

**NORMS  
ON  
EMERGENCY PREPAREDNESS AND RESPONSE REQUIREMENTS FOR  
LEGAL ACTIVITIES IN EPC IV**

**CHAPTER I. OBJECTIVE, SCOPE, DEFINITIONS**

**Art.1** (1) This regulation establishes the specific requirements for planning, preparedness and response in case of radiation emergency for practices or facilities which involving radiation sources in compliance with “242 revision”, “transport regulation”.

(2) This regulation establishes requirements for planning, preparedness and response in case of unauthorized movement of radioactive material in compliance with “security regulations”.

**Art. 2** (1) This regulation is applicable for activities in EPC IV which are

- 1) transport of radioactive sources
- 2) use of mobile radioactive sources
- 3) preventing and combatting the unauthorized movement of radioactive material.

(2) This regulation shall be applied to the licensee in EPC IV in line with 242 revision, and legal person registered for preventing and combatting unauthorized movement of radioactive material.

(3) Regulations for legal person registered as operator for processing scrap metal are given in “**Normelor privind monitorizarea radiologică a materialelor metalice reciclabile pe întregul ciclu de colectare, comercializare și procesare**”.

**Art.3** Within the application purpose of the this regulation, besides the terms defined into Fundamental Requirements for nuclear or radiological Emergency Preparedness, “transport regulation” and “scrap metal regulation” the terms, definitions and abbreviation used are:

**Procedure for Notification** = Arrangements for the licensee, registered legal person or first responder to recognize and to notify the emergency to the Public Authorities and radiation protection officer.

**Procedure for taking mitigatory actions** = Arrangements for the licensee or registered legal person to receive basic instruction for mitigating the potential consequences of emergencies and protecting workers and the public in the vicinity.

**CHAPTER II. GENERAL REQUIREMENTS FOR THE LICENSEE AND REGISTERED LEGAL PERSON**

**Art.4** (1) The licensee shall develop, maintain and implement an Emergency Response Plan and Emergency Response Procedure.

(2) The activities involving radiation sources  $A/D1 = \sum A/D1,i \geq 0.1$  or  $A/D2 = \sum A/D2,i \geq 0.1$  shall develop, maintain and apply the Emergency Response Plan.

(3) The practices involving radiation sources  $A/D1 = \sum A/D1,i < 0.1$  or  $A/D2 = \sum A/D2,i < 0.1$  shall develop, maintain and apply the Emergency Response Procedures.

**Art.5** The registered legal persons mentioned in art.2, para. 2 shall develop, maintain and implement the Response Procedures for unauthorized movement of radioactive material.

**Art.6** The licensee and the registered legal persons shall make arrangements for coordination between their Emergency Response Plans and Procedures, as applicable, and public authorities emergency plans at all levels.

## CHAPTER III. EMERGENCY RESPONSE CAPABILITIES AND ARRANGEMENTS OF LICENSEE

**Art.7** (1) The activity, such as associated with authorized movement of nuclear or radioactive material, or source,

- a.) for which on-scene events are postulated, or
- b.) for which such events have occurred in similar activities, that could warrant protective actions and other response actions to achieve the goals of emergency response in accordance with general EPR requirements in an unforeseen location, shall be licensed.

(2) The licensee of activities from para (1) shall have at place the emergency response capabilities and arrangements in accordance with hazards associated with the conducted activity.

**Art.8** The licensee of activities from Art.7 para (1) shall have at place the emergency response plan or emergency response procedures.

**Art.9** The emergency response plan of licensee shall be a single document, reviewed and coordinated with the emergency response plans of public authorities by the Ministry of Interior (MoI) and approved by CNCAN.

**Art.10** (1) The emergency response plan shall be based on assessment of hazard of on-scene events for which the licensed activity could give rise.

(2) For purpose of that regulation, hazard of the following events should be assessed:

- a) operator injury,
- b) suspected overexposure,
- c) lost or stolen sources,
- d) stuck, damaged, or unshielded source,
- e) fire,
- f) suspected contamination, and
- g) unanticipated.

