

***DRAFT TRANSLATION***

**National Plan for Nuclear and Radiological Emergencies**

**(Nationaal Crisisplan Stralingsincidenten)**

**The Netherlands**

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# National Plan for Nuclear and Radiological Emergencies

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## 1. Introduction

The National Plan for Nuclear and Radiological Emergencies (“NCS”) replaces the National Plan for Nuclear Emergency Management and Response (“NPK”) dated from 1989<sup>1</sup> and is in line with the Institutional Decree Ministerial Crisis Management Committee (MCMc) and the National Manual on Decision-making in Crisis Situations (NHC).<sup>2</sup> The plan is a result of the current rules and legislation - both national (e.g. the Atomic Energy Law, in particular art. 40, the Safety Regions Law and Police Law 2012 as well as international requirements (e.g. EU-guidelines of and IAEA conventions).

The objective of the NCS is to define the key policy principles involved in the management of radiation incidents.

Radiation incidents include all situations in which unwanted radiation and/or radioactive material is released or threatens to be released with an increased risk for humans and the environment. It includes both large scale accidents and relatively smaller scale incidents.

Because of the complexity of radiation incidents and the possible large scale consequences of a radiation incident a coordinated crisis management is needed. This plan covers all organisations with roles in the decision making process – in particular ministries, safety regions and license holders.

Regarding the (coordinated) emergency management in the case of radiation incidents, this plan focusses on the responsibilities regarding the (preparation for) radiation incidents, the (specific) crisismanagement structure, the different response phases and the agreements related to risk and crisis communication.

In 2014 the decision was taken to establish the Nuclear Radiation Protection Authority (“ANVS”). This new authority will deal with the development of legislation, safety protocol, license registration, supervision and public information. The ANVS will be in part responsible for the preparation for possible incidents which could cause a radioactive release. At the time this report was written, the ANVS was operational yet, which is why the ANVS as such has not been included in this plan.

The NCS contains no detailed description of scenario’s, intervention levels, an evaluation system etc. These topics are or will be handled in separate sub-plans (with corresponding scenario’s and concrete executions such as check lists, contact details etc.). It is important that these plans, scenario’s and sub-plans of the national level, safety regions and license holders are perfectly in line with the NCS.

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<sup>1</sup> Kamerstukken II, 1988-1989, 21 015, nr. 3.

<sup>2</sup> Stcrt 2013, nr. 11207 en Kamerstukken II, 2012-2013, 29 668, nr. 37.

The connection between the NCS and the national and international legislation, the National Manual on Decision-making in Crisis Situations, the regional crisis plans and specific disaster management plans for nuclear installations of the safety regions and the crisis plan of the license holders, is visualized in the diagram below.



## 2. Radiation incidents and objects

### 2.1 Radiation incidents

Radiation incidents include all situations in which unexpected radiation and/or radioactive material is released or threatens to be released with an increased risk for humans or the environment. Radiation incidents can be related to locations or transport routes where uranium ore, nuclear fuel and radioactive materials are mined, produced, used, stored or transported. It can vary from threats of incidents in nuclear installations to incidents and accidents with radioactive material. A radiation incident does not have to be location based. An incident could occur anywhere (in companies/institutions, laboratories or hospitals) or during transportation.

A radiation incident can lead to material and immaterial damage, both in the short and/or long term. The damaging effects can occur in the direct proximity of the radiation source but, depending on the distribution of radioactive materials, it can also effect a larger area. The complexity of radiation incidents and the possibly large scale consequences of a radiation incident, demands a (coordinated) crisis management. The legislative text regarding radiological incidents:

*Kernenergiewet, artikel 38b, Ongeval: Gebeurtenis als gevolg waarvan straling vrijkomt of dreigt vrij te komen die tot een verhoogd risico leidt of kan leiden voor mens of milieu, of die ter voorkoming of vermindering van een verhoogd stralingsrisico voor mens of milieu een gecoördineerde inzet van diensten en organisaties van verschillende disciplines vergt.*

In the coordinated management of (threats of) radiological incidents, there are countermeasures to be taken. These are reflected in legislation. These 'interventions', in the legislative text :

