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Integration of work-related fleet safety within a Workplace Health and Safety Management System: A case study approach

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Abstract

This paper reports the findings of a research project initiated to assess work-related fleet safety issues in a state government organisation. In particular, special attention is given to identifying fleet safety factors for integration into a wider Workplace Health and Safety Management System (WHSMS). This exploratory case study was carried out across five regional areas, within the state of Queensland, and involved two major components: i) field based interviews; and ii) an analysis of organisational fleet safety operational procedures. Face-to-face interviews (n=146) were conducted with a wide range of staff, using a semi-structured questionnaire. The analysis of fleet safety procedures focussed on work-related vehicle incident reporting, identification of hazard and risk exposures, effectiveness of training and induction programs, and analysis of current safety management systems including policy and procedures. Results of the study found that fleet safety within the organisation was not considered a priority and as a result, the full extent of organisational crashes and vehicle-related injuries was relatively unknown by senior management. In addition, this study identified a number of operational and procedural deficiencies in relation to fleet safety. This paper will further outline the major findings of the study and propose recommendations directed at improving fleet safety within organisations as well as integration of fleet safety within a WHSMS.

INTRODUCTION

There is a growing awareness in Australia and many other countries of the need to devote more attention to the issue of fleet and work related road safety. This is in part due to the growing body of evidence confirming the overall impact that fleet related safety issues have on business effectiveness and road safety (Downs et al, 1999; Haworth et al, 2000). In addition, over recent years, many jurisdictions have moved to clarify a vehicle used for the purpose of work as a "workplace" under WHS legislation (Hoskins, 2003). Therefore, organisations are required to include work-related driving within their organisational WHS regulation compliance. Fleet and work related motor vehicle incidents represent a substantial emotional and financial cost to the community. In Australia, road crashes are the most common cause of work-related fatalities, injuries and absence from work (Haworth et al., 2000), with the average time lost being greater than any other workplace claim (Stewart-Bogle, 1999; WA, 2003). It has been estimated that the total cost of work related road incidents in Australia is in the vicinity of \$1.5 billion (Wheatley, 1997) and the average total insurance cost of a fleet incident to organisations and society is approximately \$28 000 (Davey & Banks, 2005). Estimates of the true cost for work related crashes suggest that hidden costs may be somewhere between 8-36 times vehicle repair/replacement costs (Murray et al, 2002). These hidden costs include items such as, workers compensation, medical costs associated with injury to staff, injury rehabilitation, injury to third party, third party property loss, loss of productivity due to days off work, loss of position and staff backfill costs as a

result of absence from work, legal costs associated with workers compensation and third party claims, increased risk, insurance premiums and potential loss of customers.

A high proportion of work-related deaths and injuries as well as road trauma arise from work-related crashes. Work-related traffic injuries are about twice as likely to result in death or permanent disability than other workplace accidents (Wheatley, 1997) and account for up to 23% of work related fatalities in Australia and 13% of the national road toll (Murray et al, 2002). A further 26% of fatalities result from crashes which occur while commuting to and from work. This means that 49% of all work-related fatalities occur as a result of on-road crashes when commuting is taken into account (National Occupational Health and Safety Commission, 1998). Therefore, there is an obvious and growing need for industry, government and the community to allocate resources to address the problem of work-related road crashes.

How an organisation performs, or is required to perform, its operations may influence work-related driver safety. Previous research has confirmed the influence of a number of organisational factors on employee safety, including high mileage travel (Collingwood, 1997; Griffith, 1997), time pressures (Downs et al., 1999) and in particular organisational culture (Haworth et al., 2000). Other influences may include poor maintenance procedures, poor selection of vehicles for the job, selection and recruitment of drivers and lack of road safety policies and procedures, etc. These factors may have a direct influence on the incidence of work-related road incident, for example, worn tyres that are overlooked due to a poor maintenance program may cause a crash. In addition, organisational factors may influence driver behaviour, for example, time pressure to complete jobs may influence the driver to speed which in turn may contribute to the incident. Furthermore, research conducted by Murray et al. (2002) suggests that a number of organisations believe that safety, including work-related driver safety, is not considered an operational priority and that senior managers are often unaware of the problem and make safety a low priority behind 'getting the job done'.

