Contribution ID: **342** Type: **Paper**

Strengthening the security of nuclear and radioactive Material during transport

Despite the benefit provided by nuclear and other radioactive material to human beings in different activities, they also have the ability to cause a great damage if are poorly secured.
For this reason securing Nuclear and other Radoactive Material during transport is considered as big must as neccesary concerns to state either at the international or national level.
In addition , the threat has grown very faster in the latest decades , due to the existence of the terrorist groups that are seeking the Nuclear or other Radioactive Material to be used in their attacks likewise, the consciousness that threaten the Nuclear security has grown too.
In fact, the Transport security of nuclear and other radioactive material faces many challenges among them,that the processus is considered as the most vulnerable activity in the life cycle of the items , which make it vulnerable to the theft and sabotage because it takes place outside of secured facilities and near of public ,Also the transport involves several entities , moreover the Responsibility of securing them might have been transferred from the entity to another ones several times which means that the Nature of the threat might also change.
Further to the fact given above, Innefective national regulations and regulatory body monotoring
Poor design of nuclear security functions and physical protection systems, lack of the knowledge about the importance of nuclear security culture and communication between the entities
Involved in the operation could lead to the loss of control to manage the transport security.
To respond on how to minimize the risk, several international instruments have been developed by the International Atomic Energy Agency to manage the Nuclear Security such as Regulations, Conventions, Fundamentals and Recommendations to assist the member state for enhacing the Nuclear Security and raising awarness about the importance to secure the Nuclear and other radoactive material during national and international transport.
Among of them, The Convention on the Physical Protection of Nuclear Material (CPPNM) and its Amendement , which is the only legalily binding that should be ratified by the state in order to be integrated in the development of state's National Regulation on Nuclear Security.
Neither, The code of conduct on the safety and security of Radioactive Sources as an international instruments , the Security in the Transport of Radioactive material(IAEA Nuclear Security Series No. 9) which provides the necessary obligations to maintain the security of transport and adress the role and responsabilities to the each entities involved in the operation, simiraly the IAEA Nuclear Security Series No. 26-G Implementing Guide Security of Nuclear Material in Transport which provides a deep requirements from adressing roles and responsabilities , designing and maintaining a physical protection regime either designing the physical protection system to the requirements to recover missing nuclear material during transport
Securing Nuclear and radioactive materials during transport remains and requires the designation of an intelligent national authority regulatory body and the development of legislative and regulatory framework to keep nuclear and radioactive material more secured during transport to detect, deter and delay any unauthorized removal of Nuclear and other radioactive material.
Physical Protection is a matter of the international community, However to strenght a higher level of transport security , the state should develop an effective physical protection regime during transport according to the categorization of Nuclear and radioactive materials and the risk that could cause taking into account the graded approach , defence in depth , the quantity of nuclear or radioactive material shipped and their attractiveness to protect people , property and the environment from malicious acts which is the main goals of the nuclear security.
Physical protection measures (Detection, Delay and response) have to be Designed and evaluated before the operation to prevent the adversary tasks either the nuclear security plan.
Furthermore, in this paper focused on discuss the role and the responsibility of the state to develop ,maintain and design an effective nuclear security and the physical protection regimes based on the graded approach and defence in depth to strengh the security of transport ,that are the eligibility fundamental principals for sustaining an effective Nuclear security measures to enhance the security of transport of nuclear and other radioactive material , keeping in the mind to enhancing the nuclear security culture among stockholder's (consignee and the consignor) to secure the material s, also we are going to propose the physical protection systems designs and the nuclear security functions measures according to the category on nuclear and other radioactive material to strengh ther security during transport taking into consideration the level of each cate-

gory and the design basis threat, graded approch and defence in depth that are the keys of an effective nuclear security meausres that should be taken in shippement also we are going to highlight about the importance of the communnication between response forces during the transport.

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Track Classification: PP: Transport of nuclear and other radioactive material: practices, challenges and regulatory issues