BEHAVIOUR BASED SAFETY

GUIDELINES FOR TRAINING OF DRIVERS

AND

SAFE DRIVING OF ROAD FREIGHT VEHICLES

Issue 2 November 2013

DISCLAMER

This document is intended for information only and sets out guidelines for a BBS training programme, with which the overall safety performance with respect to driving of road freight vehicles can be improved effectively. The information contained in these guidelines is provided in good faith and, while it is accurate as far as the authors are aware, no representations or warranties are made with regards to its completeness. It is not intended to be a comprehensive guide to all detailed aspects of road safety.

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1.0 INTRODUCTION

Both the transport industry and the chemical industry continuously strive to improve the safety of their operations by undertaking HSSE initiatives such as SQAS, BBS Best Practice Guidelines (eg. Safe Driving, Un/Loading, Working at Height) etc.

Particularly ensuring safe transport of (petro) chemical products is of key importance for both industries. Safe transport of (petro) chemical products is considered as an integral part of the Responsible Care initiative and continuous efforts to improve road transport safety are made. This has led to a decrease in the number of road transport accidents.

However, this trend has halted in the last few years, with the annual accident statistics of individual transport companies showing signs of flat lining. There are a number of external issues that have contributed to this, being, increased traffic and congestion across Europe, transport volume requirements in general, work pressure and also because of general behaviour/demographic changes, the demands on drivers of large goods vehicles are now much more complex and pressing than in the past.

In order to provide a new stimulus for further reducing the number of road transport accidents during chemical transports, ECTA and Cefic have taken the initiative to update and revamp the wider implementation of Behaviour Based Safety (BBS) in the safe driving of road freight vehicles. This has at the same time been aligned to the EU Driver Training Directive 2003/59/EC to assist trainers in meeting these requirements.

In order to achieve and come to an improved and more standardised/consistent approach across both industries with regard to BBS, ECTA and Cefic along with training institutes and other interested parties (see contact list at end of document) set in motion a working group to achieve the objectives as set out within this document.

One of the outcomes of this working group is a new guideline that provides a framework based on the best practices established during this review.

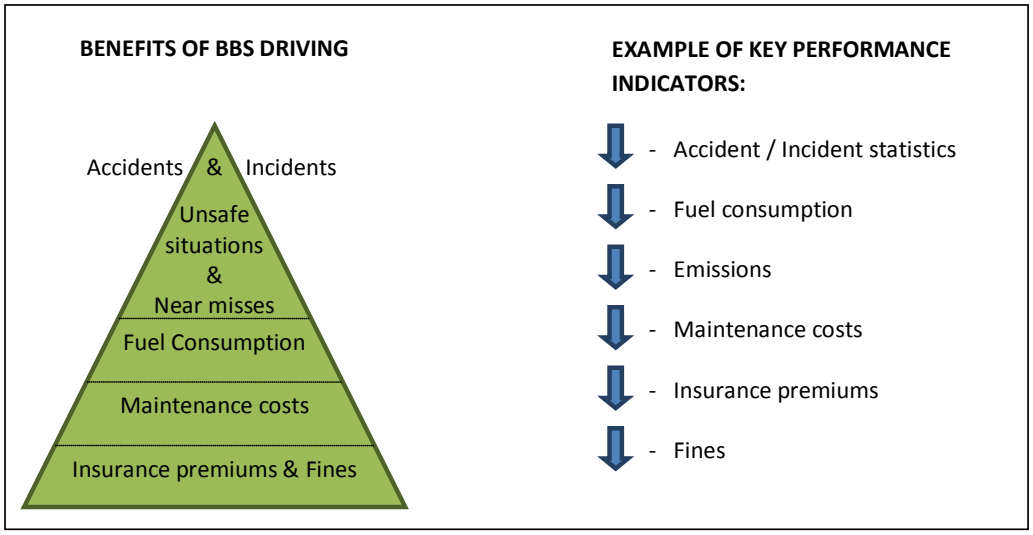
These Guidelines are intended to outline ways and means of how to improve a company's road transport safety performance through the application of BBS whilst also complying with the requirements of the European Directive on driver training and demonstrating that safety and economic interests go hand in hand for all parties involved.

2.0 OBJECTIVE AND SCOPE

BBS is a programme that aims at increasing safety during road freight transport by positively influencing the behaviour of drivers through training, observation, coaching and communication and following up the implementation process. It is in addition to other (legally) required driver training like those required by ADR.

The BBS programme targets all European (chemical) transport companies, whether they have a Responsible Care scheme or not. It is intended that the application of BBS should become an on-going effort by every individual transport company, inclusive of those companies who are subcontracted (fully or part integrated partners).

It is expected that this programme will improve safety performance, have a positive effect on fuel consumption, other related maintenance costs, insurance premiums and assist compliance with the driver training process and also ensure a high quality delivery is served. A further objective is to conduct a proactive Risk Management programme based on Risk Assessments that are undertaken on a frequent basis.



#01 – Benefits and Key Performances

3.0 PROCESS

The process for implementing BBS should reside in the carrier's organisation as an important element of the continuous HSSE improvement programme. It should include the following steps:-

- Company management develops a BBS implementation plan and training programme based on the principles described in these guidelines.
- BBS trainers are recruited (internally or externally eg from a training institute) and obtain training in accordance with the principles set out by these Guidelines. Trainers could be qualified as a BBS trainer by an external body.
- It is vitally important that the trainers are seen as experienced, capable and able to impart knowledge to others in a professional manner.
- BBS trainers provide individual training to drivers.
  This could be an integral element of the European Directive on driver training and the training hours required to comply with this directive.
- BBS trainers produce an assessment report for each trained driver, which is kept on file and/or may be incorporated into a database.
- The drivers obtain a copy of their assessment report and may consult the filing system for their individual records (as required by law in some countries).
- The company keeps records of performance indicators such as incident/accident statistics, fuel consumption, maintenance costs, insurance premiums and fines.
- Regular analysis of the results of the BBS programme by senior management will provide a useful tool in deciding on further steps towards continuous improvement.
- Checking of implementation of BBS during the tri-annual SQAS assessment of the carrier.
- On-going observation of the implementation by eg technical support systems (telematics), intermediate checks (safety advisors) or checkpoints …

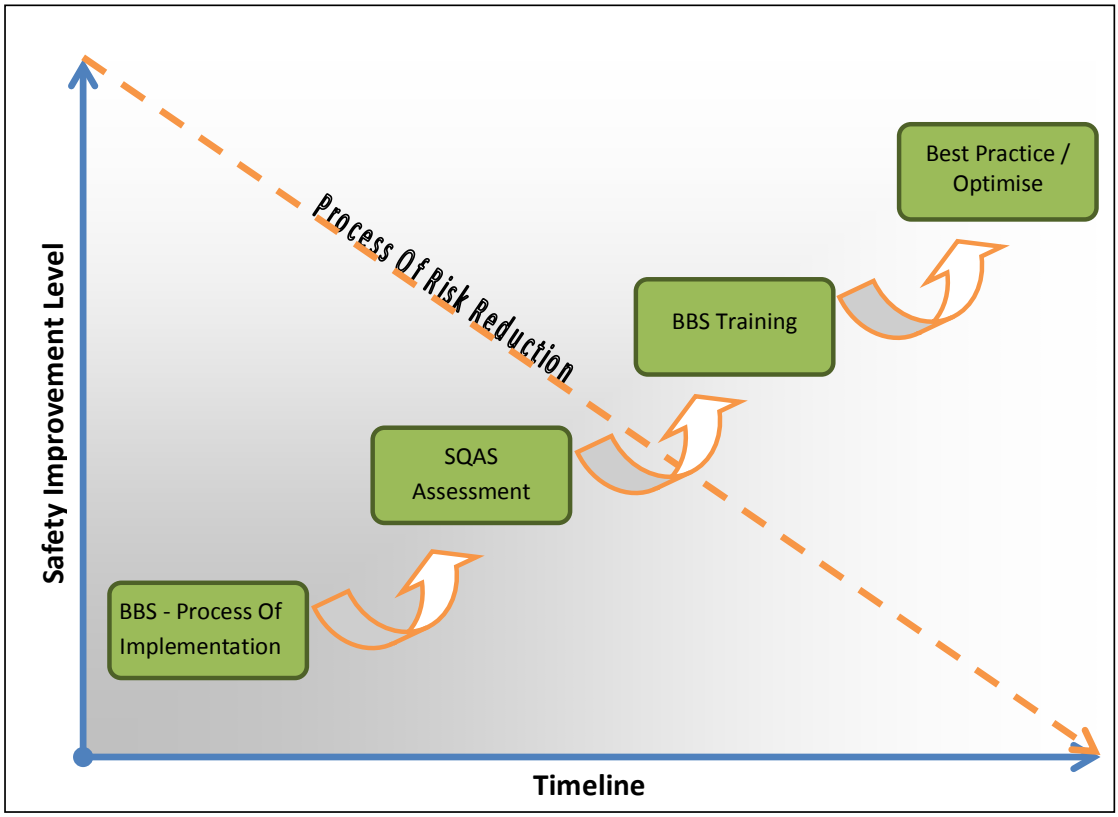
BBS safe driving should also be seen as an integral element of the "Best Practice guidelines for Safe Loading and Unloading of Road Freight vehicles, covering technical, behavioural and organisational aspects". Also Cefic/ECTA Industry Guidelines for the Security of the Transport of Dangerous Goods by Road

All of the above guidelines can be downloaded at www.ecta.com

4.0 RISK REDUCTION MODEL

Due to increases in work pressure, and general behavioural changes, the demands on drivers are now much more complex and pressing than in the past. In the short to medium term, substitution of road transport on a significant scale by other modes is not envisaged.

These guidelines are intended to give a clear and concise outline of how to positively-influence a company's road transport safety performance, assist with reducing all associated operating risks to a minimum and assist with compliance of the EU Driver Training requirements.