**Art.11** (1) The emergency response plan shall contain, but not limited to:

- a) Postulated events and assessed hazards
- b) Identification of the event based on EALs and observables
- c) Concept of operations for identified event in accordance with recognized hazard, including Emergency Response Procedures

### ~~Section 2.-1 Recognized hazards~~

**Art. 12** (1) The assessment of hazard shall consider the following factors, but not limited to:

- a) properties of the nuclear or radioactive material, or source involved;
- b) route and conditions of the movement of nuclear or radioactive material, or source;
- c) scenario of event progression;
- d) pathways of exposure of workers and public;

- e) potential interrelationship with security events and natural hazards.
- (2) The licensee shall have at place
- a) the emergency response arrangements with the public authorities, and
  - b) the emergency response capabilities
- adequate to the postulated events and recognized hazards.

**Art.13** (1) The Emergency Action Levels (EALs) shall be developed for prompt identification and classification of event in term of predefined emergency scenarios mentioned in Art.12.

- (2) The EALs could be, but not limited to:
- a) Ambient dose rate from the shielded source
  - b) Ambient dose rate from the ground
  - c) Contamination
  - d) Observables related to the conditions of the source, e.g. fire, spill
  - e) Observables related to the conditions of activity, e.g. road accident
- (3) The list of recommended EALs is provided in Annex 1

**Art.14** Concept of operation of the licensee in event of emergency includes, but not limited to:

- a) classification of emergency situation,
- b) notification of organizations responding to radiological or nuclear emergency at the territory of EPC IV where the licensee operates;
- c) mitigatory actions;
- d) actions for protection of employees (operators of a source) at scene;
- e) actions for protection of the employees (emergency workers);
- f) actions to regain the control over the source or/and emergency situation at scene.

**Art.15** (1) In the event of the emergency, the licensee shall without delay to start implementation of emergency plan.

- (2) After arrival of responders from public authority to the scene, the Incident Commander System (ICS) under the public authority shall be installed to manage the protective and other response actions.
- (3) After the ICS becomes operational, the licensee shall respond as a party of the overall response organization.

**Art.16** The licensee shall specify in Annexes of the Emergency Response Plan at least the following:

- a) Emergency Management Structure, describing the structure - authority, responsibilities, capabilities and resources in emergency, Contact points which should include the phone numbers of 1) the notification point for notifying of the emergencies 2) radiation protection officer.
- b) List of organizations with which the licensee has signed protocols and agreements.
- c) List of resources that are necessary to implement the emergency response plan.

**Art.17** (1) A template of the Emergency Response Plan of the licensee is provided in Annex 2

- (2) A template for Emergency Response Procedure is given in Annex 3

## Section 1. Functional requirements to licensee

**Art.18** Emergency situations, intervention and evaluation activities that shall be described in the emergency response plan are:

- a) Identifying, notifying and request for assistance;

- b) tacking protective and mitigatory actions
- c) protection of emergency workers;
- d) Assessing the initial phase
- e) Conducting recovery operations

**Art.19** In the emergency response plan shall be declared authorized and responsible position available at all times on scene for the identifying and classifying of any emergency, declaration of emergency, activation of the emergency structure and notifying public authorities and the competent authority.

**Art.20** The EALs shall be used for identification of the emergency.

**Art.21** (1) The notification of the response parties shall be done in accordance with allocation of responsibilities.

(2) For activity involving the transport or radioactive materials the consignor, consignee, carrier and any organization (competent and public authority) involved during transport who may be affected, as appropriate, shall be notified of the emergency by:

- a) The carrier if the emergency is identified during transport; or
- b) The consignee if the emergency is identified at receipt
- c) The first responders (public authority) if the emergency is identified during response to conventional transport accident or radiation monitoring of the consignment (e.g. at border crossing).

(3) For activity involving the mobile sources (e.g. industrial radiography) the competent and public authority shall be notified by,

- a) The licensee if the emergency is identified during transport or operation of mobile source; or
- b) The first responders (public authority) if the emergency is identified during response to conventional transport accident.

