



SAFETY BULLETIN 36/23

Safety Audit/Assessment Tool for Liquid Tanker and Distribution of Liquid Products

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SAFETY AUDIT/ASSESSMENT TOOL FOR LIQUID TANKERS AND DISTRIBUTION OF LIQUID PRODUCTS

1 Introduction

Auditing is a long-established tool, commonly used to evaluate and monitor performance and compliance against regulations, company internal standards or industry best practices that define specific requirements. Auditing also serves as one element of the check step of a plan-do-check-act cycle of a management system

Auditing is a proactive management tool for use by an organisation or activity as a part of its management responsibilities. It is used to proactively confirm compliance, detect potential issues and facilitate future improvement.

2 Scope and purpose

2.1 Scope

This publication provides a checklist focusing on a specific area of safety, health and environment, management systems and technical practices within the industrial and medical gas industry.

This checklist does not incorporate all the requirements of local or international legislation. These should be taken into consideration when planning any audit or developing audit checklists.

The tool or combination of tools used can depend upon the type of audit and the organisation, location or site characteristics.

2.2 Purpose

Each safety audit / assessment tool contains a list of questions that may be used by the auditor in the format shown in 3.1. Each question has a sequential reference number, the question itself and where relevant a reference to the AIGA, EIGA or other external publication that provides guidance on that specific topic.

These question sets may then be used at different stages of the audit process, by combining them with additional information columns in a manual or automated audit system, depending on company systems.

Section 3.2 shows the format of how the question set may be used for collection of evidence and development of findings.

Section 3.3 shows the format of how the question set may be used for management of actions arising from the audit. Forms may be adapted or combined depending on audit and action monitoring systems used by a company.

3 Formats for Audit Checklists

3.1 Format for Audit / Assessment Tool Questions

Question reference	Question	Document Section Reference
<p><i>Use sequential numbering system within each section. E.g. 1.2, 1.3. Try to avoid multiple clustered questions under the same number, but describe them as separate questions.</i></p>		<p><i>In AIGA reference document or external reference document</i></p>

3.2 Typical Format for collection of evidence and development of findings

Question reference	Question	Document Section Reference	Yes No N/A	Description of Evidence / Comments <i>(Ref...)</i>	Findings <i>(Ref...)</i>	Recommendations for improvement <i>(Ref...)</i>	Action Required Yes/No
<p><i>Use sequential numbering system within each section. E.g. 1.2, 1.3. Try to avoid multiple clustered questions under the same number, but word them as separate questions.</i></p>		<p><i>In AIGA reference document or external reference document</i></p>	<p><i>Answer is yes or no or question is not applicable</i></p>				

3.3 Typical format for management of actions arising from the audit

Question reference	Findings	Action(s)	By Whom	Dates	
				Target	Complete
<p><i>Use sequential numbering system within each section. E.g. 1.2, 1.3.</i></p> <p><i>Try to avoid multiple clustered questions under the same number, but word them as separate questions.</i></p>					

4 Liquid Tanker and Distribution of Liquid Products – Question Set

- 1 General
- 2 Sub-contractors for Liquid Tankers
- 3 Driver Training
- 4 Emergency Measures
- 5 Vehicle Equipment
- 6 Liquid Delivery to Customer Installation
- 7 Liquid Tanker Operation
- 8 Maintenance of Vehicles

Note This questionnaire is not exhaustive and may need to be complemented/adapted in order to cover all the procedures, plant specifics and equipment on site.

