Trade & Investment Mine Safety

Investigation report

Investigation into the serious injuries sustained by a delivery truck driver at Tasman mine on 7 December 2011

Extract of report prepared by the
NSW Mine Safety Investigation Unit

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Introduction

The incident that prompted this report

On 7 December 2011, at 10.30am a delivery truck driver was seriously injured at the Tasman Underground Coal Mine (Tasman mine).

The truck driver was delivering steel mesh used for roof support at the Tasman mine.

The truck driver was injured while assisting a Tasman mine employee (an underground supervisor known in the coal mining industry as a deputy, who was on alternate duties on the surface of the mine on the day of the incident) to unload the mesh from the truck. The deputy was driving a telehandler, a multi-purpose machine that operates as a forklift, crane or front end loader.

The deputy was using the forklift function of the telehandler when the mesh load slipped from the forklift tines and crushed the truck driver between the mesh, the truck and the ground.

Figure 1 below shows the position of the truck and the mesh bundles that crushed the truck driver.

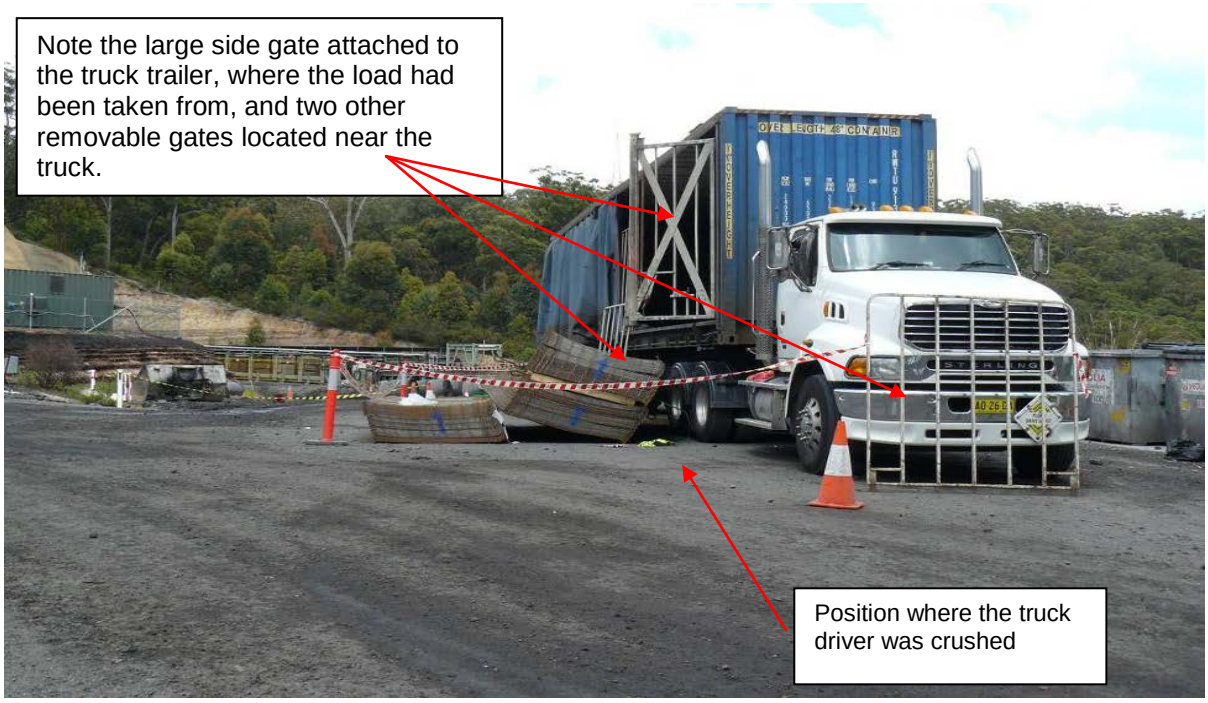

Figure 1: Incident scene showing the position of the truck and the mesh bundles that crushed the truck driver. [1]

[1] Photographs taken by department investigators.

The truck driver's injuries

As a result of the incident, the truck driver sustained a fractured pelvis and required a full pelvic reconstruction. He also suffered four fractured vertebrae, six fractured ribs and a fractured foot.

These serious injuries have resulted in a lengthy recovery period and significant medical costs. The truck driver was required to move interstate on a temporary basis and has been supported by his family during his recovery process. At the time of writing, he remained unable to return to work and requires ongoing pain management and further pelvic surgery.

The truck driver's employer has indicated their intention to find suitable work for him as soon as he is given clearance to return to work.

The department's authority

The department administers the *Coal Mine Health and Safety Act 2002* (CMHSA), and the *Mining Act 1992* (MA).

Under section 4 of the *Occupational Health and Safety Act 2000 (*OHSA), the legislation in place at the time of the incident, a 'coal workplace' is defined as "a place of work to which the CMHSA applies". The places of work to which the CMHSA applies are listed in section 8 of the CMHSA.

The department's records identify the location of the incident as Tasman mine, which is located within the colliery holding of Donaldson Coal Pty Ltd, comprising Mining Lease 1555 of the MA.

The department has authority to investigate the incident as it occurred 'within a colliery holding' which is a place of work listed in section 8 of the CMHSA.

On 1 January 2012, the *Work Health and Safety Act 2011* (WHSA) came into force and replaced the OHSA. However, the OHSA was in effect at the time of the incident and will apply to this matter.

The department's investigators for this incident hold appointments as investigators (government officials) under section 145 of the CMHSA.

A person who is appointed as a government official under the CMHSA is taken to have been appointed as an inspector for the purposes of the OHSA and its accompanying Regulation.[2] As a result the department's investigators are authorised to exercise functions under the OHSA with respect to a coal workplace, and other premises, for the purpose of investigating any matter under the OHSA in relation to a coal workplace.

