

HOW TO REDUCE TIME SPENT BY DRIVERS ON SITE AND IMPROVE THEIR TREATMENT

RECOMMENDATIONS FOR LOADING AND UNLOADING SITES

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INTRODUCTION

The initiative to develop Cefic/ECTA Recommendations on this issue was taken at a moment when there was a substantial shortage of drivers.

One way to overcome this shortage is making more effective use of the drivers' time by reducing the waiting times at loading and unloading sites. Reducing the waiting times should also contribute to making the driver profession more attractive. Also a more respectful treatment of the drivers at (un)loading sites will increase the attractiveness of the driver profession.

In order to address these issues, a Team comprised of representatives from the chemical industry and the transport industry, was given the task to work out a number of recommendations.

Although, due to the current economic crisis, there is at this moment no driver shortage, these recommendations remain valid and worthwhile to be implemented since they will contribute to improving the efficiency of (un)loading operations and therefore in reducing the transport costs. Furthermore it is very likely that industry will be faced again with a driver shortage when the economy recovers again.

These Recommendations are of a voluntary nature and individual companies may decide to apply these in full or partly, according to their own judgment and taking into account their specific circumstances and requirements.

The applicable national and international regulations should always be complied with and they take precedence over the recommendations made in this document.

OBJECTIVE AND SCOPE

The objective of these Recommendations is twofold:

- Offer a number of concrete measures that could be taken to reduce the time spent by a driver on a loading or unloading site. This can be achieved by removing a number of constraints during the loading and unloading processes, by adapting the lay-out of the site or by making use of more adequate equipment
- Suggest a number of actions that could be taken to improve the treatment of the driver at loading and unloading sites

This will ultimately result in improved efficiency, which will be of benefit to both the sites and the transport companies, as well as in making the profession of driver more attractive.

It goes without saying that the implementation of recommended or suggested actions should in no way jeopardise the safety of drivers and site personnel but to the contrary should even enhance the safety level.



These Recommendations cover loading and unloading operations at manufacturing sites and storage terminals, as well as unloading operations at customer sites. Both packaged and bulk chemicals are being considered.

The Recommendations have been grouped into 3 categories:

- Work processes
- Equipment
- Driver treatment

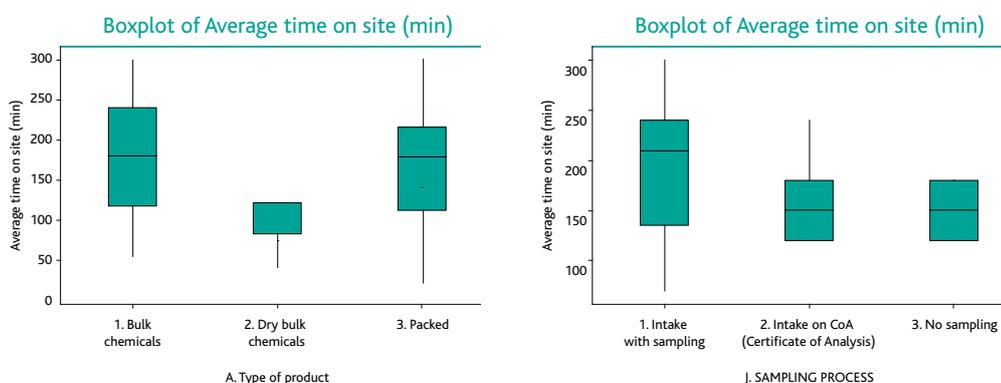
APPROACH

In order to develop specific recommendations on reducing the time spent by a driver on site, use was made of a typical process for unloading and loading, which can be found in ANNEX 1.

In order to quantify the potential gain in time compared to the overall time spent on a site by a driver, a survey was executed in order to measure the average maximum and the average minimum time spent on site. Data from 47 sites in different countries, involving 20,000 loading or unloading operations, were analysed and gave the following result:

Type of product	Driver waiting time (in min)	
	Lowest average	Highest average
Liquid bulk	60	240
Dry bulk	60	120
Packaged	20	300

Furthermore these data were subject to box-plotting¹ in order to investigate the relationship between specific site set-ups and the average time spent on site.



¹ A box-plot graphically depicts groups of numerical data through their five-number summaries (the smallest observation (sample minimum), lower quartile (Q1), median (Q2), upper quartile (Q3), and largest observation (sample maximum)). Q1, Q2 and Q3 are expressed by the three horizontal lines of each box



The first box-plot shows the variation of the average time for the three different types of products and clearly indicates that the biggest improvements could be made for liquid bulk and packed (un)loading operations.

The second box-plot shows the relationship between product-sampling and the average time on site and leads to the conclusion that a significant reduction in time spent on site can be achieved by avoiding sampling and replacing it by e.g. the use of CoA (Certificate of Analysis) or another quality system.

In order to develop recommendations on the treatment of drivers, account was taken of the results of a quick survey amongst drivers which indicated that drivers generally expect:

- To be treated with the same respect as site personnel
- To enjoy safe and ergonomically practical working conditions
- To spend not more time than necessary on loading/unloading sites i.e. short waiting times by having an efficient (un)loading process

POTENTIAL BENEFITS

Based on the above mentioned available statistical data, the potential benefits that could be achieved by implementing these recommendations have been quantified as follows (taking into account an average transport journey time of 8 hours per shipment):

- If all sites would succeed in reducing the time spent on site with 20%, it is estimated that total freight costs could be reduced by 8 %
- If all sites would succeed in limiting the time spent on site to 2 ½ hours, it is estimated that freight costs could be reduced by 8,50 %
- If the time spent by a truck driver at (un)loading sites is reduced from 4 hours per (un)loading operation to 1 hour, the number of shipments handled per year by one truck driver doubles.

STRUCTURE

All 26 Recommendations have the same structure

- *Title*
- *Description*
- *Achievable benefits (split into the impact on "time spent on site", on "driver treatment" and "other")*
- *Key considerations for implementation*
- *Feasibility (of implementation)*
- *Additional comments (including examples of best or bad practices, where available)*



LIST OF THE RECOMMENDATIONS

In order to help interested readers in taking a decision on whether or not to implement a Recommendation, an indication has been provided in the table below of the likely beneficial impact on both the time spent on site and on the treatment of the driver. This benefit needs to be balanced against the efforts and costs required for implementing the Recommendation. For this purpose an indication is provided in the column "Feasibility". The last two columns indicate whether a recommendation is applicable to loading and/or to unloading sites.

It is obvious however that these are only general indications and that the particular conditions at each site have to be taken into account.