	Question	Yes	No	N/A	Comment	Agreed Action	By Whom	Dates	
								Target	Compl
1.0	General								
1.1	Are vehicles equipped with a tachograph/On Board Computer								
1.2	Is tachograph/On Board Computer data checked on a frequent basis								
1.3	Are charts/records kept for the regulatory/mandatory period								
1.4	Are all violations recorded on charts brought to the attention of the drivers								
1.5	Are actions taken by the fleet towards continuous improvement to reduce the violation								
1.6	Have any modifications been carried out on the vehicles								
1.6.1	Were these modifications duly authorised								
1.7	Are frequent checks carried out to verify if following items are carried on board vehicles: licences (driver's licence and vehicle's permit) gas data sheet(s) loading / delivery note operating instructions fire extinguisher(s)								

	Question	Yes	No	N/A	Comment	Agreed Action	By Whom	Dates	
								Target	Compl
1.8	Is the marked according to national/regional hazardous material relevant regulations								
1.9	Are cylinders labelled according to applicable regulation								
2.0	Sub-contractors for Liquid Tankers								
2.1	Prior to the appointment of transport contractors for the carriage of gases, are they audited and qualified								
2.2	Are they supplied with								
2.2.1	All appropriate manuals / operating instructions								
2.2.2	A copy of all appropriate safety rules and road safety policy								
2.3	Are the same rules applied to the loading/offloading of contractor's vehicles that are applied to company vehicles								
3.0	Driver Training								
3.1	Have all drivers received safety training								
3.2	Have drivers attended sessions on the following subjects:								
3.2.1	Gas and cryogenic liquid properties								
3.2.2	National and/or local regulations								

	Question	Yes	No	N/A	Comment	Agreed Action	By Whom	Dates	
								Target	Compl
3.2.3	Emergency procedures in case of accident								
3.2.4	Liquid tanker design and safety								
3.2.5	Pump technology and operation								
3.2.6	Influence of liquid movement on tanker stability								
3.2.7	Emergency procedures in case of accident								
3.2.8	Firefighting and use of extinguishers								
3.2.9	Dangers of vapour clouds and precautions to be taken								
3.2.10	Transfer of liquid into low pressure storage tanks								
3.2.11	Safe Driving								
3.2.11.1	The safe parking of tankers								
3.2.11.2	Coupling & Uncoupling								
3.2.11.3	Distraction & Fatigue Driving prevention								
3.2.11.4	Rollover prevention								
3.2.11.5	Defensive driving								
3.3	Is refresher training given at regular intervals								
3.4	Have drivers been instructed to report:								

	Question	Yes	No	N/A	Comment	Agreed Action	By Whom	Dates	
								Target	Compl
3.4.1	Defects: of truck of pump of tanker equipment of faults at customer installations								
3.4.2	Incidents and accidents to tanker and personnel								
3.4.3	Risks/Near miss during trip execution								
3.5	Is there evidence of drivers not reporting defects/incidents and accidents relating to tankers and customer installations								
3.6	Have the reported incidents tracked by the fleet management and corrective actions been taken								
3.7	Have drivers been given instructions to:								
3.7.1	Perform a daily check of their vehicle according to checklist, for example lighting, tyres, valves								
3.7.2	Check whether anti-towaway device is in working order								
3.7.3	Adhere strictly to road regulations								
3.7.4	Never overload tanker								

	Question	Yes	No	N/A	Comment	Agreed Action	By Whom	Dates	
								Target	Compl
3.7.5	Use protective clothing and equipment: gloves, glasses/face shield, safety shoes etc. PPE should be fit to the tasks								
3.8	Do contract drivers receive the same training								
4.0	Emergency Measures								
4.1	Have drivers had an explanation of the dangers of: oxygen enriched atmosphere oxygen deficiency flammable gases								
4.2	Have drivers been instructed as to the measures they should take in the event of: road accident liquid spill vehicle fire tanker/pump fire tyre fire								
4.3	Do drivers know what to do in case of cryogenic burns								
4.4	Have the emergency drill been conducted periodically								
5.0	Vehicle Equipment								
5.1	Is a regular check carried out to verify if following items are carried on board:								
5.1.1	Wheel chocks								

