TEST COVERAGE

In order to verify the above competencies, the test is aimed to evaluate the workers' knowledge in the following fields:

A. Basics of mathematics / natural sciences

- Units and their conversion
- Calculation of cross-section and volumes (i.e. annuli, pits)
- Basic of technical mechanics (power, torque, tension)
- Work, energy, capacity
- Basics of fluid mechanics (hydrostatic pressure, flow-rate, viscosity, pressure loss in fluids)

B. CCTV Pipeline Condition Assessment Process

- Pipeline Condition Assessment techniques;
- CCTV Pipeline Condition Assessment units and basic selection criteria;
- Manhole Inspection;
- Cleaning of the pipeline;
- Pre-Rehabilitation Survey;
- Final CCTV Survey.

C. Project basics

- Location plans and terrain profiles;
- Basics of classification of soils and physical characteristics of subsoil;
- Basics of detection techniques like cable locator, GPR.
- Classification of the subsoil;
- Ground water conditions;
- Line installation plans (overhead lines, lines installed underground);
- Basics of subsurface investigation (geo-radar);
- Practical training.
- Pollution hazards of drilling spoils with remedial measures / precautions;

D. Project realization

- Pipeline failures and performance requirements;
- Consequences of pipeline failure and management of failure;
- Defects identification and evaluation of the causes;
- Pipeline material specifications;
- Pipeline failure detection & location techniques;
- Job site set-up;
- Documentation of system basics;
- Daily job reports;

E. Initial CCTV Survey and Condition Assessment

- Preliminary pipeline system analysis and evaluation;
- Assessment of condition and material of existing pipeline;
- Assessment of defects, cracks, holes, open joints etc;
- Inflow and infiltration analysis;
- Recording of the initial condition.

F. Pipeline Cleaning

- Control and diversion of flows;
- Cleaning encrustation, scales, deposits of silt and blockages;
- Pipeline cleaning precautions;
- Pollution control measures;
- Removal of blockages.

G. CCTV Performance Necessity

- Type and Quality of Electronic Systems, Television Camera, Lighting and Monitor;
- Video Playback and resolution;
- CCTV Focus/Iris/Illumination adjustment;
- Quality Control Procedure;
- Acceptable Level of accuracy;
- Causes of Picture distortion and precautions;

H. CCTV Survey Tools and Investigation Requirements

CCTV Survey tools;

- Survey/inspection Vehicle;
  - ⇒ Assembly and mode of operation;
  - ⇒ Field of application.
- CCTV operation equipment;
  - ⇒ Component and mode of operation;
  - ⇒ Field of application.

Investigation Requirements;

- CCTV Camera Prime Position;
- CCTV Camera Speed;
- Variable Scan Camera;
- Linear Measurement;
- Data Display and video recording.

I. Recording and Monitoring

- Recording every manhole and structure;
- Monitoring of Laterals/Specific Defects;
- Accurate location of photographic camera Chainage;
- Recording of physical condition of the pipeline;
- Monitoring and recording defects, cracks, holes, open joints;
- Inclination and position;
- Time of inspection.

J. Authority regulations / safety at work / environmental protection / work sheets

- Responsible persons;
- Work safety;
- Water protection;
- Pollutant and noise emission;
- Regulations for handling dangerous materials and agents;
- Basics of working and civil laws for drilling operations (liability, negligence etc.);
- Regulatory guidelines;
- Relevant laws, rules and regulations;
- Work sheet standards.