

COSVR724 - SQA Unit Code H6B2 04

Supervise tunnelling activities



Overview

This standard is about

- 1 monitoring tunnelling activities by pre-work and progress checks
- 2 controlling necessary resources
- 3 supervising tunneling activities, identifying problems and implementing corrective action

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Performance criteria

You must be able to:

- P1 carry out supervision activities which will minimise disruption and maintain optimum performance
- P2 observe current legislation and official guidance appropriate to the work environment for protection and safety
- P3 identify and assess defects and problems, and recommend and implement corrective action which conforms to safe working methods and practices
- P4 keep accurate records of work progress and quantities involved
- P5 identify, assess and maintain the necessary resources for tunnelling activities
- P6 comply with the given contract information to carry out the work efficiently to the required specification

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Knowledge and understanding

You need to know and understand:

Performance Criteria 1

Supervise activities

- K1 how to supervise programmed tunnelling **activities**
- K2 how to minimise disruption to other works during tunnelling **activities**
- K3 how to minimise disruption to **people** during tunnelling **activities**
- K4 how to apply methods that will optimise and maintain performance during tunnelling

Performance Criteria 2

Observe legislation and guidelines

You need to know and understand:

- K5 what current legislation and official guidance applies directly to tunnelling **activities** for protection and safety

Performance Criteria 3

Identify and assess defects and problems

You need to know and understand:

- K6 common tunnelling **defects and problems**
- K7 how to assess tunnelling **defects and problems**
- K8 how to make recommendations and implement **corrective action** for tunnelling **defects and problems**

Performance Criteria 4

Keep accurate records

You need to know and understand:

- K9 how to keep accurate records of work progress by conducting checks for **defects and problems**, **corrective action** taken and quantities of **resources** used
- K10 why accurate records are needed

Performance Criteria 5

Identify, assess and maintain resources

You need to know and understand:

- K11 how to identify the necessary **resources** for tunnelling **activities**
- K12 how to assess the quality of **resources** for tunnelling **activities**
- K13 how to maintain the necessary **resources** for tunnelling **activities**

Performance Criteria 6

Meet the contract specification

You need to know and understand:

- K14 how **methods of work**, to meet the specification, are carried out and **defects and problems** reported

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Additional Information

Scope/range related to performance criteria

Performance Criteria 1

- 1 records of programmes, plans or schedules for at least two of the following activities
 - 1.1 mobile plant and machinery operations
 - 1.2 back up services installation, operation, maintenance or removal
 - 1.3 spoil removal
 - 1.4 access equipment erection, maintenance or removal
 - 1.5 pipejacking operations
 - 1.6 micro tunnelling operations
 - 1.7 excavation and installation of supports
 - 1.8 shaft and tunnel construction
 - 1.9 tunnel transport
 - 1.10 spraying concrete lining
 - 1.11 operating separation plant
 - 1.12 temporary works
 - 1.13 lifting loads

Performance Criteria 2

- 2 protection of the workforce, the general public, visitors and the environment by the application of information relating to at least three of the following
 - 2.1 methods of work
 - 2.2 tunnel access arrangements
 - 2.3 risk assessment
 - 2.4 safe use and storage of tools
 - 2.5 safe use and storage of materials
 - 2.6 traffic management
 - 2.7 emergency plans

Performance Criteria 3

- 3 records of dealing with at least three of the following tunnelling defects and problems
 - 3.1 limitations of design choices
 - 3.2 construction errors
 - 3.3 identification of further utilities
 - 3.4 heritage concerns
 - 3.5 environmental concerns
 - 3.6 incorrect maintenance
 - 3.7 identification of hazardous materials
 - 3.8 breaches of security
 - 3.9 changes in ground conditions

Performance Criteria 4

- 4 records of work progress checks detailing defects, problems, corrective actions taken and quantities involved

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Performance Criteria 5

- 5 records of the acquisition and maintenance for at least four of the following resources for at least three of the following activities
 - 5.1 resources: people; plant, equipment or machinery; materials and components; sub-contractors; information; work area and facilities; waste management; utility providers
 - 5.2 tunnelling activities: mobile plant and machinery operations; back up services installation, operation, maintenance or removal; spoil removal; access equipment erection, maintenance or removal; pipejacking operations; micro tunnelling operations; excavation and installation of supports; tunnel construction; shaft and tunnel construction; tunnel transport; spraying concrete lining; operating separation plant; temporary works; lifting loads

Performance Criteria 6

- 6 supervise activities to form tunnels to given working instructions in at least one of the following occupational areas
 - 6.1 hand miner
 - 6.2 shaft miner
 - 6.3 tunnelling machine operator
 - 6.4 machine tunnelling operative
 - 6.5 spoil removal equipment operative
 - 6.6 tunnel services operative
 - 6.7 tunnel transport operator
 - 6.8 tunnel fitter's mate
 - 6.9 tunnel electrician's mate
 - 6.10 sprayed concrete lining tunnelling operative
 - 6.11 pipejacking operative
 - 6.12 micro-tunnelling operative
 - 6.13 separation plant operative
 - 6.14 specialist tunnelling occupations

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Scope/range related to knowledge and understanding

Activities

- 1 mobile plant and machinery operations
- 2 back up services installation, operations, maintenance or removal
- 3 spoil removal
- 4 access equipment erection, maintenance or removal
- 5 pipejacking operations
- 6 micro tunnelling operations
- 7 excavation and installation of supports
- 8 shaft and tunnel construction
- 9 tunnel transport
- 10 spraying concrete lining
- 11 operating separation plant
- 12 temporary works
- 13 lifting loads

Corrective action

- 14 redesign
- 15 reconfigure
- 16 restrict
- 17 redirect
- 18 repair
- 19 replace

Defects and problems

- 20 limitations of design choices
- 21 construction errors
- 22 identification of further utilities
- 23 heritage concerns
- 24 environmental concerns
- 25 incorrect maintenance
- 26 identification of hazardous materials
- 27 breaches of security
- 28 changes in ground conditions

People

- 29 workforce
- 30 other personnel on site
- 31 members of the public
- 32 occupiers
- 33 site visitors
- 34 people affected by on-site operations

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Resources

- 35 people
- 36 plant, equipment or machinery
- 37 materials and components
- 38 sub-contractors
- 39 information
- 40 work area and facilities
- 41 waste management
- 42 utility providers

Methods of work

- 43 application of knowledge for safe work practices, procedures and skills, relating to the supervision of the following methods of work and materials used for
 - 43.1 booking in and out of tunnels
 - 43.2 setting out lines and templates for shaft and tunnel excavations
 - 43.3 excavation of tunnels using different methods (by hand, machines, segments, sprayed concrete lining and by pipejacking)
 - 43.4 installing, using and moving permanent tunnel support and service systems
 - 43.5 installing, using, moving and removing temporary tunnel support and service systems
 - 43.6 installing, moving and removing spoil removal systems
 - 43.7 dealing with ground water and de-watering methods
 - 43.8 signalling the movement of loads, vehicles and machinery
 - 43.9 working with tunnel and shaft transport systems
 - 43.10 using hand tools, power tools and equipment
 - 43.11 working at height
 - 43.12 using access equipment
- 44 team work and communication
- 45 needs of other occupations associated with tunnelling

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