



TMS WEST Transporting Dangerous Goods



The Supply Chain

- The importance of feeding the mines sites with explosive products is critical to WA's viability
- The dangerous goods which we transport are governed by the Dangerous Goods Act and its regulations – applied by Department of Mines Industry Regulation and Safety (DMIRS)
- TMS is responsible for moving 80% of the Ammonium Nitrate by road (ex CSBP) to supply the mining industry of WA

Operating Fleet and Personnel

TGL Mining West currently operates 94 vehicles in regional WA, ranging from quad road trains to single trailer movements transporting various forms of Ammonium Nitrate and Cyanide. These vehicles pick-up and deliver based on customer requirements and forecasts. TGL Mining West has the ability to deliver ANsol, Emulsion, Cyanide, Bagged and Bulk Ammonium Nitrate.

Fleet

- 11 x AB Triple Belly Dumper Sets
- 4 x Quad Belly Dumper Sets
- 26 x AB Triple End Tipper Sets
- 7 x Pocket Road Train ANsol Tanker Sets
- 3 x Pocket Road Train ANE Tanker Sets
- 2 x Quad Road Train ANE Tanker Sets
- 10 x Triple Road Train ANE Tanker Sets
- 2 x AB Triple Road Train ANE Tanker Sets
- 4 x Quad Road Train Flat Top Sets
- 6 x Pocket Road Train Flat Top Set
- 7 x Block Trucks (incl 2 at Tom Price)
- 13 x Sub Contractor Vehicles
- 5 x Pocket Road Train Skel Sets
- 7 x Road Train Skel Sets

Personnel

- 108 x Drivers
- 19 x Operational/Admin Staff
- 34 x TGOS Equipment Staff



The Chain of Responsibility

- Recent changes to legislation have reinforced the need to acknowledged that everyone plays a part in the supply chain under the chain of responsibility which covers:-
 - corporations, partnerships, unincorporated associations or other bodies corporate
 - employers and company directors
 - prime contractors of drivers
 - the operator of a vehicle

The Chain of Responsibility

- schedulers of goods and the scheduler of its driver
- consignors/consignees/receivers of the goods for transport
- loaders/unloaders of goods
- loading managers (the person who supervises loading/unloading, or manages the premises where this occurs).

Safety Stats and Projects

- Safety Week
- Family Day
- Rollover Avoidance Initiative(Animal Interaction)
- Remote Tarp and Tippers
- Adaptive Cruise Control with DSS
- ANsol drive away protection
- 90km/hr speed limiting to all heavy vehicles
- Improved Anti Tamper Seal Design with scannable barcode
- All heavy vehicles fitted with full IVMS including MtData and DSS(Guardian)
- 90% of fleet fitted with EBS/ABS
- Side discharge auger
- MtData hazardous area alerts
- Hub & Brake monitoring system
- Breath Test linked to access system
- Linking Truck G force sensor to Duress alarm
- Trialling Quitfire AFFF system for managing wheel/hub fires



Safety IS the NUMBER ONE PRIORITY

- Safety is the TOP PRIORITY at TMS
- If a safety incident occurs TMS investigate to learn how to prevent a repeat incident in the future
- TMS improves its safety performance by learning from it's mistakes, engaging with everyone involved in the chain of responsibility and getting a free lesson.

TMS and the role of the regulators

- TMS welcomes the role of the regulators and the support they give to businesses which show sincere and genuine commitment to safety improvement.
- TMS shares the concerns of DMP with respect to making our state a safer place.
- I'd like to share some incidents with you and how we are working to improved safety and what we have learnt