The Investigation Unit

The Investigation Unit was established to investigate serious mine incidents and report directly to the Director General. It is independent of the department's Mine Safety Operations Branch and mining inspectorate.

The incident was assessed in accordance with the department's triage procedures and was considered to be an appropriate incident to be referred to the Investigation Unit for investigation. The Investigation Unit began investigation of the matter on 8 December 2011.

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[2] Appointment of inspectors, s 47B *Occupational Health and Safety Act 2000*. Definition of 'government official' s145 of the *Coal Mine Health and safety Act 2002*.

The mine

The Tasman mine is an underground bord and pillar coal mine on Mining Lease (1555), which covers an area of 952 ha.

Figure 2 below shows the surface layout plan of the Tasman Underground Mine Project.

At the time of the incident mesh bundles used as part of the roof support underground at the mine were delivered on a regular basis. The supplier of the mesh bundles was Australian Steel and Wire Pty Ltd (ASW).[2] Figure 3 shows a telehandler carrying two bundles of mesh.

Figure 2: Tasman Underground Mine Project surface layout plan[3].

[2] Delivery notes from ASW to Donaldson Coal for the mesh that was delivered the day of the incident.
[3] Tasman Extension Project, *Environmental Impact Statement*, ES-01, www.google.com.au/search?q=tasman+mine+impact+statement&rls=com.microsoft:en-au&ie=UTF-8&oe=UTF-8&startIndex=&startPage=1&redir_esc=&ei=tJWdUcahIu6iiAeKwYG4Dg>.

Figure 3: Telehandler carrying two bundles of mesh.

The carrier

The delivery truck driver worked for General Carrying Pty Ltd, a courier company based at Smeaton Grange near Camden.

The mesh bundles were loaded into containers by the supplier ASW, in Perth, Western Australia and transported by rail to the Chullora rail yard in Sydney, NSW. The driver took his semi-trailer to the rail yard in Chullora the day before the incident where he picked up the containers of mesh and took them to the General Carrying yards at Smeaton Grange. The bundles of mesh remained on the semi-trailer overnight and the packing of the mesh had not changed since it left Perth. The truck driver transported the mesh to Tasman mine the next morning, arriving at the mine at 9am.[4]

It was the driver's first time delivering a load to the Tasman mine and he was unaware of the delivery procedures of the mine. However, he had delivered mesh to other places.

The driver told investigators it was not his first time unloading mesh.

"I did a lot of work at Mesh and Bar and another site in Sydney. At Mesh and Bar you are required to stay in the truck or stay in a designated area," he said.

When the driver arrived at the mine, he stopped the semi-trailer in the area adjacent to the workshop and store and was directed by an unknown person to take the truck to the unloading point, which was adjacent to the main entrance to the mine. It is unknown who gave that direction to the driver as no-one recalls giving such instructions. However, according to the driver that is what occurred, and there is no evidence to the contrary.

The driver told investigators he was not given any instructions by staff concerning the safety rules that applied at the mine, nor was he directed to sign in or alert anyone that he was on the mine site. There were advisory signs erected at the mine directing people to sign in at the office. There was no record however, of the driver having signed in at the office.

[4] General Carrying response to s151 notice *Work Health and Safety Act 2011*,6 June 2012 q 51.

The companies involved

The mine

At the time of the incident, Tasman mine was operated by Donaldson Coal Pty Ltd (Donaldson Coal), which is wholly owned by Donaldson Holdings Limited. The ultimate holding company at the time was Gloucester Coal Pty Ltd (Gloucester Coal).

Donaldson Coal operates three mines, the Donaldson Open Cut, the Abel mine and the Tasman mine. At the time of the incident the General Manager of the three operations reported to the deputy Chief Executive Officer of Gloucester Coal. The Manager of Mining Engineering at the Tasman mine reported to the General Manager.

According to the General Manager, the deputy CEO as a director of both Donaldson Coal and Gloucester Coal took a direct interest in the activities of the Tasman mine.

Gloucester Coal was taken over by Yanzhou Coal Mining Company Limited on 10 July 2012. Yanzhou is now the ultimate holding company of both Gloucester Coal and Donaldson Holdings Limited.

General Carrying Pty Ltd

General Carrying is a transport and distribution company based in Smeaton Grange near Camden on the South Western edge of Sydney. It is a family-operated company.

General Carrying has been in business since 1995 and has 77 employees. The delivery truck drivers are employed by a separate company, Smeaton Grange Investments Pty Ltd. The injured truck driver was employed by Smeaton Grange Investments. Smeaton Grange Investments is owned by the same family.

The General Manager of both companies told investigators in an interview that General Carrying provided all the management and safety systems for the undertaking and that Smeaton Grange Investments supplied labour to General Carrying. A series of questions were put to the General Manager regarding the employment status of the injured truck driver and the control and management of his day-to-day work activities. The General Manager identified that General Carrying controlled every aspect of the truck driver's day-to-day work, from administering his annual leave, sick leave and long service leave through to supplying his company clothing. Smeaton Grange Investments paid the truck driver's workers compensation premiums and his weekly pay however the pays were administered by General Carrying staff.

Australian Steel and Wire Pty Ltd

The examination of the role of ASW determined that the supply and delivery of the mesh bundles was carried out in accordance with instructions given by Tasman mine. These instructions included the manner in which the mesh bundles were to be packaged and secured.[5]

ASW engaged General Carrying as the carrier for their mesh. General Carrying supplied the trailers for the loads of mesh, which were shipped to WA by rail. ASW loaded the mesh onto the trailers while they were still on the train and shipped the mesh back to NSW.

The manner of loading was dictated by General Carrying and the design of their trailers.[6]

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[5] Emails ASW to Tasman mine, 10 August 2010, 1 July 2010; General Carrying response to s151 notice *Work Health and Safety Act 2011*,6 June 2012 q51.