Ref		Benefit (a)		Feasibility (b)	Applicable to:	
		Time	Treatment		Loading	Unloading
	WORK PROCESSES					
1.1	Self-loading by drivers	**	*	**	✓	✓
1.2	Time slot booking	**	**	***	✓	✓
1.3	Customer pick-ups	*	-	*	✓	
1.4	Drop & Swap	***	-	*	✓	
1.5	Pre-loading	***	-	**	✓	
1.6	Self-loading combined with Drop & Swap	**	*	*	✓	
1.7	Site lay-out	**	-	*	✓	✓
1.8	Tight-fit loading of packages	**	*	*	✓	
1.9	Overloading	**	-	**	✓	
1.10	Already partially loaded trucks (packaged)	**	*	***	✓	
1.11	Behaviour Based Safety (BBS) system	**	***	***	✓	✓
	EQUIPMENT					
2.1	Payload	***	-	**	✓	
2.2	Fixed quick dry-break couplings	*	**	**	✓	✓
2.3	Utilisation of site facilities	***	-	**	✓	✓
2.4	Speed of loading	***	-	**	✓	
2.5	One-compartment tanks	***	*	**	✓	
2.6	Availability of auxiliary equipment	*	*	***	✓	✓
2.7	Location of weighing bridge	***	-	*	✓	✓
2.8	Automated customs declaration	*	-	***	✓	
	DRIVER TREATMENT					
3.1	Standard set of Personal Protective Equipment	-	***	**	✓	✓
3.2	Reporting unsafe situations	-	***	**	✓	✓
3.3	Standard loading/unloading procedures	***	**	**	✓	✓
3.4	Multilingual notice boards	*	**	***	✓	✓
3.5	Exchange of experience	-	*	***	✓	
3.6	Pre-check of sites of new customers	**	-	**		✓
3.7	Provision of sanitary/rest rooms	-	***	**	✓	✓

Legend (a) ***: high benefit / *: low benefit
(b) ***: easy/cheap / *: difficult/costly to implement



1. WORK PROCESSES

RECOMMENDATION 1.1: Self-loading by drivers

DESCRIPTION

Whereas loading and unloading is usually performed by site personnel, consideration should be given to have these operations be carried out by dedicated and well-trained drivers under properly controlled conditions. This may avoid delays due to the lack of availability of site personnel, especially when the personnel is not dedicated to the (un)loading process.

ACHIEVABLE BENEFITS

Time on site

- Time saved per truck by avoiding waiting at loading points due to unavailability of site personnel and of documentation/equipment checks: 30 to 45 minutes per load.
- Optimisation of the occupation of loading equipment
- Opening hours of the site can be extended
- More flexibility for hauliers and increased fleet efficiency by avoiding waiting time e.g. loading at night

Driver treatment

- Enhance driver's role and active involvement

Other

- Creating an opportunity for building a long-term relationship
- Possible leading to cost savings on site personnel

KEY CONSIDERATIONS FOR IMPLEMENTATION

- The site needs
 - to carry out a proper risk assessment of the operation, involving the haulier(s)
 - to set up and carry out a proper training programme for drivers
 - to take measures to protect the personal safety of the driver: e.g. automating the loading operation will help in minimising safety risks
 - to take appropriate precautions to guarantee product integrity and quality
 - to monitor the loading operation e.g. camera surveillance
- The haulier needs to provide capable and responsible drivers
- The site and the haulier need to conclude a separate service agreement, clearly determining the working process, the integration in the overall loading operations, and the respective responsibilities and liabilities

FEASIBILITY

- Easier to implement for non-dangerous products and commodities
- Easier achievable at modern loading sites (adapting existing installations may be costly)
- Hauliers should not be forced into such an agreement
- This practice is mainly applicable for specific products with a high turnover and which are transported by a limited number of dedicated hauliers and drivers.

ADDITIONAL COMMENTS

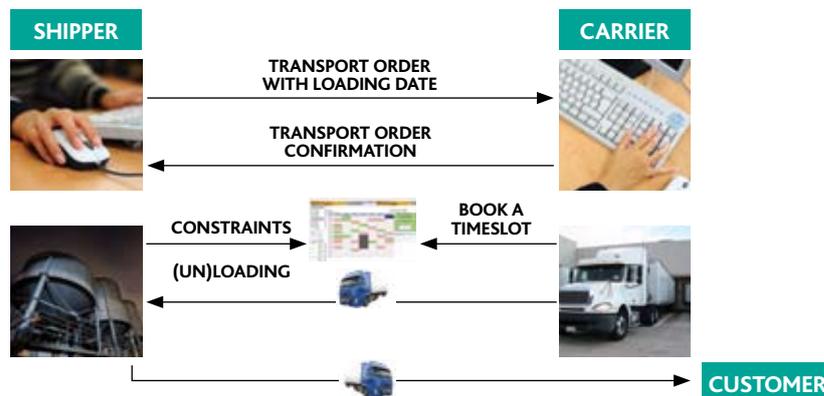
- Care should be taken not to force the driver getting involved in operations, without proper introduction/training
- An example of the description of such a working process for self-loading by drivers can be found in the table in ANNEX 2.
- It is recommended that trained drivers should be readily identifiable e.g. wearing "marked" safety helmets



RECOMMENDATION 1.2: Time slot booking

DESCRIPTION

Time slot booking is a process in which hauliers are required to book in advance a time slot for loading, preferably by electronic means. It enables the loading site to evenly spread the arrival of trucks and to minimise waiting times for drivers at the loading site.



ACHIEVABLE BENEFITS

Time on site

- Time saved per truck: 20 to 30 minutes as loading can readily take place upon arrival of the truck.

Other

- Workload is evenly spread for the loading site with no or few peak hours.

KEY CONSIDERATIONS FOR IMPLEMENTATION

- Make use of an IT- based time slot booking system, with efficient access by third parties thus avoiding manual administrative work.
- Install a planning tool for each loading site.
- Align the availability of personnel to the planning forecast
- Establish and communicate clear priority rules for "late arrivals" and "early arrivals" but include enough flexibility in the planning to deal with these e.g. for long haul transports. Only 70% of the loading site capacity should be "slotted" to ensure that the planning can actually be met.
- Integrate "customer pick-up's" by e.g. providing for empty slots.
- Take into account the particular characteristics of the site e.g. location in a congested area

FEASIBILITY

- To be considered for sites which handle a significant number of shipments and which have centralised loading bays
- Setting up an IT booking system requires only a small investment.
- Consider the necessity of having to adapt the site organisation and order planning process

ADDITIONAL COMMENTS

- This practice is already in use at 30% of major chemical sites in Europe and at more than 80% of tank storage terminals
- Absence of flexibility may result in extended waiting times.
- Planning is not sufficient in itself: monitoring compliance with this schedule is equally important as hauliers tend to book the earliest possible time slot.



RECOMMENDATION 1.3: **Minimise the number of non-scheduled customer pick-ups**

DESCRIPTION

Where possible the number of non-scheduled customer pick-ups (whereby the transport is arranged by the customer) should be minimised and replaced by transport arranged by the producer itself, as the planning of the loading will be easier to manage. Additionally the percentage of drivers, who are familiar with the site will increase and may help in reducing the time spent on site.