**Art.22** In the event of emergency at remote locations the arrangements shall be in place for

- a) activation of the emergency team of the licensee.
- b) request for assistance from national firefighters, police, health services and other national organizations to support intervention in case emergency.

**Art.23** The identification and notification of emergency and activation on emergency team shall be described in the emergency procedures.

**Art.24** (1) Protective actions of the licensee to protect the public shall be based on prevention of access of the public to the scene of the emergency.

(2) The radius of the safety perimeter shall be based of the magnitude of the emergency.

(3) Suggested size of the safety perimeter is given in Annex 1.

**Art.25** (1) Protective actions of the licensee to protect the employees shall be based on:

- a) Evacuation of non-essential staff from the scene of emergency;
- b) Use of individual protective equipment;
- c) Control of contamination;
- d) Iodine thyroid blocking, if applicable;
- e) Operational control of individual doses;

(2) The priority shall be given to live saving and first aid actions.

(3) The licensee shall have at place capabilities and arrangements for conducting mitigatory actions at scene of emergency.

**Art.26** (1) The licensee shall have arrangements for transition of workers from normal operation to position of emergency workers.

(2) Arrangements shall be made to ensure that emergency workers are, to the extent practicable, designated in advance and are fit for the intended duty.

(3) The positions responsible for radiation protection of emergency workers have to be declared in the emergency response plan.

**Art.27** (1) The licensee shall ensure that workers are aware of all hazard at the scene in event of emergency.

(2) The licensee shall have established arrangements for protection of emergency workers in accordance with graded approach based on assessed hazards.

(3) The arrangements referred to in para. (2) shall include:

- a) monitoring, recording and reporting of radiation doses received by emergency workers during the response;
- b) Actions for self-protections of emergency workers to be taken immediately upon recognition of an emergency
- c) training of emergency workers;
- d) providing protective equipment for emergency workers

**Art.28** The licensee shall have at place arrangements for informing first responders about hazards of at the scene and provide them with recommendations regarding protective and mitigatory actions.

**Art.29** (1) The licensee shall have at place capabilities and arrangements for regaining control over the sources and conducting recovery operations at scene of emergency for transition from emergency to normal conditions.

(2) The licensee in consultation with public authority shall provide the plan for recovery operation of the scene with predefined criteria for matching the normal conditions.

(3) The plan for recovery operations shall be approved by the competent authority.

(4) The licensee shall ensure that, at the end of the emergency, workers undertaking recovery operations, such as repairs to the plant and buildings, recovery of sources, waste disposal or decontamination of the site and surrounding area, are subject to the full system of detailed requirements for occupational exposure.

## Section 2. Requirements for infrastructure of licensee

**Art.30** The licensee shall develop, in the preparation and planning phase, the emergency procedures and tools for use in emergency, necessary for the prompt and effective response to specific functions and for all planned activities.

**Art.31** The emergency response plan shall be reviewed for every relocation of the source including:

- a) transport of radioactive materials
- b) delivery of mobile radiation source

**Art.32** (1) The emergency response procedures shall be reviewed every 2 years or whenever necessary.

(2) The lists of contacts contained in the notification procedures should be reviewed every 6 months or sooner if significant changes occur.

**Art.33** (1) The licensee shall describe in the emergency response plan the resources and logistics.

(2) The licensee shall establish and develop permanent material resources needed for the response in emergency situation.

**Art.34** (1) Communications equipment, personal protective equipment, respiratory protective equipment, potassium iodine, if applicable, personal dosimeters must be maintained to be operational at any time.

(2) The licensee shall make arrangement for decontamination of emergency response personnel and equipment.

**Art.35** (1) The designated employees shall be assigned in advance to specific tasks for emergency response.

(2) The licensee shall have ongoing programme for training staff designated as emergency workers in accordance with their assignment.

**Art.36** (1) The licensee shall periodically test emergency response arrangements and capabilities in exercises and drills.

(2) The exercises or/and drills shall be performed at least once a year.

(3) The licensee shall keep records of persons participating in exercises.

**Art.37** (1) At every 3 years, the licensee shall participate in an exercise, along with local, regional and national authorities.