[6] General Carrying response to s155 notice *Work Health and Safety Act 2011*, 6 June 2012, q 51.

Having regard to these factors, the investigation did not focus on the operation of this company.

The incident

The man who operated the telehandler on the day of the incident was not the normal operator. The regular operator/yard person was absent for the day. The telehandler operator on the day of the incident was a mine deputy who, after injuring his ankle underground, was on alternate duties working on the surface.

The deputy was carrying out the duties of the 'competent person' on the day of the incident. The 'competent person' at the mine is required to look after the first aid requirements on the surface and be the contact person on the surface for all the people working underground. The competent person is required to carry a mobile phone at all times, which is connected to the mine's communication system.

The deputy had not been involved in the competent person role before.

Typically when the regular operator of the telehandler was not at work, the boilermaker on the mine surface would perform the role of the competent person and yard person. For reasons that are not clear it was decided that the deputy would perform the competent person role on the day of the incident.

The deputy had not unloaded roof mesh before and was not authorised by the mine to drive the telehandler machine. According to the deputy, he had operated forklifts before and had previously been issued a WorkCover certificate for that purpose.

When the truck driver arrived at the mine there was no process in place for dealing with the delivery. The investigation determined that a water cart driver had informed the mine's mechanical engineer that the truck had arrived on site.

The mechanical engineer then ascertained from the boilermaker that the deputy was the acting competent person and he proceeded to find the deputy and tell him that the truck was waiting to be unloaded.

The mechanical engineer made no further inquiries as to the correctness of this assertion by the boilermaker nor did he attempt to find out what duties the deputy was able to undertake. It is clear from the interviews that the mechanical engineer was in a hurry to get away from the mine for a meeting.

When the mechanical engineer found the deputy in an office, he was on the phone. Consequently the mechanical engineer was unable to communicate clearly with the deputy with respect to the task of unloading the truck. The mechanical engineer left and was intending to speak further with the deputy but when he returned to the office the deputy was already making his way up to unload the truck. At this point, the mechanical engineer assumed the task was in hand and left to prepare for his meeting.

The deputy drove the telehandler away from the stores/office area to an unloading pad near the entrance of the mine. The site was not directly visible from the store/office area where senior mine management were located.

The deputy and the truck driver discussed how to unload the mesh as neither had undertaken the task before. The truck driver phoned a person at General Carrying asking advice on how to unload the mesh. The truck driver told investigators that he was advised that sometimes they took four packs of mesh off at a time and sometimes two.

The deputy began unloading the bundles of mesh with the telehandler. The deputy first attempted to lift a stack of four bundles in one load. This resulted in an overload alarm on the telehandler sounding. The deputy realised the telehandler was overloaded, stopped the lift, and then continued to unload two bundles at a time. Each bundle of mesh weighed 1.3 tonne

and the telehandler was rated to 4.0 tonne (further discussion of the technical capacity of the telehandler is to be found under the section titled The Genie Telehandler).

The orientation of the truck on the unloading pad meant that it was very difficult to separate the individual bundles of mesh in the stack. The truck was usually unloaded facing the opposite direction so that it placed the timber 'gluts' that separated the bundles on the same side as the machine that was unloading it. The men devised an ad-hoc procedure using steel reo-bars found in the area to prise open the bundles to allow the fork tines to slide under the mesh. If the truck had been turned around the gap between the mesh bundles would have made the unloading task much easier. It was possible to unload the truck from the other side but neither of the men were aware of this.

The remaining mesh bundles were unloaded two bundles at a time, leaving the remaining stack of three bundles at the front section of the trailer. The deputy then lifted the remaining three bundles in one load.

The deputy said he had difficulty with the load suspended above the truck tray as the truck side gate arrangements required him to slew the load to get it out from the truck tray. The deputy had the load suspended and although the amber load alarm light was indicating to warn of overload, he continued to lift the load and reversed the telehandler so the load was about 1 m clear of the side of the truck.

The truck driver, who was positioned to the left of the telehandler then walked between the suspended mesh and the truck trailer to collect the tie down straps and close the side gates on the truck as the telehandler reversed. At this time the deputy did not know where the truck driver was located.

As the deputy lowered the mesh to the ground, he told investigators that the load shifted on the steel tines and the top two bundles slid forward towards the truck. The movement of the top two bundles of mesh crushed the truck driver against the tyre and trailer of the truck. The deputy heard the truck driver's shouts and stopped the telehandler. The deputy got out of the telehandler cabin and looked for the truck driver. The deputy told investigators the bottom load was about 600 mm off the ground at this time.

As the truck driver was not apparently visible to the deputy at this time, the deputy returned to the telehandler cabin, and lowered the mesh for a second time down to the ground, in order to relieve the weight of the other two mesh bundles against the truck.

It is not known if the second movement of the load caused further injury to the truck driver. However, as a result it would appear the truck driver was then able to extricate himself from the crush of the mesh and he crawled towards the cabin of the truck.

At this time the deputy called the main office and raised the alarm. First aid was administered to the truck driver before the ambulance arrived and he was transported to John Hunter Hospital in Newcastle, NSW.

Background

Every morning at the Tasman mine there is a meeting. The meeting is run to an agenda and minutes of major decisions or required actions are recorded. The attendees at that meeting on the day of the incident were the Manager Mining Engineering, the safety officer, the Production Manager, the Manager Electrical Engineering and the Undermanager.

The absent worker was discussed but no firm decision was taken as to who would replace him, the Manager of Mining Engineering told investigators. It appears from the interviews that the decision as to who would replace him fell to the Production Manager who decided after discussion with the Manager of Electrical Engineering, to ask the deputy to look after the competent person role for that day.

The production manager knew that the deputy was not trained in the competent person role but decided because of his supervisory role underground and general experience to place him in that role. The Production Manager did not think about the issue of the operation of the forklift and assumed that the boilermaker would undertake that role as he believed the two roles were separate.

