Safety Transport Information

Prepared by the Safety Advisory Council | Safety Info TS 07/23

Human Behaviour within Transport Operations

Introduction

The root or basic causes of the majority of all incidents in the industrial and medical gases industry are unsafe behaviours by people (employees, contractors, managers etc.), not failures of plant or equipment. Even immediate causes that may be classified as unsafe conditions are usually created, or allowed to persist, through the behaviour of a person or a group of people.

Transport is one of the highest risk activities in the industry and blame for incidents is often put on the drivers prematurely. Root causes for unsafe driver behaviour are often a result of a poor safety management system.

When implementing a transport safety management system, it is important to give employees of both the industrial and medical gases companies (referred to in this document as Gases Companies) and their contractors, work instructions, rules and policies as to what kind of behaviour is considered to be safe or unsafe. However, it is even more important to help them understand the reasons behind these work instructions, rules and policies so that complying with them becomes a personal commitment and is reflected in their behaviour. Ideally, they should be empowered to promote the safety culture towards colleagues and management to further improve overall safety.

Scope

This Transport Safety Information (TSI) provides advice on how to guide management and drivers of both the Gases Companies and their contractors to create an 'interdependent' safety culture. The goal is to help achieve an environment inside Gases Companies and their contractors that promotes an open communication between employees and management to improve their overall safety performance.

The topic of human factors in general is extensively covered in EIGA's *Safety Information - Human Factors* series of documents [1] and is not the focus of this publication. This TSI focuses on management's and employees' behaviour within transport operations. The aim is to help managers and drivers understand how their behaviour influences transport safety.

Terminology

- TSI: Transport Safety Information
- OBC: On board computer
- ABS: Anti-lock braking system
- PPE: Personal protective equipment
- The terms 'managers', 'drivers' and 'employees' are used to refer to Gases Company employees and to the employees of contractors or sub-contractors.

EUROPEAN INDUSTRIAL GASES ASSOCIATION *AISBL*
AVENUE DE L'ASTRONOMIE 30 • B-1210 BRUSSELS
PHONE +32 2 217 70 98 • E-mail : info@eiga.eu - www.eiga.eu

Learning more about human behaviour within transport operations

1. Does management demonstrate visible leadership concerning safety issues (e.g. attending site safety reviews, participating in local safety programs, auditing and incident investigation)?
2. Do all employees involved in transport operations actively promote safe behaviour to other employees and colleagues?
3. Is there an open communication of risks and hazards (e.g. is near miss reporting encouraged)?
4. Does your transport safety management system include behavioural components? Are you focusing on the *how* and *why* as well as the *what*?
5. Do all employees understand the role they play within the transport safety management system (clear definition of roles and responsibilities)?
6. Are all managers and drivers aware of their companies' work instructions, rules and policies?
7. Are managers aware that their attitudes directly influence the drivers' behaviour?
8. Do managers always act on the safety related feedback they are given?
9. Is management really committed to all drivers coming back home safe at the end of the shift?
10. Are drivers empowered not to follow unsafe practices (e.g. not speeding when in a hurry)?
11. Are drivers aware that the majority of factors that cause road incidents are under their control while driving (e.g. speeding, distraction and fatigue)?
12. Are managers aware that many drivers' unsafe behaviours are the result of poor management (e.g. no effective speed monitoring, drivers answering their calls while they are on the road)?

If the answer to any of the questions above is "no", then you should consider taking action!

THIS TRANSPORT SAFETY INFORMATION SHEET DESCRIBES HOW THE OVERALL SAFETY PERFORMANCE CAN BE IMPROVED BY MANAGING HUMAN BEHAVIOUR.

Elements of transport safety management

There are three key elements to controlling risks and thereby improving transport safety:

1. **Vehicle** technology provides the foundation of safe transport. There are those aspects which are legally required and others that can vary, depending on the safety policy of the Gases Company or contractor.
2. **Procedural** aspects such as work instructions, rules and policies. As above, some are legally required and some may vary depending on the Gases Company or contractor.
3. **Behavioural** aspects are an integral part of an advanced transport safety management system but are sometimes neglected or seen as less important. This is a misconception since vehicle technology and procedures have their limits. Improving employees' behaviour towards safety supports the other two elements and enables a sustainable safety culture.

