

B E H A V I O U R B A S E D S A F E T Y
GUIDELINES FOR THE SAFE LOADING AND UNLOADING OF ROAD FREIGHT VEHICLES



Responsible Care

NOVEMBER 2004

Disclaimer:

This document is intended for information only and sets out guidelines for the safe loading/unloading of road freight vehicles. 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 about its completeness. It is not intended to be a comprehensive guide to all detailed aspects of the safe loading and unloading of road freight vehicles. No responsibility will be assumed by the participating associations, ECTA, EPCA or Cefic, in relation to the information contained in these guidelines.



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1. 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.

2. 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 3 defines the responsibilities and roles of the different parties involved in loading/unloading operations, in particular operators and drivers;
- Section 4 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.

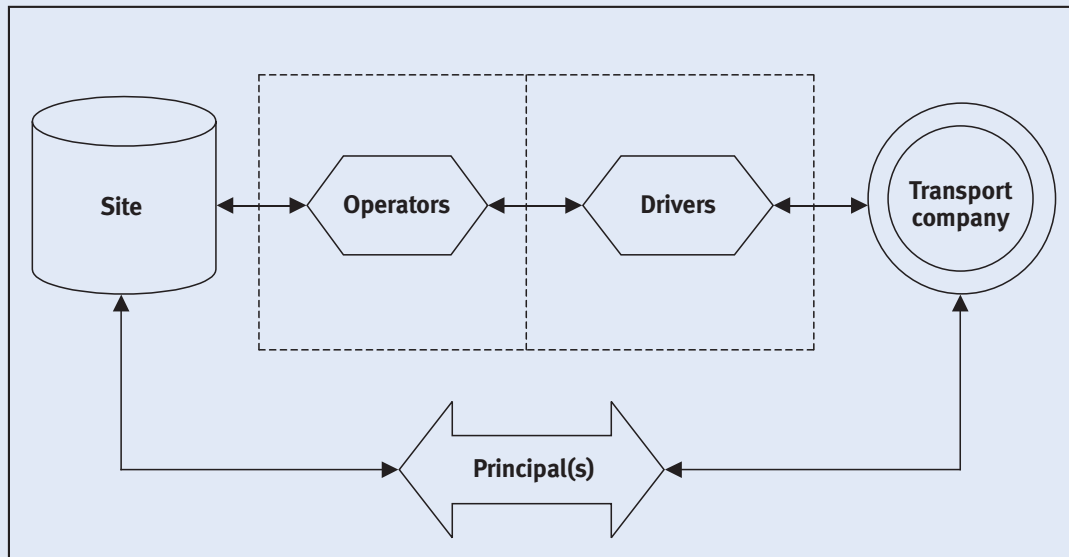
The guidelines are of a voluntary nature. Individual companies may decide to apply the guidelines either in full, or partly, according to their own judgement and in light of their specific circumstances.

3. RESPONSIBILITIES AND ROLES IN LOADING/UNLOADING OPERATIONS

3.1. PARTIES INVOLVED

- **Principal:**
the party or parties commissioning the transport company and/or the loading/unloading site.
- **Transport company:**
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



3.2. RESPONSIBILITIES

3.2.1 MANAGEMENT RESPONSIBILITIES

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



3.2.1.1 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 English, French or German.

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).

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. 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.

6. Near miss and 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.

3.2.1.2 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 English, French or German.

3. Near miss and 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.

3.2.2 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 below.

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

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.

OPERATOR	DRIVER
3. On-site driving and parking	
<p>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.</p>	<p>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.</p>
4. Personal Protective Equipment (PPE)	
<p>Operators should wear PPE as required by site instructions and must ensure that the driver does the same.</p>	<p>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.</p>
5. Emergency preparedness	
<p>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.</p>	<p>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.</p>
6. Documentation, marking and labelling	
<p>Unless site procedures stipulate otherwise, 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.</p> <p>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.</p>	<p>Unless specifically agreed otherwise, 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.</p> <p>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.</p> <p>The driver should ascertain that the correct hazard markings and placards have been affixed to the vehicle.</p>

