NRSPP
NATIONAL ROAD SAFETY
PARTNERSHIP
PROGRAM

Discussion Paper:

Incident Investigation - It Pays to Know Why, When and How

Introduction

Key Outcomes:

- The wellbeing of anybody involved in an incident is the first consideration.
- Incidents deserve to be investigated. Findings can drive improvements for all organisations who operate a fleet, regardless of vehicle type
- The more detailed and thorough the evidence collection the more thorough subsequent investigation and reconstruction.
- Evidence from the scene at the time of the event is 'gold'
- Investigations can help us work towards preventing similar incidents occurring again, particularly where clusters of incidents are identified at the same location or from the same cause
- The aim is to investigate and mitigate risks, not incriminate

'Learning is a gift....even when pain is your teacher.

The 2016 calendar year resulted in 1,300 fatalities on Australian roads. Some of these fatalities occur during workplace related incidents with the long term average showing that 39% of worker fatalities occur due to vehicle collisions.

Investigating incidents isn't just about ensuring the safety of your employees, it is about ensuring the safety of everyone on the road. Over 100 people are killed or injured in crashes every week involving someone who was potentially driving or riding for work; this includes passengers, pedestrians, and cyclists that are civilians.

Each incident has negative outcomes, ranging from loss of life to something less consequential but still significant including the costs to society, the economy, and the implications for commercial operators.

Each incident, however, provides huge learning potential and an opportunity to gain reliable information and data to prevent a repeat. This is where incident investigation can play a critical role.

A crash involving a prime mover and trailer and police vehicle – both vehicles were workplaces

This discussion paper aims to assist organisations in incident investigations by outlining why investigating incidents is important, and what the best practices are for incident investigations. It also focuses on practical applications, including real-world case studies and on-the-ground policies being used by industry, which are equally applicable across all fleets, from passenger vehicles to small vans and freight and heavy vehicle operators.

Why Should I Investigate Workplace Incidents?

The case for investigating incidents is compelling. The results may provide closure for a family by identifying what actually happened in an incident, and they can inform continual improvement in strategy, policy, standards and procedures in a commercial organisation. While the main aim is to prevent further similar incidents, significant operational improvements and efficiency gains can also be identified.

Generally, the more detailed and comprehensive the investigation of incidents, the greater the opportunity to introduce measures to prevent future incidents. It is widely accepted that organisations that take a genuine interest in the safety of their workforce become employers of choice, so they often attract the most skilled recruits as well as industry and public recognition.

The types and severity of incidents routinely investigated by external bodies, such as the police, is not generally understood in society. Reasons for investigating can include determining who has been killed or injured, who was at fault and whether the law was broken. Findings from a single investigation can also be considered in multiple arenas, such as in criminal or civil proceedings or by the Coroner.

The scope and quality of investigations can also vary considerably, depending upon things like the purpose, and the training, knowledge, skills and experience of investigators. This is particularly important as organisations can become bound – and in some cases, adversely affected – by an investigation undertaken by another body.

When an organisation relies solely on a third party to investigate its incidents (e.g. police, roads authority, insurer, etc.) this can lead to an investigation that only determines who is at fault and who is liable. It is important to initiate some direct "internal" investigation.

Such a commitment needs resources, and investigations need to take place in a reasonable time frame.

In practice, these challenges mean some organisations only investigate major incidents that result in fatalities and serious injury. The risk in this approach is that minor injury incidents, near misses and incidences of poor behaviour are never analysed and frequently occurring issues are not identified and addressed. A lack of analysis also means proposed solutions tend to be intuitive, rather than evidence or data led which can lead to wasted resources and starting over.

Good Practice Tips for Investigating Incidents

- ***Do not only focus on the immediate causes, focus on the underlying root causes***
- ***Generating an investigations team with a wide variety of skilled participants***
- ***Ensure investigators have a full understanding of how to investigate the type of incident that has occurred***
- ***Use structured methods to integrate evidence into investigations***
- ***Do not seek to attribute blame***
- ***Communicate the lessons learned from the investigation to all members of the organisation***
- ***Implement any recommendations of the incident investigation in your safety polices.***
- ***Identify who is accountable for the introduction of recommendations and report progress of their implementation***

Applying incident investigation principles to motor vehicle incidents

Cause and Cure

Road safety research, which has included in-depth investigation of hundreds of thousands of incidents over many years, shows that incidents are always multi-factor. The factors identified during an investigation are often categorised as 'causation' factors – they played a major part in the incident occurring, such as losing control of a vehicle – or 'contributory' factors – they played some part in the outcome and severity, such as the presence of a roadside pole struck by the vehicle. These causation factors and contributory factors can help to identify avenues for improvement or a "cure" to the cause.

Although, it does not necessarily follow that having identified a causation factor or contributory factor means that the most effective "cure" is directly related to this factor. For example, failure to give way may be addressed by improving sight distance or by changing traffic controls rather than by remedial driver training (in this case it is assumed that the causation factor is human error).

