OVERVIEW

The Instrumented Ore Car (IOC) program commenced in 2001 and has since provided innovative strategies for condition monitoring and targeted economical track maintenance planning. The data recorded on these vehicles is also used for developing appropriate driving strategies and assessing rollingstock performance.

IOC TECHNOLOGY

The IOC technology utilises existing customer rollingstock which remains in normal revenue service and provides a platform for instrumentation and data collection.

The key advantage of an IOC, as opposed to traditional track recording equipment, is that it monitors the actual response of the rollingstock in both empty and loaded condition and provides more regular feedback on track condition, typically daily. The principal premise is that if the rollingstock is riding poorly, then corrective actions are likely to be required.

IOC CAPABILITIES

The IOC fleet is fully autonomous and designed around the customers’ specific operational requirements. Whilst IOCs provide an excellent tool for monitoring track condition and planning track maintenance, the following applications have also proven beneficial to existing customers:

- In-train force monitoring, often used for:
  - Development of improved driving strategies
  - Tuning of indexing cycles during car dumping
  - Development of REPOS tables to allow improved product design
- Wagon structural assessment and monitoring for design confirmation
- Dynamic strain monitoring to ensure adequate stability according to regulatory standards
- Component strain gauging (e.g. yoke, draft pocket, car body) to allow improve understanding of component behaviour and loading
- Bearing and wheel temperature monitoring to allow hot bearing and hot wheel monitoring sites to be calibrated