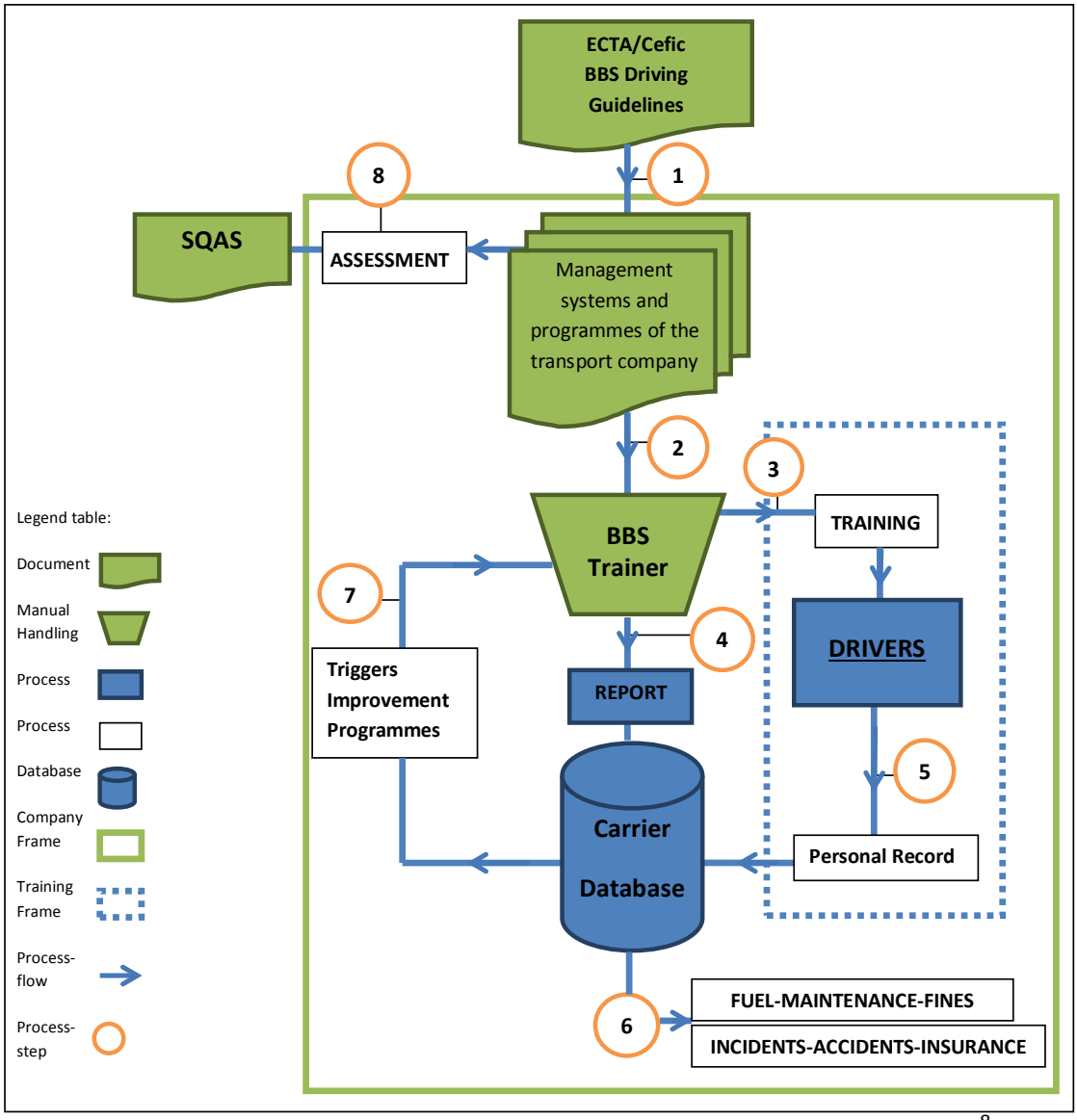
#02 – Safety Improvement & Risk Reduction

5.0 MANAGEMENT

5.1 POLICY

Successful implementation of Behaviour Based Safety requires a top-down management approach. The company's policy must not only reflect the importance of BBS but also the commitment of the management.

BBS must be fully integrated in the carrier's organisation and management systems. It needs to become an integral part of the company's culture and be one of the key drivers for continuous performance improvement through the implementation of key performance indicators.



#03 – Management Paradigm

5.2 RESPONSIBILITIES

5.2.1 MANAGEMENT

Management should: 1 6 7 8

- Believe and understand and be fully convinced of the needs and advantages of implementation of BBS
- Prepare a document describing the company's planned approach towards BBS, driver training including all components'
- Communicate this plan to all personnel involved and review it at least annually.
- Develop a BBS training programme.
- Initiate, implement and provide on-going support for the BBS programme.
- Define roles, deliver resources, resolve issues and remove barriers for successful implementation.
- Set targets, monitor status and results.
- Keep records of performance indicators
- Manage the improvement process based on BBS data analysis.
- Avoid instructions and management behaviours that conflict with BBS principles.

5.2.2 DISPATCHERS / PLANNERS

Dispatchers / planners should:

- Understand and support the BBS programme and support the driver trainers in the execution phase.
- Avoid planning and instructions that conflict with BBS principles (e.g. unrealistic delivery times).

5.2.3 TRAINERS

Trainers should: 2 3 4

- Believe and understand so that they are able to train personnel convincingly.
- Execute the BBS training.
- Observe and interactively communicate the findings with the driver.
- Collect data and report results and inform management of proposed improvements.

Identify and report any issues that need to be followed up by driver or management (confidentiality of private information to be guaranteed). The qualification of the trainer is essential for the success of the programme. See section 8.

5.2.4 DRIVERS

Drivers should: 5

- Understand the purpose of the BBS programme and be committed to participate.
- Discuss performance improvements with the trainer and help in finding solutions.
- Implement preventative changes and improvements as a result of BBS analysis.

5.3 TASKS

5.3.1 TRAINING

Training is the main task of the BBS programme. Details are described in chapter 6.

5.3.2 RECORD KEEPING

Driver records, along with the individual training observations and checklists along with an attestation, should be collated by the carrier into an efficient storage and retrieval system (database and/or filing system). Drivers receive a BBS training attestation and have the possibility of obtaining a copy of their personal record as a reminder/learning tool for continuous improvement.

In addition to the above attestation issued by the company there are additional requirements for a separate attestation when the BBS programme is accepted by the country/ local authority in line with EN 2003/59/EC.

Other key performance indicators such as incidents/accidents statistics, fuel consumption, maintenance costs, insurance premiums and fines should be identified, monitored and recorded to demonstrate and follow up the results of the programme.

5.3.3 ANALYSIS

Management use the collected data to identify structural trends and issues.

5.3.4 OBSERVATION OF IMPLEMENTATION OF A BBS PROGRAMME

A critical aspect of the success in a BBS programme is the additional follow-up on the drivers behaviour after their training. Details are to be found in chapter 10.

5.3.5 FOLLOW UP / CORRECTIVE ACTIONS

Results of analyses should trigger corrective actions to processes, safety programmes and improvement of employee performance. The effect of implemented corrective actions should be monitored through the key performance indicators.

5.4 SUBCONTRACTING – INTEGRATED PARTNERS

There should be a system in place that guarantees that BBS is cascaded to all sub contracted partners (non-fully integrated and fully integrated), this is closely allied to the ECTA/Cefic guideline on Subcontracting and the companies SQAS assessment report which is verified by the SQAS Assessor. For fully integrated subcontractors, the transport company should directly manage the BBS programme, for the non-integrated subcontractors the transport company has a surveillance/assessment role.

6.0 TRAINING PROGRAMME

6.1 GENERAL TRAINING

The general training is dedicated to transport management and planners. It's purpose is to inform and engage personnel about the BBS programme – to make them believe in and understand the programme. To generate maximum benefit for the carrier, it is important that management and operational staff fully understand how their role and behaviour may directly affect the behaviour of the driver (e.g. by avoiding extended working hours, rush orders, delayed/late instructions, unrealistic delivery times etc). This training can be provided in the form of a guidance document.

The general training can also be used for cascading the process to subcontracted partners.

6.2 DRIVER TRAINING

6.2.1 FORMAT

The benefits derived from the personal experience of the individual involved by a totally interactive programme. It is carried out on a one-to-one basis between the trainer and a driver.

The trainer should observe the driver while driving and manoeuvring on the road. The purpose is to assess individual strengths and have in place driving improvements that address behavioural driving skills. As this differs from individual to individual, the items listed in section 5.2.4 should be considered as a guideline only, which may not need to be assessed/checked in the entirety at each session.

Behaviour that may lead to an unsafe situation or condition should be corrected by interactive communication between the trainer and the driver.

Trainers should have the skill to convince the driver of the unsafe situation, and show how to prevent this occurrence. Therefore technically supported training methods such as simulator training cannot replace face to face BBS training. Simulator training could play an integral role for follow-up checks and shorter term intermediate checks.

6.2.2 CHARACTERISTICS

A successful Behaviour Based Safety training programme needs to focus on driving. The trainer should take the driver onto the road and check/observe a number of key performance criteria including:

- Concentration, observation and anticipation.
- Driving skills as applied to all aspects of driving
- Vehicle control and observation techniques.
- The principles of accident avoidance.
- Spatial awareness

Throughout the on-the-road assessment, the trainer should positively influence the behaviour of the driver by observing and providing clear feedback on observations noted.

Preferably the route should be familiar to both the driver and trainer. It is recommended that a standard delivery route be taken so that the driver is as relaxed as possible. This approach is more likely to reveal how the driver would perform when driving alone.