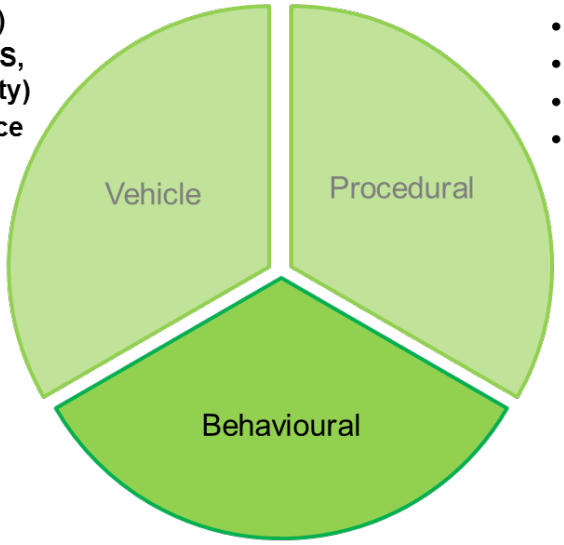
The diagram below shows the three elements with examples of which items should be considered for transport safety. How these are implemented will vary depending on the country of operation, the Gases Company and their contractors.

Vehicle and procedural elements are not within the scope of this TSI which focuses on behaviour within transport.

EUROPEAN INDUSTRIAL GASES ASSOCIATION *AISBL*
AVENUE DE L'ASTRONOMIE 30 ♦ B-1210 BRUSSELS
PHONE +32 2 217 70 98 ♦ E-mail : info@eiga.eu - www.eiga.eu

- **3-point seatbelts**
- **Driving style monitoring (tachograph/OBCs)**
- **Vehicle design (ABS, low centre of gravity)**
- **Vehicle Maintenance**

- **PPE**
- **Procedures**
- **Training**
- **Audits**
- **Inspections**
- **Legislation**
- **Regulatory**



- **Following the rules and procedures (dependent)**
- **Introduce controls and processes to manage the risk (dependent)**
- **Identify the hazards (independent)**
- **Assess the risks (independent)**
- **Looking out for one's self (independent)**
- **Looking out for others at all times (interdependent)**

Types of human behaviour within organisations

In principle, in transport operations there are typically three types of human behaviour concerning safety. *

1. Dependent behaviour

   Employees see safety as a matter of following rules, made by their supervisors or managers.

   Managers only focus on fulfilling the necessary legal requirements and enforce these with controls of employees.

2. Independent behaviour

   All employees have learned to take responsibility for themselves. They believe that they can make a difference with their own actions.

   The management system is considered best practice and not only a fulfilment of the legal requirements. In addition, managers coach their employees on safety issues according to this best practice.

3. Interdependent behaviour

   All employees have learned to take responsibility for themselves and for others. They feel ownership for safety and do not accept sub-standard conditions, actions or risk-taking. There is open discussion on safety related topics and there is the belief that improvement can only be achieved as a group.

   The management system is considered best practice (fulfilling the legal requirements) and managers work together with their employees on safety issues to improve safety for everyone.

* The Bradley Curve (DuPont) also identifies a fourth type of safety culture, namely "Reactive". This is "safety by natural instincts" which is not covered by this publication, as it is expected that gas companies have at least a dependent safety culture.

It is believed that an interdependent safety culture will reduce the number of incidents over time and is believed

to be the only culture that can lead to zero accidents.

A change from a dependent culture to an independent culture will improve the safety performance significantly.

Moving from an independent to an interdependent will further optimise the performance.

The schematic below is a pictorial representation of this principle.

General principles of safe behaviour

It is the right of every person to go home safe at the end of each working shift. To achieve this goal, managers as well as drivers have a role to play.