*Kernenergiewet, artikel 38<sup>e</sup>, Interventie: Een verrichting, bestaande uit het treffen van maatregelen bij stralingsbronnen, stralingsroutes en mensen, dieren, planten en goederen, ter voorkoming of vermindering van de blootstelling aan ioniserende straling van mensen, dieren, planten en goederen ten gevolge van een radiologische noodsituatie, of een langdurige blootstelling ten gevolge van een radiologische noodsituatie of een handeling of werkzaamheid met splijtstoffen, radioactieve stoffen of toestellen die in het verleden heeft plaatsgevonden.*

Countermeasures are divided in direct countermeasures (aiming the reduction of direct exposure to radiation, for example exposure after a radioactive cloud) and indirect countermeasures (aiming the reducing indirect exposure, for example in the food chain).

In case a malicious radiological incident, response will include safety aspects (radiation emergency management) as well as security aspects (counter-terrorism).

In the case of an impending crisis which threatens national security, in accordance with the Institutional Decree Ministerial Crisis Management Committee 2013 and the National Manual on Decision-making in Crisis Situations, the general crisis structure will be activated via the National Crisis Center.

In that case decision making takes place in the Ministerial Commission Crisis Management. This commission is chaired by the Minister of Safety and Justice, unless the Prime Minister decides to preside. The regional government remains responsible for their own operational preparation in the specific region. In case of a terroristic threat with an urgent character, the Minister of Safety and Justice as coordinating minister for counter-terrorism, can use his authority-mandate. In this plan (NCS) there is no further detailing of the response in case of incidents due to malicious acts. Radiation incidents can apply to category A or B objects, as defined in the Atomic Energy Law. This subdivision in A and B objects is *not* based on an international standard.<sup>3</sup>

## 2.2 Category A objects

A radiation incident with a category A object can have region transcending consequences. This does not necessarily mean that the radiological aspects are regionally-transcending, but that the consequences for society could be. Therefore a radiation incident with a category A object has an impact that reaches beyond local environment and accordingly needs coordination by the national government in line with the policy as described in the National Manual on Decision-making in Crisis Situations and supported by a national expert and advice network: the National Nuclear Assessment Team<sup>4</sup> (EPAn).

A objects can refer to Nuclear Power Plants, nuclear powered ships and space units which use nuclear energy, transport highly radioactive waste etc. The corresponding legislative texts:

Kernenergiewet, artikel 38 c: Categorie A-object:

1. Een inrichting als bedoeld in artikel 15, onder b, met uitzondering van een inrichting waarin uitsluitend splijtstoffen worden opgeslagen of verwerkt, alsmede een inrichting voor uraniumverrijking
2. Een ruimtevaartuig of een vervoermiddel met een uitrusting als bedoeld in artikel 15, onder c,
3. Inrichtingen als bedoeld in artikel 15, onder b, uitrustingen als bedoeld in artikel 15, onder c, alsmede inrichtingen of vervoermiddelen waarin of waarmee handelingen worden verricht als bedoeld in artikel 15, onder a, met betrekking tot splijtstoffen of ertsen voor zover bestemd voor of in

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<sup>3</sup> The IAEA defines a classification in threat categories, see Appendix C.

<sup>4</sup> See chapter 4 for further explanation on the EPAn.

- gebruik bij de Nederlandse krijgsmacht of bij de krijgsmacht van een bondgenootschappelijke mogendheid, of
4. Een met een object als bedoeld onder 1 tot en met 3 en onder d vergelijkbaar object buiten Nederland

Kernenergiewet, artikel 15 b: Een inrichting, waarin kernenergie kan worden vrijgemaakt, splijtstoffen kunnen worden vervaardigd, bewerkt of verwerkt, dan wel splijtstoffen worden opgeslagen, op te richten, inwerking te brengen, in werking te houden, buiten gebruik te stellen of te wijzigen of een inrichting, waarin kernenergie kon worden vrijgemaakt, splijtstoffen konden worden vervaardigd, bewerkt of verwerkt, dan wel splijtstoffen werden opgeslagen, te ontmantelen

Kernenergiewet, artikel 15 c: Een uitrusting, geschikt om een vaartuig of ander vervoermiddel door middel van kernenergie voort te bewegen, daarin aan te brengen of aangebracht te houden, dan wel zodanige daarin aangebrachte uitrusting in werking te brengen, in werking te houden of te wijzigen.