The deputy later said he mistakenly assumed that he ought to attempt to unload the mesh.

Systems of Work

Tasman mine

Tasman mine has an extensive documented mine safety management system as required by the CMHSA.

The safety of surface transport operations at the mine is governed by the Tasman Mines Surface Transport Management Plan. The following requirements from that plan apply to the process of unloading the mesh:

'(i) Loading and unloading

The loading and unloading of vehicles will be in accordance with the following:

- Machine or vehicle lifting capacities are to be strictly adhered to for any loading and unloading operation at Tasman
- Vehicles will only be loaded with materials that they were designed to carry
- Vehicles will not be loaded in excess of their rated capacity
- Loads will be evenly distributed on vehicles to maximise the vehicle stability
- Safe clearance distances will be maintained between all vehicles and any vehicles involved in a loading or unloading operation
- The operation of vehicles in and around the coal stockpile at Tasman with be specifically controlled by and in accordance with the Tasman Stockpile Management Plan

(k) Safety of others

- Pedestrians should maintain visual contact with the operator of a vehicle when passing in close proximity to the vehicle
- All persons should wear high visibility clothing complying with AS 4602; "High Visibility Safety Garments"
- All vehicles are to be fitted with operational headlights capable of illuminating the road

Where work is to be carried out on roads:

- Work areas shall be designated by the use of warning devices such as lights, signs, reflective streamers, or similar
- No vehicle shall pass a warning device unless under instruction of the person who placed it there, or the area has been examined by the driver who has found it safe to pass'.[7]

[7] Tasman Surface Transport Management Plan p9.

The investigation confirmed that several of the above requirements involving the load carrying capacity of the telehandler, the maintenance of safe clearance distances and maintenance of visual contact were not complied with when unloading the mesh at the time of the incident.

Further, the requirement when working on roads to designate the area where the work is to take place was not complied with at the time of the incident. The investigation also revealed that this procedure was not complied with at any other time when mesh was being unloaded. The following response by the Manager of Mining Engineering, concedes that the loading area is on the main road into the mine, but he contends that the rules applying to roads did not apply in this instance. The arguments advanced by the Mine Manager are not convincing as the unloading area is positioned on the main access road into the underground working of the mine.

Two further points are worth noting from the surface transport management plan with respect to unloading:

- Vehicles will not be loaded in excess of their rated capacity
- Loads will be evenly distributed on vehicles to maximise the vehicle stability[8]

As the weight of the bundles of mesh were unknown, the only way for the operator to comply with the first point above was to lift the load with the telehandler to determine if the overload capacity indicator on the telehandler activated. The above action would appear to defeat the purpose of this provision within the surface transport plan.

Had the weight of each bundle of mesh been clearly marked on the bundles or otherwise effectively communicated, the task could have been safely planned and executed.

As to the second point it is evident that the Tasman Mine had not, on this occasion or at any time, considered the stability of the bundles of mesh when lifted by the telehandler. The issue of the stability of the load is examined further in the section dealing with functionality of the telehandler.

Risk assessment

The Tasman Mine Safety Management System Overview states that the mine is committed to establishing and maintaining health and safety management systems based on Australian Standard 4801:2001, Australian Standard 4360.2004 plus the relevant legislation, guides and codes of practice, all of which are predicated on identifying and managing risks.[9]

The investigation found that the mine failed to conduct a formal or informal risk assessment in regard to the work process of unloading the mesh.

Tasman mine had not created a safe work method statement for the task of unloading the mesh. The Manager of Mining Engineering told investigators he had made observations of the task and deemed that it did not require documenting as it was of a routine nature when done by a competent person.

Notwithstanding the above, information obtained from the regular yardman identifies that he had experienced difficulty unloading the first load of mesh received from ASW. Further, he told investigators he was unaware of the actual weights that he was lifting.

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[8] Tasman Surface Transport Management Plan p9.

[9] Donaldson Coal Pty Ltd, Tasman Mine , *Health and Safety Management System Overview*, 30 October 2010, p 4.

After the incident, Tasman mine sent a request to ASW seeking that bundles of mesh be loaded so that drivers were not required to climb on the load to remove chains and that the mesh be packed squarely so that it may be removed by a forklift.

Given that the surface transport management system is mandated as a defined high risk activity under clause 30 of the Coal Mine Health and Safety Regulation 2006 (CMHSR) the above actions appear to fall well short of a detailed analysis of the entire process of unloading the mesh. The system in the end relied solely on the skill and competence of the operator as the only effective barrier to harm from the process. Once that operator was absent from work the system failed.

Training

Tasman mine conducts extensive training for its employees. This training is recorded for each person that works at the mine. People working at the mine cannot operate machinery unless they are trained and appointed to that particular machine according to the mine's safety management plan. Records are kept of this training.

The training and appointment records for the mine identify that the deputy was not trained or appointed to operate the telehandler. The deputy was trained extensively on other underground machinery and had experience operating forklift and telehandler machines previously at other places he had worked. The deputy also held a WorkCover forklift licence. The deputy told investigators that he had not operated a forklift since 2005 and he had not driven the Genie model of telehandler.

The records of appointment and skills of each person working at the mine are kept in an electronic data base at the mine and are available to management and supervisors at any time to check whether a person is permitted to undertake a given task or operate a certain machine.

Tasman mine had a general induction process that applied to people who were attending the mine but it did not apply to those delivering goods to the mine. As a consequence, the truck driver received no instructions from the mine about safe work practices required.

General Carrying

General Carrying has a safety management system at its Smeaton Grange site at Camden. For off site deliveries General Carrying relied on the safety systems of the receiving company.[10]

The General Carrying facilities at Smeaton Grange are substantial and purpose built. The loading areas are clearly defined as are the pedestrian walkways. Figures 4 and 5 depict the General Carrying facility.