In order to act safely an employee requires the correct mind-set. For every task they should check if they are compliant with the following basic principles:

- Only handle tasks which are safe, in accordance with procedures and which you have been trained for and authorised to do.
- Analyse the significant hazards and risks and ensure that they are under control.
- Changes to procedures, operating ranges, components or materials are not allowed unless a Management of Change (MOC) process has been properly implemented by the gas company management.
- Check compliance with the established work instructions, rules and policies and that short-cuts are not being taken.
- Never override safety equipment. Respect the original intent and importance of safeguarding devices, and the time required to work safely.
- Make any suggestions for improvement formally.
- Check that you are alert and not fatigued.

- Check that you are continually assessing the risks and that you are not complacent.
- Act immediately when you observe at-risk behaviours or conditions in order to control the risks.
- Take responsibility for your own actions, condition and decisions. Whenever you feel unsafe you should stop the job immediately and communicate your concerns to management.
- Always consider the safety of other people and do not put them or the environment at risk by your behaviour, actions or decisions.

Additional guidance is given in Doc.94 *Life Saving Rules* published by EIGA [2].

Manager behaviour

Sustainably changing the safety culture of a company takes time and effort. All managers play a significant role in achieving this goal. The following are examples of management behaviour relating to transport operation.

- Managers shall understand their role and what behaviour is expected of them as leaders.
  - Unsafe driver behaviour is often the result of poor management behaviour. It is the driver's choice for example to speed or to continue to drive if fatigued. But these unsafe behaviours are often the result of managers' pressure to conclude a trip and/or poor speed management.
- Managers shall display personal ownership for safety. This means that a manager shall not only promote safety verbally or through adherence to procedures, but also consistently demonstrate his commitment to safety through his actions. A part of personal ownership is for managers to:
  - actively participate in incident investigations,
  - follow up on corrective actions and compliance issues to ensure that drivers are not exposed to unnecessary risks,
  - lead safety talks with the drivers, including those based at remote locations,
  - take action and provide feedback when suggestions, problems or dangerous situations are raised by employees,
  - provide vehicles in good condition and ensure they are maintained.
- Managers shall improve team work and communication between management, drivers and the wider employee group at all locations.
  - Managers should encourage the drivers to recognize all risks during their duty and provide proper conditions (time and place) to share their experiences with each other.
  - Open discussions between drivers can provide a reliable source of information on unsafe conditions and critical behaviours during the trips, enabling them to learn from each other. The result of these discussions should be shared with management.
- Managers shall understand the positive and negative impact they can have on the behaviour of others.
  - Their poor behaviour and actions can result in the same attitude by drivers (e.g. talking on the phone while driving, not wearing correct PPE, not wearing a seat belt).
  - Their positive example will provide reinforcement for others.
- Managers shall be committed to actively support improving the Gases Company or contractor safety performance.
  - Managers shall be fully engaged in reducing the number of fatalities and incidents, not just because it is an important performance indicator but because they are concerned for the lives of drivers and third parties.

Different levels of management have different areas of responsibility, but each level of management is responsible for developing and sustaining this safety culture. Senior management shall provide the leadership and environment for improving the safety culture and performance.

Managers shall:

- Provide necessary resources (personnel, e.g. master/lead driver and driver trainers, and financial).

- Provide good safety guidelines and rules that are clear and consistent.
- Empower employees or contractors to become interdependent.
- Actively participate in local safety initiatives when visiting depots/plants.
- Seek out opportunities to recognise good safety performance.
- Have a process in place that supports sustainability and continuous improvement.

The above are general principles. They are not specific to transport functions but are applicable throughout an organisation.

The following principles are specific to transport:

- Develop a common awareness and list of the most frequent causes of accidents within transport operations.
- Increase awareness of those immediate and root causes of accidents that can be controlled either directly by individual behaviour or indirectly by team behaviour.
- Agree on the different types of hazards and how managers and drivers can control those hazards.
- Establish an environment in which hazards and risks are communicated openly between drivers and management.
- Embrace team building between the drivers and other personnel to create an environment where everyone is looking out for each other (e.g. scheduling, maintenance).
- Develop self-observation programmes and training for drivers working alone.
- Develop and practice a consistent method of dynamic risk assessment for transport operations (see Step 2).

Driver behaviour

Road transport accidents and incidents cannot be avoided by simply providing sophisticated vehicle technology and establishing work instructions, rules and policies. It is also essential that the drivers demonstrate safe behaviour at all times.