A radiation incident with a category A object can refer to an object *in* the Netherlands, in a *neighbouring country* and *at longer distance* of the border of the Netherlands.

Regarding A objects there is a difference in managing the response *on* the facility of the installation ('On Site') and the management of the consequences of the radiological incident *outside* of the facility, of the installation ('Off Site'). In addition, an incident classification is used to indicate the severity of the situation.<sup>5</sup>

### 2.3 Category B objects

Usually, a radiation incident involving a category B object has local effects only. The consequences are limited to location of the source's or limited to close surroundings and therefore needs regional coordination with possible support of the national expert and advice network: the National Nuclear Assessment Team<sup>6</sup> (EPAn). The national government always has a responsibility in regard of the evaluation of a radiation incident.<sup>7</sup>

Examples of B objects are companies and facilities using radioactive sources for industrial processes or applications, the storage of radioactive sources or the use radioactive sources for research purposes.

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<sup>5</sup> The IAEA uses this incident classification, see Appenix D.

<sup>6</sup> See chapter 4 for a further clarification of the EPAn.

<sup>7</sup> In this case the Human Environment and Transport Inspectorate(ILenT)/ Kern Fysische Dienst (KFD).

Hospitals also belong to the category B objects, due to the radioactive materials used for the treatment of patients and determining diagnoses. The corresponding legislative text:

Kernenergiewet artikel 38 d: Categorie B-object:

- 1) Een inrichting voor uraniumverrijking,
- 2) Een inrichting waarin uitsluitend splijtstoffen of radioactieve stoffen worden opgeslagen of verwerkt,
- 3) Een inrichting waarin radioactieve stoffen kunnen worden bereid of toegepast,
- 4) Een inrichting waarin zich toestellen bevinden,
- 5) Een vervoermiddel waarin zich splijtstoffen of ertsen bevinden, of
- 6) Een vervoermiddel waarin zich radioactieve stoffen of toestellen bevinden.



### 3. Responsibilities

In this chapter the main responsibilities of license holder, minister(s), mayor and President of the safety region are described in relation to the (preparation of) crisis management and response in the case of radiation incidents.

For a detailed overview of the responsibilities we refer to the relevant national and international legislation (for instance the Atomic Energy Law and the Safety Regions Law) or elaborations (for example “*Eenheid in verscheidenheid*”) or corresponding licenses and sub-plans, as referred to earlier in this document.

#### 3.1 License holder

The responsibilities of the license holder of category A and B objects are described in the Atomic Energy Law and in the corresponding license of the object. These documents also refer to the responsibilities of the license holder in the case of (preparation for) radiation incidents and the countermeasures to be taken.<sup>8</sup>

In addition to the responsibilities from the Atomic Energy Law and the license, the operator of a category A object and the safety region make arrangements about the compatibility of the on-site incident management and the off-site consequence management of radiation incidents and the corresponding planning. The license holder will take the initiative in this matter.

In the case of a radiation incident the license holder of a category A or B object is obligated to report this to the responsible Inspectorate/National Competent Authority<sup>9</sup> and the mayor. If a license holder suspects or determines a malicious radiation incident he must report this also. The same applies when the license holder suspects or knows about a theft or loss of radioactive material. Legislative texts:

##### Besluit stralingsbescherming, artikel 13

1. De ondernemer zorgt ervoor dat een stralingsincident, een ongeval of een radiologische noodsituatie onmiddellijk wordt gemeld bij:
  - 1°. het meldpunt stralingsincidenten; en
  - 2°. de betrokken stralingsarts indien overbestraling of besmetting van een A-werknemer heeft plaatsgevonden.

Besluit stralingsbescherming, artikel 14, derde lid: De ondernemer meldt de volgende situaties of maatregelen onmiddellijk bij het meldpunt stralingsincidenten:

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<sup>8</sup> For further information we refer to the license.

<sup>9</sup> The Human Environment and Transport Inspectorate.