	Question	Yes	No	N/A	Comment	Agreed Action	By Whom	Dates	
								Target	Compl
5.1.2	Emergency warning lights								
5.1.3	A portable tray (if necessary)								
5.1.4	Fire extinguishers of correct type and size								
5.1.5	Safety signs: 'No Smoking' 'Do Not Move Vehicle' (if no anti-tow-away device fitted) warning triangles								
5.1.6	First aid kits								
5.2	Is a regular check carried out on operation of anti-towaway devices								
5.3	Are marks and placards fitted to vehicle acc. to regulation								
5.4	Conversion of a tanker								
5.4.1	Are company procedures available to control the conversion of a tanker from one gas to another, if applicable								
5.4.2	Are such procedures followed in full								
5.5	Are the emergency telephone numbers on the tanker legible and up-to-date, if applicable								
5.6	Are flexible hoses and couplings checked at regular intervals								

	Question	Yes	No	N/A	Comment	Agreed Action	By Whom	Dates	
								Target	Compl
5.7.1	Are fire extinguishers regularly inspected and labelled								
5.7.2	Are records kept								
6.0	Liquid Delivery to Customer								
6.1	Has a procedure for the transfer of cryogenic liquid been established								
6.2	Have drivers had an explanation of rules governing position of tanker during delivery								
6.3	Have drivers been told to report any deviation of these rules at particular customers								
6.4	Have drivers been told to report customer installations that: have been modified are not in good condition lack operating instructions or are illegible								
6.5	Do drivers report to the customer on arrival at site and do they follow the customer special site rules								
7.0	Liquid Tanker Operation								
7.1	Have drivers/operators been instructed to ensure prior to tanker delivery that product confusion does not occur								

	Question	Yes	No	N/A	Comment	Agreed Action	By Whom	Dates	
								Target	Compl
7.1.1	Ensure that couplings correspond to the gas name posted on the tanker and tank to be filled								
7.1.2	Avoid joining flexible hoses end to end								
7.1.3	Pay attention to strict control of tank pressure during delivery								
7.1.4	Stay in proximity of tanker during filling and delivery								
7.1.5	Shutdown any pump which shows sign of malfunction								
7.1.6	Report immediately any malfunctioning of pump during transfer								
7.2	Have drivers been instructed to apply hose restraint for LCO2 loading & unloading								
8.0	Maintenance of Vehicle								
8.1	Is there a planned preventive maintenance system								

	Question	Yes	No	N/A	Comment	Agreed Action	By Whom	Dates	
								Target	Compl
8.2	Does it cover: Engine chassis and bodywork transmission gear box brakes steering mechanism electrical and lighting equipment tyres, condition and pressure wheels fire extinguishers tank and insulation condition fifth wheel								
8.3	Are inspection programmes up-to-date								
8.4	Have any major services been missed for any vehicle								
8.5	Does detailed examination of a number of vehicles show that maintenance standards are unsatisfactory								
8.6	Are records retained and accurate								

5 References

Unless otherwise specified the latest edition shall apply.

- [1] AIGA 014, *Safety Audit Guidelines*, www.asiaiga.org
- [2] EIGA Doc 102.08, *Safety Audit/Assessment Tool Liquid Tanker and Distribution of Liquid Products*, www.eiga.eu.
- [3] AIGA SB 30, *Management of Change (MOC) – Key Elements of Risk Assessment*, www.asiaiga.org.
- [4] AIGA SB 29, *Induction & Refresher Training for Drivers, Management and other Transport Function Personnel*, www.asiaiga.org.
- [5] AIGA SB 28, *Vehicle Data Management*, www.asiaiga.org.
- [6] AIGA SB 27, *Vehicle Specification and Maintenance*, www.asiaiga.org.
- [7] AIGA SB 11, *Human Behaviour with Transport Safety Operations*, www.asiaiga.org.
- [8] AIGA SB 10, *Prevention of accidents due to overheated or burning tyres*, www.asiaiga.org.
- [9] AIGA SB 08, *In cab Camera and How Does It Help to Improve Road Safety*, www.asiaiga.org.
- [10] AIGA TP 18, *Roll over Prevention*, www.asiaiga.org.
- [11] AIGA TP 16, *Driver Fatigue Management*, www.asiaiga.org.

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