On the ground

Incident investigation begins on the ground at the scene of the incident. It is important that all members of the organisation are aware of the steps to take immediately after an incident to ensure the safety of all parties involved, as well as ensuring that all evidence pertaining to the investigation is collected in full detail. See appendix 1 for an example of a list of steps to take immediately after an incident.

Gathering Evidence

Incident investigation involves collecting, collating and considering 'evidence' so that causal and contributing factors can be identified, helping to establish what parties were involved, what happened and why. Good evidence gathering lays the foundations for a good quality investigation.

There are several types of evidence typically involved in road related incidents, including:

- **Observations:** accounts and interviews of those directly involved or eye witnesses, CCTV footage from nearby buildings, and in-vehicle cameras.
- **Physical:** photos, video, measurements of tyre marks and debris on the road, damage to vehicles and road infrastructure, assessment of road design, signs and line markings, and road conditions.
- **Mechanical:** post-incident vehicle inspections and testing, engine management systems and airbag module downloads, vehicle data sheets and comparison with exemplar vehicles.
- **Documentary:** police event, investigation and reconstruction reports, internal documents (emails, notes, letters, incident reports), operational documents (contracts, orders, invoices, maintenance records, audits) and manuals (relevant strategies, policies, standards and procedures).

Investigators may talk about a 'bundle of evidence' for each case, with this typically being used to prepare briefing notes and factual reports. However, 'contemporaneous evidence' – collected, collated and retained as soon as possible after an incident occurs – is worth its weight in gold. Contemporaneous evidence refers to evidence that originates from the time and location of the incident.

There are several reasons for this. First, it is difficult to predict what actions may happen following a road related incident. A proactive, comprehensive approach can help cover any eventuality.

There is always pressure to get the road open and operational again as soon as possible. Much physical evidence is transient and there is a risk it will disappear or be removed before being recorded or collected – 'collect it now, or risk losing it'.

Coronial, legal and insurance proceedings always take time, possibly even years. If the gathering of evidence is left until a later date, workers may have moved on or key documentation lost. This also highlights the important of there being no obvious gaps in evidence. If gaps exist, necessary assumptions may not always be reasonable or accurate and may ultimately disadvantage one party.

While some forms of evidence may be favoured – for example, a judge may emphasise eyewitness accounts – it is still important that as much evidence as possible is collected. A good guide for on-site investigations and preserving evidence is to consider whether someone else would be able to investigate and possibly reconstruct the incident using your notes, measurements, photographs, video and any other evidence collected.

Considerations to be made

Site protocols

It is important that typical site protocols are observed, particularly when an incident has just occurred. Emergency services will most likely have been called or be on the scene. Their primary focus is the First Responder role. Only when the site is secure and safe will any investigation commence.

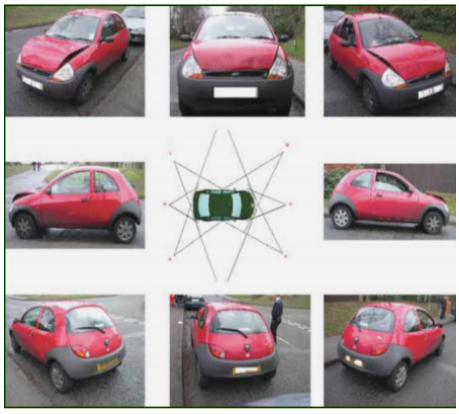
If an investigator is on the scene before police, ambulance or other emergency services they must do all they can to stay safe, offer assistance and secure the scene. The same applies to any parties involved in the incident, such as a truck driver who has been instructed by their employer to collect or record physical evidence. Any thoughts of an investigation must be secondary.

If an investigator from a road agency or fleet operator arrives and emergency services are still present, they must make themselves known to the site controller on arrival and observe all instructions and requests. However, it is useful to discuss the importance of capturing any transient evidence and when that may be able to commence without adversely affecting other activities. If more than one agency investigator is on site at one time, courtesy and co-operation is expected.

Wellbeing of those involved

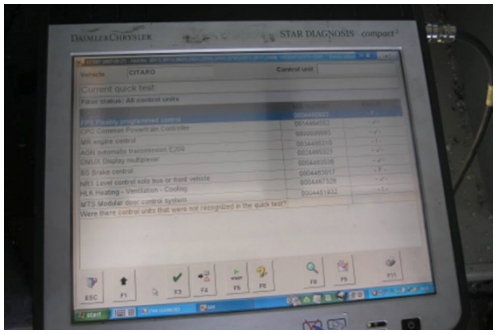
Having a road crash is always an unwelcome and stressful experience. While it is important to secure contemporaneous evidence, the wellbeing of those involved – for example, the driver, any occupants and first responders – must be considered and all care necessary given before focusing on completing the required paperwork and collecting statements.

