

Guidance

G1103

Human factors considerations in incident investigation

Issue no.:	A2	Issue date:	April 2016
		Review date:	April 2019

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1 Purpose

The purpose of this guidance is to provide guidance on use of human factors/ergonomics in accident investigations to establish the root causes of an incident.

2 Scope

This guidance applies to the investigation of all incidents involving TfL staff.

3 Guidance

Human Factors/Ergonomics in accident causation is a multi-layered issue and is involved from business process side (management, procurement, processes, design etc.) to the sharp end of the business (maintenance, stations, trains etc.)

Accidents are caused by active failures or latent conditions which can lead to human reliability issues (human error) or violations. The different types of human error which may result in an incident situation are discussed in more detail below. Appendix 1, summarises these different types human error together with control measures that can be used prevent these errors occurring.

3.1 Active failures/errors

Acts or conditions precipitating the incident situation. These usually involve front line staff; the consequences are immediate and can often be prevented by design, training or operating systems. An example would be the layout of the machine interface is different between similar equipment and thus the operator uses the wrong action/button/step/switch or indications mean different things or the sequence of action is different.

3.2 Latent errors/conditions

Refer to less apparent failures of organisation or design that contributed to the occurrence of errors or allowed them to cause harm. A latent error might be that the organisation uses multiple different types of crane controllers (due to a historical procurement policy or management decision) or there is a fault within a programme or process. Latent errors tend to remain hidden until triggered or may occur when several latent conditions combine in an unforeseen way. We all make errors irrespective of how much training or experience we have or how motivated we are to do it right. There is always an opportunity for recovery before the accident and systems should be designed to aid this recovery.