Workplace Health and Safety Management Systems

The available evidence suggests that the effectiveness of Workplace Health and Safety Management Systems (WHSMS) is highly dependent on how they are implemented. These systems are designed to be a linchpin in the existing systems of improving Workplace Health and Safety (WHS). In addition, a more systematic and integrated management of Workplace Health and Safety (WHS) is to make the regulation, advice, and local co-operation work more effectively and efficiently to improve the work environment (Gallagher, 1997). WHSMS therefore touches most of the major issues in the organisation and regulation of WHS.

The success of a Workplace Health and Safety Management System depends on commitment from all levels and functions within an organisation, especially from senior management (AS/NZS 4801:2001). An effective Occupational Health and Safety Management System should contain the following requirements/levels:

- Occupational Health and Safety Policy
- Planning;
- Implementation;
- Measurement and Evaluation; and
- Management Review (Bottomley, 1999).

The completion and formal adoption of a policy is the foundation and should be integrated into the existing safety system by modifying and augmenting existing policies, procedures, people and performance issues to incorporate occupational road/vehicle-related risk (RoSPA, 2003). Assessment of the risk focuses on classifying the various driving tasks within the organisation, looking at risk factors associated with journeys, vehicles and drivers to ascertain whether existing safety measures are adequate or whether more needs to be done, enabling problems to be prioritised for attention. Having identified and prioritised the risk

factors, a list of objective action plans can be developed to reduce risk at its source, addressing factors such as: vehicle selection and maintenance issues, work travel procedures, and driver selection and competence, etc.

Monitoring and measuring performance brings together the various pieces of data to compare and contrast pre and post intervention performance (Gallagher, 1997; RoSPA, 2003). The essence is to assess how performance compares with previous periods, and against previously set targets. This information management phase provides measures to enable managers to manage more proactive interventions and to consider a range of supporting options to optimise effectiveness. Relevant data should be collected using methods which include proactive monitoring (sampling journey type, length and time; checking licences; driver assessment and training records; and vehicle checklists) and reactive monitoring (incident reports and incident investigation reports). Having assessed the system's effectiveness and made any revisions to procedures, it is vital to review the process, including performance indicators to assess progress towards targets (RoSPA, 2003). Management can prepare performance reports to spread good practice and recommend practical variations leading to continuous improvement in the culture, policies, practices and performance of the organisation.

Major incidents can frequently be traced to failures in safety management systems (Hopkins, 2002). Even when enormous effort has gone into refining these systems, it seems they remain fallible. It is largely for this reason that the concept of safety culture is now receiving widespread attention. This is not to say that systems are irrelevant, but rather that they will function better in organisations that have developed a culture of safety.

As organisational problems and deficiencies are major stumbling blocks for a successful WHSMS, the organisational development needed to overcome these obstacles will be given special attention within this paper, specifically in relation to work-related driving safety. This paper documents the research process underpinning a practical 6 month project which was designed to ascertain both current practices and future system requirements for the integration of fleet-related issues into the larger WHSMS. In particular, the paper will examine current systems and staff perceptions in relation to fleet safety and identify fleet safety issues directed at improving fleet safety within the organisation as well as integration of fleet safety within a WHSMS.

METHOD

A case study methodology was adopted for the project, to facilitate an indepth examination of the operation of WHSMS in the government setting. The organisation examined was a Queensland Government owned corporation overseen by the Department of Natural Resources and Mines. The research focussed on the effectiveness of current systems including in-depth work-related vehicle incident reporting and analysis, identification of hazard and risk exposures, effectiveness of training and induction programs, and the operation of current safety management systems including policy and procedures.

The case study was carried out within the organisation across five regional areas within the state of Queensland, and involved 146 participants ranging from field staff to management. The study sample was taken from a total organisational population of 532 staff (representing a participation rate of 27%). However, the study sample represented 64% of operational field type staff ($n = 227$) where driving was a significant part of their work-related duties. Employees not considered for this study consisted primarily of administration and engineering/design staff who performed little or no work-related driving. Interviews with participants were conducted on a face-to-face basis either individually or within small groups, using a semi-structured questionnaire that included open-ended questions. Some interviews were conducted by telephone due to the remoteness of the work location of some participants

(n = 12). Participants included 82% randomly selected from operational field staff and the remaining 18% included operational managers and supervisors. The names of the interviewees were not recorded, and the various organisational departments and regions where the interviews took place and the name of the organisation remain confidential.