6.2.3 DRIVER PROFILE

Before the start of the training a complete profile of the driver should be made available to the trainer. This driver profile should contain details of the following:

- Age
- Years of service
- Driving licence
- Previous experience
- Driving related fines and convictions
- Safety record – accidents/incidents
- Previous BBS training record including risk profile and agreed action plan

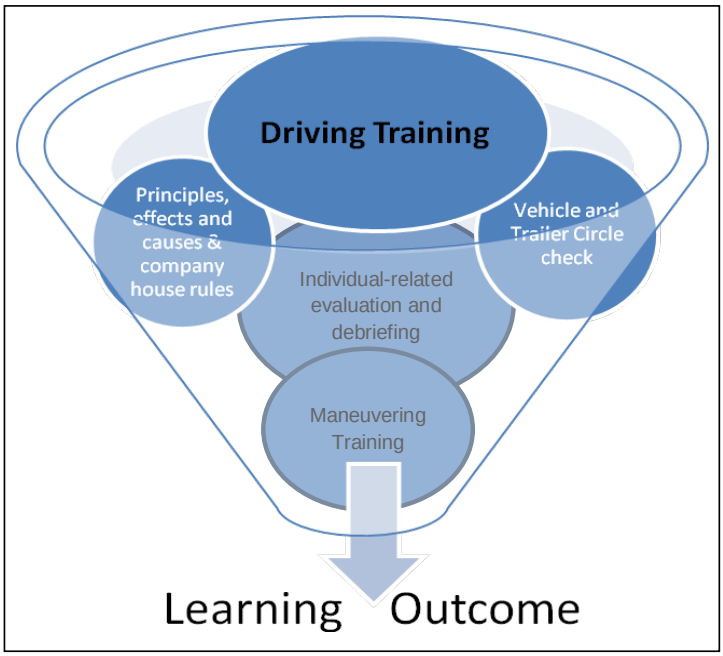
6.2.4 TRAINING AGENDA

Learning Outcome:

The participant has to be distinctly aware that good concentration, observation and anticipation maintain a safety based driving behaviour. The participant also has to demonstrate that his driving skills are adequate as they apply to all aspects of driving. The participant should also apply the principles of accident avoidance.

Training duration:

The training will not be less than half a day, recommended 7 hours to assist with European Directive on driver training.



#04 – Main Contents and the "funnel" effect for training effectiveness

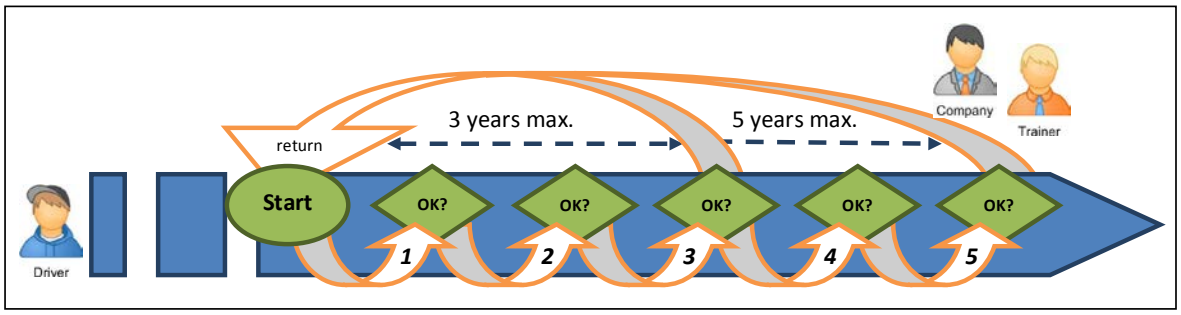
See Appendix A For the training description of requirements and addressed methods.

7.0 FREQUENCY OF TRAINING

It is necessary to respond quickly to incorrect BBS behaviour. The frequency may vary between once every 1 to 5 years depending on the annual performance review of each individual driver.

It is proposed that companies start with a time frame of 3 years for the BBS Safe Driving of Vehicles programme. If serious behaviour based shortcomings are identified it is recommended to have a shorter time frame. If no behavioural shortcomings are identified (identified during the annual analysis), it is recommended to continue with a maximum frequency of full 5 years.

It should be noted that the first training has the highest impact and will be of most benefit to the driver. It is recommended that the initial training exploits the maximum time frame for each learning outcome. The trainee will sense its full potential in a face to face of a complete training day.



#05 – Frequency Scheme

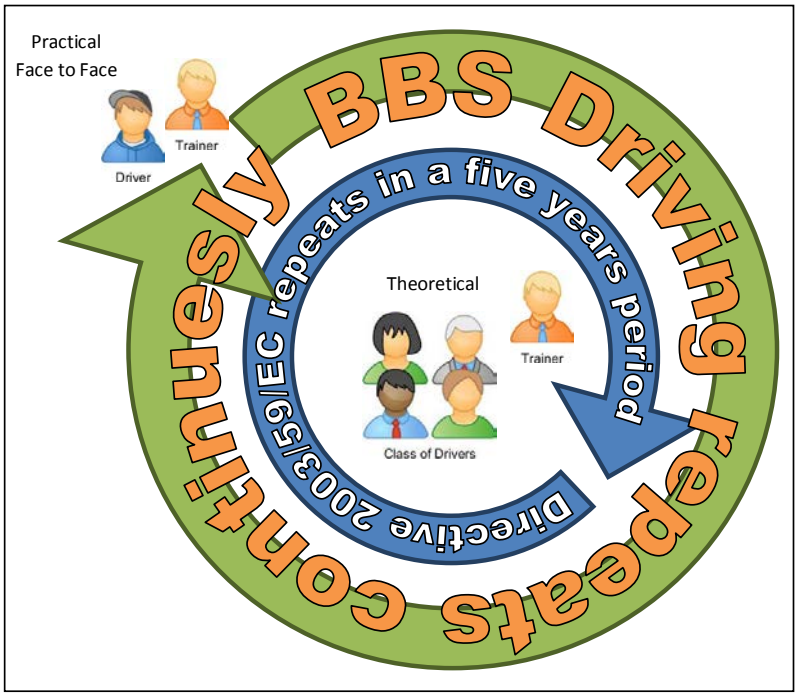
8.0 INTERFACE BETWEEN BEHAVIOUR BASED SAFETY AND EUROPEAN DIRECTIVE 2003/59/EC

It is recognised there are many new initiatives in Europe aimed at setting a minimum standard of professional driving (e.g. Directive 2003/59/EC).

This directive cannot replace face to face BBS training, but BBS does complement the European Directive on Driver Training and the successful completion of the CPC periodic training.

It should also be noted, the directive is not implemented equally in all participating countries. There are countries where the practical teaching approach can be omitted. This fact contradicts the fundamentals of the BBS concept.

Therefore, it is only practicable to apply BBS for CPC certification if the BBS training is implemented as a practical component in combination with the other courses. The training situation (1 on 1) may vary within the timeframe according to the requirements, but it must be maintained (see 7.0 Frequency). The prerequisite for this is that it is legally possible. The recording of the results must also be specifically identified (see: 5.3.2 Record keeping).



9.0 TRAINER QUALIFICATION

A successful programme depends heavily on the skills of the trainer. The selection of the trainer is therefore critical. Trainers can be recruited internally or externally (e.g. from a training institute).

Trainers should be trained on the content, objectives and requirements of the carriers' BBS implementation plan and driver training programme within the company, based on the principles set out in these Guidelines.

The approved trainers should be competent in the required training skills, imparting training to trainees, also a sound knowledge of the most recent regulations and guidelines. The trainer should know how to apply the educational engineering skills. For more details please see the table below.

Desired knowledge, skills and competences of the trainer which are to be maintained as current:

Knowledge – Skills – Competences	**Evaluation Process of trainers**
Regulations and Guidelines • National transport regulations and legislation • International transport regulations and legislation • BBS concept and SQAS system • Initiatives, programmes and references	The trainer should have an overview and know the regulations and guidelines. The trainer should know how to apply regulations and guidelines and evaluate misbehaviour, as well as new initiatives and programmes.
Competence of the training and training skills • Teaching Skills and personal relationship • Psychological and social theories • Working and learning atmosphere, learning conditions • Disorders, relationship problems • Performance review, assurance and assessment • Reporting skills	The trainer should have good teaching and training skills. The trainer should know how to apply the BBS training. The trainer can evaluate findings and instruct on necessary improvements.
Educational engineering • Internal and external factors • Learning objectives • Learning processes and progresses • Principles of educational planning and scheduling • Learning materials, media and methods	The trainer should know how to apply the educational engineering skills. The trainer should evaluate and choose suiting principles and methods.

As part of the selection procedure, the trainers must be able to prove their knowledge of both the subject material and teaching methods. As regards the practical part of the training, trainers must provide certification of experience as professional drivers or similar driving experience, such as that of driving instructors for heavy vehicles.

As regards the acceptance of the trainees and the support of the training manager the trainers need to have 5 years experience in national or international transport operational roles concerning the work of the driver to be trained.

They should have a good reputation as well as an excellent safety record and be well respected amongst peers, should provide employer's reference of excellent interpersonal skills and should be objective and independent.

Trainers should have a continuing educational process (keyword: lifelong learning). They should follow and personally aim to improve their training abilities, skills and quality.

Additional remarks for internal trainers and training of direct colleagues:

With internally appointed trainers it is advisable that they have an independent position and relationship with the drivers. Training of direct colleagues should be avoided. From experience within the road transport industry, it is estimated that approximately one in ten experienced drivers have the necessary communication skills, experience, technical knowledge and respect of their peers, to become a successful trainer.

10. OBSERVATION OF IMPLEMENTATION OF A BBS PROGRAMME

A critical aspect of the success in a BBS programme is the additional follow-up on the drivers behaviour after their training (initial and follow-up). Basically, there are three possibilities:

- Spot checks
- Technical supports
  - Telematics
  - Canbus-Readout
  - EBS-readout
- Check Point System

10.1 SPOT CHECKS

"Spot checks" are essentially unannounced observations of drivers. The transport company has to define a programme to conduct the observations that can be scheduled by region and per month.

The first step to implement this programme is the appointment of "Safety Monitors". They are experienced people who are appointed to observe the drivers. In principle, they can be the BBS trainer(s), with these additional responsibilities:

- Spot checks (unannounced)
- Report to the top LSPs Management
- Follow-Up of drivers with low performance

Feedback on findings should always be positively presented and communicated. It is recommended to use a check list to conduct the spot checks. The check list can be a simple list to verify compliance or a more sophisticated system using scores and weighting criteria of each aspect to be assessed (quantitative verification).

In the Appendix B an example of the last type of check list can be found. The check list should be adapted to the "culture" of the company and take into account local labour legislation.

The outcome of the spot checks should be discussed with the driver and the responsible transport management.

If a negative trend of bad results of the driver's assessments is observed, the frequency of the spot checks needs to be increased. A system to prioritise those drivers for monitoring should be developed to ensure follow-up of the drivers that require it the most.

