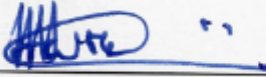


**ATOMIC ENERGY COUNCIL**

**GUIDANCE ON DOCUMENTING AND IMPLEMENTING A TRANSPORT  
SECURITY PLAN FOR THE TRANSPORT OF RADIOACTIVE MATERIAL**

**AEC/INS/GD 4.1, 2023**

**Approved by:**



A handwritten signature in blue ink, appearing to read "Noah", is written above a horizontal line.

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**SECRETARY & CHIEF EXECUTIVE OFFICER, ATOMIC ENERGY COUNCIL**

Dated this 14<sup>th</sup> day of August the year 2023

## **Foreword**

The Atomic Energy Council (AEC) was established by the Atomic Energy Act, No. 24 of 2008 with a mandate to regulate the peaceful applications of ionizing radiation, to provide for the protection and safety of individuals, society and the environment from the dangers resulting from ionizing radiation, to provide for the production and use of radiation sources, to provide for compliance with international safety requirements and advise government and other agencies on matters within its competence.

This guide is intended to assist operators (consignors, carriers or consignees) to establish measures to address the security risks that are related to transport of radioactive material.

Operators are encouraged to use it to ensure that they comply with the security requirements for radioactive material in transport.

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## **1.0 INTRODUCTION**

The Atomic Energy Council requires that Operators involved in the transport of radioactive material meet the requirements for the security of the radioactive material. They are particularly very vulnerable to security threats in transport.

During transport, an event may occur and lead to an unforeseen radiological or nuclear security incident. Therefore, advance planning and preparations are required to provide a sufficient response to any security incidents. In this regard, authorized persons are required to develop and implement a transport security plan with the purpose to form a comprehensive description of security approaches that apply to a shipment or a multi-shipment campaign, reduce security risks by defining mechanisms to deter, detect, delay, and respond to malicious acts or other incidents that could occur during transport of radioactive material, and provide a sound basis for developing and executing a sound security system for all activities associated with the transport of radioactive material.

### **1.1 Background**

Regulation 112 of the Atomic Energy Regulations, 2012 (AER, 2012) places the responsibility for the security of the packages of radioactive material from the point of entry to the final user institution with the authorized persons. In effect, the authorized person in charge of transportation is required to put in place measures to ensure security of the source in accordance with the conditions in the transport permit.

The Council, prior to the issuance of permit to transport radioactive material, satisfies itself that the authorized person has adequate arrangements for the security of the radioactive material through reviewing the transport security plan that the Operator develops and documents. It is therefore important that the plan covers all the relevant information to the benefit of the Operator. The guidance provided in this document form the basis for achieving the security of radiation sources in transport.

### **1.2 Authority**

Under Section 74 of the Atomic Energy Act, No. 24 of 2008 (AEA, 2008), Council is required to issue guidelines for operations involving ionizing radiation known as Radiation Safety guides/guidelines. This guide has been prepared to supplement the safety and security requirements during transport of radioactive material as stated in the Atomic Energy regulations, 2012 (AER, 2012) and any other internationally recognized document to provide assistance on the implementation of the requirements to undertake or carryout an activity involving sources of ionizing radiation during transport.

### **1.3 Citation**

This guide may be cited as Atomic Energy Council Guidance on Documenting and implementing a Transport Security Plan for the Transport of Radioactive Material (AEC/INS/GD 4.1, 2023)

### **1.4 Purpose**

The purpose of this document is to provide guidance to Operators with the knowledge and methodology necessary to develop an effective security plan for radioactive material during transport.

### **1.5 Scope**

This document covers the considerations and elements of the transport security plan which Operators are required to document prior to transporting any radioactive material in the public domain in order to ensure its security.

## **2.0 ELEMENTS OF THE TRANSPORT SECURITY PLAN**

### **2.1 Transport security plan scope**

This section summarizes what is addressed in the plan, including;

- (a) the type of radioactive material to be shipped.
- (b) the locations of the consignor and consignee.
- (c) the identification of the carrier.
- (d) the regulations, requirements, etc. that were used in the development of the Transport Security Plan.

### **2.2 Transport Security Plan objectives**

This section should provide a clear statement of the objectives that the plan should accomplish e.g.:

- (a) Identification of appropriate security measures to ensure security to protect personnel, equipment, and radioactive material during transport.
- (b) provide clear direction to personnel on actions to be taken to ensure the security of shipments and provide appropriate response to incidents.

### **2.3 Applicability**

This section should provide a statement of persons, organizations, and other entities involved in the transport covered by the plan. It should also elaborate on the material that is to be transported.