To improve internal validity, triangulation was used to check the consistency of findings generated by the different data-collection methods and also data sources within the same method. Triangulation is the use of two or more methods of data collection that contribute to the verification and validation of qualitative analysis (Burns, 2000). In addition, during the conducting of interviews the interviewer completed written notes, which were later checked with participants as to correctness of quotes and interpretations made.

RESULTS

Current Systems Analysis

The following section overviews the findings of a comprehensive search of current and historical WHS and Human Resource documents, records, and data files. Particular attention is given to the work-related driving safety systems in place within the organisation.

Policy and Procedures – The review indicated that organisational work-related driving safety policy and procedures were inadequate. The documents lacked specific information regarding work-related driving safety and issues of accountability and responsibility including driver history and driver safety reference checks at time of initial employment. Rather, information within these documents only covered the steps to be completed in case of an incident/crash and general items of road safety, for example, wearing a seat belt, vehicle maintenance, etc. In addition, no details regarding work-related driving/travel were included in risk assessments.

General WH&S inductions had only been undertaken within the last twelve months, coinciding with the roll out of the organisation's Workplace Health and Safety System. Within the general induction program there was insufficient information regarding work-related driving/fleet issues. The general Employee Induction, located on the organisation's Intranet site, only referenced the procedure for incident reporting and how to book a pool vehicle. This suggests that fleet/vehicle safety was either not considered a priority or that management were not aware of the problem. In addition, no regional site rules (used for induction purposes) referred to fleet/vehicle safety.

Existing policies indicated that fitted and optional safety features on vehicles, including 4WD's were not considered prior to purchase. Rather, it appeared that vehicle purchasing was generally based on the lowest cost. Furthermore, there appeared to be no consultation with operational staff regarding the suitability of vehicle types and/or safety features. The organisation did not obtain advice regarding the purchase of vehicles from safety professionals nor operational staff regarding type of vehicle required for a particular task/job or available or optional safety features, etc.

The organisation did have procedures in place to deal with crash/incident reporting and these were documented in in-vehicle kits. However, during vehicle inspections it was observed that not all vehicles had these kits and some were incomplete.

Incident/Crash Records - Data contained in Table 1 was obtained by individually examining each WHS incident report form over an eleven month period (n = 142), which coincided with the initial roll out of the organisation's WHSMS.

No analysis of vehicle incident data was conducted by the organisation in order to identify the relevant factors contributing to incidents. In addition, only limited details specific to the incident/crash were provided on the form, while some details were incomplete. From analysis of Table 1 it was noted that over 40% (total Fleet incidents n = 57 divided by total WHS incidents n = 142) of all reported incidents were vehicle (fleet) related. In addition, in

two separate months fleet incidents equalled WHS incidents and on one occasion (October) exceeded WHS incidents. The relatively large number of vehicle (fleet) related incidents suggests that work-related driving within the organisation is an important safety issue.

Month	OPERATION CENTRE INCIDENTS															
	Brisbane		Mareeba		Ayr		Biloela		Bundaberg		Ipswich		Contract		Totals	
	Fleet	Other	Fleet	Other	Fleet	Other	Fleet	Other	Fleet	Other	Fleet	Other	Fleet	Other	Fleet	Other
Feb	0	0	0	1	2	1	1	0	1	2	0	0	0	0	4	4
Mar	0	0	0	2	0	3	2	1	0	1	1	1	0	0	3	8
Apr	0	0	1	1	5	3	0	0	0	0	0	3	0	0	6	7
May	0	0	0	0	0	3	1	0	0	0	0	1	0	0	1	4
June	0	0	0	0	1	4	2	1	2	2	0	1	0	0	5	8
July	0	0	0	0	2	1	1	3	0	0	1	0	0	1	4	5
Aug	1	2	1	3	3	5	0	3	2	3	1	0	0	0	8	16
Sept	0	1	0	1	2	6	1	0	3	1	0	0	0	1	6	10
Oct	0	0	1	0	2	2	5	3	4	5	0	0	0	0	12	10
Nov	1	1	1	0	2	3	0	1	1	2	2	0	0	0	7	7
Dec	0	1	0	0	0	2	1	1	0	1	0	1	0	0	1	6
Total	2	5	4	8	19	33	14	13	13	17	5	7	0	2	57	85