Showing genuine compassion and concern for those involved makes it more likely they will willingly give an interview or a statement sooner than if unreasonable pressure is applied. Those involved may also want some form of representation present, even if they are certain they played no part in the cause or severity of the incident. This is a natural and many will ask for a family member, legal representative or union member to be present.



The angles at which to take pictures of the cars involved in the crash

An exemplar vehicle used for comparison purposes in a bus crash investigation



Download from engine and vehicle diagnostic system from damaged bus

Internal Bus CCTV Footage

It does pay to be prepared, however. A list of standard questions is always useful. It is also typical to record voice interviews, with permission, and then transcribe them into a statement to be formally agreed and signed off by those involved. See Appendix 2 for a range of useful resources.

Subject Matter Experts

Although organisations may be tempted to use existing in-house resources to visit sites, capture evidence, analyse and report on incidents, and liaise with legal representatives and insurers, experience shows that such resources require training and mentoring to ensure they, and their outputs, are ultimately serving the best interests of their organisation.

Support from third party specialists, or expert witnesses, can be useful, particularly as they have a professional duty to provide opinion based on the facts and their knowledge, skills and experience, and are well versed in putting forward reasonable assumptions when faced with gaps in evidence. The latter can be particularly daunting for less experienced officers.

While there may be a financial cost, using an experienced expert witness allows in-house resources to focus on the facts and not feel pressured to make assumptions or speculate.

How do I get started?

Many organisations have found it useful to put together an Incident Management and Investigation Plan, establishing a simple pathway to work towards a tailored process.

Here are five simple steps that can be used to create that pathway.

1. Identify a local 'champion' and key internal and external stakeholders affected by the investigation plan. Hold a forum to discuss objectives and responsibilities.
2. Through consultation, develop protocols and procedures and incorporate into and communicate an overarching plan. Involve insurers and empower the local champion to 'sell' the benefits.
3. Identify and provide training and capacity building. Develop support mechanisms and resources, such as computer systems or an on-scene investigation kit.
4. Operate according to investigation plan. Keep management and workers in the loop.
5. Monitor and evaluate to improve plan and procedures.

Monitoring how the plan works 'on the ground' is critical. A simple and effective continual improvement cycle can start with the 'respond' function, where the organisation becomes aware of an incident involving one of its vehicles and its severity, say from a driver's mobile phone report. More information will become available as time goes on, and the documented policy dictates the response and who will attend. This will most likely be based on the outcome of the incident, severity and other parties involved.

The investigation commences with physical evidence identified and collected, according to the documented process. The investigation typically progresses to a desk study back at the office, examining cause and contributing factors and arranging further investigation, such as a detailed mechanical investigation of the vehicle involved.

The investigation report is produced and recommendations made. Recommendations are acted on.

Another critical factor in making an incident investigation plan work in practice is providing support to relevant staff, which is likely to include a combination of awareness and role-specific training. This can range from self-learning and mentoring by peers, to online (for example, NorthWestern University, USA) and more traditional formal training (for example, RoSPA in UK). Professional societies also exist for incident investigators, such as ASPACI, which has an Australian chapter, and ITAI. Much of the training focuses on basic skills in site and vehicle photography and measurement and a simple understanding of laws of motion as they relate to incident reconstruction, giving investigators more confidence on-scene. Capability building can be provided by recognised road related organisations, such as ARRB Group (see Appendix 1).

Modern technology has also revolutionised incident investigation and analysis, speeding up several tasks and creating opportunities for compelling graphic displays.

A good example is capturing incident details on site, where electronic means have rapidly succeeded the in-house proforma and the trusty clipboard and pencil. Free mobile phone apps – for example, Car Accident Report (CAR), iWrecked, Auto Accident App and Accident Report – can be downloaded and easily linked to an organisation's protocols.

Wrap-up

- Incidents deserve to be investigated – they afford us huge learning potential.
- The more detailed and thorough the evidence collection the more thorough any subsequent investigation and reconstruction can be.
- Contemporaneous evidence is always 'gold'. The driver and any other occupants within an involved commercial vehicle are key contributors, but their wellbeing must be considered before thoughts turn to obtaining witness statements, etc.
- Findings of our investigations can help us make changes and improve things.
- We can work towards preventing such incidents from occurring again at the same location or at all – saving lives, reducing pain and suffering, and increasing productivity for commercial organisations.
- It must be a positive experience. The aim is to investigate and use findings to reduce risk, not to incriminate.

For more information you can visit

- RoadSafe website
- The Royal Society for the Prevention of Accidents' website, where a free incident and reporting guide is available, as well as other useful guides

APPENDIX 1: CASE STUDIES

A1.1 Australian Road Research Board (ARRB): Transforming cost into value

The Australian Road Research Board was approached by an Australian company, who operate a heavy vehicle fleet, in order to assist in the investigation of their incidents. This company had been experience a seemingly consistent number of incident involving similar circumstances of loss of control mechanisms. The company were at a loss in how to manage these incidents because they were all on different road types, negating the common factor occurrence of the incident. This is when the company decided to approach ARRB for help, with the support of their insurance company.

