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We Have Solutions for Your **NORM** Problems

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SECURITY AND INTERNATIONAL TRANSPORTATION

NORMIX CONFERENCE

SEPTEMBER 26, 2019

IAEA MEMBER STATES

- ⊛ 171 Member States as of February 2019
- ⊛ International Atomic Energy Agency (IAEA) publication “Regulations for the Safe Transport of Radioactive Material, 2009 Edition, IAEA Safety Standards Series No. TS-R-1”.
- ⊛ IAEA regulations are based on IATA regulations, which are based on ICAO regulations



COUNTRY DIFFERENCES

- ⊙ Different regulations compared to IAEA
 - ⊙ Package Types
 - ⊙ Security Plan Differences
- ⊙ Different interpretations than IAEA
 - ⊙ IAEA 10X Exemption
 - ⊙ U.S. PHMSA 10X Exemption
- ⊙ Differences in activities and quantities to import and export
- ⊙ Multiple Acts and International Agencies



10X EXEMPTION

☉ DOT regulations do not apply to:

Natural material and ores containing naturally occurring radionuclides which are either in their natural state, or which have not been processed for purposes other than for extraction of the radionuclides, and which are not intended to be processed for the use of these radionuclides, provided the activity concentration of the material does not exceed 10 times the exempt material activity concentration values specified in 173.436, or determined in accordance with the requirements of 173.433. [49CFR173.401(b)(4)]



10X EXEMPTION

- ① PHMSA has stated that the NORM 10X exemption does not pertain to technological NORM/TENORM, as the radionuclides are concentrated by technical means.
- ① The term "**natural material**" in § 173.401(b)(4) means material existing in a form as it would otherwise in nature, not in a form manipulated by human application.



TRANSPORT BY ROAD

- ⊗ Customs and Border Patrol
 - ⊗ NORM shipments typically do not require security restrictions
 - ⊗ Uninformed and uneducated patrol misinterpret symbols
- ⊗ Increased Security Personnel to protect drivers
- ⊗ More sensitive to looters, thieves, terrorists, and corrupt officials
- ⊗ Inexpensive mode of transportation



TRANSPORT BY RAIL

- Ⓜ Customs and Border Patrol
- Ⓜ Intergovernmental Organization for International Carriage by Rail (OTIF)
 - Ⓜ Must have country participation and prior approvals
- Ⓜ International Carriage of Dangerous Goods by Rail (RID)
- Ⓜ More practical for large quantities, most likely headed to disposal or treatment facilities



TRANSPORT BY SHIP

- ⊗ Less expensive compared to air transportation
- ⊗ Ship may be vulnerable to pirates in unpoliced waters
- ⊗ International Maritime Dangerous Goods Code (IMDG)
 - ⊗ Pilots and Carriers have the ability to refuse shipments, regardless of activity concentration or material
- ⊗ Rate of Denials for shipments are the highest



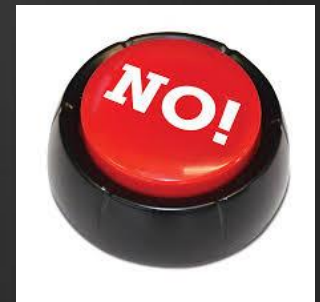
TRANSPORT BY AIR

- ⊛ More expensive, but arrives faster
- ⊛ Airline and Airport Interference!
 - ⊛ Pilots and Carriers have the ability to refuse shipments
- ⊛ Technical Instructions for the Safe Transportation of Dangerous Goods by Air
- ⊛ Rate of Denials for shipments are the highest



REFUSALS BY AIR

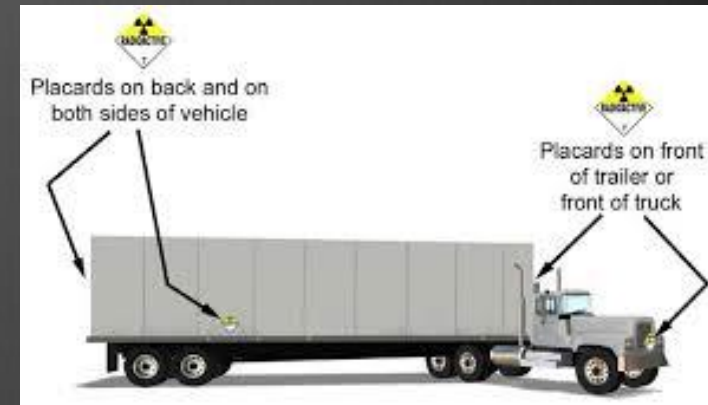
- ⊗ Pilot in command refuses the shipment or personnel on aircraft
- ⊗ Airline has the option to refuse carriage of certain types of cargo
- ⊗ Airline may choose to impose specific and additional requirements before accepting radioactive material consignments
- ⊗ Lack of knowledge of consignments and fear that leads to the refusal to handle or carry cargo



CONSEQUENCES & REASONS OF DENIALS

CONSEQUENCES:

- ⊗ Increased Costs to Industry
- ⊗ Delays in Operations
- ⊗ Permit Amendment and Renewals



REASONS:

- ⊗ Different views at national and international levels with regulations and authorities
- ⊗ Public perception that radioactive material is dangerous
- ⊗ Increasing security requirements
- ⊗ Increasing liability concern in case of accidents/incidents



CHOOSING A CARRIER

☢ Due Diligence! Evaluate Compliance History and Reputation!

☢ Issues:

- ☢ Determining whether or not the shipment is exempted from Radioactive Material Regulations
- ☢ Establishing an emergency plans/preparedness plans
- ☢ Clarifying who is fulfilling the shipper role
- ☢ Complying with multiple hazard class rules
- ☢ Solve any disagreements on routes, packaging, and responsibilities



COMPLAINTS BY CARRIERS

- ⊛ Complaints by Carriers:
 - ⊛ Clear understanding of the material being shipped
 - ⊛ Operators/facilities try to interfere with the shipment determinations and categories
 - ⊛ Loads were not properly approved at disposals for delivery
 - ⊛ Radioactive Material Regulations should be simpler
 - ⊛ Changing regulations and country import and export requirements



RISKS & LIABILITIES

- ⊛ Facility reporting to government agencies when loads are rejected
- ⊛ Expensive transportation costs with rejected loads
- ⊛ No Contractor formal agreements outlining the shipper and the carrier
- ⊛ Misusing Special Permits or applying when they are not necessary
- ⊛ Failing to obtain all appropriate permits



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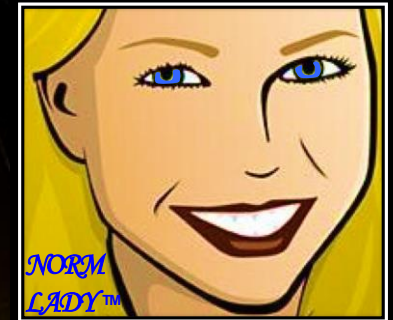
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