ACHIEVABLE BENEFITS

Time on site

- Time saved per truck: 15 to 30 minutes. It is estimated that on average 15 to 20% of loadings are customer pick-ups.
- A better truck turnaround time at the loading site for the regular hauliers, not being hindered by customer pick-ups by drivers who are not familiar with the site.

KEY CONSIDERATIONS FOR IMPLEMENTATION

- Whereas it may be difficult or unnecessary to minimise scheduled customer pick-ups, the reduction of their number will probably require the intervention of the Commercial Department.

FEASIBILITY

- Discussions with the Commercial Department, responsible for agreeing on delivery terms in contracts with customers, will be needed.
- For long haul traffic this may be difficult to implement as the "regular" hauliers do not serve those remote locations and back haul is generally difficult from these locations

ADDITIONAL COMMENTS

- In case of non-regular customer pick-ups the quality of the transport equipment, the compliance with safety requirements and familiarity with site regulations (including mastering the language of the site) tend to be not always up to standard and therefore may disturb even more the planned loadings.
- A major tank container operator investigated the relationship between the familiarity of drivers with the loading site and the number of loads they could perform per shift (which is directly related to their time spent on site). This survey was based on 225 loads in a site in Belgium and a site in Germany, whereby all drivers covered the same distance between the depot/terminal and the loading site

Communication / familiarity with site	High	Average	Low
Average loads per day (12-hour shift)	3.1	1.8	1.6



RECOMMENDATION 1.4: Drop & Swap

DESCRIPTION

Drop and Swap is a process in which containers and tank-trailers are put at the disposal of the loading site by the haulier, either on its parking lot or in a separate container depot. Site personnel perform the loading operation and prepare also all documentation, leaving the haulier to pick-up the container/trailer for transport to the customer at his convenience in accordance with the required delivery date. In this practice the haulier is not involved at all in the loading process.

ACHIEVABLE BENEFITS

Time on site

- No loading time for haulier. It is estimated that 30% to 70% of all loadings could be covered by this practice.
- No handling or waiting time for drivers

Other

- The site can optimise its internal planning and loading operation
- More planning flexibility for hauliers

KEY CONSIDERATIONS FOR IMPLEMENTATION

- The producer needs to investigate which product streams can be involved and for which customers this could be beneficial
- An agreement between the loading site and the haulier is required
- A sufficient number of trailers and related equipment must be made available
- The personnel of the loading site needs to be trained as drivers
- A parking area for ADR products must be available at the loading site
- Any equipment liability aspects need to be discussed and agreed upon by the haulier and the loading site
- The loading site will have to adapt its site organisation as well as the loading process

FEASIBILITY

- Is only applicable for those customers who order high volumes at regular intervals
- Although the implementation may require a major effort, the resulting benefits may be substantial.
- There may be a need to invest in additional parking area.

ADDITIONAL COMMENTS

- The system has been implemented at several big chemical sites with several hauliers using the system
- For small sites an agreement with one single haulier is recommended in order to benefit from economies of scale
- The use of yard tractors may be envisaged if this is more convenient and applicable than the use of trailers, provided the necessary training is provided to site personnel
- The site planning needs to take the impact of "urgent" Drop & Swap operations into account.



RECOMMENDATION 1.5: Pre-loading

DESCRIPTION

Pre-loading is an operation in which a small number of dedicated drivers perform the transport from the site of the haulier to the site of loading and back. Another driver carries out the follow-on transport from the haulier's site (depot or terminal) to the end customer. It gives the haulier the possibility to load in off-peak hours.

ACHIEVABLE BENEFITS

Time on site

- Time saved per truck: more than 30 minutes. It is estimated that 40% of loadings could be covered
- No waiting time due to handling in off-peak hours, providing a "fast lane" to loading
- Drivers can avoid traffic jams

Driver treatment

- Reduction of stress
- May help keeping older drivers in the profession

Other

- More planning flexibility for both hauliers and the loading site

KEY CONSIDERATIONS FOR IMPLEMENTATION

- Hauliers who are located at short distance of loading sites will benefit most
- Hauliers and the loading site have to agree upon clear arrangements
- A sufficient number of containers and tank trailers are required
- The loading site needs to provide sufficient staff during off-peak hours
- The process of handling the transport documentation for each load needs to be clearly described, in order to avoid mismatches between loads.

FEASIBILITY

- More applicable to loadings which do not require an intervention by customs or surveyors

ADDITIONAL COMMENTS

- Pre-loading can be combined with self-loading by drivers.



RECOMMENDATION 1.6: Self-loading by drivers in combination with Drop & Swap

DESCRIPTION

A pool of dedicated drivers performs the transport between an ADR parking area and the loading site where they also carry out the loading operation, and back. International drivers carry out the follow-on transport of the loaded trucks from the parking area to customers.

ACHIEVABLE BENEFITS

Time on site

- Time saved per truck: + 45 minutes at site. It is estimated that up to 50% of loadings could be covered by this practice.
- Off peak loading through “fast lane” procedures will reduce the total handling time
- The involvement of dedicated drivers will help solving language problems at the site and speeding up check-in procedures as they will be very familiar with the site
- Drivers will avoid traffic jams on the road and peak hours at the loading site

Driver treatment

- More specific and targeted site safety training can be provided to dedicated drivers
- May help keeping older drivers in the profession

Other

- Long-term partnership benefits all parties involved

KEY CONSIDERATIONS FOR IMPLEMENTATION

- This practice requires an ADR parking, which
 - can be used and possibly operated by a group of different hauliers
 - is strategically located in the vicinity of a chemical production area
 - may require a joint investment by hauliers and chemical site(s) in case of an external ADR parking or depot.
- The loading site and the hauliers involved need jointly to analyse product streams and customers in order to target an appropriate business sector and must agree upon procedures and respective responsibilities
- The loading site
 - may need to invest in suitable and easy-to-use loading stations in order to guarantee safety and product integrity
 - has to develop and implement a training programme for terminal drivers
 - has to adapt its organisation to deal with extended opening hours
- The hauliers need to select and have trained a flexible pool of “terminal drivers”

FEASIBILITY

- Although the need for mutual capital investment may be an obstacle, the benefit for all parties involved should not be underestimated.

ADDITIONAL COMMENTS

None



RECOMMENDATION 1.7: Site lay out

DESCRIPTION

The functional lay-out of a loading site and its corresponding traffic flow may be optimised by grouping interrelated activities in one physical location whilst physically separating them from less complementary activities. The resulting revision of the operating procedures will help in reducing the distances to be covered and thus the time spent by the driver between the successive steps of the loading process.