(2) In this regard, the licensee is required to support public authorities to exercise scenario development and the exercise preparation.

**Art. 38** (1) The licensee shall establish an appropriate quality management in line with national and international standards and approved by CNCAN.

(2) The quality management system shall provide oversight of the following:

- a) acquisition of systems, equipment, tools, communication systems;
- b) maintenance of systems, equipment and instruments in appropriate working conditions, test and calibrate them regularly;
- c) periodic review of emergency plans and procedures;
- d) lessons learned from exercises, drills and response.

**Art.39** (1) Each of the exercises and drills provided in art. 38 and 39 have to be completed with the preparation of an evaluation report.

(2) The report shall contain findings accompanied with suggestions and recommendations for improvement of emergency response capabilities and arrangements.

**Art.40** (1) Each of the emergency have to be completed with the preparation of an evaluation report.

(2) The report shall contain findings accompanied with suggestions and recommendations for improvement of emergency response capabilities and arrangements.

## CHAPTER IV. EMERGENCY RESPONSE CAPABILITIES AND ARRANGEMENTS OF REGISTERED LEGAL PERSON

**Art.41**The registered legal person shall have at place the response capabilities and arrangements in accordance with hazards associated with the conducting activity.

**Art.42** (1) The registered legal person shall make arrangement for setting of the monitoring systems and shall have at place alarm response procedures and emergency response procedures to act when the monitoring system is alarming.

(2) The monitoring system shall be set for two levels:

- a) Alarm level shall be defined by the competent authority
- b) Emergency level shall be defined by the competent authority

(3) If the monitoring system triggers above emergency level the registered legal person shall respond according with emergency response procedure.

(4) If the monitoring system triggers above alarm level the registered legal person shall respond according with alarm response procedure.

**Art.43** (1) In event of alarm the registered legal person shall provide the security and safety of the radioactive material by the following means:

- a) Isolation and securing the source
- b) Control access to the secured area
- c) Notification of appropriate response parties (e.g. Radiation Protection Officer, Customs, Police, Intelligent Services and Regulatory Authority)
- d) Tacking protective and mitigatory actions
- e) Protection of workers.

(2) The registered legal person shall identify authorization of movement of the radioactive material.

- a) If the event is recognized as unauthorized movement of the radioactive material, the legal person shall notify the Competent Authority about unauthorized movement of radioactive material.
- b) If the event is recognized as authorized movement of the radioactive material the legal person shall verify compliance with conditions written in the certificate of the consignment.
- c) In compliance with conditions written in the certificate of the consignment the registered legal person shall give the permit for movement of the consignment in line with the certificate.
- d) In incompliance with conditions written in the certificate of the consignment the registered legal person shall stop the movement and inform the CNCAN.

**Art.44** (1) In event of emergency the registered legal person shall provide the security and safety of the radioactive material by the following means:

- a) Isolation and securing the source;
- b) Control access to the secured area;
- c) Notification of appropriate response parties (e.g. Radiation Protection Officer, Customs, Police, IGSU, Intelligent Services and Regulatory Authority);
- d) Tacking protective and mitigatory actions
- e) Protection of workers.

(2) Upon arrival of Competent Authorities to the scene, the registered legal person shall acts under ICS managed by Incident Commander in line with emergency plan of the Public authority.

**Art.45** The Flowchart of information for art. 43 and art.44 is given in Annex 4.

## Section 1. Functional requirements to registered legal person

**Art.46** In the response procedures shall be declared authorized and responsible position available at all times at place for the identifying and notifying public authorities and the competent authority for any unauthorized movement of radioactive material or emergency situation.

**Art.47** The notification of the response parties shall be done in accordance with allocation of responsibilities and request for assistance in case of alarm event or emergency situation from police, firefighters, health services and other support organizations.

**Art.48** Protective actions and other response actions shall include:

- a) Isolation of the source
- b) Evacuation of non-essential staff from the scene;
- c) Use of individual protective equipment;
- d) Control of contamination;
- e) Prevention of access of public to isolated source by establishing the safety perimeter.

