

UNDERSTAND HEALTH AND SAFETY PRACTICES PERTAINING TO WINDING OPERATIONS.

NQF: Level: 3

Credits: 5

Introduction

For improved safety and proper understanding of winder and shaft operations all persons who are required to operate winding plants for the transportation of persons, material and mineral to and from the underground workings of a mine, need to know the health and safety practices pertaining to winding operations.

Bad coiling on a winder: -

While traveling and the winding rope of the ascending conveyance coils badly, the safety circuit will trip due to the bad-coiling device installed underneath the drums. With bad coiling on the drum approaching the bank position the conveyance will be in advance of the drum mark position due to the drum diameter being increased.

The banksman must be informed telephonically of bad coiling on the winder and that the banksman will be required to stop the conveyance with the required signal when the conveyance reaches the bank position.

The driver must stop the winder immediately especially when bad coiling occurs next to the drum flange. This is to prevent the rope from slipping off the drum.

The driver must: -

Stop and secure the winder

Apply the winder brakes

Move the control lever to the neutral position

Apply the side brake levers

Make an entry in the logbook and state position in the shaft where the bad coiling occurs

Notify the banksman, engineer, rigger and fitter

The driver must be assured that both winding ropes are in position on the sheave wheels and that there are no faults on the sheave shaft, bearing or bearing support. The driver must await artisan assistance to reset the safety circuit.

When the bad coiling is caused due to a faulty sheave wheel, sheave shaft or sheave bearing the engineer must make an entry in the driver logbook.

The driver must: -

Counter sign the entries made in the driver logbook

Reset the winder when instructed by the responsible person

Lower the conveyance to run out the bad coiling on the drum

Return the conveyance to the signalled destination when required

Obtain a clear signal 2-2 from the banksman and onsetter respectively when required

Do a complete trial trip up and down the shaft to test the rope coiling

Counter-sign the clearance entry in the logbook made by the responsible person

The driver must: -

Stop the winder by tripping the emergency trip switch to obtain the benefit of slow braking.

Secure the winder

Make an entry in the logbook, state the time and sign.

Report to the engineer, banksman and onsetter.

Request the assistance of a fitter and or electrician to rectify the faulty lever.

After repairs run one complete trip through the shaft testing the control lever operation.

Counter-sign the clearance entry by the engineer and/or artisans in the logbook.

Depth indicator:

In addition to any marks on the rope, every winding engine shall be provided with reliable depth indicators conveniently situated, which will at all times show clearly and accurately to the winding engine driver at his operating position the position of the cage, skip or other means of conveyance and where a reduction in winding speed is necessary. The pointer of the dial indicator on the driver's right hand side shall move in a clockwise direction when lowering, and the pointer of a post and spiral indicator shall move up or down as the conveyance moves up or down. On every winding engine where the rope is driven by friction, every single-drum winding engine and every winding engine having 2 drums permanently fixed on one shaft, only one indicator need to be provided.

Failure of depth indicator

The driver must: -

Stop the winder

Secure the winder

Make an entry in the logbook, state the time and sign.

Report to the engineer, banksman and onsetter.

Request the assistance of a fitter and or electrician to rectify the faulty depth indicator.

After the required repairs run one complete trip through the shaft testing the functionality of the depth indicator.

Counter-sign the clearance entry by the respective artisans in the driver logbook.

Signaling system failure

Every shaft in which winding is carried on, other than a shaft in the course of being sunk, shall be provided with some efficient signalling arrangement in respect of each winding plant for interchanging distinct and definite signals between -

(a) The winding engine driver and the bank, and

(b) The winding engine driver and every established point below the bank from which winding is carried on.

Incorrect positioning of the conveyance.

Positioning the conveyance incorrectly without giving signals:

The driver must:

Secure the winder

Report the incorrect positioning of the conveyance to the banksman and onsetter respectively

Follow the site specific procedures where a responsible person supervises such conveyance incorrectly positioned to avoid injury to persons.

Make an entry in the driver's logbook and state the time and position of the conveyance.

Positioning the conveyance incorrectly with signals transmitted:

The driver must:

Secure the winder

Report to the banksman and onsetter respectively that the conveyance is incorrectly positioned

Make an entry in the driver's logbook and state time and position of the conveyance being positioned incorrectly

Make pre-arrangements with the respective person to use alternative methods to supervise the conveyance incorrectly positioned.

Act on distinct and proper signals received or approved arrangements from the responsible person.

Make a clearance entry in the driver's logbook before normal operations may continue

Accident to shaft:

When travelling in an incline or vertical shaft and the driver receives the accident to shaft signal on either the lock or call bell systems.

Winders could trip out as a result of the accident to shaft signal received. (Site specific)

The driver must: -

Stop as quick and safe as possible when required.

Apply the main brake lever and move the control lever to neutral.

Apply the side brakes to the brake on clutch in position.

Ring the intercommunication bell when required.

Trip the "all winder trip switch" to stop other winders operating in the shaft when required.

Make an entry in the logbook, state the time and sign the entry.

Report to the engineer, banksman and onsetter.

An appointed person will examine the conveyances and the shaft when required with the necessary entries in the driver logbook. A clearance entry in the logbook must be signed and the driver must countersign.

Resume winding after the engineer has declared the shaft safe to convey persons. A trial trip up and down the shaft must be conducted.

Derailment in an incline shaft:

When travelling in an incline shaft and the driver receives a warning for a conveyance derailment on the "Marshalls Device" system.