ACHIEVABLE BENEFITS

Time on site

- Time saved per truck: up to 20 minutes, which can be assumed to apply to all loadings

Other

- More fluent traffic flow on the site, reducing the risk for accidents

KEY CONSIDERATIONS FOR IMPLEMENTATION

- Centralise functions at one single location: entrance, security-check, shipping office (documents), weighing
- Keep the areas for the following operations separate
 - production and logistics (this will avoid unnecessary traffic in production areas, enhancing safety)
 - loading and unloading
 - packed and bulk goods
- Centralise the operations of loading packed goods as this will shorten the distances for forklift-drivers, resulting into a faster loading

FEASIBILITY

- High investment needed to implement the changes. Therefore this is typically a consideration for new sites or bigger "change"-projects or where existing infrastructure can be adapted easily

ADDITIONAL COMMENTS

- Separate gates for containers, bulk, packed goods, express cargo could be considered, especially for new sites but this may involve even higher investments for existing sites
- If possible, the installation of an on-site customs clearance office can be considered

Example of Best Practice: Several sites have concentrated (un)loading operations close to the gate, as this significantly minimises the distances to be covered by the driver



RECOMMENDATION 1.8: Tight-fit loading of packages

DESCRIPTION

When loading packages into a container or onto a vehicle, the stowage should be carried out in such a way as to have the other packages and the walls of the container of the vehicle helping in minimising the free movement (by close stowage of the packagings against the vehicle walls and between individual packages). This "tight-fitting" or "form-locking" of the load on a vehicle will reduce the time required for securing.

ACHIEVABLE BENEFITS

Time on site

- Time saved per truck: up to 20 minutes, which can be assumed to apply to all loadings, requiring securing

Driver treatment

- Less danger for the driver when fixing the goods

KEY CONSIDERATIONS FOR IMPLEMENTATION

- Difficult since most of the dimensions of currently used pallets have to be changed to reach a "tight fit" on the trailer and therefore a high investment is required to change the pallet-size.
- The vehicle walls need to be of sufficient strength to withstand the load forces.
- "Tight-fitting" should not result in causing damage to packages or walls.

FEASIBILITY

- Rather low since high amount of money has to be invested (different for side walls and back walls).

ADDITIONAL COMMENTS

Useful guidance on securing can be found in

- The Cefic/ECTA Guidelines for transport equipment used for chemical packed cargo (www.cefic.org/files/Publications/ChemicalPackedCargoMarch%202007.pdf)
- European Commission Best Practice Guidelines for Cargo Securing for Road Transport (ec.europa.eu/transport/roadsafety/vehicles/best_practice_guidelines_en.htm)



RECOMMENDATION 1.9: **Avoid overloading**

DESCRIPTION

Any effort should be made to stay in conformity with the legal requirements for filling degrees of tanks and for maximum authorized weights of loaded vehicles, as this may result in additional handlings such as partial unloading and extra administrative work. Trucks, especially those for packaged goods, have to be weighed before loading and the expected gross weight after loading be checked against the legal limits i.e. ADR (filling ratio) for bulk liquids and/or a legal requirements on the total authorised vehicle weight, which may differ from country to country.

In order to avoid physical over-loading or loading more than the requested amount the use of an in-line mass flow meter or loading on a weighing bridge is recommended for bulk liquid products.

ACHIEVABLE BENEFITS

Time on site

- No waste of time due to partial unloading and extra administrative burden.

KEY CONSIDERATIONS FOR IMPLEMENTATION

- Bulk/liquid: the number of in-line mass flow meters and the installation of an on-line weighbridge need to be considered in the light of the number of products involved. Product contamination is an important aspect for consideration if mass flow meters are used for multiple products.

FEASIBILITY

- Packed goods: easy implementation
- Bulk liquids: A mass flow meter can easily be installed in modern loading sites. The installation of an on-line weighbridge will require a high investment.

ADDITIONAL COMMENTS

- For packed goods the system of pre-cross-check is already implemented in many sites.

Example of Best Practice: Several sites have already implemented a fully automated load control system for bulk liquids where quantity limits can be pre-set.



RECOMMENDATION 1.10: Advance information on already loaded packaged goods

DESCRIPTION

It is important for the haulier to receive in advance information about the type of the product(s) to be loaded, the dimensions of the pallets and the weight of the goods already loaded at a previous loading place. This allows the haulier to prepare in advance the "load-plan" and cargo securing and segregation requirements minimising the need for unloading part of the already loaded goods.

ACHIEVABLE BENEFITS

Time on site

- Time saved per load: up to 10 minutes

Driver treatment

- Reduction of safety risks by knowing the characteristics of the preloaded goods in combination with those to be loaded

Other

- Optimisation of the loading-capacity of the truck
- Opportunity to have special handling equipment available if required.

KEY CONSIDERATIONS FOR IMPLEMENTATION

- Need for an efficient communication flow between all parties involved.

FEASIBILITY

- Very easy to implement

ADDITIONAL COMMENTS

None



RECOMMENDATION 1.11: Applying the BBS Guidelines on safe loading and unloading

DESCRIPTION

Behaviour Based Safety (BBS) is a management programme that aims at increasing the safety of loading and unloading operations by positively influencing the behaviour of all persons involved. This is achieved by defining the responsibilities of the parties involved, in particular site operators and drivers, and by installing a system of BBS observations

ACHIEVABLE BENEFITS

Time on site

- Up to 10 minutes per load, as a result of the clear definition of roles and responsibilities

Driver treatment

- Enhancing safety awareness of drivers in collaboration with site operators
- Offering an opportunity for formal input to the BBS observer e.g. suggesting improvements, reporting unsafe conditions

KEY CONSIDERATIONS FOR IMPLEMENTATION

- Management of both the (un)loading site and the transport company need to engage fully into BBS by complying with BBS requirements
- Drivers need to be properly informed about the BBS programme and be committed to participate

FEASIBILITY

- Easy to implement once the decision to engage has been taken

ADDITIONAL COMMENTS

- Cefic/ECTA developed BBS Guidelines on safe loading and unloading of road freight vehicles: www.cefic.org/files/Publications/LoadingUnloadingMarch2007.pdf.
- Questions related to the adoption of BBS loading and unloading principles by the haulier have been incorporated in chapter 6.3 of the SQAS Transport Service Module (see www.sqas.org).



2. EQUIPMENT

RECOMMENDATION 2.1: Payload

DESCRIPTION

Order sizes do not always make optimal use of the available capacity of the transport tank and of the storage tank of the customer. Increasing the order size, taking into account the available capacity of both tanks, will increase the payload of the vehicle and hence reduce the number of (un)loading activities. This will result in making a more efficient use of site facilities, transport equipment, personnel etc.

ACHIEVABLE BENEFITS

Other

- Although increasing the quantity to be loaded will require more (pumping) time the number of journeys will actually decrease, and so will the cost of the whole logistic process. It is estimated that this practice could be applied to 15-20% of all shipments.