There was already a degree of incident investigation within this company but it mostly consisted of gathering employees from head offices and workshop groups in order to develop make-shift investigation teams. There wasn't a structure approach to local protocols, and there weren't any clearly defined or consistent policies in place. As these wasn't an overly effective incident investigation method in place, any incident that occurred left vehicles off the road, at a significant cost and inconvenience to the organisation.

This issue came to a critical point with an incident occurring that lead to a civil proceeding nearly three years after it occurred. The organisation involved was unable to support its legal representatives and insurers with reliable evidence and an incident report, thus a less than favourable settlement occurred. The organisation's insurance premium then rose accordingly.

The company involved then commissioned ARRB to:

1. Interview workers (including drivers) regarding the organisation's and their own attitudes towards road safety
2. Critique incident investigation protocols and practices, providing recommendations for improvement
3. See how past incidents were managed and whether lessons were learnt
4. Provide a road safety awareness training session to all workers
5. Provide a one day incident investigation training workshop, with a focus on identifying and capturing physical evidence, for a small number of staff now tasked with being 'champions' for road safety and attending the scene of all incidents involving the local fleet
6. Liaise regarding the development of on-site resources to assist investigations, such as measuring wheel, tape measures, digital cameras, etc.
7. Liaise and develop a site investigation booklet to go into the glove box of all of the organisation's vehicles, including a standard recording proforma for on-going use
8. Liaise on the development of an interim MS Microsoft Excel spreadsheet to allow basic analysis of all incidents involving the organisation's fleet, with a view to incorporating this within the organisation's fleet management system
9. Write a brief report to the organisation's insurer setting out the range and breadth of assistance provided, focusing on resultant reductions in risk and on investigation, not incrimination.

The internal workers responded positively to the reinvigorated interest in their safety and wellbeing, especially those gaining new, or widening existing, skills and experience. The internal investigators felt they were being valued and supported in their work. A reduced insurance premium and better relationships between organisation and insurer resulted, and the insurer has promoted the same 'model' elsewhere.

A1.2 The Water Corporation: ICAM and HPI

The Water Corporation has a rigorous incident investigation system in place for investigating accidents and serious incidents resulting in injury or death. The main system used in the Incident Cause Analysis Method (ICAM) investigation system. This system brings together all personnel with skills or knowledge that can assist an incident investigation. The system brings together these personnel so that they can explore all areas of an incident including: task, environment, absent/failed defences, individual/team actions, and organisational factors.

An investigation team at the Water Corporation would generally consist of the following members: lead investigator, investigation facilitator, OSH consultant, technical experts, and a safety representative.

The Water Corporation have what is called a PEEPO chart for listing all the results from incident investigations. PEEPO stand for: people, environment, equipment, procedures, and organisation.

The following table is an outline of the essential elements in a High Potential Incident (HPI) investigation.

Step	Requirement	Responsibility
1	Notification to relevant personnel	All
2	Determine the incident classification	General Manager/SEAA Branch Manager
3	Issue HPI Alert Part	Senior OSH Analyst Incidents
4	Conduct incident investigation and prepare report	Investigation Team
5	Conduct peer review meeting	Regional Manager/Branch Manager/Alliance Manager
6	Issue HPI Alert 2	Senior OSH Analyst Incidents
7	Present at HPI Lessons Learnt Forum	General Manager
8	Present at Safety Committee of the Board Meeting	General Manager
9	Seek written endorsement from the CEO when all OCAs have been effectively closed out for the HPI.	Snr OSH Analyst Incidents