The following are examples of safe driver behaviours:

- Positive assessment of hazards or risks (e.g. not following the vehicle ahead too closely, not manoeuvring into delivery points with restricted access without assistance).
- Consistently reacting to unsafe road conditions (e.g. reducing speed to account for heavy traffic, weather or pedestrians).
- Following a safe system of work (e.g. not jumping from vehicle but always following “3 points of contact” rule, wearing PPE).
- Not taking procedural shortcuts (e.g. pre-trip inspections conducted).
- Reporting unsafe conditions (e.g. congested workplaces at customers’ sites or own locations, defective equipment).
- Adequate preparation/planning (e.g. proper setting of mirrors, route planning).
- Never engaging in activities while driving that cause distraction (e.g. using mobile phone, eating or drinking).
- Never parking the vehicle in an inappropriate location that creates an obstruction or hazard.
- Always drive defensively.

For information on driver training, please see Info TS 03 *Training: Induction and Refresher Training of Drivers, Management & Other Transport Function Personnel* [3].

Influencing drivers’ behaviour

The approach to influencing the driver to change their behaviour to become interdependent may vary from country to country. Often the sense and awareness of safety related issues is influenced by the cultural influencing/improving drivers’ behaviour.

As a general approach to managing behavioural safety of drivers the following three steps should be considered.

Step 1: Identify and eliminate or reduce hazards in cooperation with the drivers, promote open communication to raise drivers' and managers' awareness

It is important to not simply give the drivers a list of hazards which management has identified (e.g. based on experience or Key Performance Indicators (KPIs), but to invite drivers to actively share their own experience from their day to day work. This way the drivers can also learn from each other. Input from other drivers is often more credible and accepted than input from management. Together with their managers, drivers must work continuously to reduce or eliminate hazards.

KPIs should not only focus on driving performance but should include site, customer and road hazard reporting and communication.

Step 2: Dynamic risk assessment

The risks on the road are very dynamic / continuously changing. Driving conditions can change very quickly due to increased traffic flow, weather, road surface and interactions with third parties (pedestrians or other drivers) etc.

For this reason, it is crucial that drivers are able to recognise these risks and react appropriately during the trip.

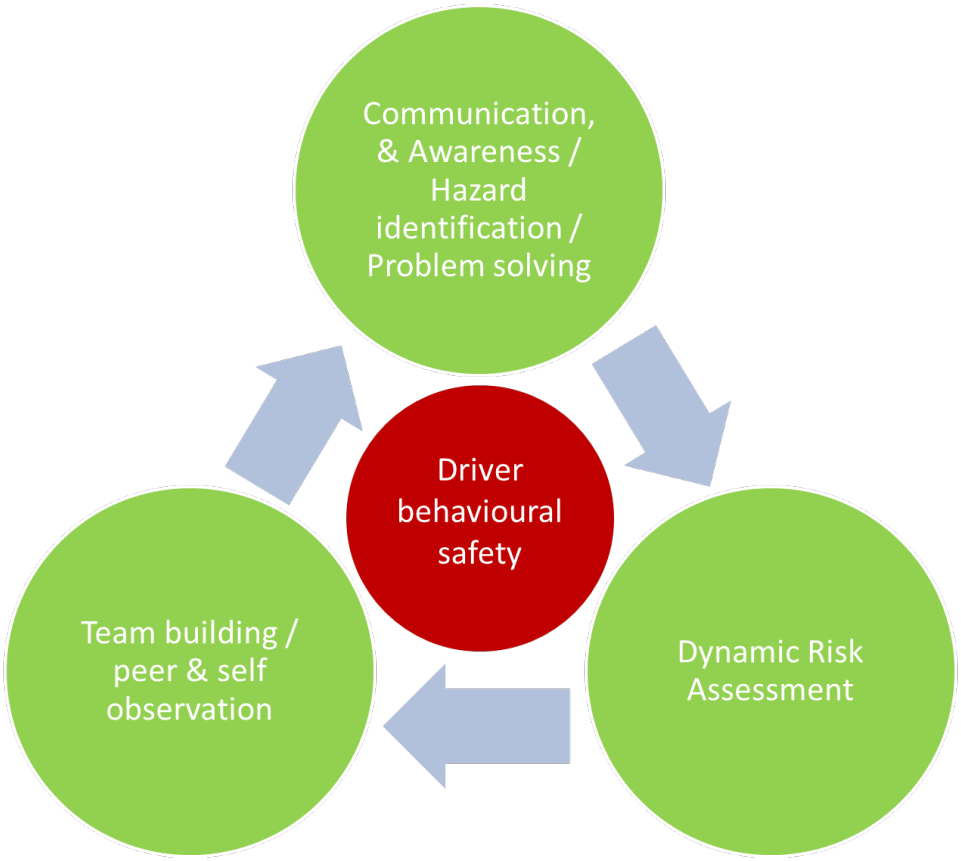
Dynamic risk assessment is also applicable for non-driving activities such as loading and unloading at customer sites.