Safety Incidents and the Investigation Process

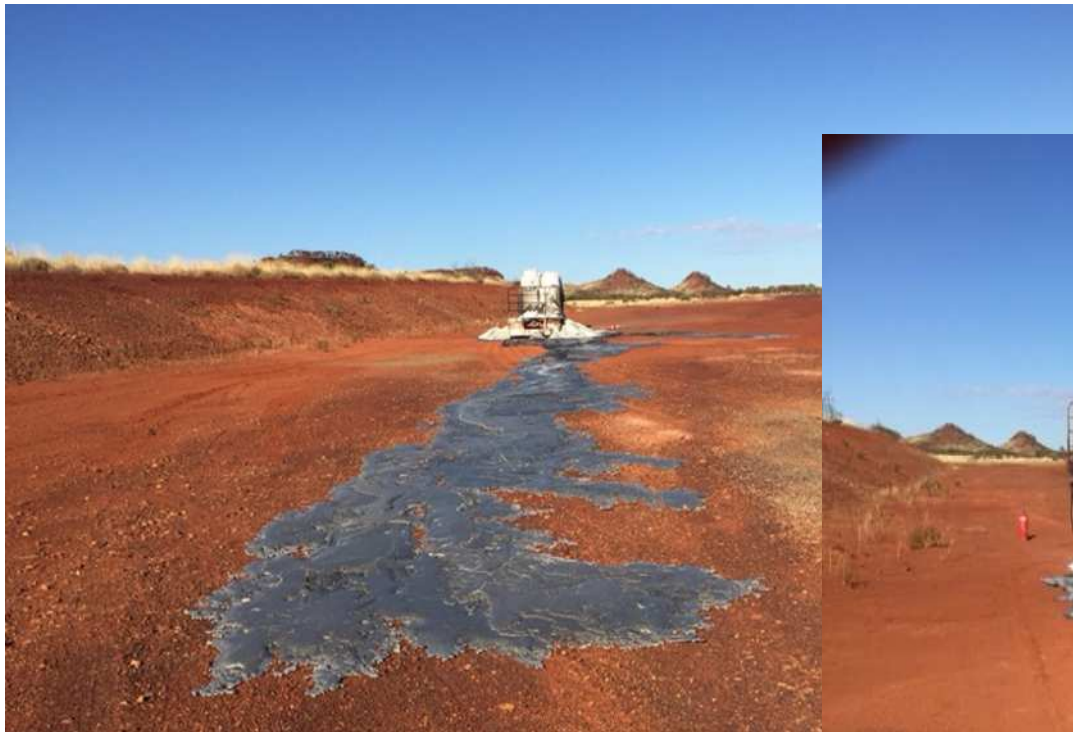
- TMS run Incident Cause Analysis Method (ICAM) investigations which identify the root cause and contributing factors so that actions can be taken to prevent a repeat occurrence.
- One of our main risks concerns fire on the combination which are caused by hot hubs associated with brake or bearing failures.

Safety Incidents and the Investigation Process

- The failed wheel bearing on the combination traveling to Silvergrass Mine Site caused some concern
- The driver applied 3*9Kg powder fire extinguishers to subdue the fire but could not get it fully under control.
- He was attempting to apply the 4th fire extinguisher when the inner tyre of the combination exploded and he wisely decided retreat to a safe distance
- The following photos explain why.

Safety Incidents Fire from Wheel Bearing Failure

The intensity of the fire melted the polypropylene bags and AN Product which ran to the ground at the side of the trailer.



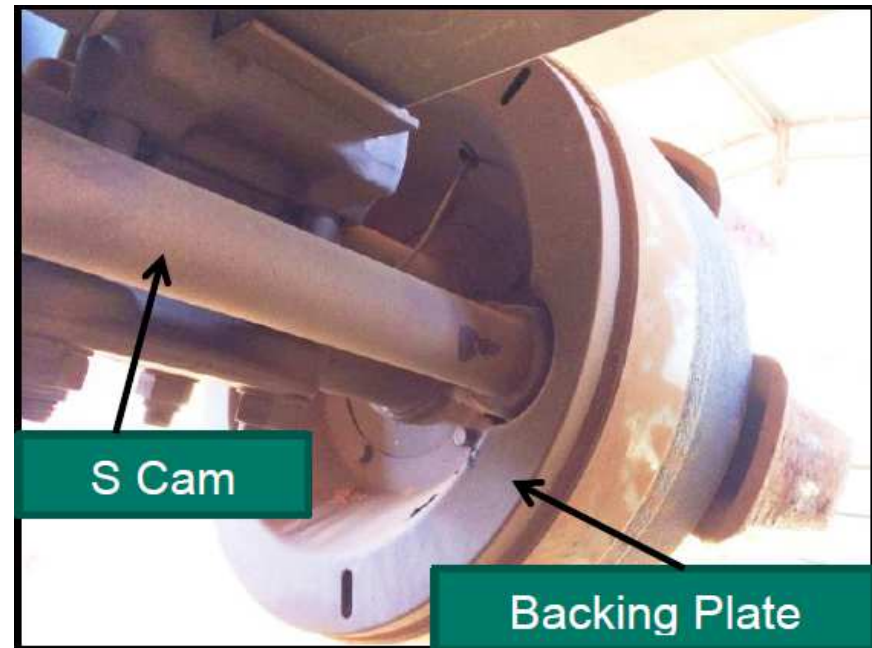
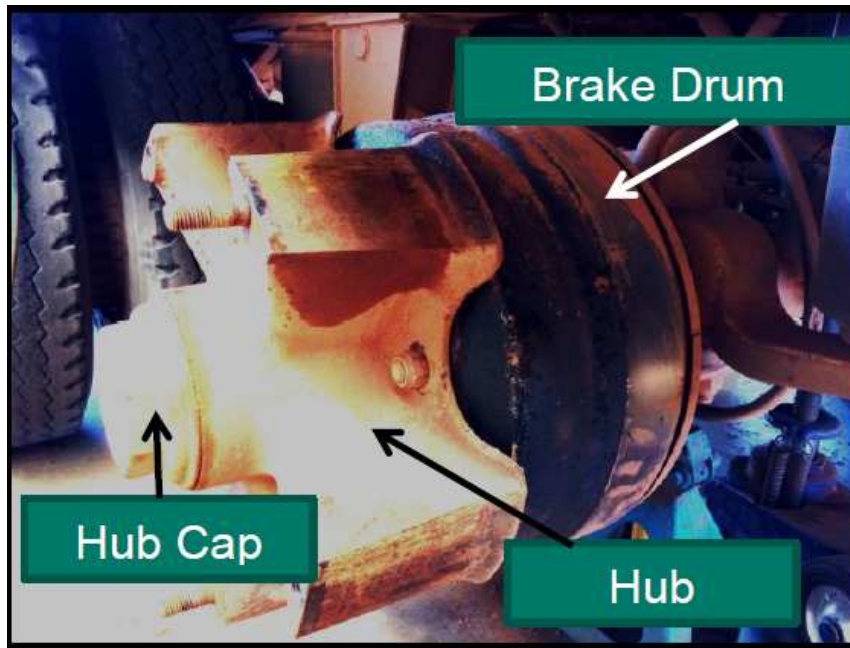
Safety Incidents Fire from Wheel Bearing Failure