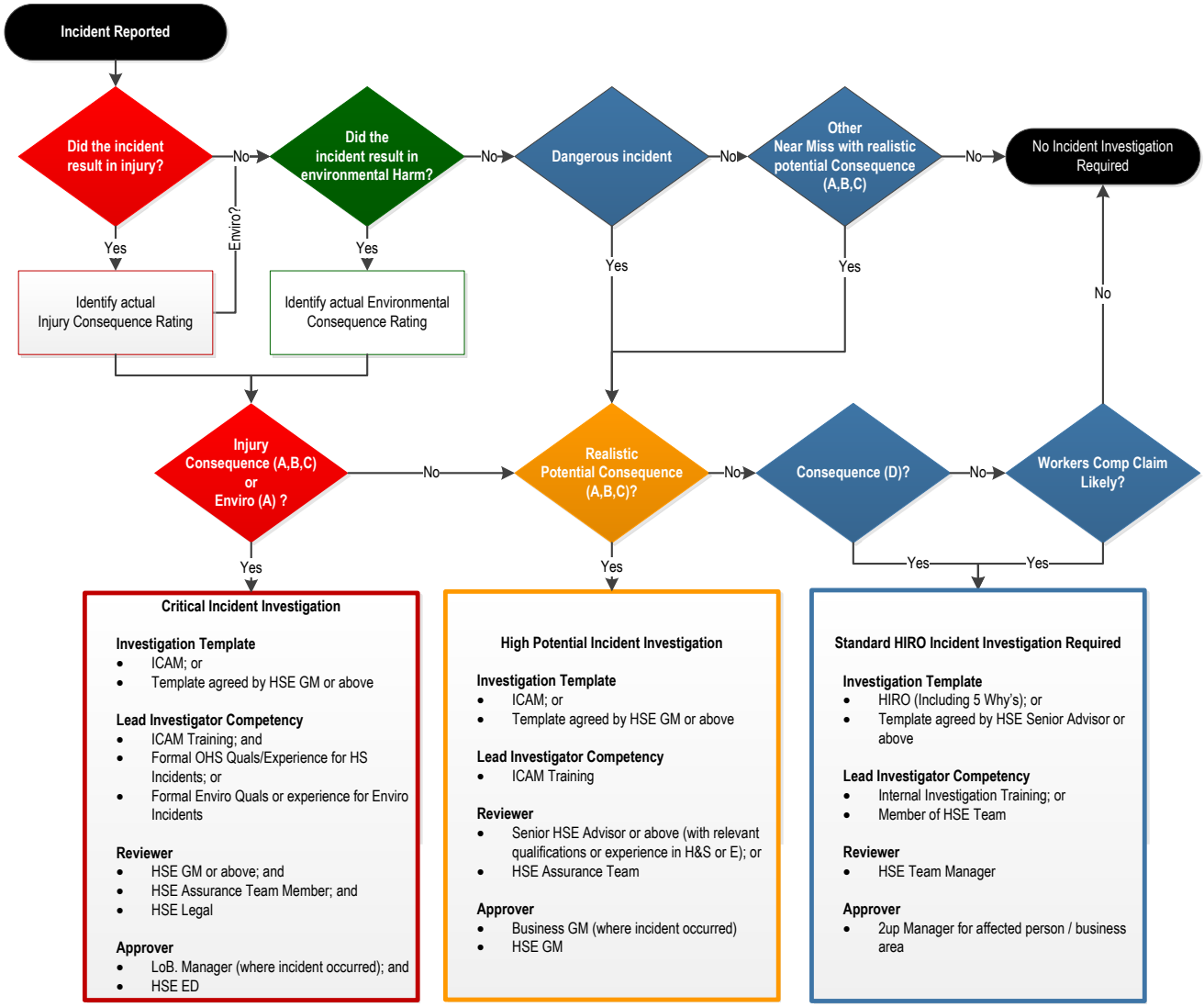
The following figure represents the Do's and Don'ts for investigating a HPI at the Water Corporation.

Dos	Don'ts
• Notify incidents immediately as per Incident Notification Matrix • Enter incident details into company database as soon as practicable. • Conduct initial site assessment and evidence collection in a timely manner. • Conduct the investigation in line with company policy and OSH Incident Investigation Guidelines. • Use original HPI documentation and templates • Keep the Senior OSH Analyst Incidents informed throughout the HPI process. • Develop Corrective Actions and ensure they are deliverable based. • Ensure database records are completed correctly with all required attachments. • Enter regular progress comments in the database against HPI corrective actions for tracking and monitoring purposes.	• Be afraid to classify an incident as a HPI - following evidence collection and data analysis the classification can be downgraded. • Base investigation findings on assumptions or hearsay. • Change the due date of any HPI action without written approval from the HPI Sponsor. • Regard HPIs as a negative, they are opportunities to learn and continuously improve.

A1.3 Anonymous: Incident Reporting and Investigation

A large Australian Fleet Operator firmly believe that the timely investigation of Health, Safety and the Environment (HSE) incidents is critical to enabling the identification of casual factors and identifying the measures for preventing reoccurrences of these incidents. They have a HSE team which is responsible for the determination of whether a incident investigation is required or not. As a minimum, the following are the incident categories that require investigations at this fleet operator: Critical HSE incidents, High Potential HSE incidents, injuries or illnesses that require medical treatment and result in temporary incapacity with lost time, and incidents that result, or are likely to result in a workers compensation claim being lodged. Incident that involve a 3rd party or a member of the public will also require an incident investigation when an injury is recorded, and that injury required medical treatment.

The following flow chart is used by this fleet operator for the investigation of incidents.



The following table is the categorisation of these incidents:

Actual Consequence Rating	H&S Injuries/Illnesses	Description - Environment
(A) Extreme	Multiple fatalities	Critical Environmental Harm
(B) Severe	Fatality	Serious Material Harm
(C) Major	Permanently disabling injuries or illnesses	Material Environmental Harm
(D) Moderate	Injuries or illnesses that require medical treatment and result in temporary incapacity	Environmental Impact – contained on side and easily reversed or, adverse effect on amenity value caused by pollution or, that is unsightly/offensive or, result in random substantial complaints from the community.
(E) Minor	Minor injuries typically requiring first aid management only (may be provided by medical practitioner)	Impact that can be contained on site and is promptly reversed, potential for small substantiated complaints from the community.