[10] General Carrying response to s155 notice, *Work Health and Safety Act 2011*, 6 June 2012, q 18.

Figure 4: General Carrying's warehouse at Smeaton Grange on 14 December 2011.

Figure 5: Inside General Carrying's warehouse at Smeaton Grange on 14 December 2011.

There was a lack of written material kept at General Carrying. General Carrying did not as a rule contact the place where goods were to be delivered to satisfy itself that the working conditions that their drivers would encounter were of a standard that they would accept. The General Manager views the activities of the company as something similar to a postal

service and that many items that they deliver are small and only require the driver to pull up at a store office and drop off a parcel and that it would not be practical to examine all of the workplace safety systems of the places they deliver to.

“We go to lots of sites, hundreds of sites. We're a bit like a postman, I guess, in some aspects,” the General Manager told investigators.

“We're delivering, if there's a special requirement for a site then we'll contact the site, but we're generally notified by the customer. Where we're delivering to is not necessarily our customer and we may not know where we're delivering to until we've actually received the goods to deliver.”

The telehandler

Figure 6: The telehandler that was being used to unload the mesh when the truck driver was injured.

Tasman mine purchased the Genie GTH-4013AU telehandler in August 2008. Based on the available records, the machine has been regularly serviced by mine staff and Terex Genie the original equipment manufacturer (OEM). The telehandler was serviced by the OEM one month before the incident on 9 November 2011.

The telehandler was tested after the incident for faults by the OEM. Some minor defects were found unrelated to the machine’s lifting capacity. It is unclear if the defects were evident in the machine at the time of the incident.

Nevertheless, it would appear that the telehandler was working close to or at design specifications at the time of the incident and there is no evidence to suggest that there were any significant faults with the operation of the telehandler.

However, there are aspects of the operation of the telehandler that are critical to this incident. The telehandler has a number of lights that indicate whether the load being lifted is within the safe operating limits of the machine. Figure 7 shows these lights on the left hand side of the panel along with a digital display unit inside the telehandler.

Figure 7: Operating panel inside the telehandler showing the three indicator lights that operate when the machine is lifting a load.

The green light on the left at the bottom indicates that the lifted load does not exceed 90% of the maximum allowable load at the given boom position.

The amber light indicates that the lifted load exceeds 90% of the maximum allowable load but is still less than 100%. An audible beeper emits an intermittent sound when this condition is reached.

When the lifted load exceeds the maximum allowable load the red light illuminates, the audible beeper emits a continuous sound and the operation of the boom is disabled.[11]

The lifting capacity of the telehandler diminishes as the boom is extended.[12] This change in capacity is calculated by the machine as the boom is extended and is subsequently reflected in the alarm system.

The importance of the above information needs to be understood in terms of the weight of each mesh bundle and the information given by the deputy, the boilermaker and the yardman.

Each mesh bundle weighed about 1.3 tonnes.[13] According to the deputy, when he first began unloading he attempted to lift four bundles of mesh calculated to be an approximate weight of 5.2 tonnes. The red light and audible alarm activated and the telehandler could not lift the mesh and the boom was automatically disabled. He then decided to remove two bundles of mesh at a time, which at 2.6 tonnes was well within the lifting capacity of the telehandler.

When the deputy attempted to lift the last three bundles of mesh he was uncertain whether he should continue to take two bundles or take the last three bundles.

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[11] Operators Manual Genie GTH-4013 AU, TEREXLIFT Technical Literature Dept. - Studio VEGA – Forli,
2006 p C-38.

[12] Load charts for telehandler are to be found 10-002 Operators Manual Genie GTH-4013 AU, TEREXLIFT
Technical Literature Dept. - Studio VEGA – Forli, 2006 p G-3 and G-4.

[13] Load dockets showing weight of two bundles of mesh involved in the incident. 8-001 s62 notice collecting these dockets.

The three bundles of mesh would have weighed about 3.9 tonne and consequently been within the 90 – 100% weight range that triggered the orange alarm and intermittent audible beeper on the telehandler. This is consistent with the view that the telehandler was operating in accordance with its specifications and nearing its maximum lifting capacity.

The information given by the yardman and the boilermaker identifies that when lifting only two bundles of mesh at a time the telehandler was working well within its capacity. Both men say they had never tried to lift more than two bundles of mesh at a time.

Another aspect of the operation of the telehandler is the setting of the width of the tines. Depending on the type of load to be lifted the two steel tines of the telehandler can be moved. This is achieved manually with the operator alighting from the telehandler and sliding the tines into position. According to the yardman, whenever he was loading the mesh he had the tines at their widest setting. According to the deputy he adjusted the forks to their widest setting immediately before he started unloading the truck. Figure 8 shows the fork attachments for the telehandler.

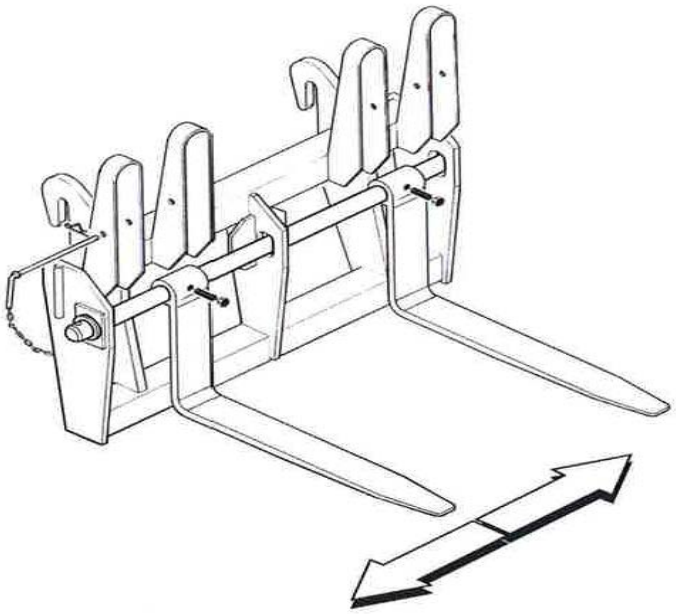

Figure 8: Diagram of fork attachments for the telehandler.[14]

The following warning accompanies the instruction on how to adjust the forks:

> **DANGER**
>
> • The centre of gravity of the load must always be halfway between the forks
>
> • Ensure you know the weight of the load before handling it
>
> • When extending the boom, do not exceed the payload limit
>
> • Refer to the payload limits given in the load chart applied on the cab windscreen or in the quick user's guide
>
> • Space the forks as wide as possible to suit the load being handled.