Step 3: Promote team building for peer and self-observation

Team building helps create an environment where drivers share their experiences and learn from each other. The drivers should be motivated to actively observe the performed tasks (theirs and of their colleagues) and bring unsafe actions to the attention of others during driver meetings for open discussion. The result of these discussions should be shared with management.

In some cultures, drivers may resist sharing all information with management, which is why it might improve the safety performance to create a communication platform without direct oversight by management. Voluntary feedback through such a platform can provide good information about unsafe conditions, critical behaviours and drivers' behavioural changes over time.

Step 3 would then lead back to step 1, making this process a continuous improvement cycle, see below.



As previously mentioned, this is a general methodology. To reach the hearts and minds of the drivers, additional motivation might be necessary.

Effective motivation depends on the mind-set and the cultural background of the drivers and managers. Often a program of recognition for rewarding good behaviour is an effective way of motivating individuals to work safely. This can be in the form of a verbal “thank you” from managers, a letter to the employee’s home or an article in the company magazine or on the internal website.

In some countries it could be beneficial to involve the families of the drivers in the driver training or incentive programmes, in other countries rewards and recognition programmes might have a more positive effect.

Pilot programmes can be run at specific sites to understand and resolve any issues. After a successful pilot, the programme may be rolled out, implementing relevant improvements and lessons learnt.

The goal of any programme shall always be to motivate and encourage the driver to make a personal choice to always work safely and to support his colleagues to stay safe at all times.

Conclusions

Changing the behaviour of all employees in the workplace will achieve:

- a reduced number of accidents and fewer injuries,
- a reduction in risks caused by unsafe behaviours of drivers and managers,
- improved employee empowerment where drivers will stop a task if they feel unsafe,
- improved employee confidence by closer engagement and involvement,
- employee motivation by making the employee feel valued,
- employee recognition by providing feedback,
- improved teamwork by promoting common goals, working together to identify and solve transport related safety issues,

- improved performance.

The result is an environment within the workplace that empowers the managers and drivers to achieve an interdependent safety culture.

References

[1] *Safety Information – Human Factors*, Various topics. Info HF 01 onwards. European Industrial Gases Association. www.eiga.eu.

[2] Doc 924 *Life Saving Rules*. European Industrial Gases Association. www.eiga.eu (Members only area)

[3] Info TS 03 *Training: Induction and Refresher Training of Drivers, Management & Other Transport Function Personnel.* www.eiga.eu

Additional information

Doc.118 *Management of Contractors*. EIGA. www.eiga.eu

SI-TS 4 *Transport of Gases - Contractor Management*. European Industrial Gases Association. www.eiga.eu.

Directive 89/391/EEC - OSH "Framework Directive" of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work - "Framework Directive.. https://osha.europa.eu/

ISO 39001:2012 *Road traffic safety (RTS) management systems - Requirements with guidance for use.* International Standards Organisation. www.iso.org.

EUROPEAN INDUSTRIAL GASES ASSOCIATION *AISBL*
AVENUE DE L'ASTRONOMIE 30 ♦ B-1210 BRUSSELS
PHONE +32 2 217 70 98 ♦ E-mail : info@eiga.eu - www.eiga.eu