10.2 TECHNICAL SUPPORT – TELEMATICS, CANBUS-READOUT, EBS-READOUT

Technology can assist in monitoring drivers and its inclusion in a BBS programme cannot be ignored. There are many systems in the market and the evolution of this industry is very progressive.

The main systems that are available are: Telematics/Telemetric. There are basically two types of systems on the market.

GPS (Global Positioning System) – Telematic:

A simple affordable system, offering only geo-positioning and communication tools as an option. They are also called "connected navigation systems". From these systems the following information can be obtained:-

- Position: Useful to verify if the driver is parked at the right/instructed position (e.g.)
- Direction of travel
- Routing: Location of destination and the ability to advise drivers of the planned/instructed (safe) route
- Speed monitoring

IVMS (In vehicle Monitoring System) – Telemetric:

Several scientific studies show the positive effects on road safety performance, after an IVMS device is installed in the vehicle. Installing IVMS with provision of feedback to the drivers reduces speeding, unsafe driving behaviours and improves transport operating efficiencies. This is a more expensive option than the previous one.

This system allows (in addition to information mentioned under GPS Telematic):

- Analyses and improvement of road transport planning and safety performance
- Provide regular, formal feedback to drivers
- The possibility to provide recognition for compliance and sanctions for non-compliance

Other benefits of IVMS include improved:

- Driver and vehicle utilisation
- Vehicle maintenance
- Fuel consumption
- Theft deterrent and reduced insurance premiums
- Reduction in kilometres travelled
- Route planning
- Contractor performance management and improved customer service (vehicle tracking/delivery advice)

The following information can be obtained from the system:

- Fuel monitoring
- Driving behaviour (acceleration/deceleration behaviour).
  Some systems also provide feedback from the Roll-Stability-Support (RSS) system measuring how many times the system was automatically activated.
- Defensive driving reports
- Economy-based reporting
- Driver performance reports on a defined time-basis should be generated to provide feedback to the drivers
- Record driver working/rest times similarly to a tachograph.

Year to date trending graph/report of average driver behaviour scores should also be made available to respective managers on a regular (e.g. monthly or quarterly) basis for tracking of driver performance trends.

VDR (Vehicle Data Recorder/tachograph) that only records speed and time are not considered an IVMS (In Vehicle Monitoring System) system even though the newer electronic tachographs have more functionality than the older analogue versions.

10.3 CHECKPOINT SYSTEM

This is a systematic check from strategic points such as terminals, truck stops, partners etc. that can be used for monitoring.

For example:

- Some terminals have camera-monitoring for the incoming shipments that can be used for feedback on equipment damages and behaviour during driving whilst on the terminal.
- Others may use infra-red communications on vehicles that download information into receiving devices.

On some dedicated places “safety monitors” can be appointed, who check vehicles and drivers based on checklists – unannounced checks (see point 10.1).

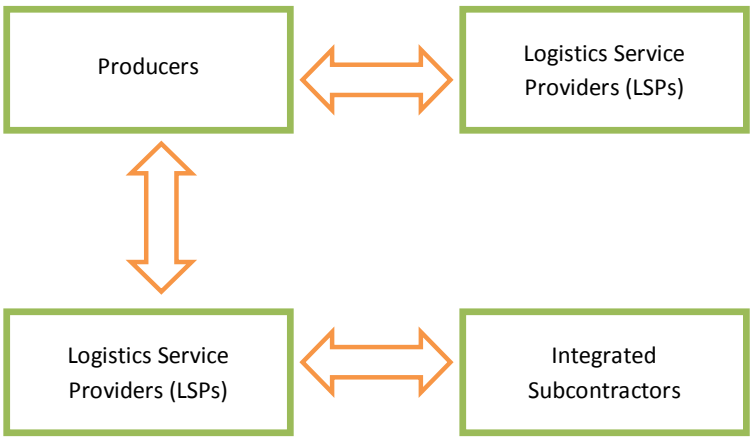
11. SQAS

The BBS concept is fully integrated into the SQAS Core and Transport Service Questionnaires. There are several questions, based on the requirements set in this guideline.

During a SQAS assessment, the SQAS assessor assess the implementation status of the BBS programme in the main haulier. Checks are also made to verify, that BBS programmes of subcontracted companies are controlled by the main haulier. (See Section 5.4)

12. BBS CONTRACTUAL AGREEMENTS – PRODUCERS / LSPs

It is recommended that the contract includes the request to develop and implement a BBS programme according to the requirements specified in this guideline. Between..



13. DRIVER SPOT CHECK FORM

SPOT CHECK FORM USAGE: See Appendix B

The form is an example of a Spot check. Here, a scoring system is used and after the spot check, a score is assigned to the driver. The company should adapt this form to its own culture and local legal requirements.

Appendix A TRAINING AGENDA

Learning Outcome

The participant has to be distinctly aware that good concentration, observation and anticipation maintain a safety based driving behaviour. The participant also has to demonstrate that his driving skills are adequate as they apply to all aspects of driving. The participant should also apply the principles of accident avoidance.

<table>
<tr><td colspan="2">1 Learning Objective / Principles, effects and causes

The participant understands the purpose of the BBS programme, also has an overview of the expected improvement of the programme. The participant has an insight into the schedule of the training day and knows the company house rules.</td><td>Timeframe

30 min
(up to 45 min)</td></tr>
<tr><td>Contents

Principles, effects and causes
• Purpose of the BBS programme
+ Objective and scope
- Safety performance
- Fuel consumption
- Related costs
+ Influencing the behaviour
- Observation
- Coaching
- Communication
• Company house rules
• Highway code and transport signs
• Effects of fatigue and stress
• Impact on driving of prescribed medicines and other drugs
• Maximum fuel efficiency
• Record keeping
• Corrective actions</td><td colspan="2">Advice of Methods

- Lecture on accident/incident statistics

- Conversation about experience in different areas

- Discussion about fuel consumption and emissions

- Brain-storming on maintenance costs

- Demonstration of causes of the most frequent accidents</td></tr>
</table>

2 Learning Objective / **Vehicle and trailer circle check** The participant is able to do the vehicle circle check, at the same time understands the importance of a correct check-up to the transport safety.	**Timeframe** 30 min (up to 60 min)

Contents	**Advice of Methods**
Vehicle and trailer circle check • Outside vehicle check + General vehicle characteristics + Tyres + Tightening of wheel-nuts + Lights + Oil + Water + Fire extinguisher(s) + ADR equipment + Outside cleanliness/check for damage/no leakages • Inside vehicle check + Visibility check - dead-angle camera/mirror - obstructions of the line of sight + ADR equipment + Brake operation + Equipment specially needed for specific type of work + Personal protective equipment + Transport documents + Fuel + Dashboard check + Safety belt, seat and steering wheel + Inside cleanliness + Air conditioning + Correct position of Seat, Mirrors, Satellite Navigation use before starting off • Trailer check + General trailer characteristics + Coupling / uncoupling + Documents + Tyres + Tightening of wheel-nuts + Lights + Air / electrical + Twist-locks + Closed loading compartments (eg. backdoor, roof, tarpaulin, valves …) + load securing	- Demonstration of the overall vehicle circle check and documentation - Exercise of the overall vehicle circle check - When Trailer is loaded check and demonstrate load securing measurements. - Positioning the blind spot areas

3 Learning Objective / **Driver training** The participant is able to drive the vehicle correctly and applies the principles of accident avoidance. The participant knows how to regard the traffic rules and how to maintain a safety based driving behaviour.	**Timeframe** 120 min (up to 180 min)

Contents	**Advice of Methods**
Driver training • Manoeuvring • Lane changes • Crossings • Turning • Approaching and being passed • Join/exit transport flows • Behaviour on and nearby special road sections • Road surfaces and weather conditions • Using the gearbox, clutch and brakes • Trailer stability • Leaving the vehicle • Handling of incoming phone calls, handling Sat. Nav. equipment • Maximum speed (Could be regulated by the company) • Tachograph	Exercise & Observations of behavioural skills: - Attitude (polite / aggressive) - Concentration - Involvement - Awareness - Observation skills (mirror usage) - Hazard perception - Vehicle control - Positioning - Separation distance (braking distances and safety distances) - Speed adaption (including use of brakes, engine brake, cruise control - Defensive driving (anticipating transport situations and other road users) - Eco-Driving - Seat belt (usage, adjustment) - Handling of additional cabin equipment. (It should be noted that the use of mobile phones/any communication equipment including hands free communication equipment is not to be used whilst in transit.)

4 Learning Objective / **Manoeuvring training** The participant is able to manoeuvre the vehicle correctly and applies the principles of accident avoidance. The participant knows how to regard and maintain a safety based driving behaviour.	**Timeframe** 60 min (up to 90 min)

Contents	**Advice of Methods**
Manoeuvring training • Prepare to manoeuvre (positioning of the vehicle • Special manoeuvres (loading/unloading stations) • Reversing / Driving backwards (with a turn and in straight line) • Observation/vision • Parking of the vehicle	- Exercise on the manoeuvring of the vehicle - Observations of behavioural skills

5 Learning Objective / **Individual-related evaluation and debriefing** The participant knows his performance and understands the importance to participate and helps in finding solutions. The participant knows how to implement preventative changes as a result of the BBS analysis.	**Timeframe** 30 min (up to 60 min)

Contents	**Advice of Methods**
Individual related evaluation and debriefing • Overall evaluation of the course/day • Verification of checklist and observations (explanation of both positive and negative remarks) • Identification of areas for improvement and suggested action(s) • Remarks by the trainee (feedback to the course) and signing by the trainee of the evaluation report • Issue of final report by trainer (sent to the line manager of each trainee).	- Conversations and Discussion on the findings - Brain-storming on the areas and its interpretation - Demonstration of behavioural practices - Exercise on behavioural practices - Instructions for areas of improvement for areas of improvement

Appendix B

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FORM FOR DRIVER SPOT CHECKS

Date:	Reason for spot check:	Date of last spot check:	Note:

☐ General Observation ☐ Accident ☐ Damage ☐ Fine ☐ Social Regulation ☐ Customer requirement ☐ Other: .....