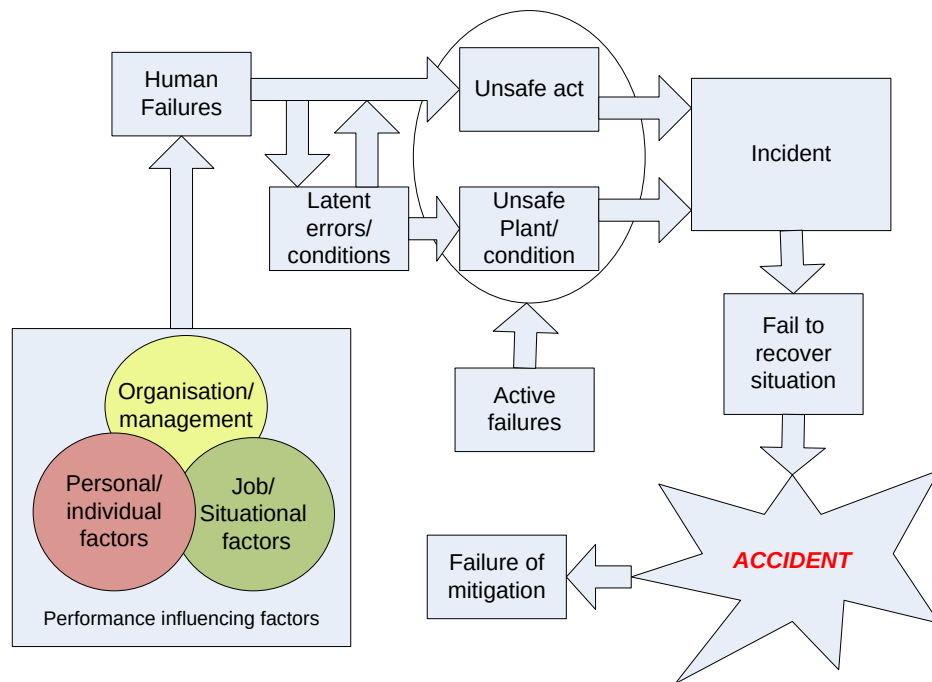


Figure 1: Accident Model

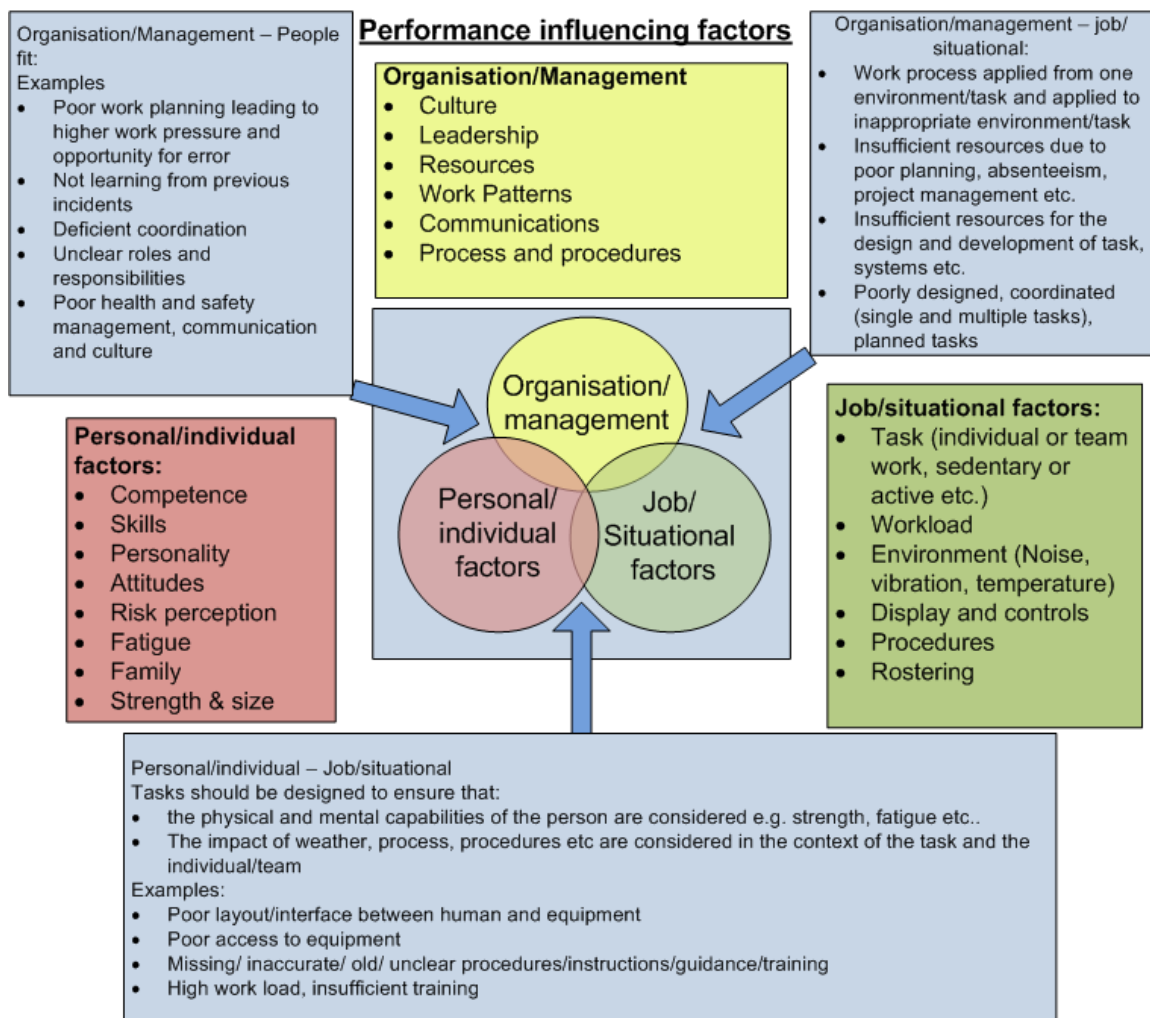


Figure 2: Performance influencing factors

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