KEY CONSIDERATIONS FOR IMPLEMENTATION

- Once opportunities have been identified the marketing and sales department must be convinced that this is a good approach towards the customer that may lead to a better service and to more competitive prices.
- Producer and customer will need to cooperate in order to remove obstacles for increasing the pay load, e.g. extension of storage capacity at the customer site
- Introducing FTL (Full Truck Load) indicators, tariff incentives for minimum parcel sizes, have to be taken into consideration in the negotiations with customers and hauliers.

FEASIBILITY

- The feasibility is medium; as no big investments are necessary but cooperation by all parties involved in the supply chain needs to be achieved.

ADDITIONAL COMMENTS

- If the maximum authorised vehicle weight in Europe would be harmonised to 44 T (road) / 50 T (intermodal) through a revision of Directive 96/53/EC, the payload of 70% of the shipments could be increased, leading to a potential saving of approximately 10% of journeys by road or by intermodal transport (based on data from a chemical transport company).

Example of Best Practice: A chemical producer has initiated a FTL (Full Truck Load) indicator so that customers, placing an order, will be asked if they can accept a full truck delivery. This resulted in an average increase of 1.5 tonnes per load and a reduction of 8 % of the number of orders for the same total volume.



RECOMMENDATION 2.2: Fixed quick dry-break couplings

DESCRIPTION

Using fixed quick dry-break couplings, instead of bolted flange connections, on both the trucks/containers as well as the (un)loading line of the site, can save time but is mainly reserved to product-dedicated transports.

ACHIEVABLE BENEFITS

Time on site

- Depending on local conditions, this practice can lead to saving 10-20 minutes per (un)loading operation.

Driver treatment

- Exposure to possible product spills, due to not properly tightened flange connections, will be reduced.
- In case of self-loading by the driver, the installation of fixed quick dry-break couplings reduces the manual labour required.

KEY CONSIDERATIONS FOR IMPLEMENTATION

- Identify product-streams for which there are a limited number of customers.
- Unless a dedicated transport-fleet is already used for this stream, consider the possibility to switch to a dedicated fleet.
- Agree with the customer and the haulier about the type of fixed coupling to be used, and establish an implementation and monitoring plan.
- If a fixed dry break coupling is installed on the transport equipment, ADR requires that a second (top of the truck) or a third (bottom of truck) valve/cap is installed as an extra barrier to prevent product spills. As a good practice a "pressure tight cap" with pressure indication may be considered
- Cleaning of quick couplings is difficult and therefore it is recommended to use this practice for product-dedicated trucks only, making cleaning between transports unnecessary
- Take into account however that if a truck is not fitted with a fixed dry break coupling, while the (un)loading facility is, much time will be lost by installing or dismantling either a dry break coupling or a bolted flange connection

FEASIBILITY

- The feasibility will depend on the size of dedicated product-streams being considered and the need for adapting the unloading facilities of customers, and can be considered as medium.

ADDITIONAL COMMENTS

Example of Best Practice: A loading site has successfully negotiated with the customer and the carrier to install fixed quick dry-break couplings at the loading and unloading facilities and on the trucks for two dedicated product-streams. This has reduced the loading time with 20 minutes per truck, for over 200 shipments per year, and has simultaneously increased labour productivity and reduced potential product exposure.



RECOMMENDATION 2.3: Occupancy level of site facilities

DESCRIPTION

Sites want to make optimal use of their facilities and prefer a high occupancy level in order to minimise the cost of invested capital per loading, but this may conflict with efforts to reduce the waiting time for a driver. Experience in the industry learns that “waiting time” at an occupied (un)loading facility increases significantly once the occupancy level exceeds 60-70 %. Depending on the specific configuration of each (un)loading site equilibrium needs to be found between occupancy level and vehicle waiting times.

ACHIEVABLE BENEFITS

Time on site

- Up to 1 hour per truck (based on actual data from 10 sites) can be achieved, applicable to all (un)loadings at the same installation

KEY CONSIDERATIONS FOR IMPLEMENTATION

- Increase the flexibility of loading by optimising the number of loading points per product if more than one loading point is available for different products, (a)
- Investigate opportunities for decreasing the occupancy rate by extending opening hours (b)
- Investigate opportunities for decreasing the occupancy rate by increasing the number of (un)loading points (c)
- Spread the (un)loadings more evenly over the day/week/month in close cooperation and consultation with customers and hauliers e.g. by implementing time slot booking (d)

FEASIBILITY

- (a): Medium/Low (depending on configuration of the site);
- (b): Medium (possibly organisational changes at the site may be required);
- (c): Medium/Low (investment may be needed);
- (d): Medium

ADDITIONAL COMMENTS

- Data on “time spent on site” from 10 different sites indicate that the best site has an average “waiting time” of 15 minutes whereas this is 60 minutes for the worst site.
- Within the same context of optimising the utilisation of site facilities (and reducing road congestion at the same time) it is recommended consulting the ECTA Guidelines for 16-hour operation:
www.ecta.be/docs/best_practices_guidelines/4_16%20Hours%20Operation.pdf



RECOMMENDATION 2.4: Speed of (un)loading

DESCRIPTION

Data from 8 different sites with 12 different loading facilities show that the actual (un)loading activities take up to 50% of the total time spent on site by a driver. Increasing the average (un)loading speed will thus have a significant direct impact on reducing this time.

ACHIEVABLE BENEFITS

Time on site

- Up to 2 hours/truck can be saved (based on actual data from these 8 sites), applying to all operations where the speed of (un)loading can be increased.

KEY CONSIDERATIONS FOR IMPLEMENTATION

Loading speed can be increased by either:

- Increasing pumping capacity (a)
- Eliminating/reducing bottlenecks in the product line between the storage tank and the (un)loading facility e.g. pipe diameter, presence of filters(b)
- Increasing the loading temperature for viscous products as this will increase the loading speed (c)

This recommendation applies mainly to the loading of bulk liquids

FEASIBILITY

- (a): Medium/Low (depending on investment required);
- (b): High/Low (depending on investment required);
- (c): Medium/Low (depending on investment required)

ADDITIONAL COMMENTS

- Actual data of 8 different sites show that the site with the lowest time spent on site by the driver, had an average loading time of 40 minutes whereas the site with the highest time spent on site had an average loading time of 180 minutes

Example of Best Practice: A site has successfully decreased the mesh width of product filters used for lower viscosity products, hereby achieving a decrease of the loading time up to 1 hour per load.

Example of Bad Practice: For several years a product had been heated up before unloading in order to increase the pumping rate. The heating of the truck took however 2 days for every truck, and this extra time did exceed the time gained by an increased pumping rate.



RECOMMENDATION 2.5: One-compartment tanks

DESCRIPTION

In the past three-compartment road barrels used to be the standard as it offered the flexibility of loading smaller parcels of different products, hereby meeting the ADR requirement of a minimum filling level (20%). Nowadays producers sell more and more full truck loads and leave the delivery of smaller quantities to chemical distributors. The use of single compartment tanks will reduce the time spent on compartment change-over and on any product sampling and analysis.