### **2.3.1 Description of radioactive material**

The description of the radioactive material to be transported should include:

- (a) Material.
- (b) Type (radionuclide(s))
- (c) Characteristics. (e.g. mass, activity, chemical nature, and physical form [solid, liquid, gas])
- (d) Category of sources e.g. category 1-5 sources. (Refer to Schedule 10 of AER, 2012)
- (e) Hazards.
- (f) Packaging(s).
- (g) Number of packages in a consignment.

### **2.3.2 Mode of transport**

The mode of transport of the radioactive material should be clearly specified e.g. Road, Railway, Air or Water.

## **2.4 Administrative requirements/Information**

This section should provide a detailed presentation of all the administrative requirements that need to be satisfied to provide adequate security during the transport of the radioactive material.

### **2.4.1 Policies and operations procedures**

List the specific policies and procedures, issued by State entities or the operator, that apply to the shipment. Specifically;

- (a) Operators should have in place appropriate policies and operational procedures for consistent implementation of security measures addressed in the Transport Security Plan.
- (b) Operators should also have contingency plans for responding to malicious acts during transport, recovery of lost or stolen material, and mitigation of consequences.

### **2.4.2 Vulnerability and threat Assessment**

Prior to each shipment, the consignor should review the planned transport operations and related security measures and should assess vulnerabilities considering critical factors including equipment operability, schedule, weather, and routes to be followed and any potential alternate routes. Based upon the results of this review, the consignor should undertake adjustments to the plan as necessary or required.

In the event that an elevated threat occurs, the consignor should take appropriate additional actions to implement specified security measures identified for elevated threat levels. The basis upon which the operator accounts for threats should be documented.



### **2.4.3 Testing and Evaluating the Transport security plan**

This plan should be tested initially, before undertaking a shipment. Performance testing should include drills and exercises conducted for those involved in the transport operation. In addition, should this plan cover a campaign of multiple shipments, it should be tested periodically, at least annually, to ensure company employees, contractors, carriers, and others are prepared to perform their responsibilities as outlines in this plan and that they fully understand and can execute their responsibilities.

### **2.4.4 Transport security verification**

Prior to shipment, the relevant agencies should be notified of the transport operation, on a need-to-know basis. The consignor should ensure that all response services have relevant and up-to-date contact information for the company and for the driver. In addition, the consignor should contact the consignee prior to shipment departure to ensure that the consignee is ready to receive the shipment.

### **2.4.5 Notification of Relevant Agencies**

The plan should clearly specify the responsibility and method of communicating to relevant agencies when an incident occurs;

- (a) Agencies to be notified.
- (b) Point(s) of contact within each agency.
- (c) Method of notification.
- (d) Scheduling of notification.

### **2.4.6 Review and update of the Transport Security Plan**

At a minimum, the operator should;

- (a) Conduct annual reviews and updates as necessary, both when operations or threat conditions change, and when compliance issues are identified.
- (b) Review security plans immediately prior to shipment to ensure no immediate changes are required.

## **2.5 Personnel qualifications**

### **2.5.1 Trust worthiness**

The trustworthiness of all involved personnel (consignors, carriers and consignees) should be verified. Trustworthiness checks including background checks should be conducted for all personnel involved in the transport operation by obtaining security clearances. The level of background checks conducted should commensurate with an individual's level of access to the shipment and to sensitive shipment information.

### **2.5.2 Training**

The consignor should ensure that appropriate security training is provided, according to current procedures, for all involved transport personnel, guards, and response personnel. This training should be conducted at least annually. Records of all security

training should comply with Atomic Energy Regulations for transport of Radioactive Material in Uganda. In addition, briefings, drills and exercises should be conducted for each shipment to ensure that personnel involved are prepared and aware of the shipment arrangements.

## **2.6 Responsibilities**

This section should elaborate; on how responsibilities are assigned and how they are transferred as shipments proceed, the organizational structure of the operator, the manner in which trust worthiness of involved individuals is established, and how involved individuals are trained.

### **2.6.1 Organizational structure**

The management structure of the consignor (i.e. the operator developing and issuing the plan) should be specified, establishing a chain of command including names of responsible personnel.

### **2.6.2 Allocation and transfer of responsibility**

Responsibility for any shipment should rest with the consignor until the consignor transfers that responsibility to the carrier. Consignor is responsible for developing and maintaining security plan and must ensure continuity of security when responsibility is transferred between the consignor and the carrier.

## **2.7 Information management**

This section should describe the manner in which information would be managed prior to, during and following the transport of the radioactive material. Information in this document and other associated documentation (i.e. transport documents, schedules, and routes) may be considered sensitive. Such information, as determined by the consignor and carrier should only be accessible to employees within consignor and carrier, and their contractors that have; been determined to be trustworthy, received appropriate training, and demonstrated need-to-know.