Table 1: Comparison of Organisation Reported Fleet and WHS Incidents

Note: Fleet = Fleet-related incidents and Other = other workplace incidents

Traffic violations/infringements were not recorded under the organisation's current reporting system. Therefore, the extent to which disobeying road rules (such as, speeding, running red lights, etc) may contribute to road crashes remains unknown. Similarly, the opportunity to identify potentially risky drivers and behaviours by monitoring infringement data was untapped. In addition, no periodic licence checks were performed to ascertain the current licence status of drivers. Licences were only checked at the time of initial employment.

Current Work-Related Driving Countermeasures - Current organisational work-related driving countermeasures were inadequate and reactive in nature. If an employee was involved in multiple vehicle crashes then he/she would be required to undertake a "Defensive Driving" training program. These programs were basically generalised "off-the-shelf" driver training programs and not targeted specifically to the requirements of the individual or the organisation. No training needs analysis was undertaken prior to these programs nor were any evaluations conducted regarding any safety improvement due to the training.

Employee Interview Analysis

The findings from the interviews are outlined below under four main areas: (1) factors impacting on ability to drive safely for work; (2) knowledge and/or training received in relation to work-related driving safety; (3) any factors contributing to driving incidents or near misses; and (4) potential countermeasures for the improvement of work-related driving safety.

1) Factors impacting on ability to drive safely for work

Responses to questions regarding factors that impact on driver ability to drive safely for work were comprehensive, with some common recurring issues emerging. The results are presented below according to four specific themes that emerged, as outlined in Table 2.

Within the *Organisational* theme interview participants perceived fatigue and work pressures as the two primary factors that impact on their ability to drive safely for work. For example, "we are regularly expected to drive to a job, could be anywhere, work all day then drive home....could mean a twelve hour day....we get paid overtime but after a while your stuffed" (reference to fatigue) (male driver).

The *Individual* theme indicated a diverse range of issues specifically relating to individual behaviour. Younger drivers, particularly apprentices, reported inexperience in relation to the use of 4WD's and larger vehicles and also pressures placed upon them by older drivers/tradesman to take risks while driving (see example in Table 2). The younger drivers

believed they had to comply with this pressure otherwise they would be victimised. Some drivers (n=6) reported personal problems, for example, relationships and marriage separation as factors impacting on their ability to drive safely. For example, *“I’ve been going through a bullshit divorce...have not slept much...I just can’t seem to concentrate at times”* (male driver). Interviews also revealed issues of sensation seeking among drivers, for example, as one driver stated *“I love to drive fast, I know it is illegal but I find myself falling asleep if I drive slow...I don’t think it’s a problem I haven’t had an accident in 15 years of driving”* (male driver).

Themes	Content	Examples of Participant Response
Organisational	Work pressure; time of day travel; length of work day (fatigue); distractions	<i>I feel pressured to get to call outs....like I should be there yesterday</i> (male driver)
Individual	Inexperience; personal problems; sensation seeking; peer pressure; fatigue	<i>All the time I’m told to run yellow lights or go quicker by tradies...but they won’t drive and take the risks</i> (young male apprentice)
Road Conditions	Adverse weather; dirt roads; environmental conditions; familiarity	<i>I didn’t see the roo, the sun was in my eyes</i> (male driver)
Vehicle	Visibility; suitability	<i>I drive a sedan on mainly dirt roads....some roads are shocking.... I need a 4WD but they won’t give me one</i> (male driver)

Table 2: Themes associated with factors impacting on ability to drive safely for work

The *Road Conditions* theme primarily related road and weather conditions that drivers believed impacted on their driving. However, it was noted that driving behaviours, for example, driving at incorrect speeds to suit road conditions were also prominent in the examples. Road familiarity was one factor that was raised by a number of participants. For example, some drivers reported being required to travel outside their own usual work areas due to workload and absentee issues. With reference to an incident where a driver was working outside his own familiar work area, he stated that *“it wasn’t my patch* (reference to individual work area), *wasn’t used to the road, went around the turn too fast and hit soft gravel... the bloody ute spun out”* (driving on dirt rural road) (male driver).