DRIVING BEHAVIOUR

1: Does not comply with any of the criteria 2: Complies with less than half the criteria
3: Complies with more than half of the criteria 4: Complies with all the criteria

		INITIAL						FINAL					
		1	2	3	4	Coefficient	Total	1	2	3	4	Coefficient	Total
Installation in driving seat	A												
Preparation for the mission	B												
Defensive driving	C												
Economic driving	D												
Loading	E												
Maneuvering	F												
Unloading	G												
Compliance with regulations	H												
Knowledge of client requirements	I												
OVERALL IMPRESSION													
Equipment condition and cleanliness	J												
Presentation of driver and individual protection equipment	K												
Politeness / courtesy / punctuality	L												
Spirit of initiative	M												
Gestures and posture	N												
Professional conscience	O												

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INITIAL EVALUATION Comments:	***FINAL EVALUATION*** Comments:

APT: NO ☐ YES with additional training ☐ YES ☐

INSTRUCTOR	***DRIVER***
Name:	**Name:**
Signature:	**Signature:**
Date:	**Date:**

Appendix B

INTERPRETATION AND USE OF SPOT CHECK FORM

Date of last Spot Check	Record the date of the last check carried out on this driver
Note	Record the note obtained by the driver in the current check
Aspects to be assessed	There are two kinds of aspects to be assessed: driving behaviour and overall impression. Every aspect has, in turn, a list of sub aspects to be assessed (installation in driving seat, preparation for the mission, etc.). Every sub aspect needs an assessment criteria that should be defined by the company; that is to say, how the sub aspect will be scored 1, 2, 3 or 4. It is highly recommended that the company documents these criteria in an instruction. It is also recommended to develop different assessment criteria for the experience drivers and the new drivers (less strict)
Initial and final assessments	Every spot check has an initial and final assessment; both are carried out by the same Safety Monitor. When the initial assessment is finished, the Safety Monitor provides advice to the driver on how to improve his/her behaviour. Then, a second assessment takes place. Both initial and final assessments should be recorded
Coefficients	Every sub aspect to be assessed may be multiplied by a coefficient to give the aspect more or less relevance. The use of the coefficients are optional
Total	This column is the outcome of the multiplication between the score obtained in the appraisal (1 to 4) by the coefficient
Comments	Clarifying comments may be included, e.g. justification of the scoring or improvement actions
Name, signature and dates	It is important that both the instructor and the driver signs at the bottom of the form. That means that the driver agrees with the evaluation and the improvement actions

Appendix C

IMPLEMENTATION TEMPLATE / GAP ANALYSIS

The implementation template/gap analysis is a useful tool to facilitate the implementation of a new BBS programme or to assess gaps in an existing BBS programme. It is dedicated to the responsible management such as the Management Safety Officer, SSHE-Q Manager etc…)

	Implementation Template / Gap Analysis			
	Logistic Service Provider Name:			**Date:**
No.:	**BBS topic/question**	**Ref.: Section No**	**Response y/n**	**Action:**
1.	**General – Notification – Orientation**			
1.1	Is the BBS principle understood and accepted as an additional programme to improve safety performance?	2.0 3.0 5.1 5.2		
1.2	Is management committed to a successful implementation of BBS?	2.0 3.0 5.1 5.2 5.2.1		
1.3	Does management drive and maintain a company culture in line with BBS principles?	2.0 3.0 5.1 5.2 5.2.1		
1.4	Is management informed about the BBS questions in the CEFIC SQAS questionnaire?	5.1 11.0 12.0		
1.5	Is the BBS process embedded as an integral part of the companies' management system and programmes?	2.0 3.0 4.0 5.0		
1.6	Has an implementation leader been identified?	5.2.1 5.2.3		
1.7	Have the required resources (people and financial) been estimated and assigned to BBS?	5.2.1		
1.8	Are goals and targets set and communicated in relation to the BBS programme?	5.2.1		
1.9	Does the company have a benchmark with proven results in relation to other companies?	5.3.2 5.3.3		

2.	**Implementation**			
2.1	Has a project implementation plan been set up with targets and timelines?	5.2.1 5.3.4		
2.2	Has a training plan been set up with individual names and dates?	6.2.1 6.2.3		
2.3	Has a programme been implemented for the selection and qualification of appropriate trainer's. Do trainers have the necessary qualifications as outlined in the BBS guidelines?	9.0		
2.4	Does the training plan include initial training for: a) Ancillary and administrative staff? b) All drivers?	6.1 6.2		
2.5	Has initial training been given to: a) Ancillary and administrative staff (eg. on BBS principles)? b) All drivers?	6.1. 6.2		
	Has a programme been implemented, that guarantees, that the BBS programme is cascaded down to all sub contracted partners as defined by the BBS guidelines?	5.4 6.1		
2.6	Have critical behaviour aspects/items been defined with desired performance?	6.2.2 10.0		
2.7	Does the training content cope with the framework of the BBS guidelines?	6.0		
2.8	Has a training duration and frequency been defined and do they cope with the indications outlined in the BBS guidelines?	7.0		
2.9	Do the programme cope with the sustainability aspects of the BBS guidelines (eg. continuous improvement, follow-up checks,)?	10.0		
2.10	Is a central record filing system set up to file individual training records sheets.	5.3.2		
2.11	Do the drivers have the opportunity to add critical driving behaviour issues to the training content?	5.2.4		
2.12	Have tools been implemented to allow analysis on trends, issues and/or gaps?	5.1 5.3.2 5.3.3		

3.	**Data collection and reporting**			
3.1	Does the trend- , issues & gap analysis tools include key performance indicators (KPIs) outlined in the BBS guidelines (eg. accidents, fuel consumption etc…)	5.3.2 5.3.3		
3.2	Are structural behaviour trend- & gap analyses, retrieved from the central filing system, be done on a regular base and communicated to the management? If so, what process has been used?	5.2.1 5.2.2 5.2.3 5.3.5 10.		
3.3	Are structural behavioural trends, issues & gaps reported to drivers?	10. 5.2.4		
3.4	Can an individual driver look up his individual training record sheet as well as his records on KPIs?	3.0 5.3.2		
3.5	Is the overall progress/development of BBS programme reported to the involved parties? If yes, how and what is the frequency?	3. 10		
4.	**Follow-Up / Corrective actions**			
4.1	Is any follow-up system in place to check the implementation and improvement process (e.g. spot checks, telematics …)	5.3.4 5.3.5 10		
4.2	Have corrective actions been defined? Are they based on the analyses of the central filing system?	5.3.3 5.3.4 5.3.5 10		
4.3	What process for corrective measurements is implemented?	5.3.3 5.3.5 6.2.2 7.0 10.0		
4.4	Is a system in place to measure the effects of corrective measurements?	5.3.2 5.3.3 10		
4.5	Are individual measurements/actions agreed with individual drivers?	5.2.4		

5.	**Overall project evaluation**			
5.1	Are the key performance indicators showing an improvement since the start of the programme?	5.1 5.2.1		
5.2	Do the results reflect the set targets?	5.3.2 5.3.3		
5.3	In case of non-success of the implementation of the BBS programme, have corrective actions been taken? If yes, which one's?	5.3.5 7		
5.4	Has the BBS programme been assessed by SQAS. If yes could the result of the assessment been used for further improvements of the system?	11.0		

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BEHAVIOUR BASED SAFETY

GUIDELINES FOR THE SAFE LOADING & UNLOADING OF ROAD FREIGHT VEHICLES

ISSUE 2 | MARCH 2007

Responsible Care

ECTA

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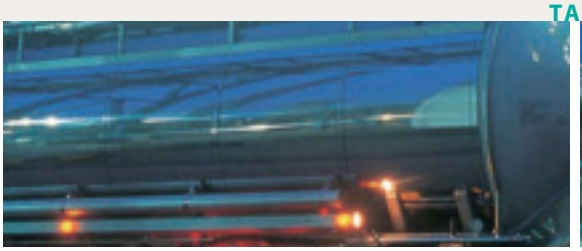


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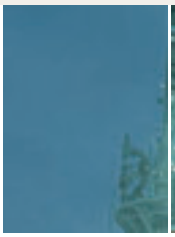



INTRODUCTION

Continuous efforts to improve safety during the transport and the associated handling of chemicals are part of the overall aim to improve safety performance of both the chemical industry and the transport industry.

Analysis of accident statistics indicates that a majority of transport-related incidents and accidents do happen during loading/unloading operations. Further detailed analysis shows that the human factor is by far the most important cause. It is therefore essential to increase safety during loading and unloading by influencing human behaviour.

These guidelines aim at offering guidance regarding the safety of loading/unloading operations by clarifying the roles and responsibilities of the different parties involved and by introducing the principles of Behaviour Based Safety (BBS).

Separate BBS Guidelines for the Safe Driving of Road Freight Vehicles have already been published in October 2003.

OBJECTIVE AND SCOPE

BBS is a management programme that aims at increasing the safety of operations by positively influencing the behaviour of all persons involved, through a process of observation, coaching and communication.

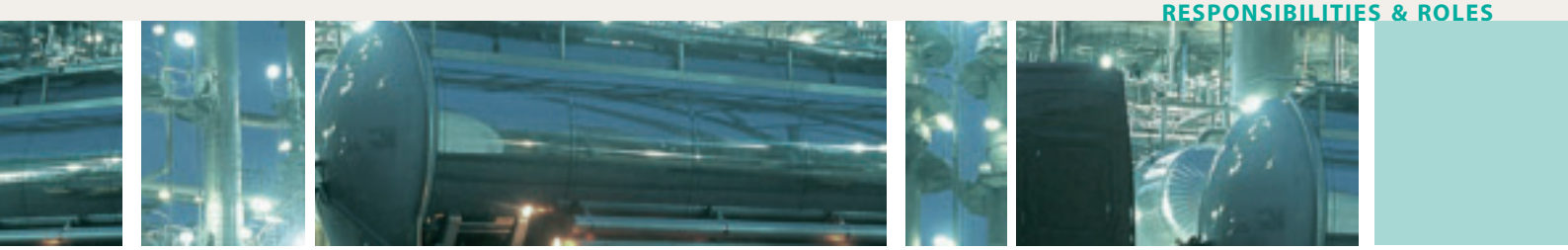
The objective of these guidelines is to provide assistance in the prevention or elimination of unsafe conditions and situations during loading/unloading operations, recognising the need for interaction between the different parties involved.