### **2.7.1 Information security**

The consignor should notify each authorized recipient of this plan not to distribute the plan to any individual inside or outside the recipient's organization without the approval of the consignor. All copies of this plan should be controlled, managed and stored in accordance with the consignor's security manual. Consignors should maintain a list of individuals or organizations that are authorized to receive or view this plan.

### **2.7.2 Records retention**

Consignor should provide for retention of all applicable records according to current policies. The documentation to be retained should include, but not limited to training records, shipping documentation, and verification of radioactive material package contents (radionuclides, activities and configuration of sources)

Information on the radioactive material being transported should be included in the Consignor inventory system. This information should include: when received, location of storage, and encoding of the source.

## **2.8 Transport security measures**

This section should cover the security and communication requirements prior to, during and upon receipt of sources during transport. Information and communications required by this section should be based upon the best practice security measures considered sensitive and should be handled according to procedures outlined in section 2.7 above.

### **2.8.1 Primary and Alternate Routes**

The primary and alternate routes should be approved by appropriate agencies for all modes of transport. Routes should be reviewed and evaluated in light of current threat and vulnerability conditions. Routes should be selected considering road quality, distances, and other geographic factors. Lowest risk route should be selected for current operation.

### **2.8.2 Description of the security system**

This section should describe specific security measures and communications that would be used for establishing the security system for the transport of radioactive material. All information relating to the security system should be properly protected according to its sensitive nature.

### **2.8.3 Conveyance and packages**

The features relating to the packages used and conveyances should be specified.

- (a) Package design features important to security should be identified e.g. tamper indicating devices, locks etc.
- (b) Conveyances should be included in the plan, including any details that are uniquely designed for the packages being shipped.
- (c) Include features for deterrence, detection or delay that are incorporated in the packages, tie-downs and conveyance.

### **2.8.4 Operations command and control**

During normal operations the communications for the transport of the radioactive material, communications should be conducted in accordance with the consignor's security manual.

Any threat, emergency, delay in transit, unusual situation, or incident should be immediately reported, as appropriate, by the personnel in the transport vehicle or the escort vehicle to the Transport Command Centre (TCC).

The consignor should establish a TCC. During operations associated with the transport of the sources, the chain of command should be established by the designated person

at the TCC. The TCC should have full responsibility and authority for the shipment and communicating with site responders for both normal operations and emergency situations.

### **2.8.5 Additional security measures**

Due to the shipment, the consignor should invoke the following additional security measures:

- (a) Equipped with appropriate communications capable of timely and redundant (radio and mobile phone) to TCC and Response forces.
- (b) Protocols for communications between personnel involved.
- (c) Chain of command defining responsibilities for actions in the event of off normal situations.
- (d) Written instructions.
- (e) Training for emergencies.
- (f) Detailed search of vehicle before shipment.

### **2.8.6 Maintenance and testing of security systems and equipment**

A regular schedule of preventive maintenance, routine maintenance, and annual inspections should be carried out for all transport equipment and systems. Maintenance and testing of the transport vehicle should be performed in accordance with the consignor's security and communication manual. Operability and functionality of all equipment and communication devices shall be performed in accordance with the consignor's security and communication manual.

## **2.9 Emergency response**

In this section, the range of incidents that might require response should be identified, the appropriate response measures should be described, and the response resources should be clearly defined.

This section should address three key elements of response planning: Emergency response, Tactical Response, and Incident communication Command and Control.

### **2.9.1 Emergency and contingency response**

All emergency response actions should be in accordance to the referenced consignor emergency plan for radiological, tactical, and natural events. Contingency response should also be addressed for the following;

- (a) Mechanical breakdowns.
- (b) Traffic accidents.
- (c) Emergency services response (fire, medical etc.).
- (d) Law enforcement response to a security incident.

### **2.9.2 Communications during incidents**

Upon notification by the transport vehicle crew and /or escort vehicle personnel of an incident or an attack, the Consignor TCC should follow the referenced Consignor emergency plan for radiological, tactical (i.e. communication alarms), and accidental events.

### **2.9.3 Reporting of threats and Incidents**

Any threat, emergency, delay in transit, unusual situation, or incident should be immediately reported by the personnel in the transport vehicle or the escort vehicle to the Consignor TCC using cellular telephone communications.

Threats or incidents should be reported, according to Atomic Energy Regulations for transport of Radioactive Material in Uganda to Council immediately. Communications should be by telephone and then followed in a timely manner by a written report within 48 hours with a detailed description of the identified threat or incident.

## **References**

- (1) Atomic Energy Act No. 24 of 2008
- (2) Atomic Energy Regulations, 2012
- (3) International Atomic Energy Agency, Security in the Transport of Radioactive Material, Implementing guides, 2008

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