The *Vehicle* theme highlighted factors of poor rear visibility and suitability of some vehicles, for example, *“guys stack equipment in the centre of the tray between the storage cupboards which reduces rear visibility”* (male driver). Furthermore, a number of drivers (n=26) were dissatisfied with the vehicle they drove for work (see example in Table 2).

2) Knowledge and/or training received in relation to work-related driving safety

Interviews with participants revealed three types of training that had been conducted within the organisation. Firstly, as stated previously, Defensive Driving programs were used by the organisation as a countermeasure for repeat crash offenders. However, investigation showed that only the Biloela region had complied and actually required four drivers (repeat crash offenders) to attend a program. No evaluation of the training was implemented, however, participant consensus regarding the training program was similar. For example, one driver stated *“I thought it was bloody great, especially driving in wet weather* (reference to skid pan driving) *a great couple of days, considering I was there because I had a couple of small prangs”* (male driver). In addition, two of the four drivers had been involved in fleet incidents after the Defensive Driving program. Secondly, the Biloela region did recognise that four-wheel drive (4WD) vehicles were involved in significant numbers of crashes and sent operational drivers (n=14) who drove a 4WD to specific training. Comments regarding the training were again similar with one male driver stating that the *“four-wheel drive training was OK, but most of the training was how to get out of a bog, not how to handle the vehicle”* (male driver). No training needs analysis or evaluation of the training was undertaken. Finally, online fleet safety training CD’s were sent to all regions by Head Office for all staff

to complete. However, no evaluation was conducted to check if this training was actually undertaken by staff. Indeed, from the interviews it was noted that the majority (91%) stated they had not completed it. One driver stated with reference to content of the CD that *“it was so f***in boring, I didn’t finish it...just told my supervisor I did”* (male driver).

With reference to fleet-related knowledge/information and inductions received by employees, interview participants unanimously stated that they had not received any information or fleet specific inductions. For example, one driver stated *“induction, the only induction you get regarding work vehicles is where to park in the bloody depot”* (male driver).

3) *Factors contributing to driving incidents or near misses*

Participants were reluctant to talk about specific driving incidents, an example of the “do not admit liability” culture evident within many organisations. Only 15 (10%) participants admitted to having a work-related driving incident, whereas 48 (33%) participants stated they were involved in a work-related driving near miss. The main factors identified included fatigue, inattention, road familiarity and work pressures. Fatigue was a common issue raised by participants as an important factor in incidents/near misses. Interview participants reported that the considerable kilometres/time required to travel to job locations, combined with the effects of working all day and then needing to return to the depot that same day resulted in fatigue. For example, one driver stated, *“working out at (location) all day and was tired driving back...don’t know what happened, wasn’t concentrating and didn’t see the tyre on the road (truck tyre blow out left on road) swerved to miss it, lost control and rear of the wagon side-swiped a tree”* (male driver). In addition, inattention due to fatigue was identified as a potential factor in a number of incidents/near misses. One driver stated that on returning late he *“wasn’t thinking of driving and didn’t see the f***in roo till too late”* (male driver).

Performing paperwork and eating meals whilst driving was common, for example, one driver stated that he *“was rushing to get to a call out, I didn’t have lunch...just stopped to get a pie from the bakery... driving along some pie dripped on my leg, while trying to wipe it off I ran into the back of the vehicle in front who had slowed down to turn the corner...I only took my eyes off the road for a second”* (male driver).

4) *Potential countermeasures for the improvement of work-related driving safety*

The aim of this question was to ascertain from organisational staff what they perceived could be done to improve work-related driving. General consensus from operational field staff was that any countermeasures or interventions would need to be cost-effective or they would not be implemented by management, for example, *“unless it doesn’t cost much they (management) won’t do it”* (male driver). Other participants (n=5) took a more hostile stance in regards to management-driven countermeasures. One typical participant response was: *“get management to drive two to three hours to a job...do a full f***ing days manual labour, then drive home again...see if they can do it day in day out over f***ing time”* (male driver). Generally operational drivers viewed work-related driving as a WHS issue and welcomed any countermeasure to improve safety, as long as it did not mean extra work for them, for example, one participant’s response suggested *“anything as long as it doesn’t mean more paperwork”* (male supervisor). In contrast, interviews with management, particularly executive management (based at the Brisbane Head Office) revealed a reluctance to consider work-related driving as a serious organisational WHS issue, for example, one participant stated *“it’s a driver issue, not an organisational issue”* (female manager). In addition, further discussion with a senior operational manager whose performance bonus was dependant partly on the numbers of WHS incidents stated: *“do vehicle incidents have to be recorded as workplace incidents...after all they are only road accidents...what can we do”* (male manager).