[14] 10-002 Operators Manual Genie GTH-4013 AU, TEREXLIFT Technical Literature Dept. - Studio VEGA – Forli, 2006 p C-40.

Another important observation should be noted about the lifting capacity of the telehandler. The graphs supplied in the telehandler manual demonstrate it is critical to understand where the centre of the load is as this will influence the geometry that determines the maximum lifting capacity of the telehandler.[15] The load charts show the maximum lifting capacity at the centre of the tines. If the centre of the load exists at a point further away from the telehandler than this then the lifting capacity will be diminished.

The mesh sheets were 4.8 m x 1.45 m[16], therefore the centre of the load was at 0.725 m from the edge of the mesh and 2.4 m from the end of the mesh. The length of the tines on the telehandler was 1.2 m and therefore the centre point was at 0.6m. Consequently the centre point of the bundle of mesh was 0.125 m from the centre of the tines.

Figure 9 is the load chart for the telehandler that shows any extension of the load centre will dramatically reduce the maximum lifting capacity of the telehandler. Less than half a metre extension of the centre of the load will reduce the maximum capacity of the telehandler by one tonne.

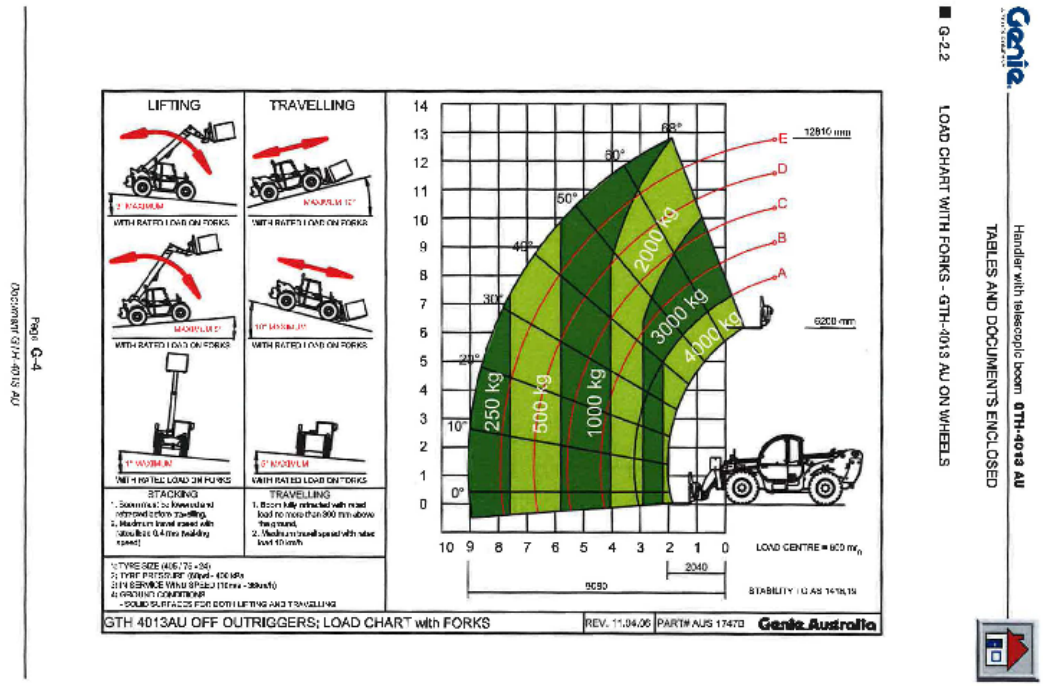

Figure 9: Load chart with forks- GTH- 4013 on wheels.

When the deputy attempted to lift the three mesh bundles the telehandler would have exceeded or have been very close to exceeding the maximum lifting capacity of the telehandler.

The designated unloading area

The point where the truck driver was injured was the designated unloading area. According to the regular yardman this was the usual area where mesh was unloaded.

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[15] Load charts for telehandler are to be found 10-002 Operators Manual Genie GTH-4013 AU, TEREXLIFT
Technical Literature Dept. - Studio VEGA – Forli, 2006 p G-3 and G-4.

[16] ASW delivery instructions and note.

The designated unloading area is in the middle of the main access road into the mine's underground workings. This location is not level nor is it sealed or concreted but is constructed of a compacted material. The site is not clearly marked as the unloading bay nor is it signposted with any instructions for those charged with the responsibility of unloading the mine's supplies. The yardman considered the site as the best location available to unload. The surface part of the Tasman mine is confined by a number of arbitrary boundaries and there is not a great deal of room on the surface of the mine for infrastructure.

Accordingly the location of the unloading bay for larger trucks and loads at the mine has been included as part of the mine's roadway and surface transport system.