These guidelines consist of two parts:
- Section 1 defines the responsibilities and roles of the different parties involved in loading/unloading operations, in particular operators and drivers;
- Section 2 explains how BBS observations should be implemented for loading/unloading operations.

The scope of the current guidelines includes the safe loading/unloading of chemical products by operators and drivers at production sites, storage terminals, warehouses and customers, and covers the loading/unloading of bulk as well as packaged goods.

In all circumstances, the applicable national or international regulations should always be complied with and take precedence over the recommendations made in the present guidelines.

The guidelines are of a voluntary nature. Individual companies may decide to apply the guidelines either in full, or partly, according to their own judgement and in light of their specific circumstances.

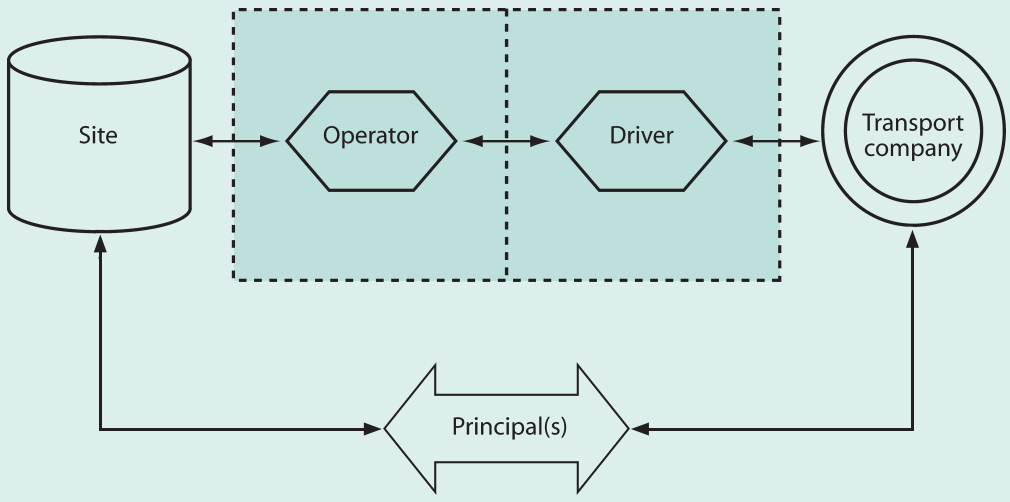


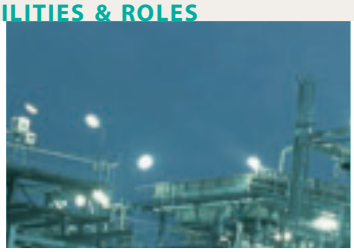
1 RESPONSIBILITIES & ROLES IN LOADING / UNLOADING OPERATIONS

1.1 PARTIES INVOLVED

- **PRINCIPAL**
  The party or parties commissioning the transport company and/or the loading/unloading site.
- **TRANSPORT COMPANY/CARRIER**
  The haulier contracted by the principal (including subcontractors, if any).
- **DRIVER**
  The person who is actually carrying out the transport.
- **SITE**
  The site where the actual loading or unloading takes place, including production sites, storage terminals, warehouses and customers premises.
- **OPERATOR**
  The site employee who is physically carrying out the loading/unloading operation.

PARTIES INVOLVED IN LOADING / UNLOADING OPERATIONS






1.2 RESPONSIBILITIES

1.2.1 Management responsibilities

The following responsibilities are essential for the management of loading/unloading sites and transport companies. They should be reflected in operating procedures.

1.2.1.1 MANAGEMENT OF THE LOADING / UNLOADING SITE

1/ COMPETENCE OF OPERATORS

The management of the site should ensure that operators are fit for duty and have passed successfully all the training necessary to fulfil the legislative requirements and site requirements, in particular regarding the handling of dangerous goods.

Operators dealing with foreign drivers should be able to communicate in the local language and in at least one of the following languages (English, French or German). As a minimum they should be able to communicate in the terminology of Transperanto (see **www.transperanto.org**).

2/ SITE INSTRUCTIONS

The management of the site should ensure that the site access requirements are communicated to the hauliers and that safety procedures are communicated to the drivers upon arrival. Management must promote and maintain safety awareness, particularly during product handling. The management should ensure that loading / unloading operations are carried out under supervision.

3/ WORKING AT HEIGHTS

The management of the site should provide safe conditions for working at heights (including safe access to top of vehicles) in conformity with the European Directive 2001/45/EC of 27 June 2001.

4/ PRODUCT QUALITY

The preferred option is product acceptance on the basis of a Certificate of Analysis. Taking samples from vehicles should be avoided. If the taking of samples is absolutely required, the management of the site should ensure that samples are taken by qualified site personnel or by appointed surveyors with adequate safety precautions.

5/ CARGO SECURING

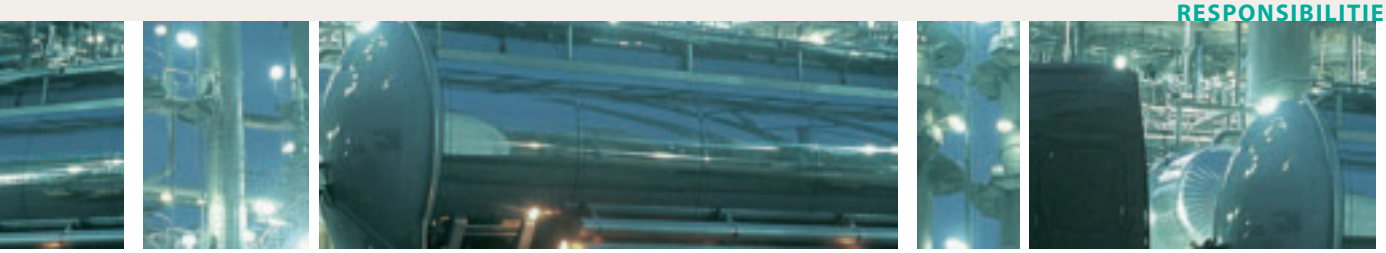
The management of the site, in co-operation with the management of the transport company, should ensure that the respective roles and tasks are carried out as described in Appendix 1.

6/ EMERGENCY PREPAREDNESS

The management of the site should ensure that the necessary site safety equipment is made available at the loading and unloading locations, e.g.: fire extinguisher(s), eye wash, safety shower, first aid equipment, emergency escape routes, emergency stop, decontamination equipment, and absorbent materials.

7/ NEAR MISS & INCIDENT REPORTING

The management of the site should ensure that there is a procedure to report all near misses, incidents, loading/discharge problems and unsafe situations or conditions, including follow-up. There should be a system in place to share information on important near-misses, incidents or unsafe situations with all parties involved.



1.2.1.2 MANAGEMENT OF THE TRANSPORT COMPANY

1/ EQUIPMENT
The management of the transport company should always supply equipment that is fit for the operation to be carried out and meets all applicable legal requirements.

2/ COMPETENCE OF DRIVERS
The management of the transport company should ensure that drivers are fit for duty and have passed successfully all necessary training to fulfil the legislative requirements and site requirements, in particular regarding the transportation and handling of dangerous goods.

Drivers who are involved in international transport operations, should be able to communicate in the local language of the loading/unloading site or in at least one of the following languages (English, French or German). As a minimum they should be able to communicate in the terminology of Transperanto (see **www.transperanto.org**).

3/ CARGO SECURING
The management of the transport company, in co-operation with the management of the site, should ensure that the respective roles and tasks are carried out as described in Appendix 1.

4/ NEAR MISS & INCIDENT REPORTING
The management of the transport company should ensure that there is a procedure to report all near misses, incidents, loading/discharge problems and unsafe situations or conditions, including follow-up. There should be a system in place to share information on important near-misses, incidents or unsafe situations with the principal.

1.2.2 Operational responsibilities

Continuous monitoring of the (un)loading process by operator and driver in close co-operation, is essential. To this end operator and driver should be well aware of each others responsibilities, as detailed in the following table.

In certain areas there are joint responsibilities of operators and drivers. In these cases the same text has been repeated for both operators and drivers in the table.

In all circumstances, the applicable national or international regulations should always be complied with and take precedence over the recommendations made in the present guidelines.

OPERATOR	DRIVER
1/ TRANSPORT EQUIPMENT	
Before the (un)loading operation starts, operators should check that the transport equipment offered meets all the requirements for the operation to be carried out.	Before entering the site, drivers should check that the vehicle and all ancillary equipment are fit for the operation to be carried out and meet all requirements as specified in the driver's instructions for the operation.
2/ SITE INSTRUCTIONS	
Operators should always adhere to the site instructions and be an example for drivers. Operators should witness the whole (un)loading activity, unless site procedures stipulate otherwise.	Unless specifically agreed otherwise, drivers should always report at the gate or site entrance and ask for instructions. These instructions may include emergency procedures, required PPE, parking restrictions, route to loading or unloading point and general info such as the prohibition of smoking, alcohol and drugs, prohibition of the use of mobile phones, driving speed limits etc. Drivers should always adhere to the site instructions. Drivers should witness the whole (un)loading activity, unless site procedures stipulate otherwise.
3/ ON-SITE DRIVING AND PARKING	
Where possible operators should ensure that vehicles are driven and parked according to site instructions and should report any observed unsafe situations to the site management.	Drivers should proceed to the (un)loading area and park the vehicle according to site instructions. It is important to constantly assess the safety situation, not only whilst driving on site but also when arriving at the (un)loading point. Drivers should always take the necessary precautions to prevent any movement of the vehicle during loading/unloading.
4/ PERSONAL PROTECTIVE EQUIPMENT (PPE)	
Operators should wear PPE as required by site instructions and must ensure that the driver does the same.	Drivers should wear PPE as required by site instructions. As a minimum the driver should have the following PPE available in his vehicle: safety helmet, safety shoes, safety glasses, suitable working gloves and clothing covering the whole body.
5/ EMERGENCY PREPAREDNESS	
Prior to the start of the operation, operators should indicate the location of the site safety equipment to the drivers, e.g.: fire extinguisher(s), eyewash, safety shower, first aid equipment, emergency escape routes, emergency alarm activation, emergency stop, decontamination equipment and absorbent materials.	Prior to the start of the operation, drivers should check the location of the site safety equipment, e.g.: fire extinguisher(s), eyewash, safety shower, first aid equipment, emergency escape routes, emergency alarm activation, emergency stop, decontamination equipment and absorbent materials.
6/ DOCUMENTATION, MARKING AND LABELLING	
The operator should check that all data on the transport documentation are in line with the goods to be loaded or unloaded and that the hazard marking, labelling and placarding of the goods and the transport equipment is in accordance with the regulations. Operators should sign all relevant documents to confirm that the operation was satisfactorily completed. If there are any remarks, these should be written on these documents.	The driver should hand over all relevant documents to the operator. Documents may include: weighing ticket, delivery note, certificate of analysis, cleaning certificate and transport document, if necessary with the required dangerous goods information. The driver should ensure that arrival/departure times, number of packages, temperature, pressure, volume and weights, as applicable, are noted and that signature(s) are obtained on all copies of the transport document. Customs and other documentation should be completed as per job instructions. Any deviations noted at the (un)loading point should be communicated by the driver to the site and be written on the transport documents before departure. The driver should ascertain that the correct hazard markings and placards have been affixed to the vehicle.