DISCUSSION

The exploratory analysis of organisational records, documents and data files combined with information received from the employee interviews revealed significant deficiencies within the organisation's WHS management system, specifically in relation to work-related driving safety. The following discussion identifies deficient fleet safety policies and procedures and suggests recommendations directed at improving fleet safety within the organisation as well as integration of fleet safety within a WHSMS.

Without the commitment and support from both management and employees a safety system is unlikely to be effective. To establish a positive safety culture requires senior management commitment and involvement of employees, at all levels, in decision-making (Gallagher, 1997). The study suggested that management did not consider fleet safety a WHS issue or an organisational issue. Rather, some management suggested that vehicle incidents were an individual driver issue. Wishart and Davey (2004) suggested that organisations commonly adopt a blameworthy methodology when reporting, investigating and implementing interventions within the work environment. The study revealed that this approach, generally directed toward the driver of an incident, promoted a 'do not admit liability' culture within the organisation and appeared to contribute to some employees failure to report incidents. Furthermore, employees cannot operate under the organisation's policy and procedures if there are none. To encourage employee commitment organisational fleet safety policies and procedures are required to be developed, specifying accountability and responsibility, to ensure all staff are aware of what is required.

Seljack (2002) suggested that organisation's should take a risk management approach to fleet safety and integrate fleet safety management into the WHSMS. This approach assists employers to meet their obligations under both occupational health and safety law and road transport law. When developing risk assessments for the organisation, a range of hazards should be considered in relation to the driver, the vehicle and the journey, specifically including travel time in work orders (Seljak, 2002). Drivers who participated in the study perceived that work pressures and fatigue were primary factors that impacted on their ability to drive safely and contributed also to some incidents/crashes. In relation to work pressures, drivers felt that they had to utilise travel time to 'make up time' to meet organisational and customer demands. Examples included speeding and eating or doing paperwork while driving. Interview participants also stated that fatigue was a significant fleet safety factor. Long work hours and daily travel to and from job sites increased the risk of fatigue. In addition, drivers stated that inattention-related incidents/near misses were directly related to fatigue. For example, drivers often felt tired and as a result suffered difficulties concentrating on the driving task and road environment. Fatigue research conducted by Hartley et al. (2000) confirms the risks in this area, finding that inattention can exacerbate the incidence of fatigue-related crashes.

Interview participants indicated that "time of day" may also be a significant fleet safety factor, for example, early morning and late afternoon are typical times where animals are crossing or located near roadsides. Further evidence of this is that 26% of all recorded work-related vehicle incidents occurred due to "hitting animals", primarily kangaroos and occurring late afternoon. A risk assessment could be conducted to ascertain if rural work schedules can be changed to allow travel, particularly return travel, to be undertaken prior to those hours of most risk from the contributing factor of animals on or near the roadside.

Individual driver behaviour was influenced by a number of factors. Some interview participants indicated relationships and marriage separation as factors impacting on their ability to drive safely. Previous research has suggested that emotional stress may influence aggressive behaviour, possibly by increasing risk taking (Hampson, 1984). In addition, McMurray (1970) reported that during the six months before and after divorce, drivers in her

study had a significantly higher crash and violation rate than the general population. The types of violations more often found at these times included speeding, failure to yield, and close following. Work relationships were potentially another form of influence regarding safe driving. For example, inexperienced drivers, particularly apprentices, were encouraged by other staff to take risks while driving, potentially placing they and members of the public under risk of a vehicle crash. Peer pressure influence to undertake any type of work-related risk is a breach of WHS legislation (WHS Qld, 1995) and information affirming the illegality of this act should be included within the organisation's policies and subsequently communicated to all staff.