**Art.49** (1) The registered legal person shall ensure that workers are aware of all hazard at the scene in case of an emergency situation.

(2) The registered legal person shall established arrangements for protection of workers including:

- a) monitoring, recording and reporting of radiation doses received by emergency workers during the response;
- b) Actions for self-protections of emergency workers to be taken immediately upon recognition of an emergency
- c) training of emergency workers;

## Section 2. Requirements for infrastructure of registered legal person

**Art.50** The registered legal person shall develop, in the preparation and planning phase, the emergency procedures and tools for use in case of alarm event or emergency situation, necessary for the prompt and effective response to specific functions and for all planned activities.

**Art.51** (1) The response procedures shall be reviewed every 2 years or whenever necessary.

(2) The lists of contacts contained in the notification procedures should be reviewed every 6 months or sooner if significant changes occur.

**Art.52** (1) The registered legal person shall establish and develop permanent resources needed for the response in case of alarm event or emergency situation.

**Art.53** (1) Monitoring equipment, communications equipment, personal protective equipment, respiratory protective equipment, personal dosimeters shall be maintained to be operational at any time.

(2) The registered legal person shall make arrangement for decontamination of emergency response personnel and equipment.

**Art.54** (1) The registered legal person shall periodically test emergency response arrangements and capabilities in exercises and drills.

(2) The licensee shall keep records of persons participating in exercises.

**Art.55** (1) The registered legal person shall establish an appropriate quality management in line with national and international standards.

(2) The quality management system shall provide oversight of the following:

- a) acquisition of systems, equipment, tools, communication systems;
- b) maintenance of systems, equipment and instruments in appropriate working conditions, test and calibrate them regularly;
- c) periodic review of response procedures;



## CHAPTER V FINAL PROVISIONS

**Art.56** The support documentation for the request of an authorization to operate a installation shall demonstrate that the requirements of this regulation were implemented.

**Art.57** (1) The emergency response plan of the licensee shall be submitted to CNCAN for approval.

(2) Emergency response procedures of the licensee shall be send to CNCAN as a part of support documentation for the request of an authorization.

(3) After any review of the emergency response plan will be submitted to CNCAN for approval.

(4) After any review of the emergency response procedures will be submitted to CNCAN for information.

**Art.58** This regulation will be implemented by the licensees and registered legal persons within 12 months after its publication in the Official Gazette.

## Annex 1. Emergency Actions levels and Values for the radius of the safety perimeter.

Situation	The radius of the safety parameter, around the radioactive contaminated area <sup>1,2</sup>
Intact package with a I-WHITE, II-YELLOW or III-YELLOW label	Immediate area around the package
Damaged package with a I-WHITE, II-YELLOW or III-YELLOW label	Radius of 30 m or at: <ul style="list-style-type: none"> <li>- ambient dose rate: 100 <math>\mu\text{Sv/h}</math>,</li> <li>- 1000 <math>\text{Bq/cm}^2</math> for gamma/beta contamination,</li> <li>- 100 <math>\text{Bq/cm}^2</math> for alpha contamination</li> </ul>
Common radioactive source, undeteriorated, such as smoke detectors	None
Other unshielded or unknown radioactive sources (deteriorated or not)	Radius of 30 m or at: <ul style="list-style-type: none"> <li>- ambient dose rate: 100 <math>\mu\text{Sv/h}</math>,</li> <li>- 1000 <math>\text{Bq/cm}^2</math> for gamma/beta contamination,</li> <li>- 100 <math>\text{Bq/cm}^2</math> for alpha contamination</li> </ul>
Spill	The area where the material spread because of the overturning plus a 30 m-area around
Major spill	The area where the material spread because of the overturning plus a 300 m-area around
Fire, suspected radiological bomb, explosion or fumes, spent fuel, Plutonium spill	Radius of 300 m (or more, in order to ensure protection against an explosion effects) or at: <ul style="list-style-type: none"> <li>- ambient dose rate: 100 <math>\mu\text{Sv/h}</math>,</li> <li>- 1000 <math>\text{Bq/cm}^2</math> for gamma/beta contamination,</li> <li>- 100 <math>\text{Bq/cm}^2</math> for alpha contamination</li> </ul>
Explosion	Radius of 1000 m or at: <ul style="list-style-type: none"> <li>- ambient dose rate: 100 <math>\mu\text{Sv/h}</math>,</li> <li>- 1000 <math>\text{Bq/cm}^2</math> for gamma/beta contamination,</li> <li>- 100 <math>\text{Bq/cm}^2</math> for alpha contamination</li> </ul>