OPERATOR	DRIVER
7. Product samples	
<p>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.</p> <p>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.</p>	<p>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.</p> <p>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.</p>
8. Working at heights	
<p>Operators should follow the site procedures when working at heights.</p>	<p>When working at heights, the driver should use fall protection according to site instructions, e.g. a safety platform on site or safety railing on the vehicle.</p>
9. Tank capacity	
<p>Unless site procedures stipulate otherwise, the operator should check if the tank can accommodate the quantity to be transferred.</p> <p>Before loading, the operator should check the capacity of the transport tank or tank compartment with the driver.</p> <p>Before unloading, the operator should check the capacity of the site storage tank.</p>	<p>Before loading, the driver should check with the operator if the transport tank or tank compartment can accommodate the quantity to be transferred.</p>
10. Equipment under pressure	
<p>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.</p>	<p>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.</p> <p>Before leaving the site after loading/unloading, the driver should seek permission from the operator to depressurise the tank, unless otherwise required.</p>
11. Loading of liquids in multi compartment tanks	
<p>Operators should ensure that in filling the tanks, the regulations concerning the separation of dangerous goods in adjoining compartments are complied with.</p> <p>Operators should ensure that the correct product and quantity is loaded into the designated compartment(s) according to the load plan.</p>	<p>The driver should ensure that the operator is loading according to the load plan.</p>

OPERATOR	DRIVER
12. Hoses and other equipment	
<p>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.</p>	<p>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.</p>
13. Connections	
<p>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.</p>	<p>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.</p>
14. Permission to (un)load	
<p>The operator should give explicit approval to the driver to operate equipment on the vehicle such as valves, compressor and pump.</p> <p>Operators should operate the storage tank valves, pressure valves and the pump, as applicable.</p>	<p>The driver is only allowed to operate equipment on the vehicle such as valves, compressor and pump after explicit approval of the operator.</p> <p>The driver should not operate site equipment.</p>
15. Vehicle restrictions	
<p>The operator, in co-operation with the driver, should ensure that the maximum permissible vehicle gross weight is not exceeded.</p> <p>Operators should ensure that the minimum and maximum permissible degree of filling of the tanks is observed.</p>	<p>The driver, in co-operation with the operator, should ensure that the maximum permissible vehicle gross weight is not exceeded.</p> <p>During loading of the vehicle, the driver should take all possible precautions not to exceed the maximum permissible axle weight.</p>
16. Disconnection	
<p>Operators should ensure that before disconnecting hoses, all valves are closed and all hoses are free of pressure and product.</p>	<p>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 and/or tools should be cleared away. The driver should always ensure that it is safe to leave the (un)loading point by walking around the vehicle.</p>

OPERATOR	DRIVER
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	
<p>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.</p> <p>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. Operators should make available the necessary blocking and bracing material.</p> <p>Special precautions should be taken when packages of different types are stowed on the same vehicle.</p> <p>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.</p> <p>Operators should not allow the vehicle to leave the loading/unloading site in an unsafe condition.</p>	<p>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.</p> <p>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.</p> <p>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.</p> <p>Drivers should not leave the (un)loading site without checking stowage and securing.</p>