ACHIEVABLE BENEFITS

Time on site

- Time saving of 30-45 minutes per loading and unloading, depending on the time needed for sampling. It is estimated that this could apply to 10% of (un)loadings

Driver treatment

- The driver will have to perform less manual operations e.g. opening manholes, connecting hoses, etc

KEY CONSIDERATIONS FOR IMPLEMENTATION

- Producers should obtain information about the actual and potential percentage of full truck loads and investigate if it would be worthwhile outsourcing the deliveries of less than full load orders to chemical distributors (a)
- Whenever possible, producers should order single compartment trucks for full truck loads (b)
- Hauliers could transform multiple-compartment tanks into single compartment tanks or sell them and purchase new single compartment tanks (c)

FEASIBILITY

Generally the feasibility is medium even if some investments are needed

- (a): This review will require time and effort and needs support from the commercial people, but can be carried out internally
- (b): This can be discussed with hauliers during performance reviews of tender processes
- (c): The investments for adapting existing road barrels are often not high as these barrels need renovation or replacement from time to time. The investment is high only in cases where the road barrels need to be replaced by one compartment tanks and the haulier needs to evaluate this against increased business

ADDITIONAL COMMENTS

- In the last ten years hauliers, especially the larger ones or those in expansion, have reacted to the demand of the market and have built one-compartment road barrels or use one-compartment tank containers also for road transports.



RECOMMENDATION 2.6: Availability of auxiliary equipment

DESCRIPTION

It happens that truck drivers arrive at a (un)loading site with wrong or inadequate auxiliary equipment such as couplings, hoses and pumps, unclean tanks, personal protective equipment (PPE) e.g. masks, gloves, boots and overalls. It is therefore important that the driver turns up with the correct equipment in order not to lose time in obtaining the proper equipment.

ACHIEVABLE BENEFITS

Time on site

- Up to 90 minutes per shipment can be "lost". It is estimated that 3% of loading operations are subject to this non-conformance

Driver treatment

- The risk for accidents will be reduced.

KEY CONSIDERATIONS FOR IMPLEMENTATION

- (Un)loading sites should make their requirements available to the hauliers, e.g. by putting them on a freely accessible web site. The address of this website should be made available to the haulier together with the order details so that all relevant information is available.
- Sites should avoid as much as possible to request equipment in addition to what is required by ADR and best practice guidelines of the chemical industry
- This information must be kept up to date and must reflect any relevant change in requirements, offering sufficient notice in advance
- Hauliers should ensure that their drivers are aware of the auxiliary equipment, required by each site, and monitor their performance
- Dispatchers, drivers and possibly customers, should regularly be reminded about the need to obtain this information prior to (un)loading.
- The entrance gate, if possible, is the most appropriate place to carry out this "availability check"

FEASIBILITY

- The feasibility is medium to high: although the information is generally available, it is often not well communicated to the parties concerned.

ADDITIONAL COMMENTS

- The site may consider offering drivers the possibility to purchase missing equipment at the site

Example of Best Practice:

- A number of hauliers have established discussion fora, in order to facilitate the dialogue with producers on safety and quality requirements
- A number of (un)loading sites have introduced a process of providing feedback to the hauliers about wrong or missing auxiliary equipment, and have already published their site requirements on a public website. One site (25,000 loads per year in the period 2005 to 2007) has reported that this resulted in a decrease of the number of non-conformances from 800 to 300 per year.



RECOMMENDATION 2.7: Location of the weighing bridge

DESCRIPTION

In order to minimise the time spent on site, the distance between the loading station and the weighing bridge should be kept at a minimum. Therefore a weighing bridge should be installed on site and as close as possible to the loading point rather than relying upon a weighing bridge located off-site with a third party.

ACHIEVABLE BENEFITS

Time on site

- Using an on-site weighing bridge will save at least 30 minutes per weighing operation or at least one hour per (un)loading depending on the exact location of the weighing bridge.

Other

- On-site weighing will require less administration as weighing at an off-site location may require payment and additional documentation

KEY CONSIDERATIONS FOR IMPLEMENTATION

- The site should balance the cost of external weighing operations against the cost of an own on-site weighing bridge, taking into account the availability of an appropriate area and the investment costs to install a weighbridge with corresponding equipment, infrastructure and operational requirements.

FEASIBILITY

- Depending on the site capacities and investment, the feasibility to install a weighbridge ranges from low to high.

ADDITIONAL COMMENTS

- Ideally the (un)loading of trucks should be done directly on a weighing bridge so that establishing the tare and gross weight is part of the continuous measurement. It is however unlikely that this can be considered for many sites.

Example of Bad Practice: The use of weighing at an external location will prove extremely time-consuming especially in case of multi-compartment loads with different products, which require separate weighing per compartment. This will impact all parties involved (haulier, driver, site).



RECOMMENDATION 2.8: Automated customs declaration

DESCRIPTION

The implementation of a system to automatically declare T1/T2-documents for customs will remove the need for the driver to physically present these documents at the customs office and hence will allow the driver to save precious time

ACHIEVABLE BENEFITS

Time on site

- Time saved per truck, needing a customs declaration can go from 1 to 4 hours, depending on the distance between the loading site and the customs office.

KEY CONSIDERATIONS FOR IMPLEMENTATION

- Producers should gather information about the number of loads that need custom declaration (T1/T2 documents) in their supply chain and, if justified conclude a commercial contract with a company, which has developed such an automated system.

FEASIBILITY

- High because no new system has to be developed; only a fee has to be paid to the selected service provider for the use of this system.

ADDITIONAL COMMENTS

- From 1st July 2009 onwards it is mandatory to clear the EX1 and EU1 documents with the customs office. After loading the driver has to wait for the approval by the customs office of the declaration of either an EX1 or an EU1 document. It is expected that in the near future an electronic declaration system will become available, helping to reduce this waiting time considerably.



2. DRIVER TREATMENT

RECOMMENDATION 3.1: Standard set of PPE for drivers

DESCRIPTION

Introduce a standard set of PPE (Personal Protective Equipment) for use by drivers during (un)loading operations of certain groups of products, leaving the possibility to have additional specific requirements for certain specific products. Whereas this recommendation is in the first place addressing the requirements of different loading points on individual sites, there is scope for setting uniform standards requirements across different sites of the same company.

ACHIEVABLE BENEFITS

Driver treatment

- The driver can cope more easily with the requirements by having a standard set of PPE per product type
- Less product related incidents caused by the use of inadequate PPE

Other

- This standardisation offers cost savings to the haulier

KEY CONSIDERATIONS FOR IMPLEMENTATION

- Establish a list of applicable standard PPE grouped by type and specification for the different product groups and make it known (e.g. on a website) to all interested parties.