<sup>1</sup> – safety distances around the radioactive contaminated area, in case of radiological emergencies that take place in the open areas; if the emergency occurs inside a building, the distances shall be smaller in order to be able to control the access in the area and, moreover, the buildings may be a filter or a shielding for what is released;

<sup>2</sup> – the operational intervention levels (the ambient gamma dose rates and radioactive concentrations in depositions) are calculated for the generic intervention level corresponding to the evacuation (50 mSv/week); when calculating the depositions, the re-suspension phenomenon and the accidental ingestion of radioactive material are considered; the operational intervention levels for beta contamination are calculated for high or unknown radio-toxicity radionuclides; for beta emitters radionuclides with low radio-toxicity (H-3, C-14, S-35,

Cr-51, Fe-55, Ni-63, Tc-99m or I-125), the operational intervention levels for beta contamination may be 10 – 100 higher; the ambient gamma dose rate shall be measured at 1 m distance from the soil.

## Annex 2. Emergency Response Plan

### 1. EMERGENCY RESPONSE

On the title (cover) page write title of the plan, version No., and validation date. Other information such as: author(s) and preparation date, reviewer and review date, responsible manager and approval date, and signatures you may wish to put on the inner (second) page.

#### 1.1. ENTRY CONDITIONS

**Prominently display** the emergencies covered by the plan, e.g. 1) operator injury, 2) suspected overexposure, 3) lost or stolen sources, 4) stuck, damaged, or unshielded source, 5) fire, 6) suspected contamination, and 7) unanticipated.

#### 1.2 RESPONSIBILITY

**Prominently display** who is responsible for implementation and maintenance of this plan. This should include the operator.

#### 1.3 CAUTIONS

**Prominently display** the safety steps performed before use of the plan, potential hazards and protective equipment/measures to be used.

#### 1.4 IMMEDIATE RESPONSE ACTIONS

Refer to the page number of the section in the plan that lists the immediate actions for the emergency.

#### 1.5 IMMEDIATE ACTIONS

Have separate procedures for each emergency that list the immediate steps (actions) to be taken by the operator. Refer to appendices for lists of phone numbers and other supporting details. The steps should refer to information in an appendix to be used by the radiological assessor or radiation protection officer and local off-site officials.

### 2. NORMAL STANDING INSTRUCTIONS

#### 2.1 OPERATOR DAILY CHECKS

List the checks that the operator should complete before starting and finishing work. This should list equipment, procedures etc. to be taken to the job site.

#### 2.2. TRAINING AND EXERCISES

Describe the employee training requirements and process

#### 2.3 PLAN AND EQUIPMENT MAINTENANCE

Describe arrangements to maintain the contingency plan and equipment, naming the person responsible. This should include calibration and other equipment checks

### 3. DISTRIBUTION LIST

List all individuals and organizations that are to receive the plan. This must include operators, their supervisors and the radiological assessors or radiation protection officers.

## Annex 3. Emergency Response Procedures

### 1. HEADER

On the cover page, write the title of the procedure, document code (if any), type of confidentiality (if any), version number, and validation date. Other information, such as author(s) and preparation date, reviewer and review date, responsible manager and approval date, and signatures, you may wish to put on the next page. All subsequent pages have header: procedure title, performed by, page number, total number, of pages, document code, version number, and validation date. Optional: type of confidentiality.

### 2. ENTRY CONDITION

**Prominently display on the cover page** the entry conditions for use of the procedure, i.e. the condition indicating that the procedure is to be used.

### 3. RESPONSIBILITY

**Prominently display** the position or team responsible for completion of the procedure.

### 4. LIMITATIONS

List the limitations of the method or technique used.