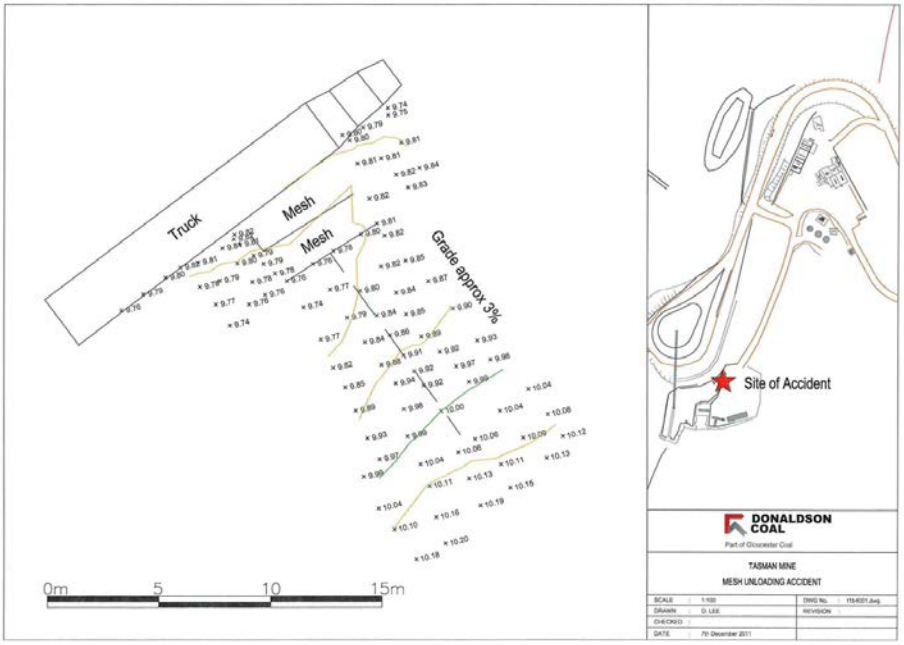

Figure 10: Survey plan of the incident scene and Tasman mine surface installations**.**

Industry standards

Section 36 of the CMHSA requires as a minimum that all coal mines must establish a major hazard management plan for identified major hazards.

Clause 30 of the CMHSR details the requirement that must be contained in a surface transport management plan:

> 30 Contents of major hazard management plan: surface transport management plan
>
> (1) For the purposes of section 36 of the Act, a major hazard management plan in relation to hazards arising from the use and operating environment of plant used for the transport of people or materials on the surface part of the operation (transport) must make provision for the following matters:
>
> (a) the conditions under which the transport may be used,
>
> (b) transport being used only within its design parameters,
>
> (c) the design (including appropriate signage and provision of adequate windrows) of roadways on which the transport may operate,
>
> (d) the maximum loads that may be carried or towed by the transport, whether by reference to weight, dimensions or other criteria,

(e) the maximum speeds at which the transport may operate,

(f) the steps to be taken by the operators of the transport to ensure that the transport is safe for use,

(g) the measures to be taken when people are conveyed on the transport, including the segregation of people from loads, the provision of seating and the wearing of seat belts or the use of other operator restraint devices,

(h) the operation of the transport on roadways where the condition of the roadways may adversely affect safety,

(i) the loading and unloading of the transport,

(j) the interaction of heavy and light transport,

(k) the separation of people who are not being transported from moving transport,

(l) the precautions to be taken in the tipping of coal or stone,

(m) any other matters identified in the operator's regular re-assessment of risks.

(2) In this clause:

windrow means a ridge of material formed on the outer edge of a roadway to indicate the position of the edge and to provide a physical barrier to prevent vehicles from going over the edge.

The above provisions are extensive but are considered the minimum requirements that must be given consideration when developing a surface transport management plan.

Clause 31(1) (i) requires that 'the loading and unloading of the transport' is a matter that the transport management plan ought to address.

There is a large amount of guidance material available setting out best practice in this area.

The following is a list of guidance documentation available on the department's website, the WorkCover website and through Australian Standards:

Forklift Safety Reducing the risks, WorkCover, 2011

Frontend Loaders and their attachments on Tractors, NSW WorkCover, February 2011

Fork Lift Truck Drivers Guide, NSW WorkCover October 1998

Australian Standard Cranes Hoists and Winches, Part 19:Telescopic Handlers, AS 1418.192007

Australian Standard Cranes Hoists and Winches Safe use, Part 19:Telescopic Handlers, AS 2550.192007

MDG 1010 *Guidelines for minerals industry safety and health risk management*, NSW Trade & Investment January 2011

MDG 1014 *Guide to reviewing risk assessment of mine equipment and operations* NSW Trade & Investment, July 1997

The above list is not exhaustive and there is an extensive range of literature available on the subject of risk management and the use of mobile plant, all of which is readily available through the internet, university libraries etc.

Analysis

Tasman mine

The mine has an extensive documented work health and safety system. That system sets out a number of processes that should be undertaken when a person arrives at the mine site, when materials are to be unloaded, when people are to operate machinery, when there is a change in any process or task and when people are to undertake certain roles at the mine.

These processes were not adhered to in the lead up to the injuries sustained by the truck driver.

Induction and control of people entering the Tasman mine

The truck driver did not receive any induction when he arrived at the mine. The Tasman mine site induction document sets out that:

'the purpose of the induction is to provide essential information to each person that is to perform work activities on the surface and underground at the Tasman Mine in a safe manner'.[17]

On the day of the incident, the truck driver reports that he did not receive any form of induction, guidance or instruction from the mine.

Risk assessments

No risk assessment was conducted by the mine regarding the process of unloading the mesh, nor was any risk assessment conducted when the mesh supplier changed as required by the Tasman Mine, Mine Safety Management Plan.

The Surface Transport Management Plan does not explicitly mandate that a documented risk assessment be created for each risk identified, it does however, mandate that a risk assessment be conducted. The Surface Transport Management Plan has been developed to address specific elements of the legislative requirements, which include hazard identification, risk assessment and risk management as outlined in Chapter 2 (Places of work risk management and other matters) of the (then current) *Occupational Health and Safety Regulation 2001.* Further, the Health and Safety Management System Overview does mandate that Tasman mine is committed to establishing and maintaining health and safety management systems based on; AS4801:2001, AS4360.2004 plus the relevant legislation, guides and codes of practice, all of which are predicated on identifying and managing risks through formal risk assessment process, which are documented.