FEASIBILITY

- The successful implementation of a standard set of PPE will largely depend on the differences between the different loading locations on a site or the differences between sites as each location or site may need to be convinced to apply standards that may be perceived as of a lower standard than the ones in use. An investment may also be required from hauliers, but this may be compensated by the savings due to standardisation.

ADDITIONAL COMMENTS

None



RECOMMENDATION 3.2: Reporting unsafe situations

DESCRIPTION

Drivers should be given the opportunity to report unsafe situations to site management, which should investigate, discuss and provide feedback on possible actions taken or envisaged.

The haulier should introduce a simple system for reporting unsafe situations by his drivers, who at each site visit can register any observed deviations on a standard Form, which is either provided by the haulier or by the site. The completed Form should be passed on to the producer (loading) and/or to the customer (unloading), who should investigate the report and get back to haulier and the driver.

ACHIEVABLE BENEFITS

Driver treatment

- Will ultimately lead to a safer environment for the driver (and site personnel)
- Will give the driver the message that his input is valued

Other

- Will increase the partnership between site and haulier

KEY CONSIDERATIONS FOR IMPLEMENTATION

- Design a simple and short (1 page) "Reporting Unsafe Situation" Form" (see example in ANNEX 3), explaining why and how to report near misses
 - This Form needs to be available in the local language and preferably also in English/French/German.
 - Care should be taken that simple and short answers can be given (including tick-boxes).
- Make this initiative known to hauliers and drivers and provide the name of a contact
- Make sure that feedback is provided to the haulier and the reporting driver
- In the absence of a common industry format, cooperate as much as possible with other companies to use an identical or similar format.

FEASIBILITY

- With the amount of information available and with the growing practice of reporting unsafe situations, the implementation of such a reporting system should be straight forward

ADDITIONAL COMMENTS

- See also Recommendation 1.11 on BBS Guidelines on safe loading and unloading
- Cefic/ECTA may consider in the future developing a guideline for a standardised industry "Reporting Unsafe Situation" Form.



RECOMMENDATION 3.3: Standard loading/unloading procedures

DESCRIPTION

Depending on which (un)loading point they are operating on, drivers may be confronted with different procedures on the same site, which may lead to confusion and unease. The producer should therefore make efforts to ensure that that procedures be as standardised as practicable on all its (un)loading points. The procedures should follow the same process on each site and include all relevant safety information e.g. PPE (Personal Protective Equipment) requirements, key emergency numbers etc. They should be available in a minimum of four languages and include pictograms to aid understanding.

ACHIEVABLE BENEFITS

Time on site

- Clear standardised procedures will help minimising (un)loading time

Driver treatment

- A standardized template for procedures will provide clarity to the driver's role and remove any possible confusion

KEY CONSIDERATIONS FOR IMPLEMENTATION

- Ideally to be implemented through a specific designed template, following a rigid process in terms of procedure but offering flexibility for loading points to apply.
- Encourage sites to adopt the template for standardised procedures and provide time and resources to engage in this process
- Adapt the procedures to the different aspects of the different working areas
- Ensure that hauliers and drivers have access to this information e.g. via a website

FEASIBILITY

- Once the template is designed it should be rather straightforward distributing these with explanatory notes. The major obstacle may lie in persuading points to engage in a procedure which may differ from their current practices

ADDITIONAL COMMENTS

- The development of common industry standard procedures (except maybe for very specific products) will not be readily achievable.



RECOMMENDATION 3.4: Multilingual notice boards

DESCRIPTION

Notice boards, listing the “dos and don’ts” on the premises of a site, can play an important role in the communication with drivers. They contain key messages about general safety and security instructions e.g. the use of PPE and emergency response details, and should be in different languages (the local language, the language of neighbouring countries but ideally also in English). These instructions remind drivers of key messages that were already provided by written instructions, by a specific website or by training.

ACHIEVABLE BENEFITS

Driver treatment

- Reduces the risk of drivers/others carrying out an unsafe act

Other

- The use of different languages and pictograms helps addressing a wider population e.g. contractors for maintenance activities

KEY CONSIDERATIONS FOR IMPLEMENTATION

- A standard notice board should be designed, containing a standard list of items which cover a wide range of risks usually encountered in the loading/unloading area. Preferably pictograms should be included and empty spaces left for each individual site to add their own details e.g. emergency number etc.
- Notice boards need to be placed at strategic locations: at the site entrance/gatehouse but most importantly at the loading and unloading areas.
- This practice is neither a substitute for regular safety training nor for the provision of safety instructions

FEASIBILITY

- Notice boards are a simple communication tool and merely require the translation of a number of standard messages in multiple languages. The use of Transperanto (see below) reduces the required effort significantly.

ADDITIONAL COMMENTS

- Cefic/ECTA have developed Transperanto, a toolbox which contains 150 key safety words and short phrases in 26 European languages, and which has been made available on www.transperanto.org



RECOMMENDATION 3.5: Exchange of experience

DESCRIPTION

Producers and hauliers should hold regular meetings to share HSSE (Health, Safety, Security and Environment) best practises and experiences e.g. discussing near misses, incidents, driver issues, non-conformances. This meeting can be held either with each haulier individually or with a group of hauliers, if appropriate and acceptable.

ACHIEVABLE BENEFITS

Other

- Provides a forum to discuss at management level all HSSE issues, either positive or negative, and helps creating a closer working relationship

KEY CONSIDERATIONS FOR IMPLEMENTATION:

- Set an appropriate agenda containing items raised by both the haulier and the producer
- The meetings are intended to cover HSSE issues and should include site personnel, involved with physical loading and unloading operations. They could also be used, if appropriate, for commercial discussions in order to make best use of everybody's time.
- Also site personnel involved with physical distribution activities should take part in t

FEASIBILITY

- No major obstacles are seen for implementing this recommendation

ADDITIONAL COMMENTS

Example of Best Practice: This practice is already widespread in industry and a discussion about the recommendations made in this document may be a starting point.



RECOMMENDATION 3.6: Pre-check of unloading sites of new customers

DESCRIPTION

A representative of the producer should visit the site of new customers before the first delivery is made. This visit is not an audit but is merely an exchange of safety and technical experiences in an attempt to understand all aspects related to the unloading operations at the site of the customer. Not only product specific issues should be discussed but also the required personal protective equipment, provisions for couplings and hoses, emergency response arrangements and any other technical condition related to the unloading process. In conjunction with this visit, agreement should be reached on unloading procedures and on respective responsibilities.

