

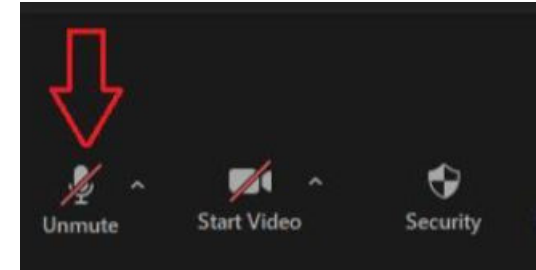
SPRING QUARRY SAFETY CAMPAIGN 2022



14th – 28th March 2022

Introduction

- *Welcome to you all*
- *Housekeeping – please mute your microphone*
- *Questions –there will be time at the end*



Aim of the Presentation

- Awareness of the risks associated with our work
- Prevention of accidents
- Practical advice on guarding
- An overview of some areas of concern
- Positive observations



Guarding

- **½ a Second Rule**
- It takes the brain ½ a second to react, unfortunately most conveyor belts move almost an arms length in less than that time, so you will become trapped by the belt no matter how experienced you are or how fast you think you can react – *the belt is moving faster than your brain can react* – the same applies to rollers, belt drives etc



Guarding – Legal Requirements

- Direct Physical guarding – a physical barrier is your **first line of defence** against a conveyor accident
- It is the **most effective** means of protection from dangerous points on conveyors
- It is a means of **physically preventing** access to dangerous areas
- It is also a **requirement by law**



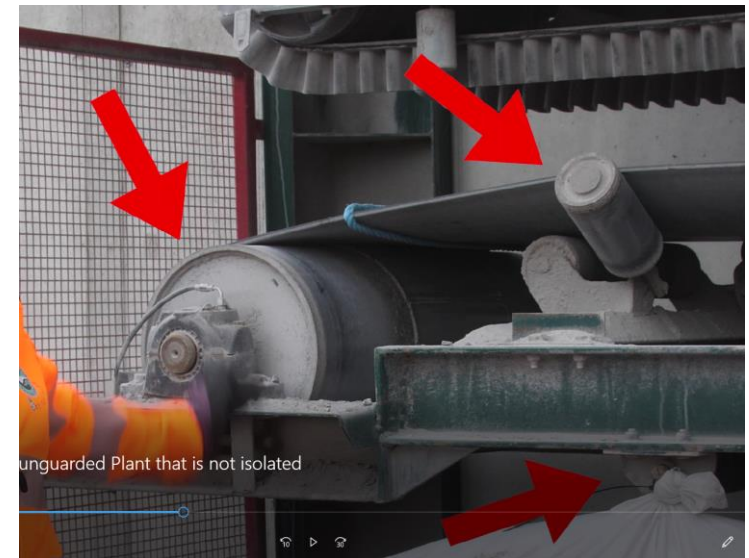
Guarding – Legal Requirements

There are 4 key points that should always be considered when designing or fitting guards:

1. The guards must actually make access to the nip point **physically impossible**
2. The guard **must not impede** the operation of the plant
3. The guard itself **must not create a new manual handling** risk
4. The guard can **only be removed with a tool**

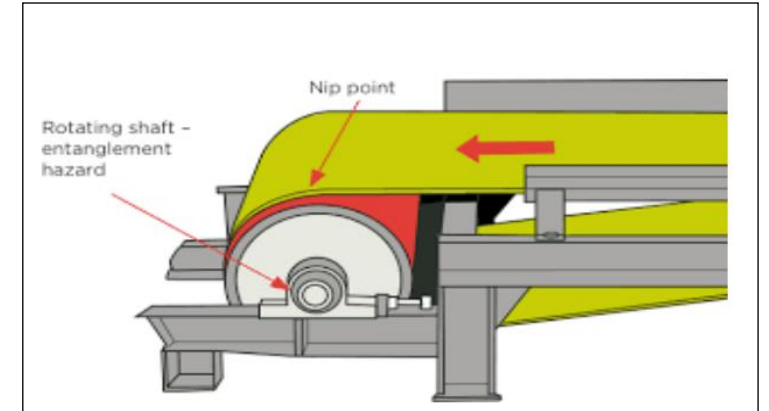
What is a nip point?