OPERATOR	DRIVER
7/ PRODUCT SAMPLES	
When required or agreed at order entry stage, the operator should ensure that the driver hands over the supplier's sample. Storing of samples in the drivers cabin should be avoided at any time. Product sampling directly from road tankers or tank containers should be avoided. If the taking of samples is absolutely unavoidable, they should be taken by qualified site personnel or appointed surveyors, with adequate safety precautions.	Drivers should ensure that the supplier's sample is stored in a safe way and handed over at the delivery point. Storing of samples in the driver's cabin should be avoided at any time. Packaging and labelling of the sample should be in accordance with legal requirements. Drivers should not take samples directly from the road tanker or tank container.
8/ WORKING AT HEIGHTS	
Operators should follow the site procedures when working at heights.	Drivers should follow the site instructions when working at heights.
9/ TANK CAPACITY	
The operator should check if the tank can accommodate the quantity to be transferred. Before loading, the operator should check the capacity of the transport tank or tank compartment with the driver. Before unloading, the operator should check the capacity of the site storage tank.	Before loading, the driver should check with the operator if the transport tank or tank compartment can accommodate the quantity to be transferred.
10/ EQUIPMENT UNDER PRESSURE	
The operator should always check if the transport tank and/or equipment is under pressure before making or breaking any connections, and communicate with the driver.	The driver should always check if the transport tank and/or equipment is under pressure before making or breaking any connections, and communicate with the operator. Before leaving the site after loading/unloading, the driver should seek permission from the operator to depressurise the tank, unless otherwise required.
11/ LOADING OF LIQUIDS IN MULTI COMPARTMENT TANKS	
Operators should ensure that in filling the tanks, the regulations concerning the separation of dangerous goods in adjoining compartments are complied with. Operators should ensure that the correct product and quantity is loaded into the designated compartment(s) according to the load plan.	The driver should ensure that the operator is loading according to the load plan.
12/ HOSES AND OTHER EQUIPMENT	
The operator should check if the equipment owned by the site, e.g. product hose, vapour return or nitrogen/air pressure line, couplings, gaskets and seals, is in good condition, fit for purpose and product and pressure resistant. The operator should carry out a visual check on the internal cleanliness.	The driver should check if the equipment owned by the haulier, e.g. product hose, vapour return or nitrogen/air pressure line, couplings, gaskets and seals, is in good condition, fit for purpose and product and pressure resistant. The driver should carry out a visual check on the internal cleanliness.

OPERATOR	DRIVER
13/ CONNECTIONS	
All site connections should be properly marked/labelled. The operator is responsible for correctly connecting/fitting product hoses and vapour return or nitrogen/air pressure lines to the storage tank, whilst the driver is responsible for making the connections to the vehicle, unless site procedures stipulate otherwise. When making or breaking connections, co-ordination and co-operation between operator and driver is of vital importance to avoid incidents.	The driver should be familiar with the equipment of the vehicle, e.g. (un)loading valves, pressure/vapour return connections, number and capacity of compartments, hoses, couplings and gauges. The driver is responsible for making the connections to the vehicle, whilst the operator is responsible for making the connections to the storage tank, unless site procedures stipulate otherwise. When making or breaking connections, co-ordination and co-operation between the driver and operator is of vital importance to avoid incidents.
14/ PERMISSION TO (UN)LOAD	
The operator should give explicit approval to the driver to operate equipment on the vehicle such as valves, compressor and pump. Operators should operate the storage tank valves, pressure valves and the pump, as applicable.	The driver is only allowed to operate equipment on the vehicle such as valves, compressor and pump after explicit approval of the operator. The driver should not operate site equipment.
15/ VEHICLE RESTRICTIONS	
The operator, in co-operation with the driver, should ensure that the maximum permissible vehicle gross weight is not exceeded. Operators should ensure that the minimum and maximum permissible degree of filling of the tanks is observed.	The driver, in co-operation with the operator, should ensure that the maximum permissible vehicle gross weight is not exceeded. During loading of the vehicle, the driver should take all possible precautions not to exceed the maximum permissible axle weight.
16/ DISCONNECTION	
Operators should ensure that before disconnecting hoses, all valves are closed and all hoses are free of pressure and product.	Before departure the driver should ensure that all hoses are disconnected, drained, blanked off (if necessary) and properly stored. All manlids and valves should be closed and properly tightened. The earthing cable as well as any loose equipment should be cleared away. The driver should ensure that it is safe to leave the (un)loading point by walking around the vehicle.
17/ REPORTING OF UNSAFE SITUATIONS, NEAR MISSES AND INCIDENTS	
Operators should report all loading/discharge problems, unsafe situations or conditions, near misses and incidents, as per company procedure.	Drivers should report all loading/discharge problems, unsafe situations or conditions, near misses and incidents, as per company procedure.
18/ STOWAGE, SECURING AND SEGREGATION OF PACKAGED GOODS	
Before starting loading, operators should ensure that packages that are already loaded on the vehicle when it arrives at the loading site, are stowed and secured in an adequate way so that they cannot damage the goods to be loaded. Operators should ensure that packages are stowed and secured in such a way that they cannot move in any direction. Free space between packages should be avoided and sufficient lashings should be applied. Special precautions should be taken when packages of different types are stowed on the same vehicle. Operators should ensure that the regulations on prohibition of mixed loading and the regulations concerning separation of food stuffs, animal feedstuffs etc, are followed, taking into account the goods that are already loaded in the vehicle. Operators should not allow the vehicle to leave the loading/unloading site in an unsafe condition. More detailed guidance concerning the roles and tasks for load securing are included in Appendix 1.	The driver should prepare the vehicle for (un)loading (i.e. opening doors and canvas, removing blocking and bracing material, undoing the strapping etc.). When opening the doors of the vehicle, the driver should always be aware of the possibility of packages falling out. Before loading commences, the driver should ensure that packages that are already loaded on the vehicle when it arrives at the loading site, are stowed and secured in an adequate way so that they cannot damage the goods to be loaded. Drivers should ensure that packages are stowed and secured in such a way that they cannot move in any direction. Free space between packages should be avoided and sufficient lashings must be applied. Drivers should not leave the (un)loading site without checking stowage and securing. More detailed guidance concerning the roles and tasks for load securing are included in Appendix 1.

2 BBS OBSERVATIONS OF LOADING/UNLOADING OPERATIONS

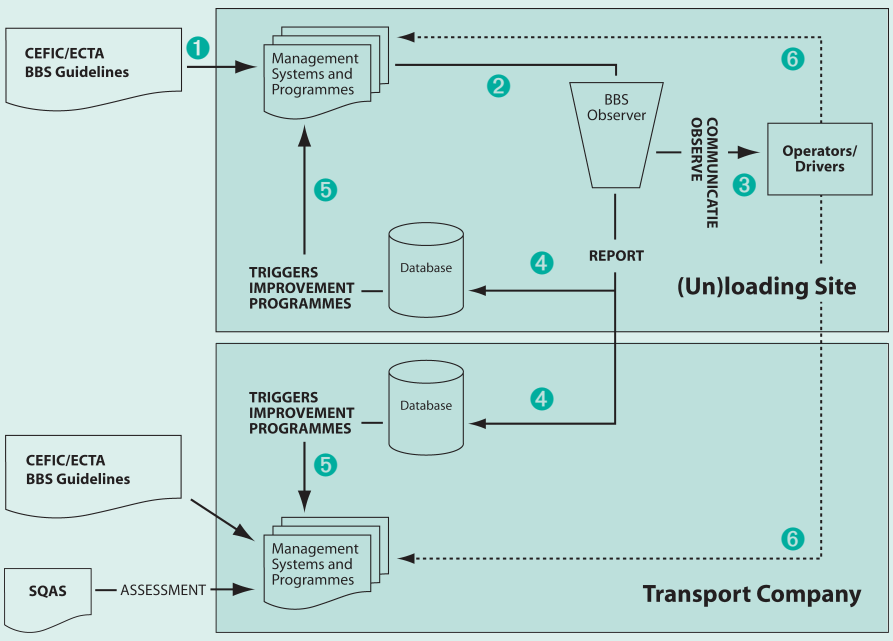
2.1 PROCESS

The process for implementing BBS should reside within the company responsible for the loading/unloading site in close co-operation with the transport companies, as an important element of their continuous improvement programmes. It should include the following steps:

1. The management of the company responsible for loading/unloading develops a BBS implementation plan based on the principles described in these Guidelines.
2. The management selects BBS observers and ensures that they obtain training in accordance with the principles set out in these Guidelines.
3. BBS observers carry out observations of loading/unloading operations using a checklist (see example in Appendix 2) and communicate findings to operators and drivers.
4. BBS observers report their findings to the management of the site and the transport company. The reports should be kept on file at the loading/unloading site (for the operators) and at the transport company (for the drivers). The operators and drivers should receive a copy of the report.
5. The results of the BBS observations should be used by the management of the loading/unloading site and the transport company as input for continuous improvement programmes.
6. The management of the site and of the transport company should ensure that there is a system in place to report all near misses, incidents, loading/discharge problems and unsafe situations or conditions, including follow-up. Operators and drivers should report all near misses, incidents, loading/discharge problems and unsafe situations or conditions, as per company procedure.