4. BBS OBSERVATIONS OF LOADING/ UNLOADING OPERATIONS



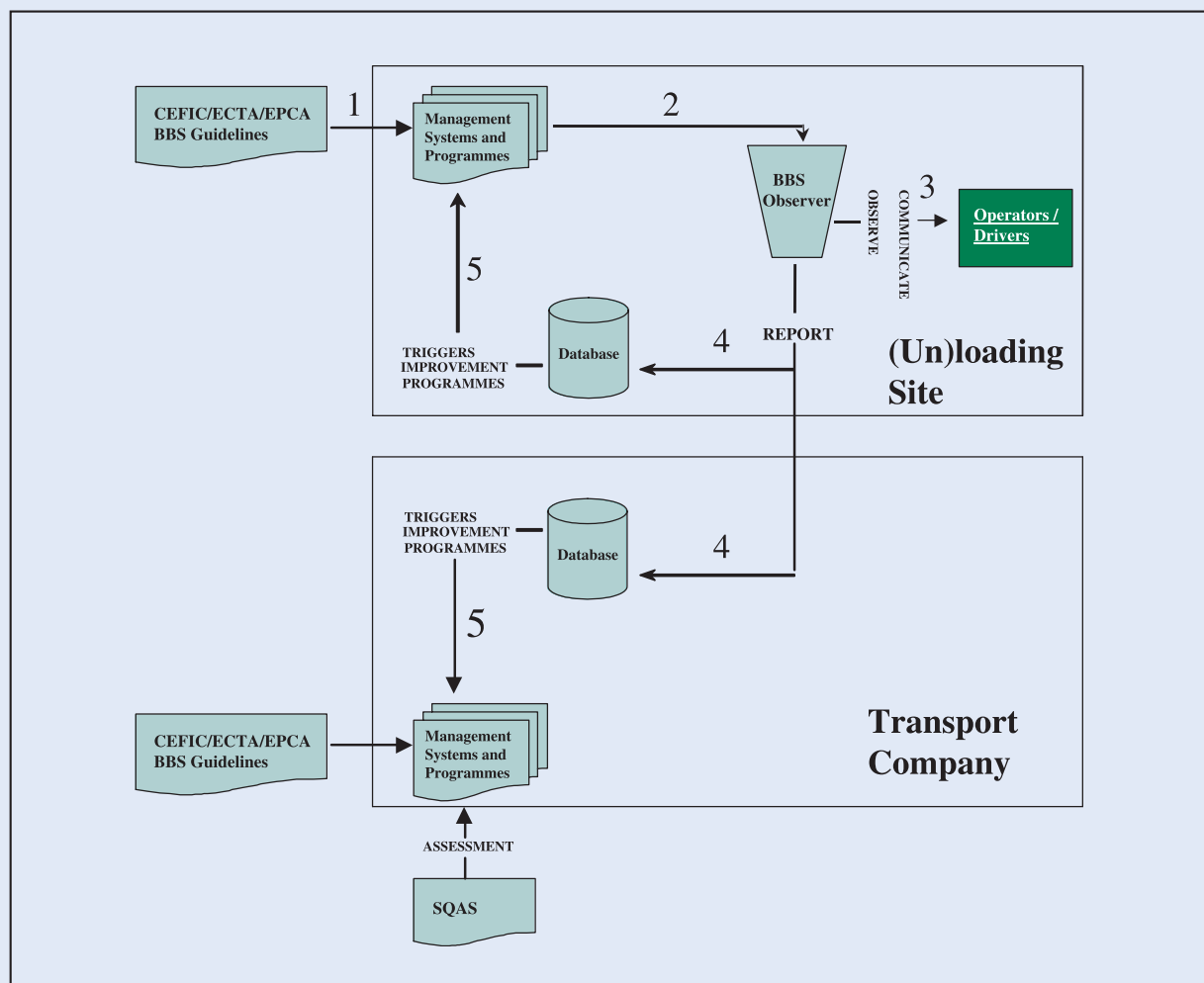
4.1 PROCESS

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) 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.

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



4.2 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.

4.2.1 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.

4.2.2 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.

4.2.3 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.

4.3 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*). 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.

*The checklist can also be downloaded as an Excel file from the website of Cefic and ECTA.

4.4 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.

4.5 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.

4.6 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.

4.7 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 : EXAMPLE OF CHECKLIST FOR OBSERVATION OF LOADING/UNLOADING OPERATIONS

Activity	Reference BBS Guideline	Operator	Driver
Site Access			
Availability of standard PPE	3.2.2.4		
Safe parking of vehicle	3.2.2.3		
Check of documents	3.2.2.6		
Adherence to site instructions	3.2.2.2		
Location of site safety equipment	3.2.2.5		
Before Loading			
Process for declaring vehicle fit for loading	3.2.2.1 / 6		
Proper use of standard PPE	3.2.2.4		
Proper use of special PPE	3.2.2.4		
Check of load securing and stowage material**	3.2.2.18		
Check if there is pre-loaded cargo**	3.2.2.18		
Co-operation between driver and operator	3.2.2.13 / 14 / 15		
Checking of tank capacity*	3.2.2.9		
Safe working at heights	3.2.2.8		
Checking if bottom valve, blind cap etc. are properly closed before loading*	3.2.2.13		
Awareness of risk of opening manholes*	3.2.2.10		
Control of gaskets*	3.2.2.12		
Checking of pressure / vacuum / nitrogen status*	3.2.2.10		
Sampling*	3.2.2.7		
Checking of hoses*	3.2.2.12		
Making connections*	3.2.2.13		
Stowage plan**	3.2.2.18		
During Loading			
Co-operation between driver and operator	3.2.2.13 / 14 / 15		
Presence during loading	3.2.2.2		
Operation of storage tank valves and pump*	3.2.2.14		
Awareness of potentially unsafe conditions	3.2.2.17		
After Loading			
Checks after completion of loading*	3.2.2.16		
Disconnection of hoses, proper closure of valves and manlids*	3.2.2.16		
Proper securing and stowage (including packages from pre-loaded cargo)**	3.2.2.18		
Proper marking and placarding of the tank/transport unit	3.2.2.6		
Check of max. permissible vehicle gross weight/axle weight	3.2.2.15		
Check of max. and min. permissible degree of filling*	3.2.2.15		
Document check	3.2.2.6		

* bulk only

** packed only



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