ACHIEVABLE BENEFITS

Time on site

- Driver will not be faced with unexpected situations, which will likely reduce the time spent on site

Driver treatment

- Applying mutually agreed unloading procedures will enhance safety

Other

- The exchange of best unloading practises will benefit the customer

KEY CONSIDERATIONS FOR IMPLEMENTATION

- Create a checklist for verification with approved criteria: the questionnaire must not be over-complicated and must only cover relevant issues.
- Only staff with appropriate technical and process skills, and with knowledge of transport regulations should carry out the visit and follow-up any action plan
- Put in place a clear communication process between the technical departments of the customer and the producer
- Monitor closely the first delivery and verify with the customer and the driver that everything agreed upon during the pre-visit is complied with. Any deviations must be followed up by the producer and the customer

FEASIBILITY

- Some customers may take more effort than others to adopt this approach but experience shows that there is a great willingness to accept such a procedure

ADDITIONAL COMMENTS

None



RECOMMENDATION 3.7: Provision of sanitary/rest rooms

DESCRIPTION

Ensure that drivers can make use of suitable sanitary facilities on the (un)loading site as well as a place where they can take an appropriate rest if the activity allows.

ACHIEVABLE BENEFITS

Driver treatment

- Drivers will feel respected and part of the site community and not someone who is just a "driver". In return they will show appreciation and respect for the personnel and rules of the site.

KEY CONSIDERATIONS FOR IMPLEMENTATION

Ideally drivers should be able to benefit identical facilities as the personnel of the site but at least the following requirements should be met.

- Adequate and clean sanitary/rest facilities
- The access to these facilities must be in an appropriate location and must be easily accessible for drivers.
- There need to be rules and regulations so that the drivers understand what is expected of them and of the consequences in case of abuse
- The use of these facilities should be monitored in order to check compliance with rules or detect scope for improvement.
- The installation of a communication system to alert drivers to go back to their vehicle can be considered

FEASIBILITY OF IMPLEMENTATION

- In most cases all that would be required is giving drivers access to existing facilities for site personnel.

ADDITIONAL COMMENTS

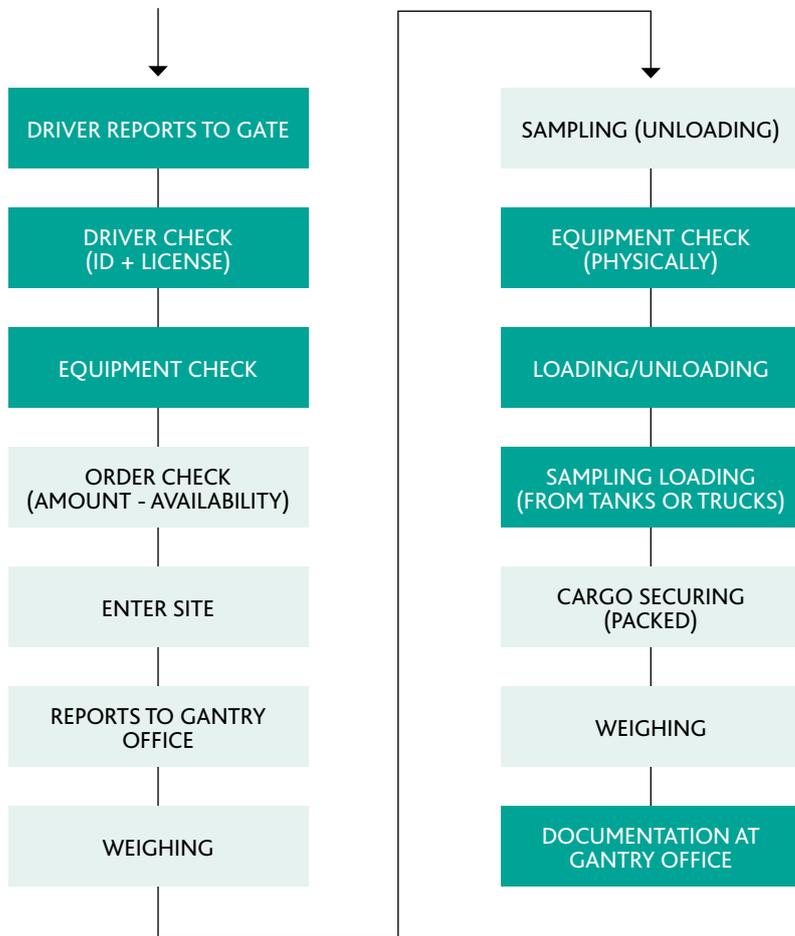
Example of Best Practice: Several sites have already applied this and experienced that drivers indeed demonstrate more respect and behave better than if no facilities are put at their disposal.



ANNEX 1

DIFFERENT STEPS IN A TYPICAL (UN)LOADING PROCESS

The following diagram illustrates a typical process flow, which is used at most loading and unloading sites:



Areas that should be targeted for reducing the time spent by a driver on site are marked in green. Other areas like adapting the lay-out of the site or introducing specific planning schedules may also play a role in reducing the time spent but their impact tends to be less significant or their implementation may require more time and effort.



ANNEX 2

DESCRIPTION (EXTRACT) OF A WORKING PROCESS FOR SELF-LOADING BY A DRIVER
(see recommendation 1.1)

Actions	Driver	Production
Checking entrance ticket of truck / tank container	X	
Checking compliance with production order		X
Loading order		X
Checking tank container for SCS approval and for compliance with specific safety requirements (control list)	X	
Checking compliance with the legislation on the transport of dangerous goods	X	
Checking cleanliness of the tank container unit	X	
Checking of cleaning certificate and previous load	X	
Observing not to load if foodstuff was a previous load	X	
Positioning truck / tank container unit in the loading bay	X	
Checking if the driver is authorised to self-load and check his/her personal protective equipment		X
Giving authorisation to load		X
Determining required loading temperature		X
Monitoring filling level of truck / tank container unit	X	
Operational measures during loading	X	
Operational measures after loading	X	X



ANNEX 3

EXAMPLE OF A FORM FOR REPORTING AN UNSAFE SITUATION (for an unloading operation)
 (see recommendation 3.2)

General information

Product: _____
 Ref nr: _____
 Customer: _____
 Address: _____
 Date of delivery: _____
 Name employer : _____
 Name driver: _____

Delivery location	Y	N	N/A	Comment
Bad entrance or exit from site or discharge point				
Unloading from public road				
Operator absent during start up or completion (driver has to connect/ disconnect himself)				
Operator absent during unloading and no means to contact the operator in case of an emergency or to raise an alarm				
Risk for making a wrong connection (no marking, no locks.)				
Direct discharge into drums/ IBC's				
No earthing				
Driver has to take sample himself and there is no means to do this safely (sampling equipment, fall protection)				
No fire fighting equipment available				
Split delivery (more than one unloading location on site for one product)				
Unloading hoses in bad condition				
No spill containment facilities on the unloading area				
Unloading flammable liquids with a compressor				
No safety shower				
Other unsafe conditions noticed? If yes, please describe				
Comments				

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DISCLAIMER

This document is intended for information only and sets out recommendations for reducing the time spent by drivers at loading and unloading places and on improving their treatment. The information contained in these Recommendations 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 this issue. No responsibility will be assumed by the participating associations, Cefic and ECTA, in relation to the information contained in these Recommendations.



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