Note. *In the case of unsafe situations observed during unloading operations at customer sites, the BBS observation should be initiated by the supplier in co-operation with the customer and the haulier.*

PROCESS FOR BBS OBSERVATIONS



2.2 RESPONSIBILITIES FOR IMPLEMENTATION

Successful implementation of BBS for loading/unloading operations requires a top-down management approach. BBS must be fully integrated in the organisation and management systems of the parties involved. It needs to be one of the key drivers for continuous performance improvement.

2.2.1 Management

MANAGEMENT SHOULD:

- Prepare a document describing the company's approach towards BBS and the implementation plan for all components of the loading/unloading operations.
- Communicate this plan to all personnel involved and review it at least annually.
- Initiate, implement and provide ongoing support for the BBS programme.
- Define roles, provide resources, resolve issues and remove barriers for a successful implementation.
- Set targets, monitor status and results.
- Keep records.
- Manage and continuously review the improvement process based on BBS data analysis.

2.2.2 Operators/drivers

OPERATORS AND DRIVERS SHOULD:

- Understand the purpose of the BBS programme and be committed to participate.
- Report unsafe conditions to the observer.
- Discuss performance weaknesses with the observer and help in finding solutions.
- Implement improvement actions as a result of the BBS analysis.

2.2.3 BBS observers

BBS OBSERVERS SHOULD:

- Execute the BBS observations.
- Observe and interactively communicate the findings with the operators/drivers.
- Collect data and report results to management.
- Identify and report any issues that need to be followed up by operators/drivers or management.

2.3 OBSERVATIONS

The observation should be interactive, without interfering with the actual loading or unloading process except to stop an unsafe situation. The interactive part consists of the coaching the observer may deem necessary to increase safety awareness and behaviour of the operator and/or the driver. Coaching must always take place in a positive way in order to obtain full acceptance and thus maximum results.

A checklist (adapted to the type of loading or unloading operation) should be fully completed for both the operator and driver involved (see example of a checklist in Appendix 2). For any significant finding, either positive or negative, a brief explanation of the remark made and the subsequent coaching that was provided should be specified.

After the observation is finished, irrespective of the fact that remarks were made or not, the observer should take time to communicate the results of the observation to both operator and driver involved. Preferably a copy of the completed observation form should be handed over to both.

The loading/unloading site should register all observations and ensure that the transport company involved receives a copy of the observation report.

2.4 RECORD KEEPING / ANALYSIS

Records of the observations, together with the completed checklists, should be kept on file by the loading/unloading site and the transport company. Operators/drivers should have the possibility of obtaining a copy of their personal record as a reminder/learning tool for continuous improvement. Management should use the collected data to identify structural trends and issues.

2.5 FOLLOW UP / CORRECTIVE ACTIONS

Results of analyses should trigger corrective actions to equipment, processes, safety programmes and employees in the loading/unloading site and the transport company. The effectiveness of implemented corrective actions should be monitored through key performance indicators.

2.6 QUALIFICATIONS OF OBSERVERS

A successful programme depends heavily on the skills of the observers. The selection of the observers is therefore critical. It is advisable that observers have an independent position in relation to the operators/drivers. Training of direct colleagues should be avoided.

The observer may be a representative of either the company involved in the loading/unloading operation or of the transport company. He/she should have knowledge of these Guidelines and be fully aware of all details of the loading or unloading operation to be observed. He/she should be capable of communicating comments on safety issues from a position of knowledge to the operator and driver involved.

Observers should obtain extensive training on the content, objectives and requirements of the BBS implementation plan, based on the principles set out in these Guidelines.

2.7 FREQUENCY OF OBSERVATIONS

Observations should be carried out on a representative number of all the loading/unloading operations taking place at a site. Each observation should cover all the activities of the loading/unloading operation.

APPENDIX 1: ROLES AND TASKS FOR LOAD SECURING IN CARGO TRANSPORT UNITS (CTUs)

PROCESS / STAGE	TASK / ACTIVITY	PRINCIPAL	CARRIER
Management responsibilities	Carry out risk assessment	•	•
	Document packaging specifications (including stacking rules)	•	
	Define CTU requirements (type, specifications, LTL cargo rules)	•	
	Determine and document CTU weight/axles limits		•
	Agree load distribution plans (number of packages/gross weight limits/axle weight limits)	•	•
	Agree on supply of cargo securing material	•	•
	Develop good securing and stowage practices for the agreed load plans	•	•
	Define and agree working instructions (who will do what)	•	•
	Document operational procedures/instructions	•	•
	Train and instruct employees involved	•	•
Offering CTU "Fit for Load"	Select CTU in line with principal's requirements		•
	Ensure good condition of CTU (load floor, side walls, curtains, lashing points, headboard)		•
	Fulfill LTL cargo rules (including segregation rules)		•
	Ensure that LTL cargo is secured and stowed adequately		•
	Provide re-usable securing material (e.g. lashings, friction material, rigid protection edges,…)		•

PROCESS / STAGE	TASK / ACTIVITY	LOADER	DRIVER
Pre-loading checks/tasks	Instruct driver on specific safety instructions (e.g. interaction during loading operation)	•	
	Check weight of CTU with respect of routing/model/legislation/truck type	•	•
	Adjust quantity to be loaded taking into account the weight of the CTU	•	
	Select one of previously agreed load plans	•	
	Immobilize CTU	•	•
	Open CTU		•
	Check if CTU meets requirements and is safe to load	•	
	Check availability and condition of the cargo securing material	•	
	Confirm agreement on loading / securing operational procedure	•	•
Loading/ securing operation	Load according to selected load plan	•	
	Ensure correct segregation of cargoes	•	
	Supply additional cargo securing material (e.g. air bags, sheets, one way straps,..)	•	
	Application of blocking and bracing	•	
	Application of lashing as agreed by the management in the working instructions		•
Post-loading checks/tasks	Check the applied cargo securing (blocking, bracing and lashing)	•	•
	Close CTU		•
	Apply seal if applicable and note on the transport documentation	•	
	Sign off loading document (confirming loading and cargo securing is correctly carried out)	•	•
	Check and correct cargo securing during transport (e.g. partial loading /unloading)		•

- *Under all circumstances applicable national and international (e.g. ADR) regulations take precedence on these general guidelines and should be implemented.*
- *It is not the purpose of this guideline to define liabilities in case of damage to the transported goods.*
- *For FCA (Free Carriage/see Incoterms) consignments the above matrix may not apply. In this case the respective roles and tasks need to be agreed between the principal (customer), the management of the loading site and the carrier prior to the transport operation.*
- *In case the driver is not present during loading, the loader must fulfill the roles initially assigned to the driver (e.g. containers, swapbodies, drop and swap,…).*

APPENDIX 2: EXAMPLE OF CHECKLIST FOR OBSERVATION OF LOADING/UNLOADING OPERATIONS

ACTIVITY	REFERENCE BBS GUIDELINE	OPERATOR	DRIVER
SITE ACCESS			
Availability of standard PPE	1.2.2.4		
Safe parking of vehicle	1.2.2.3		
Check of documents	1.2.2.6		
Adherence to site instructions	1.2.2.2		
Location of site safety equipment	1.2.2.5		
BEFORE LOADING / UNLOADING			
Process for declaring vehicle fit for loading	1.2.2.1 / 6		
Proper use of standard PPE	1.2.2.4		
Proper use of special PPE	1.2.2.4		
Check of load securing and stowage material**	1.2.2.18		
Check if there is pre-loaded cargo**	1.2.2.18		
Co-operation between driver and operator	1.2.2.13 / 14 / 15		
Checking of tank capacity*	1.2.2.9		
Safe working at heights	1.2.2.8		
Checking if bottom valve, blind cap etc. are properly closed before loading*	1.2.2.13		
Awareness of risk of opening manholes*	1.2.2.10		
Control of gaskets*	1.2.2.12		
Checking of pressure / vacuum / nitrogen status*	1.2.2.10		
Sampling*	1.2.2.7		
Checking of hoses*	1.2.2.12		
Making connections*	1.2.2.13		
Stowage plan**	1.2.2.18		
DURING LOADING / UNLOADING			
Co-operation between driver and operator	1.2.2.13 / 14 / 15		
Presence during loading / unloading	1.2.2.2		
Operation of storage tank valves and pump*	1.2.2.14		
Awareness of potentially unsafe conditions	1.2.2.17		
AFTER LOADING / UNLOADING			
Checks after completion of loading / unloading*	1.2.2.16		
Disconnection of hoses, proper closure of valves and manlids*	1.2.2.16		
Proper securing and stowage (including packages from pre-loaded cargo)**	1.2.2.18		
Proper marking and placarding of the tank/transport unit	1.2.2.6		
Check of max. permissible vehicle gross weight/axle weight	1.2.2.15		
Check of max. and min. permissible degree of filling*	1.2.2.15		
Document check	1.2.2.6		

** bulk only*
*** packed only*

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LIST OF OTHER BEST PRACTICE GUIDELINES ISSUED BY CEFIC AND ECTA

- Recommendations on Safety, Health and Environmental (SHE) Management Practices for Logistics Services (April 2002)
- Guidelines for Safety Awareness and Behaviour in the Supply Chain (April 2002)
- Guidelines for Standardised Delivery Performance Measurement (April 2002)
- Guidelines for 16 hour operation (April 2002)
- Standard Rail Tank Cars for the Carriage of Liquid Chemicals in Bulk: Requirements for Design, Construction and Testing (August 2003)
- Behaviour Based Safety – Guidelines for safe driving of road freight vehicles (October 2003)
- Guidelines for Transportation Security (December 2003)
- Industry Guidelines for the Security of the Transport of Dangerous Goods by Road (April 2005)
- Guidelines on Subcontracting of Chemical Road Transport (October 2005)
- Guidelines for Transport Equipment used for Chemical Packed Cargo (March 2007)

These guidelines can be downloaded from the Cefic website (www.cefic.org) and the ECTA website (www.ecta.be).

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