WELCOME TO THE PRESENTATION

RECOMMANDATIONS FOR LOAD SECURING IN THE CASE OF RADIOACTIVE GOODS IN FRANCE »









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Program of the Session:

- 1- History for Regulations in France
- 2-Statistics
- 3- Causes of Incidents
- 4- ASN Working Group
- 5- ASN Guide N° 27
- 6- Next Step
- 7- Conclusion







Before 2013 -

The International Atomic Energy Agency gives rules to follow for Load Securing in 2 documents:

- ✓ SSR-6: Regulations for the Safe Transport of Radioactive Material
- ✓ SSG-26 Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material







Before 2013 –

Atoms For Peace

Mode	Acceleration factors		
	Longitudinal	Lateral	Vertical
Road	2g	1g	2g up, 3g down
Kall	Эg	2g	2g up, 2g down
Sea/water	2g	2g	2g up, 2g down
Air ^a	1.5g (9g forward)	1.5g	2g up, 6g down



- ✓ Very high Acceleration Factors
- ✓ Friction not considered
- Combination of vertical and horizontal accelerations in calculation







Before 2013 –

Problems with the IAEA Regulations

- ✓ Difficult to respect for heavy loads
- ✓ Very hard to use standard materials (Chains, Straps, etc...)

Consequences

Some big French Actors of Radioactive Transports were not able to follow the IAEA regulations and were taking risks in case of problems on the road.





After 2013 -

ADR (Accord for dangerous goods by road) gives EN 12195-1 as the referent norm for Load Securing in its chapter 7-5-7.



2. Statistics

Transport of radioactive Goods: Sources IRSN



- **980,000** packages loaded of Radioactive goods are transported every year in France.
- 96% of the goods are transported by road.
- Incidents related to the load securing between 2010 and 2015 are increasing









3. Causes of Incidents



Problems with Acceleration factors of EN 12195-1?

- EN 12195-1 was not or badly respected in the incidents
- Material was not used properly

Problems identified:

Incidents related to the load securing are all due to human and/or organizational errors:

- Norms and standards for Load securing are not always well known
- Lack of Training for the designers
- Lack of Training for the operators
- Lack of quality process

Solution suggested by authorities:

ASN (French Authority for Nuclear Safety) organized a Working group called « Human Factor » in order to solve the problems .





4. ASN Working Group



Targets:

Create a guide for all the actors with a role to play in the transport of radioactive goods. The following topics had to be addressed:

- List of all the standards, guides, norms necessary to secure the different kinds of loads
- Responsibilities of the different actors
- ASN Recommendations for Load Securing
- ASN Recommendations for Trainings

What's an ASN guide?

It's only recommendations, but French actors always respect what ASN is asking. If not, ASN can propose specific regulations.





Name of the guide: Load Securing of radioactive Goods during Transports

Date of Validation : 2016, November 30th

Scope: Load Securing Operations during transports

✓By Road

✓By Sea

✓By Train

✓By Air

We will focus on **Road transport** for the rest of the presentation.





References to Regulations:

- SSR-6 Regulations for the Safe Transport of Radioactive Material
- SSG-26 Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material
- □ ADR (Chapter 7-5-7)
- Directive 2014-47-CE
- European Best Practice Guidelines on Cargo Securing for Road Transport
- □Norm EN 12195-(1à4)
- □ Norm EN 12640 12641 and 12642
- □Norm ISO 1496













Responsibilities:



Following the different regulations in France and in Europe, responsibilities are on many actors, the main ones being:

- Planners Organise the transport and the load securing
- Designers Calculate and dimension the load securing
 - Respect the plans and the good practices
- □ Controllers Control the compliance of the load securing
- Drivers

Loaders

- Check the securing before and during the transport





ASN Recommendations:

- The Quality Management System has to take into account the Load Securing
- □ Planers, Operators, Controllers and drivers have to be trained
- Load Securing plans have to be done when the lashing operations are complex
- □ The material used has to be in good condition:
 - Vehicle,
 - Container,
 - Lashing devices
- Operators have to use protective equipment
- Controls should be organized and done by a different person from the one who did the securing operations





ASN Recommendations for Training:

- □ Public targeted:
 - ✓ Designers
 - ✓ Planners
 - ✓ Operators
 - ✓ Controllers
- □ Minimum Duration: 2 days
- □ Final Evaluation:
- □ Recycling:

Theoretical and practical

Every 5 years









Training's Content:

All trainees:

- Regulations and responsibilities
- Forces acting on the load
- Transport Material (Vehicle, Lashing points, etc...)
- Lashing Material (Straps, chains, bars, etc...)
- Securing Methods
- Controls
- Practical Operations

Designers may also follow (added to the basic training):

- Calculation of Load Securing
- Redaction of Load Securing plans







Filling the gaps:

Lots of Radioactive goods are transported in vehicles with GVW (Gross Vehicle Weight) less than 3.5 Tons.

Norm EN 12195-1 concerns only transport in vehicle with GVW more than 3,5 Tons. And ISO 27956 doesn't give enough information to secure a load properly.

ASN organized another working group which goal is to design a method allowing to measure the acceleration factors we can meet in this kind of vehicle. So that we can use lashing systems adapted to this kind of transport.





7. Conclusion



If you are concerned by the transport of radioactive goods

Check that:

- ✓ The people involved in those transports are trained and qualified
- ✓ Load Securing Plans are designed for your complex transports
- \checkmark The material used is compliant with European Norms
- ✓ Your quality management takes into account the load securing
- ✓ You respect the European regulation
- ✓ You control the load securing before the departure of the vehicle









Thanks for your attention