The note discusses the assessment and certification of such technical qualifications of trenchless equipment operators.

## **2. Trenchless Applications**

Trenchless technology applications can be categorized into three main groups, new installation techniques (techniques to create a hole in the ground), rehabilitation techniques (techniques to line a hole), & replacement techniques (replacing the existing lining). Such operations in such techniques are assisted by subsurface utility engineering, geotechnical evaluation techniques, and pipeline condition assessment techniques, both direct as well as indirect. Operator competencies in each set are of extreme importance for a safe product installation and proper project execution.

New installation techniques include two generic types of techniques, steerable and non-steerable. Either of them can lead to damage of existing utilities and structures encountered en-route, should the operator commit mistakes in equipment operation. Damage to the new pipeline material can also be a repercussion of operator incompetency.

Rehabilitation techniques again include two generic type of techniques, type I and type II linings. In addition the process also involves line cleaning and making minor repairs. Mistakes in these operations can lead to damage of the host pipes and related structures, pre-curing of lining materials leading to blockage of host pipes, and damage to the lining materials making the repair process itself infructuous.

Replacement techniques assist in a composite process whereby an existing dilapidated buried pipeline is broken and a replacement pipeline is installed in its place in a single operation sequence. Operator incompetency may lead to the damage of replacement pipe in this simultaneous operation. In addition both the rehabilitation as well as replacement techniques generate highly contaminated waste materials and their safe containment and disposal is extremely important.

## **3. Failures & Accidents**

Each type of trenchless technique comes with its own safety precautions. In addition, there are common safety precautions for all techniques. Failure to adhere to them can lead to accidents and damages to structures, pipelines, and road structures. Such damages range from minor leaks to major structural damage of existing pipelines leading to movement of surrounding soil media and eventual road cave-ins. These failures also could be of the installed pipeline that may make the entire operation a wasteful exercise. It is therefore important that persons

operating sophisticated trenchless equipment are appropriately trained and their technical competencies are appropriately assessed and certified.

#### **4. Technical Qualification Criteria**

Based on the technical requirements of the major trenchless techniques, the technical qualification criteria for each one have been identified. It is expected that should the equipment operator is able to display competency commensurate with a particular requirement, the person would be able to operate key equipment related to such technique safely. Various competencies, as identified, and their TQC is hosted on IndSTT website under worker qualification links.

#### **5. Application of Certified Operators**

Recently PWD, Delhi Govt. has faced several instances of road cave-ins where the existing buried pipelines, after leaking created voids below the road surfaces. Fearing the damages being the results of mistakes of trenchless operators PWD commissioned IndSTT to develop Standard Operating Procedures (SoP) for Issuing Road Cutting permissions for Trenchless Technology. The SoP, for ensuring damage free subsurface construction works through trenchless technology, stipulates, under one of the provisions, mandatory requirement of engaging only tested and certified trenchless equipment operators for project works. The provision requires that the deployed equipment operator must possess the minimum technical qualifications as prescribed in the Technical Qualifying Criteria (TQC) for the specific technique. In addition to SoP, recently EIL has also stipulated a similar condition in the tender for interceptor sewer project.

#### **6. Invitation to Trenchless Service Providers**

As this testing and certification is necessary under the cited SoP, the trenchless service providers may consider getting their equipment operators' qualifications tested and certified at an early date. Under the IndSTT testing system, candidates meeting the technical qualifying requirements shall be certified after passing the test, however under-qualified candidates shall have to acquire more knowledge to overcome their deficiencies and get qualified. TQC for different competencies, as prescribed, are available at IndSTT website [www.indstt.com](http://www.indstt.com) and can be referred for further information.

#### **7. Testing & Certification Program Schedule**

To assist the trenchless stakeholders in this direction, IndSTT has initiated the trenchless equipment operator testing & certification process for testing and certifying trenchless equipment operators. Under the present schedule the registration applications are being accepted up to 31st August, 2011 and operator testing shall commence immediately thereafter. Registration forms and other details are also available on IndSTT website for downloading. Alternatively the same can be collected from IndSTT office in person during working hours. Request for further information or clarifications may kindly be addressed to

**Prof. Niranjana Swarup,**  
Executive Director  
Indian Society for Trenchless Technology