Damage to bottom shoe shows excessive material loss from the load on the brake shoe wearing against the brake drum.



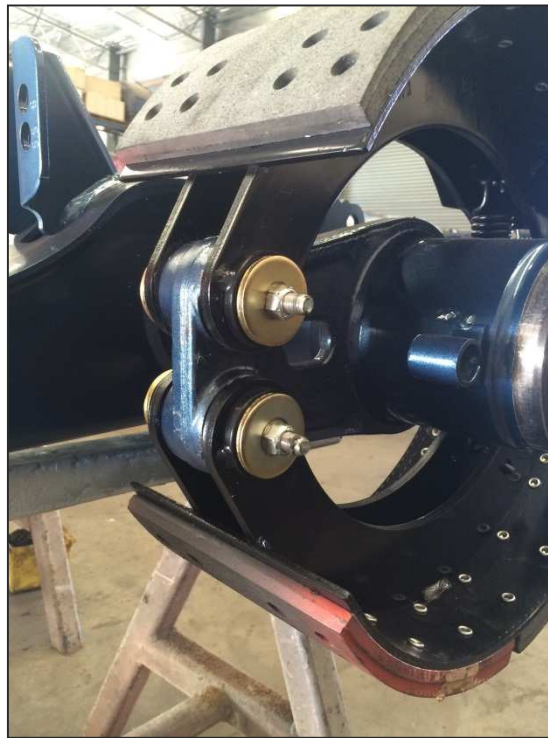
Safety Incidents - Brake or Bearing Failure

The driver of a triple combination loaded with 62.5 tonnes of ammonium Nitrate Emulsion approached the Tropicana Mine Site and stopped to call up the check point at the front gate about 3 km away. He inspected his vehicle as per procedure and noticed a hot hub on the rear dog trailer. A temperature check showed it was 197 degrees Celsius.



Safety Incidents - Brake Failure

A recent incident investigation appears to have identified that a locking nut failed in the brake assembly causing drum brake to move and wear against the wheel drum – consequently friction created heat which was transferred to the tyres.



Safety Incidents – Learnings

- TMS increased the monitoring of hub temperature checks and ensure that all hubs are regularly monitored during transit and mandatory final check is taken prior to entry onto a mine site
- 9 Kg powder fire extinguishers do not completely extinguish and control the fires generated by the heat/friction from brake failure or bearing failures.
- More success has been achieved control fires with foam or water extinguishers
- Regulations govern the industry and the minimum standards for deploying powder extinguishers which most transport companies meet but do not exceed
- TMS West's investment in MT Data, DSS, ABS/EBS and speed limiting to 90kph has improved its safety performance

Safety Incidents – Suggested Corrective Actions

- Investigate using more foam AFFF water extinguishers currently alternatives are on the market
- Support DMP move to regulate for more foam/water extinguishers to be deployed on the truck
- Investigate technology which can detect hot hub temperatures prior to the ignition and start of a fire on the hub/wheel assembly with audible alarms to the driver to stop rather than continue until its too late.

TGL Mining West



TMS West Tom Freeman – Regional Manager (TransSafe Presentation August 2017)