- a. het zoekraken, de ontvreemding of de ongewilde verspreiding van een bron;
- b. een ongeoorloofde handeling met een bron;
- c. de getroffen maatregelen na:
  - 1°. het zoekraken, de ontvreemding of een ongeoorloofde handeling met een bron, of
  - 2°. elke gebeurtenis waarbij een bron kan zijn beschadigd;
- d. elk stralingsincident of ongeval met een bron dat leidt tot onopzettelijke blootstelling van een werknemer of een lid van de bevolking.

When a radiation incident occurs, the license holder of a category A or B object is obligated to hand over all information required for crisis management to the mayor and president of the safety region and the National Nuclear Assessment team. The corresponding legislative text:

Kernenergiewet, artikel 39, derde lid: De exploitant van een inrichting als bedoeld in artikel 15, onder b, verschaft de burgemeester, al of niet op diens verzoek, onverwijld alle informatie die bij de uitoefening van diens taak nodig is.

### **3.2 Minister(s)**

The Atomic Energy Law assigns the Minister of Economic Affairs and the relevant minister(s) the responsibility for the preparation of the crisis management in the case of radiation incidents with a category A object and to prepare the possible countermeasures to be taken. In the case of a radiation incident with a category A object, the Minister of Economic Affairs and the minister(s) concerned are also responsible for the coordination of the crisis management, the decision-making on radiation-related countermeasures, the coordination and the execution. The legislative text:

Kernenergiewet, artikel 38 a, eerste lid: Onze Minister en Onze Minister wie het aangaat zijn verantwoordelijk voor de voorbereiding van interventies en voor de coördinatie en uitvoering daarvan. Bij of krachtens algemene maatregel van bestuur kunnen omtrent deze voorbereiding, uitvoering en coördinatie regels worden gesteld.

Kernenergiewet, artikel 40, eerste lid: Onze Minister en Onze Minister wie het aangaat, zijn verantwoordelijk voor de voorbereiding van de organisatie ten behoeve van een doelmatige bestrijding van ongevallen binnen of buiten Nederland met categorie A-objecten en voor de coördinatie van die bestrijding. Zij bevorderen voorts in het bijzonder het houden van oefeningen en de totstandkoming van afspraken, die nodig zijn voor een doelmatige bestrijding van deze ongevallen

The ministers concerned in particular are the Minister of Economic Affairs and the Minister of Safety and Justice in regard to their responsible for crisis coordination between the various minister(s) and other governmental bodies concerned when a nuclear incident takes place which endangers national security. The Ministers of Social Security and Employment, Public Health and Sports, Infrastructure and the Environment and Defence respectively for the consequences to labour conditions, to public health, to water quality, transportation and to military aspects.

When managing a radiation incident with an A object, the Minister of Economic Affairs can request the assistance of the EPAn.<sup>10</sup>

On national level, the Interdepartmental Commission Crisis Management and the Ministerial Commission Crisis Management (ICCb) and the Ministerial Commission Crisis Management (MCC) are responsible for the coordination of intersectoral crisis management and deciding on a cohesive approach. In the case of a radiological incident with a category A object, national supervision (“GRIP Rijk”) applies.<sup>11</sup>

The Minister of Economic Affairs can decide, whether or not requested by the mayor/president of the safety region, to handle the management of a radiation incident with a category B object in the same manner as a category A object. In that case the responsibility to deal with the crisis management transfers to the Minister of Economic Affairs. However, the operational responsibility for the crisis response remains on the local/regional level and will not be transferred to the national level, even after upscaling to national supervision (“GRIP Rijk”). The legislative text:

Kernenergiewet, artikel 42, eerste lid: Onze Minister kan, na overleg met Onze Minister wie het aangaat, gelet op de meer dan plaatselijke betekenis van een ongeval met een categorie B-object, zoveel mogelijk na overleg met de burgemeester van de gemeente waar zich dat ongeval heeft voorgedaan en de voorzitter van de veiligheidsregio, besluiten dat een ongeval met een categorie B-object wordt bestreden als een ongeval met een categorie A-object.  
Kernenergiewet, artikel 42, tweede lid: De burgemeester van de gemeente waar zich dat ongeval heeft voorgedaan, of de voorzitter van de veiligheidsregio kan Onze Minister verzoeken gebruik te maken van de bevoegdheid, bedoeld in het eerste lid.