APPENDIX 2: RESOURCES USED IN PRACTICE

1. Road / vehicle incident checklist: Summary Evidence Record

Incident Date: _____ Incident Reference: _____

Location: _____

Driver

Question	Yes	N/A	No	Notes
Did the driver:				
1. Hold a valid licence for the class of vehicle involved in the incident?	☐	☐	☐	
2. Has authority to use the vehicle?	☐	☐	☐	
3. Familiar with this specific vehicle?	☐	☐	☐	
4. Pass a fitness capability assessment?	☐	☐	☐	
Did the driver complete an approved driver-training programme?	☐	☐	☐	Where & When? Obtain records
Did the driver operate the vehicle at the expected standard?	☐	☐	☐	
Did the driver operate the vehicle within the legal speed limit?	☐	☐	☐	
Did the driver operate the vehicle at or below the speed for the existing conditions?	☐	☐	☐	
Is there evidence to exclude the driver might have been impaired in any way by:				
1. Fatigue?	☐	☐	☐	
2. Stress?	☐	☐	☐	
3. Drugs (medication)?	☐	☐	☐	
4. Alcohol?	☐	☐	☐	
Were seat belts fitted and correctly worn by all vehicle occupants?	☐	☐	☐	
Was additional PPE, such as crash helmets, gloves etc. issues & used (if applicable)?	☐	☐	☐	
Did the driver follow the rules on use of mobile phones whilst driving? (members of the workforce while operating a vehicle on company business do not use mobile phones or other two-way communication devices	☐	☐	☐	Obtain details
Is there evidence to exclude a potential failure in:				
1. Detection?	☐	☐	☐	
2. Perception?	☐	☐	☐	
3. Decision making?	☐	☐	☐	
4. Response?	☐	☐	☐	
5. Expectations?	☐	☐	☐	
Is there a record of the driver recent work history?	☐	☐	☐	
Had the driver completed this journey and or task previously?	☐	☐	☐	

Vehicle

Question	Yes	N/A	No	Notes
Was the vehicle involved "fit for purpose"?	☐	☐	☐	
Was the vehicle in good operating condition?	☐	☐	☐	Maintenance records
Did the vehicle have any driving monitor e.g. tachograph, IVMS, vehicle camera, telematics etc.?	☐	☐	☐	Obtain & examine
Is there a record of the vehicle recent work history?	☐	☐	☐	
Was the load secure and within legal and/or design limits for the vehicle?	☐	☐	☐	
Was the vehicle involved still on all its wheels, e.g. the incident did not result in a vehicle rollover?	☐	☐	☐	
Was the vehicle doing at the time of the incident (tick all that apply):				What was our vehicle doing at the time of the incident?
Stationary? ☐ Driving? ☐ Parking? ☐ Reversing? ☐ Manoeuvring? ☐				

Road

Question	Yes	N/A	No	Notes
Was the vehicle being used on an authorised route?	☐	☐	☐	
Had a risk assessment been completed for the route OR the task?	☐	☐	☐	
Is there any evidence to exclude the potential that the weather conditions at the time of the incident might have contributed to the accident?	☐	☐	☐	
What were the weather conditions at the time of the incident (tick all that apply):				
Clear ☐ Dry ☐ Wet ☐ Icy ☐ Fog ☐ Good ☐ Average ☐ Bad ☐ Is there any evidence to <u>exclude</u> the potential that the road conditions, at the time of the incident might have contributed to the accident?	☐	☐	☐	

Third Party

Question	Yes	N/A	No	Notes
Was a third party Involved?	☐	☐	☐	Details
Did 3rd Party driver and/ or Vehicle conform to all legal regulations/ requirements?	☐	☐	☐	
Has anyone indicated liability?	☐	☐	☐	Include Police or other agencies, Driver & witnesses
Is there any evidence to suggest that the speed differential third party versus company vehicle might have contributed to the accident?	☐	☐	☐	Include speed third party versus speed company vehicle at the time of the incident

2. Road / vehicle incident checklist: Potential Road / Vehicle Incident Contributory Factors

Driver	Verified?		
Things to consider	**Y**	**N**	**Notes**
Driver characteristics / fitness capability assessment • Age, sex, height, weight • Body fat • Experience, prior driving record and violation record • Training • Hearing, vision and force/reach abilities • Physical disabilities • Familiarity with traffic regulations			Only obtain when there is no conflict with applicable legal, data protection and/or regulatory requirements.
Was the driver fatigued? • Hours of service • Itinerary • Rest periods • Sleep deprivation, sleep apnoea • Boredom, vigilance, attention • Manually intensive work conducted	☐	☐	
Was the driver stressed? • Experience • Knowledge • Risk evaluation, training • Personal, psychological	☐	☐	
Any indications of exposure to drugs and alcohol? • Time of consumption, time since consumption • Type of drug • Amount consumed • Amount measured in body fluids and when was it measured • Effects on performance and behaviour	☐	☐	
Is there a failure to detect? • Stimulus level – is it detectable? • Alertness, workload? • Movement • Salience of stimulus?	☐	☐	
Is there a failure to perceive? • Recognition • Ambiguity • Interpretation • Comprehension • Exposure, learning	☐	☐	
Is there evidence of decision error? • Evaluation of information • Evaluation of alternative responses • Costs/effectiveness, effort • Determination of response	☐	☐	
Is the response correct and in time? • Slow, stop, accelerate, reverse • Turn, swerve • Walk, run, look, listen • Modulate control, turn on or off	☐	☐	
Are expectations challenged? • Familiarity • Exposure • Mental model • Assumption, publicity • Training • Maturity, risk level acceptance • Behaviour of others	☐	☐	

