T1155 - Reviewing the risks and benefits of detonator use

Authors: Hassan Khalil and Justin Willett

Briefing

This briefing paper provides notification of research project T1155 – Reviewing the risks and benefits of detonator use, and requests for industry support of the project and its envisaged outputs.

Background

Detonators have been used in the rail industry for over 180 years as a safety protection mechanism. They are small metal devices containing a small quantity of explosives, to be placed on the track, intended to provide a warning of potential hazards on the line ahead. The placing and removing of detonators require staff to access the track, exposing them to risks of trackside working, including train movements, slips, trips and falls. Safety incidents and near misses have been associated with their use/misuse, including incidents of theft and vandalism. Following recent advances in technology, the industry seeks to consider whether in some situations detonators may no longer be the right solution to manage the risks from these hazards.

Research objectives

T1155 investigates the current use of detonators on a case-by-case basis, to assess the hazards detonators control, and the associated risks and benefits of their use.

The case scenarios to be examined are:

1. Assistance to failed train
2. Emergency protection
3. T3 protection
4. Line blockage protection
5. Single Line Working
6. Working of single and bi-directional lines by pilotman: Working to the point of obstruction
7. Temporary Block Working
8. Movements towards an isolated section
9. Divided train

The research should determine the suitability of the continued use of detonators to control hazards in each scenario in which they are used, and identify the cases where a safety benefit can be gained through changes to current arrangements.

The ITT was published in early September 2018, and the research should commence delivery in October 2018 for completion in December 2019. Outputs will be published on a case by case basis, including an implementation strategy per case.

A stakeholder engagement plan has been created to ensure appropriate stakeholders are engaged during the project development and delivery (Appendix A).

Potential benefits

Safety benefits

Less exposure to detonator risks may improve workforce safety, which is assumed to be the largest benefit of the research.

Business benefits

Industry may benefit from improved and efficient operational delivery, and less costs to procure and dispose of detonators.

Unquantified

Intangible benefits include de-risking industry against potential legislation changes concerning the handling and storage of explosives, and less carbon emissions from detonator disposal methods (incineration).

Implementation Costs

It is assumed that cost savings from the removal of detonators will be equal to the implementation costs for replacing detonators or to reallocate resources to improve workforce safety in other safety critical areas. It is expected that in some situations workforce training, industry guidance, standards and updating the RSSB Rule Book will be required, but this is assumed industry business as usual activity.

Appendix A: Stakeholder engagement plan

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Key Stakeholders** | | | | | | | | | | | | | | | | | | | | | |
| **Key project functions** | **Trade Unions** | **Better Operations Programme Board** | **RDG Operations Council** | **HR Directors‘ Group** | **TOM SC** | **NR SHE Committee** | **Senior NR stakeholders** | **Project sponsor & supporters** | **Project steering group** | **Operations Principles Group** | **Project working Group** | **Suppliers** | **Supply chain** | **NR workforce safety group** | **Workforce** | **Infrastructure Safety Leadership Group** | **TARG editorial** | **Freight Safety Group** | **NR Heads of Maintenance forum** | **RSSB Project team** | **ROSCOs** | **Passengers** |
| Project development | I | I | I | I | I | I | I | C | I | A |  | I | I | I |  | I | I | I | I | R |  |  |
| Project delivery | I | I | I | I | I | C | I | A | A | A | C | R | I | C | C | C | I | I | C | R | I |  |
| Support with identifying key industry members to engage / involve | I | C |  |  |  | C | I | A | A | A |  | I | I | C |  | C |  |  | C | R |  |  |
| Expertise in Rail ops & safety assessments to support T1155 | I | I |  |  |  | C | I | A | A | A | C | R | I | C |  | C |  |  | C | R |  |  |
| Provision of information / data for T1155 | I | I |  |  |  | C | I | A | A | A | C | I | I | C |  | C |  |  | C | R |  |  |
| Provision of staff to access to form project steering / working groups | C | C |  |  |  | C | I | A | A | A |  | I | I | C |  | C |  |  | C | R |  |  |
| Project outputs | I | I | I | I | I | C | I | A | A | A | C | R | I | C | C | C | I | I | C | R | I | I |
| Support implementation and next steps | I | I | I | I | I | C | I | A | A | A | C | I | I | C | C | C | I | I | C | R |  |  |
| R = Responsible, A = Accountable, C = Consulted, I = Informed | | | | | | | | | | | | | | | | | | | | | | | |