### 3.3 Mayor/president of the safety region

Safety regions have a responsibility to prepare for incidents, including radiation incidents (with category A and B objects). This is done by conducting regional risk analyses, planning, acquiring necessary (protective) gear, measurement equipment and other materials, education, training etc.<sup>12</sup>

Concerning crisis management of radiation incidents with a category A object, the safety region and the license holder agree on the harmonization of on-site effect management and off-site consequence management and the corresponding planning.

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<sup>10</sup> See chapter 4 for further clarification of EPAn.

<sup>11</sup> See National Manual on Decision-making in Crisis Situations.

<sup>12</sup> See (among others) Safety Regions Law.

In the case of a radiation incident with a category B object, the mayor is responsible for the coordination of the crisis management, the decision-making for countermeasures to be taken, the coordination and the execution (generally the local crisis management organization will be upscaled from “GRIP 1” to “GRIP 3”). The management of a radiation incident with a category B object can require upscaling of the crisis management organization, which would transfer the responsibility for the coordination to the president of the safety region (generally “GRIP 4”). The corresponding legislative text:

Kernenergiewet, artikel 40, tweede lid: Het bestuur van de veiligheidsregio is verantwoordelijk voor de voorbereiding van de organisatie ten behoeve van een doelmatige bestrijding van ongevallen met categorie B-objecten. De burgemeester is verantwoordelijk voor de coördinatie van die bestrijding.

Kernenergiewet, artikel 41: De voorbereiding door het bestuur van de veiligheidsregio van de bestrijding van ongevallen met categorie A-objecten en categorie B-objecten geschiedt overeenkomstig paragraaf 3 van de Wet veiligheidsregio's. Bij de voorbereiding houdt het bestuur van de veiligheidsregio rekening met de, overeenkomstig artikel 40, eerste lid, tot stand gekomen afspraken.

In the management of a radiation incident with a category B object the mayor (or in the case of up-scaling, the president of the safety region) can request for assistance of the EPAn.<sup>13</sup>

The mayor can request the minister to handle a radiation incident with a category B object as a radiation incident with a category A object. Then the responsibility for the management of a radiation incident is transferred to the minister. However, the operational responsibility for the crisis response remains at a local/regional level and will not be transferred to the national level, even after up scaling to national supervision (“GRIP Rijk”).

### **3.4 National Competent Authority**

Based on the conventions of the IAEA and the EU treaty, a National Competent Authority is appointed and a National Contact Point is established in order to fulfil the corresponding obligations. This includes the international exchange of information and the handling of requests for assistance. The National Competent Authority and the National Contact Point are embedded in the Human Environment and Transport Inspectorate

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<sup>13</sup> See Chapter 4 for a further explanation of the EPAn.

#### 4. Crisismanagement Structure

For emergency management and response in case of radiation incidents and consequence management, a dedicated crisis management organisation was established. The organization is in line with the generic crisis decision-making structures as described in the National Manual on Decision-making in Crisis Situations (NHC). The crisis management organization structures all institutes with expertise in the area of radiation incidents in a national expert and advice network: the National Nuclear Assessment Team<sup>14</sup> (EPAn).