Vehicle	Verified?		
Things to consider	**Y**	**N**	**Notes**
Factors related to the vehicle or vehicles driven present? • Controls, displays • Road noise, heater/air-conditioning blower • Radio, cell phone, map displays, conversation, children, other passengers • Temperature, fogged windows • Insulation from outside warning-sound sources • Isolation from road and other external conditions • Ride conditions, vehicle loading • Driver's seated position • Accessibility of controls/displays	☐	☐	
Audibility factors relevant to the incident? • Are audible warnings suitable, can they be heard? • Horns, bells, emergency vehicle sirens • Are competing or background sounds, masking? • Any hearing loss apparent?	☐	☐	
Did the mechanics of the vehicle contribute? • Condition of windows, headlamps, other lamps, reflective devices • Brake system: total or partial loss, wear • Antilock brakes, air brake system lag • Tire condition, inflation • Steering system condition, free play, power-assist failure • Control force requirements • Vehicle safety inspection and maintenance	☐	☐	
Did load carriage contribute to the incident? • Cargo secured? • Did passenger numbers exceed the number allowed by the manufacturer or as set by law, whichever number is lower?	☐	☐	
Did the incident result in a vehicle rollover? • Hydrocarbon cargo involved? • Heavy vehicle rollover? • Light vehicle rollover? • Public road (if no this would result in off road)? • Was there any likelihood of any other road users and/or pedestrians to be involved/in the close area? • Did the vehicle rolled over to the passenger side? • Was speed contributing to the vehicle rollover? • What was the speed of the vehicle at the time of rollover? • Was there any recordable injury? • Was there any violation of company policy, e.g. mobile phone, seatbelts and alcohol & drugs? • In case of a Heavy Vehicle rollover, is the vehicle installed with Roll Stability Control System?	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	Please provide details:

Road	Verified?		
Things to consider	**Y**	**N**	**Notes**
Did line of sight factors contribute to the incident? • Are there obstructions external to the vehicle? • Buildings, trees, vegetation, signs, other vehicles • Are there obstructions internal to the vehicle and vehicle structure? • Does road alignment hinder line of sight?	☐	☐	
Did visibility factors contribute to the incident? • Are levels of illumination sufficient? • Street lighting, vehicle lighting, sun, moon • Visual adaptation time sufficient? • Is there a glare issue? Low sun, oncoming vehicles, reflections • Is there background contrast? • Is conspicuity sufficient? (Vehicle displayed suitable lighting for the conditions)	☐	☐	
Did the external environment contribute to the incident? • Consider the driving environment • Rain, fog, snow, heat, cold, clear, dry wet • Available friction • Road characteristics (e.g. put holes) • Speed limit • Traffic density • Traffic controls, signs, railroad crossing • Road delineation • Law enforcement, automated enforcement • Weather - Rain, fog, snow, heat, cold, clear, dry wet	☐	☐	
Were signs and signal factors relevant to the incident? • Examine relevant signs and signals at the road side • Guide signs, regulatory signs, warning signs • Sign location, illumination, reflectorization, cleanliness • Traffic signals, railroad crossing signals • Pedestrian signals • Construction zone signs • Advance warning signs • Warrants for signs and signals	☐	☐	
Were roadway markings relevant to the incident? • Examine the markings on the road itself • Edge line delineation, centre line markings • No-passing zones • Construction zone markings • De-lineators • Channelization devices, barricades • Stop line, railroad crossing marking, turn lane	☐	☐	

