

Regulator approval process for autonomous heavy haul freight trains in Australia

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23 October 2018

safe railways for Australia

How ONRSR Regulates

Co-regulatory: Government / Industry / Regulator

Dual but complementary roles

Administrator of *Rail Safety National Law* accreditation regime Regulator of duty-based safety management regime

Not a technical regulator



ONRSR is a risk-based regulator



Key principle –

Risk-based regulation

Corporate Plan 2018-21, Goal 1

'Enhance our **risk-based approach to rail safety regulation**'

National ONRSR Framework for Riskbased Regulation

ONRSR Regulatory Activities & Decisions

What is risk-based regulation?

The application of a systematic framework that prioritises regulatory activities and deployment of regulators' resources on an evidence-based assessment of risk

Baldwin & Black 2007; Black 2010

While regulators have always made regulatory design, implementation and allocation choices, partly to manage limited resource, risk-based regulation formalises and provides consistent structure to the decision making process

Sparrow 2000

Why be risk-based?

- Better targeted and more efficient use of resource
- Greater consistency of regulatory decisions
- Increased objectivity, clarity and transparency of decisions
- Decision making that will stand up to greater scrutiny
- > We administer a risk-based law



What does that mean in practice?

240 wagon trains with 28,000 tonnes of ore (total weight of 35,500 tonnes) and 2.4 km long without a driver in a non-enclosed corridor certainly tests the concept.







Rio Tinto iron ore railway

- > 1500 kms from Perth
- > AutoHaul© autonomous train operations
- > 1,700km of track, 200 locos, 11,500 wagons



AutoHaul©

Accreditation Strategy

- Accreditation strategy with logical steps:
 - Passive
 - Driver assist
 - Attended
 - Driverless
- Started with approval for one-off movement in a yard.
- Progressed to series of controlled environment journeys.
- Full approval (with Conditions)



Attended to Driverless

- Robust internal debates.
- Focus on safety argument and evidence of:
 - competence and capacity to manage risks
 - competence and capacity to implement proposed safety management system



Regulator considerations

- Level Crossings (active and passive)
- Lookout protection
- Staff training and deployment
- Transfer of knowledge for ongoing maintenance
- Collision Detection System



Challenges

- No precedent
- Technical aspects level of detail
- Demonstration of competence and capacity to manage risks
- Definition of suitable safety standards
- Ongoing monitoring and auditing



The ONRSR Way

How ONRSR will do business

What type of regulator we are

How we apply a risk-based approach

What to expect from regulatory activities



Questions ?