- Nip points are any **dangerous point** occurring on the **in-running side** at the line of contact between the conveyor belt and rotating pulley and in certain cases, between conveyor belt and a roller or a fixed part of the conveyor.
- Nip points **can draw the person into** the machinery
- Nip point **should not be** accessible.
- Any part of a conveyor that is a potential nip point must be guarded.



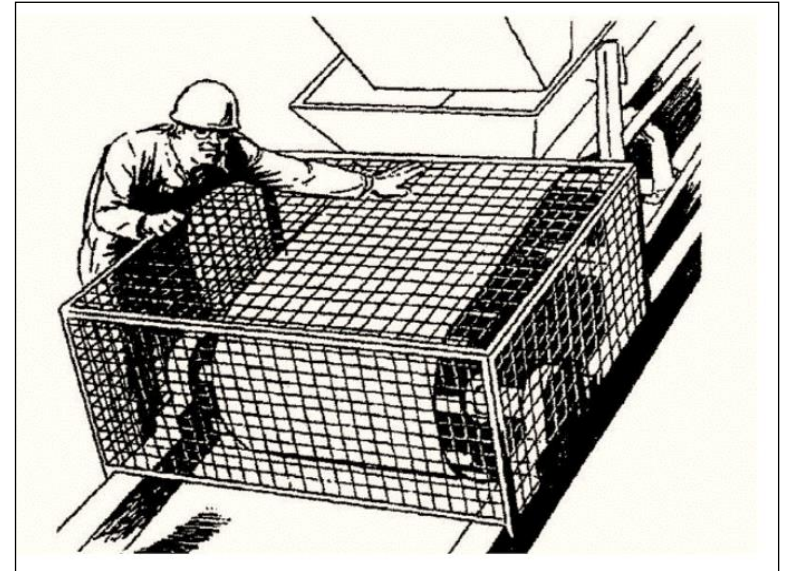
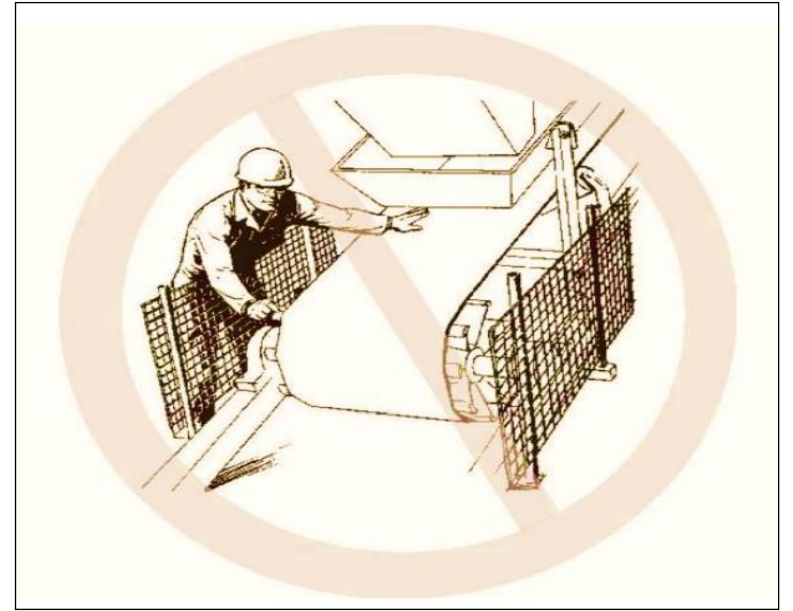
Head Drum

- Head drum guarding must prevent access to the Head drum and nip points.
- Distance from the Guard end to the centre shaft of the Head drum must be a **minimum of 1000mm**
- Where troughing rollers are positioned close to the head drum and place the belt under tension, the guard should be extended.



Tail Drum

- Tail drum guarding should enclose all rotating shafts and nip points and extend at least 600mm from the entanglement hazards.
- Must be tool tight.
- They must be replaced following any maintenance work or clean up before the conveyor is restarted.



Tail Drums- Main issues

- Tail drum not fully guarded – guard underneath has been removed as material is piling up.
- Increase aperture of the mesh and increase distance of guard to stop a person touching the moving parts.
- Tail drum guard not too tight – it must be too tight



Return Rollers

- Where any return roller is accessible, (within reach plus 1m) it should be enclosed or fitted with a guard
- **10mm mesh will block up in a short time**
- Consider 50mm or 75 mm mesh at a distance far away to stop a person touching the moving parts. Plate or fine mesh at sides of rollers.