Interview participants reported a lack of familiarity with road condition as a factor contributing to vehicle incidents. Drivers are frequently required to perform work outside their usual designated work areas because of increased work demands or illness to other staff, etc. Crashes have occurred, primarily on rural gravel roads, due to sudden changes in road condition. This may be a case of not driving to suit the road conditions, for example, speeding and aggressive driving on gravel roads. However, measures should be considered regarding induction and familiarisation of drivers with other work areas, outside peak work periods.

Interview participants identified poor visibility from vehicles (due to vehicle load and equipment) and suitability of vehicles as significant influences on fleet safety. Inspection into the design of vehicle rear storage space could be undertaken to ascertain if rear vision can be improved. In addition, organisational procedures could be developed to outline requirements of safe loading of vehicles. From the current systems analysis it was revealed that the organisation purchased most vehicles based on the cheapest quote. It was noted also by interview participants that some vehicles purchased were not suitable for the work to be performed or road terrain travelled. Research conducted by Anderson & Plowman (1999) suggested that a best practice organisation selects vehicles not only on cost alone, however, takes into account potential beneficial safety features. Therefore, the organisation should consider additional safety features and vehicle suitability when selecting/purchasing new vehicles, especially where off road travel is undertaken.

Responses to questions relating to driver training and induction were relatively brief. This was expected considering the lack of training and competence documents kept by the organisation. However, it was due to the lack of documenting evidence that questions relating to training/induction were conducted to ascertain if training had been completed and not recorded. Evidence from the study suggested that fleet safety training was primarily reactive in nature, a reaction to individual multiple incidents. In addition, interview participants stated that other training (i.e. 4WD training) did not meet the specific requirements of drivers in the organisation. Before any Fleet Safety Training is conducted a thorough training needs analysis should be conducted to ascertain if the training meets the requirements of the individual and organisation. Evaluations should also be conducted after training/education to ascertain if the training was effective. Furthermore, general safety inductions should include a work-related driving safety component for all new employees. To meet WHS legislative requirements, fleet/vehicle-related safety should also be included within site rules and regional site specific inductions. In addition, an induction into use and safety features should be performed for drivers of all new vehicles issue.

An important component of the WHSMS is the continual review and evaluation. This is ongoing and fleet related issues should be included within all reviews and including safety inspections and audits. Regular review and evaluation of the WHSMS identifies whether systems are effective and efficient and highlights those areas which require further attention, for example, additional countermeasures/interventions. The WHSMS is basically a cycle of continual safety improvement.

Study Limitations

The study sample does pose issues relating to the generalisability of the results. However, sufficient detail was obtained to meet the aim of the study, that is, to identify fleet safety issues directed at improving fleet safety within the organisation as well as integration of fleet safety within a WHSMS. In addition, similar deficiencies and factors that impacted fleet safety within this study are also highlighted within other fleet-related research literature (Anderson & Plowman, 1999; Collingwood, 1997; Murray et al., 2002; WA, 2003; Wishart & Davey, 2004). However, other studies should be undertaken within both government and industry organisations to confirm the findings emerging from this study.

CONCLUSION

This study used two methods to explore and identify issues and deficiencies for the improvement of work-related driving within the organisation, particularly in relation to the integration of fleet safety within the WHSMS.

Success of the integration of fleet/work-related driving safety within the organisation's WHSMS requires full management and employee support and commitment (Gallagher, 1997). This should be encouraged at an early stage of fleet safety integration. The organisation should adopt a proactive approach to fleet safety and not the current reactive approach, for example, based on developing controls after incidents have occurred. A risk management methodology should be undertaken to improve fleet safety within the organisation and determine priorities for WHSMS integration.

A 'no blame' approach should also be adopted and encouraged across the organisation. Historically, organisations have adopted a reactive approach to work-related road/vehicle incidents and usually focus on a single countermeasure, for example, skills based driver training, in an attempt to improve the organisation's fleet safety (Wishart & Davey, 2004). This study suggests that a singular countermeasure will not improve work-related road safety and organisations need to adopt a proactive multiple strategy approach and target long-term intervention strategies aimed at not only a fleet safety system but also behavioural and cultural aspects of the organisation. Continual review and evaluation of systems combined with identified interventions is required to ensure continual improvement of fleet/work-related driving safety within the organisation.

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