Winders could trip out as a result of the "Marshalls Device" being activated. (Site specific)

The driver must: -

Stop as quick and safe as possible when required.

Apply the main brake lever and move the control lever to neutral.

Apply the side brakes to the brake on clutch in position.

Ring the intercommunication bell when required.

Trip the “all winder trip switch” to stop other winders operating in the shaft when required.

Mark the position of the conveyance derailment on the respective depth indicator.

Make an entry in the logbook, state the time and sign the entry.

Report to the engineer, banksman and onsetter.

An appointed person will examine the conveyances and the shaft when required with the necessary entries in the driver logbook. A clearance entry in the logbook must be signed and the driver must countersign.

Resume winding after the engineer has declared the shaft safe to convey persons. A trail trip up and down the shaft must be conducted.

Physical over-wind:

Whenever an over-wind occurs due to the over-wind safety devices not tripping the winder safety circuit and the over wound conveyance in the headgear is physically detached from the winding rope.

The driver must:

Stop and secure the winder, brakes on and control lever in neutral.

Ring one long ring on the intercommunication bell to stop all winding operations when required.

Trip the “all winder trip switch” to stop other winders operating in the shaft when required.

Make an entry in the driver’s logbook, state the time.

Report to the engineer, banksman and onsetter.

Make pre-arrangements to reclaim the over-wound conveyance in accordance with specified requirements.

Enter arrangements in the driver’s logbook; all relevant persons must sign the entry and the driver must countersign.

Act on the specified signals received to lower the conveyance to the bank position.

Interchange signals to replace the rope attachment and examine the winding rope.

Test over-wind prevention safety devices.

Perform a trial trip in accordance with specified requirements.

Record the test results of the over-wind prevention devices in the driver’s logbook.

Counter sign the clearance entry made by the engineer.

Over wind prevention device and over speed prevention device:

Every winding engine shall be fitted with at least one effective automatic over wind prevention device, as well as an effective automatic over speed prevention device.

The employer must install a device or combination of devices that detect slack rope on every winding plant in which the rope is attached to the drum operating in a vertical shaft, excluding a shaft in the course of being sunk.

The device or combination of devices contemplated in regulation 16.9.2.1 must on detecting a slack rope condition either automatically halt all winding operations in the vertical shaft safely or warn the winding engine drivers operating in such shaft of the slack rope condition.

The employer must establish an effective and safe procedure for rectifying any slack rope conditions.

All winding operations must cease when a slack rope condition occurs, except such operations necessary for rectifying the slack rope condition authorised by the engineer appointed in terms of regulation 2.13.2.

No winding operations may resume, except operations permissible in terms of regulation 16.9.2.4, until the slack rope condition has been rectified.

Activating of slack rope device:

A slack rope device trips the safety circuit should an obstruction of conveyance in the shaft occur. Obstruction does not necessarily mean the complete jamming of the conveyance but tight guides may hinder the free movement of conveyances.

Obstruction of a conveyance results in a sudden change in the load of the winder motor and this is usually accompanied by a change in the sound of the winder motor with an amperage variation on the ammeter.

Excessive rope whip could also indicate that the free movement of a conveyance is affected.

The driver must:

Secure the winder, brakes on and control lever in neutral.

Apply the side brakes to the brake on clutch in position.

Ring the intercommunication bell when required.

Trip the “all winder trip switch” to stop other winders operating in the shaft when required.

Make an entry in the logbook, state the time and sign the entry.

Report to the engineer, banksman and onsetter

Fire on the winding plant

Fire fighting equipment is marked and provided to extinguish a fire in the engine room. Symbolic signs are used to identify and locate fire extinguishers.

The driver must:

Stop and secure the winder.

Trip the auxiliary and main circuit breakers when required.

Instruct persons to evacuate when required.

Report to the engineer and responsible persons when required.

Use fire extinguishers in accordance with site specific requirements.

Prevent the fire from restarting or spreading.

Safeguard all persons against hazards conditions.

Make an entry in the driver's logbook and state the time.

Request assistance before taking any further action.

The entry in the driver's logbook must be cleared and countersigned before winding is resumed.

Riots.**The driver must:**

Stop and secure the winder when required.

Ensure that all entrances to the winding house and auxiliary equipment are securely locked to prevent unauthorised entrance.

Interact and communicate with persons to avoid conflict in accordance with specific requirements.

Do not aggravate conflict situations.

Obtain facts rather than opinions.

Follow the required reporting procedures

Take all reasonable measures to safeguard persons being conveyed and to avoid any unnecessary delays in conveying such persons.

Report to the engineer, banksman and onsetter.

Follow instructions given by the engineer when required.

Power failure in a vertical shaft: -**The driver must:**

Secure the winder brakes on and control lever in neutral when required.

Make an entry in the driver logbook state time and contents in the conveyance/s,

Notify the banksman and engineer.

Request assistance to restore the power supply when required.

Sign the clearance entry made in the driver's logbook by the relevant competent person.

Power failure in an incline shaft: -**The driver must:**

Secure the winder brakes on and control lever in neutral when required.

Ring the intercommunication bell to stop all winders.

Make an entry in the driver logbook state the time and contents in the conveyance/s,

Notify the banksman and engineer.

Request assistance to examine the shaft, winding rope and conveyances

Request assistance to restore the power supply.

Resume winding after the rope and conveyance have been examined.

Sign the clearance entry made by the respective appointed persons in the driver's logbook.