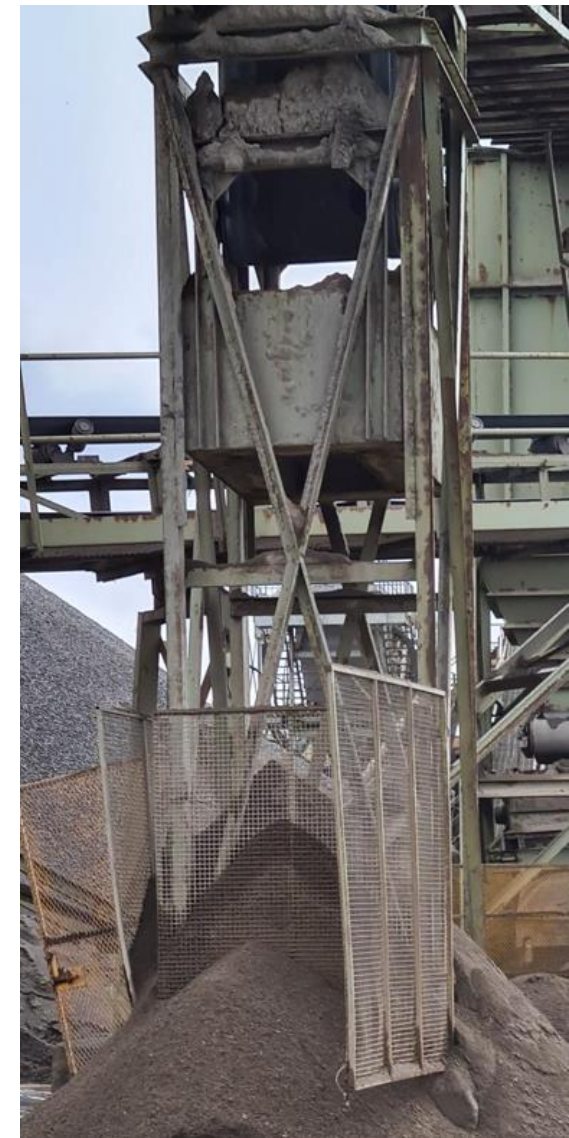
Return Rollers – Main Issues

- Return rollers within reaching distance are not fully guarded or guard removed due to material piling up.
- No side guard to stop a person touching the moving parts.
- Nip guards on return rollers are too far from nip point
- Nip guards must extend across the width of the belt, be a minimum of 150mm in width and a maximum of 5mm from the nip point.



Vertical Tension Units

- Vertical tension units must be guarded at the top and the bottom of the tensioner.
- At the top, the guard must extend at least 600mm beyond the nip point



Troughing Rollers

- If there is a cat walk or within touching distance, there must be a pull cord.
- At the top, the guard must extend at least **600mm** beyond the nip point



Catwalks and Return Rollers

- Return rollers on catwalks must be side guarded to prevent possible contact – side guarding,
- Bolt & lock nut/locked gate or interlock gate on catwalk are possible solutions.



Drive Belts

- Drive belts rotate at high speeds and must be fully enclosed.
- Require a tool to remove them
- Guard must always be replaced following maintenance
- Damaged guarding must always be repaired and replaced



Distance Guarding **A gate is not a guard.**

- Fixed distance guarding, sometimes called proximity guarding **does not enclose the nip points**
- Prevents physical access to operating equipment by virtue of its dimensions and distance from the danger zone.
- Fixed distance guards must as a minimum **require a tool** to gain entry i.e. bolted sections that require a spanner or other tool to remove them,
- Padlocks are not an acceptable alternative to bolting or other fixings as a key is not a tool.



Gates



Positive Observations



Spring Quarry Safety Campaign 2022

Main Points

- The guards must actually make access to the nip point **physically impossible**
- The guard **must not impede** the operation of the plant
- The **Guard must be Tool Tight**
- Look at the **size of the aperture** of the mesh
- **Increase** the aperture and **increase the distance** from the guard

Thank you for your time

Any Questions?