The unloading of the mesh was a routine task conducted every few weeks as the mine's workings advanced and further roof support was required. The ubiquitous nature of the task appears to have led to complacency in applying appropriate risk management practices to the process.

Control and supervision

It was possible for anyone to check if the deputy held the appropriate appointments and training to unload the mesh.

Somewhere between the staff meeting in the morning and the time when the deputy proceeded to operate the telehandler on the day of the incident, a number of decisions were taken without fully researching the information that was available.

Whether the mechanical engineer believed that he had given the instruction to the deputy to perform the task is immaterial because it was incumbent on the mechanical engineer to

[17] Tasman Coal Mine, Site Specific Induction, PPT 1.4.005 V11 – 21/09/2011.

ensure that communication was clear. Further, he was under a duty to satisfy himself that the task was to be performed by the appropriate trained and appointed person.

That the mechanical engineer was busy and had a meeting to attend should give pause for reflection for all staff charged with these responsibilities. The short time it would have taken to sort out who was the appropriate person to unload the mesh may have saved the truck driver from serious injury.

The same point must be made with respect to the other staff involved in the replacement of the regular yardman that day.

General Carrying

The factors that led to the truck driver's injuries were not assisted by the fact that General Carrying did not supply the truck driver with any information with respect to the delivery of the mesh to the Tasman mine. Further, General Carrying did not satisfy itself that Tasman mine had any safe systems of work that would apply to the truck driver when he arrived at the mine.

Had this basic research been conducted by General Carrying, the truck driver would have been far better prepared when he arrived at Tasman mine to comply with the requirements of Tasman mine's safety system. Further, if General Carrying had made inquiries of the mine it could have satisfied itself whether appropriate safety standards were in place.

Actions taken after the incident

Tasman mine

The Tasman mine conducted an investigation into the incident. A risk assessment on the unloading procedure for the mesh was conducted and as a result a new safe work procedure identifying no standing zones and setting out the appropriate work methods was produced.[18]

The mine conducted a number of toolbox talks with employees, contractors and staff to remind every person that no one may operate equipment unless they were appropriately trained and appointed.

The signs at the entry to the mine were upgraded to give better direction to people coming on site. Procedures for people coming on site were changed so that all people arriving at the mine were to report to the store, which is manned 24 hours a day, where they are given basic safety instructions about the mine. The induction and safety requirements were sent out to all their suppliers.

The mine reviewed the use of the telehandler with independent engineers to identify if it was fit for purpose.

General Carrying

General Carrying carried out an investigation of the incident. This was limited though by their inability to attend the Tasman mine to observe the scene and speak to witnesses. General Carrying has instigated further training of staff and regular toolbox talks with employees.

The department

Department inspectors attended the accident scene on the day of the accident. The department issued notices to the mine to secure the scene, test the telehandler and review the safe work procedures for the telehandler and unloading process. The mine has responded to each of these notices.

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[18] Tasman Mine, Site Safety Awareness Loading/Unloading Plan, 2 April 2012.

The Mine Safety Investigation Unit took carriage of the investigation on 8 December 2011. Detailed scene investigation was conducted including testing of the telehandler, document collection and interviews.

The Investigation Unit published an information release in this matter on 15 May 2013. IIR 13-04 Serious injury at Tasman mine

Conclusions

As with many serious accidents the injuries received by the truck driver were the culmination of a series of events where a significant number of actions that should have been taken to protect the wellbeing of the truck driver were not taken.

This series of events began well before the truck driver ever arrived at the Tasman mine.

General Carrying had not at any time before the incident examined the processes of the places and businesses to which they delivered goods.

This had not been an issue in the past, but this does not mean that their delivery drivers had not been exposed to significant risks previously. This oversight was justified by them on the basis of practicality, given the large number of places to which they delivered goods.

However, there is a significant difference between dropping off a small package at an office and unloading a bundle of mesh. Unloading the mesh involves large machinery, suspending loads, low visibility and other inherent risks. Therefore it was reasonably practicable to identify that proper safety systems were in place at destinations where drivers had to deliver and help unload deliveries such as mesh.

Tasman mine has an extensive documented mine safety management system and that documented system is available to the entire workforce. Unfortunately, the staff and management at Tasman mine did not access that information or follow the processes that had been set out for them. As with General Carrying, the seeds of this incident were sown long before the incident took place. For Tasman mine it was in August of 2008 when the mine purchased the telehandler and started using it to unload mesh. The process was not properly analysed at that time and no safe work procedure was developed for what was to become a routine task.

The lack of a safe work procedure was then compounded by the fact that management on the day of the incident did not resolve the issue of who would replace the yardman when he was absent on the day of the incident. Further, no one at the mine accessed the information that was available to ensure that an appropriately trained and appointed person was identified to undertake the task of unloading the mesh.

Finally, on the day that the telehandler had been unloading mesh at the Tasman mine, the mine had not followed its own surface transport safety management plan.

The above factors set in place a scenario where the deputy and the truck driver were under pressure to get a job done that they did not understand and that they were not trained to do.

This was the final factor that led to this incident, both men under pressure ‘to get the job done’ (real or imagined) performed actions that their experience and judgement may have under different circumstances prevented them from doing.

Similar incidents at other coal operations

There have been nine incidents involving forklifts since August 2008 that were the subject of enforcement actions at other coal mines in NSW.

Bibliography

Articles, books, reports

Forklift Safety Reducing the risks, WorkCover, 2011

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Legislation

Occupational Health and Safety Act 2000

Occupational Health and Safety Regulation 2001

Coal Mine Health and Safety Act 2002

Coal Mine Health and Safety Regulation 2006

Work Health and Safety Act 2011