APPENDIX 3: RESOURCES

A3.1 What to do immediately after a crash occurs list of steps

1. Stop Immediately
   a. Ensure your vehicle is stopped in a safe location and switch off the engine
   b. If possible, use your indicator lights, hazard lights or headlights to warn other drivers and light up the scene if it's dark
   c. If your car is unable to be driven check your surroundings and ensure it is safe to exit the vehicle
   d. Once outside of the vehicle scan the area for dangers (i.e. fires, fuel, other vehicles, etc.)
   e. Give immediate assistance to anyone who is injured
2. Call an Ambulance
   a. Call an ambulance if here are serious injuries
3. *Do **not** make any admission of liability or responsibility.*
4. Call the Police
   a. The police need to be notified in the following situations
      ii. A person has been killed or injured
      iii. The other party involved in the accident fails to stop and give their details
      iv. A vehicle has to be towed
      v. The other driver appears to be under the influence of alcohol or drugs
      vi. Damage to property (if the owner of this property is not present at the scene)
      vii. Take the name and number of any policeman who may attend, and the police incident number if given. You are not obliged to make any statement to the Police at this time.
5. Remove Hazards
   a. Review any local hazards created by the accident and take action to minimise the hazard, if it is safe to do so.
6. Exchange Details
   a. Exchange the following details with all parties involved
      i. Date, time and location
      ii. Name and residential address (of the third party).
      iii. Licence and registration details
      iv. Make and model of cars involved in the incident
      v. Insurance policy details, if know and applicable
7. Analyse the scene
   a. Take note of the time and precise location of the accident, making a rough sketch, if possible, of the accident on a sheet of paper.
   b. Take note of any damage to the organisation's vehicle and any other vehicle or property.
   c. Take photographs of the accident scene (road conditions, skid marks, the approach to the accident, etc.), without endangering yourself or others, and ensure all third party vehicle's damage and Registration numbers are clearly visible along with that of your organisation's vehicle - at the scene, road markings, junction layout etc.
   d. Take note any other persons involved (how many passengers carried in third party vehicle(s))
   e. Note any injuries to any person involved in the accident
   f. Take down the details of any witnesses present
8. If your car is not drivable and is causing an obstruction
   a. Contact your employers or your accident management company to make arrangements for it to be removed. The police will arrange to do this if asked but will only remove it to a location of their choice.
9. Report the accident immediately upon return.

Information adapted from:

- Credit to Driving for Better Business
- Credit to Sanofi
- Credit to RMS

A3.2 Standard questions for drivers or involved occupants

Before asking these sorts of questions it is important to ensure that you make the driver feel comfortable, and make them feel as though their job is not threatened. If an employee feels as though their job, and thus their livelihood, may be threatened they may not be forthcoming with the information that you will need i order to ensure an incident like this doesn't occur again.

1. To place the driver/vehicle occupants at the scene of the incident
   - Were you the driver of an XXX bound motor vehicle, registration ABC-123, when it was involved in a collision with (motor vehicle/pedestrian/tree/pole, etc.) at the intersection of Smith and Jones Street, XXXXX about XXXXhrs on XXXday the XXth XXXXX 20XX?
   - Can you tell me your version of events?
   - Are you familiar with the area that this collision occurred? (i.e. Have you driven on this route before?)
   - Can you describe the area to me (road surface, number of lanes, separation of opposing traffic flow, street signage, traffic control lights, street lighting, gradient, speed limit, traffic conditions, weather conditions, lighting at the time, etc.)?
2. Specific questions for the driver:
   - When did you obtain your class C, JHR, HC, MC (delete as applicable) licence?
   - How long have you been driving this vehicle or these types of vehicles?
   - Roughly, how many kilometers a year would you average driving this vehicle or this type of vehicle?
   - What was your view of the road like immediately prior to the collision?
   - Would you say that your attention was solely on the driving task, or do you think you may have been distracted?
   - Did anything distract you from your driving in any way immediately prior (two way use, AM/FM radio use, mobile phone use, controls such as climate control, etc.)? Do you believe it was another work task that was distracting you?
   - Was the view in your external and/or internal mirrors obstructed at all prior to the collision? And if so, was it obstructed by work equipment?
   - Were you wearing a seatbelt?
   - Were you feeling tired or fatigued?
   - Do you feel as though you have had enough sleep in the last 24 hours (in the event of a heavy vehicle you need to include work and rest for the previous 7 days)
   - Have you recently consumed any alcohol or non-prescription drugs? If you have been taking prescription medication, were you informed that you shouldn't be driving?
   - In your opinion, what do you think caused this collision?
   - When did you realise the collision was going to occur? Do you think you had any reaction time?
   - Did you take an evasive action? If not, did you resist serving for safety reasons?
3. Specific questions regarding the vehicle:
   - Did you complete a prestart checklist at the beginning of your shift?
   - Did you identify any faults with the vehicle (if so what reporting procedure was followed)?
   - How familiar are you with the operating controls of the vehicle you were driving (describe gearbox, steering, brake systems)?
   - Do you believe any mechanical defect or fault contributed in any way to this collision (if so, will need to drill down on this view)?
   - Was your windscreen clean? And if not, do you feel that this contributed to a lack of visual clarity?
   - Was your windscreen fogged?
   - Did you have a clear view of the roadway ahead through your windscreen immediately prior to the collision?
   - Were your external mirrors correctly aligned properly for your seating position?

A3.3 Driver checklist and vehicle incident investigation handbooks

Vehicle Incident Investigation Handbook

Vehicle Incident Reporting Booklet and Form

Vehicle Accident Investigation Reference Booklet