### 5. PURPOSE - CUSTOMER

List the expected results (outcome) of the procedure and the identity of the customer – who gets the product.

### 6. SUMMARY

For complex procedures, give a short explanation (summary) of the process (method, technique) followed by a discussion of the conditions under which the procedure is most effective; advise on possible alternatives and some recommendations may also be given.

### 7. DEFINITIONS

Give only those definitions that are needed to perform the procedure.

### 8. STEPS (ACTIONS)

List steps and tasks to be performed in order to achieve the purpose of the procedure in the sequence in which they should be performed.

### 9. REPORTING (optional)

Describe a mechanism for reporting the results of the procedure. Give clear lines of internal and external communication.

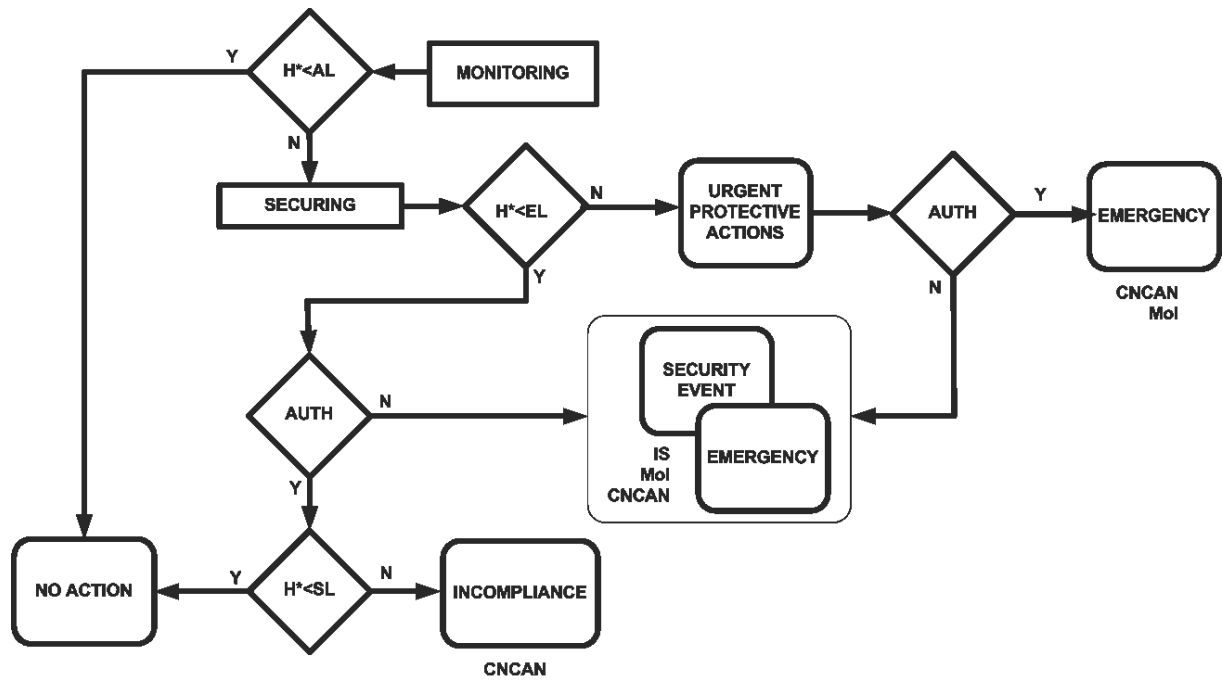
### 10. DISTRIBUTION LIST

Give a list of all individuals or organizations that are to receive the procedure.

### 11. PROCEDURE MAINTENANCE

State an individual or organization that is responsible for reviewing and updating the procedure. Describe the reviewing and revision process.

## Annex 4 Flowchart of information



AL= Alarm Level

AUTH=Recognitions of the movement

EL=Emergency Level

H\*= Ambient dose rate,  $H^*(10)$ . at 1m from the outer surface of consignment

SL= Reference level for safety conditions given in the certificate

N=no

Y=yes