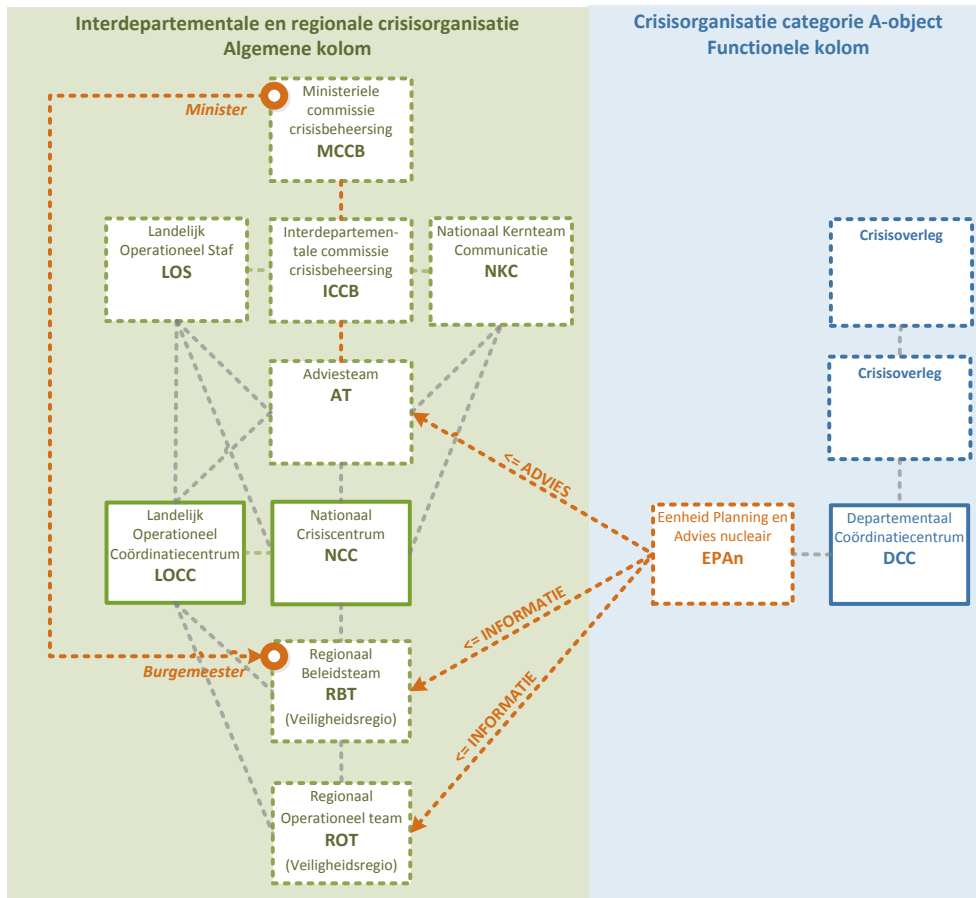
In the case of a (threatening) radiation incident, the National Nuclear Assessment team (EPAn) is activated. Based on the information about the situation and its knowledge and expertise, the EPAn formulates an advice to mitigate the consequences of radiation incidents for human life and the environment.

In the case of radiation incidents with a category A object in the Netherlands or abroad, the EPAn will always be activated. The qualified authority is advised, in the case of a category A object this authority is the Minister of Economic Affairs and, via the Advice Team (“AT”) also the Interdepartmental Commission Crisis (ICCb) Management as well as the Ministerial Commission Crisis Management (MCCb) which commissions are responsible for decision making on national level. Information from the EPAn will be send to both the Minister of Economic Affairs as well as the president of the safety region.

In the following diagram, the crisis organization has been visualized (both national and regional, in a general and a functional column) in the case of a radiation incident with a category A object.

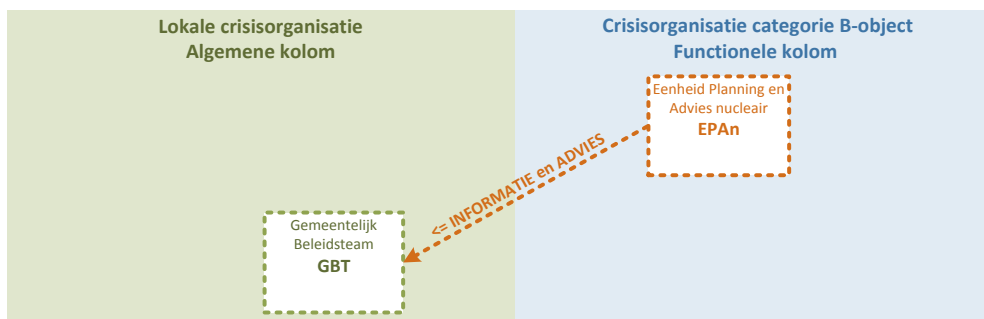
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<sup>14</sup> See chapter 4 for a further clarification of the EPAn.

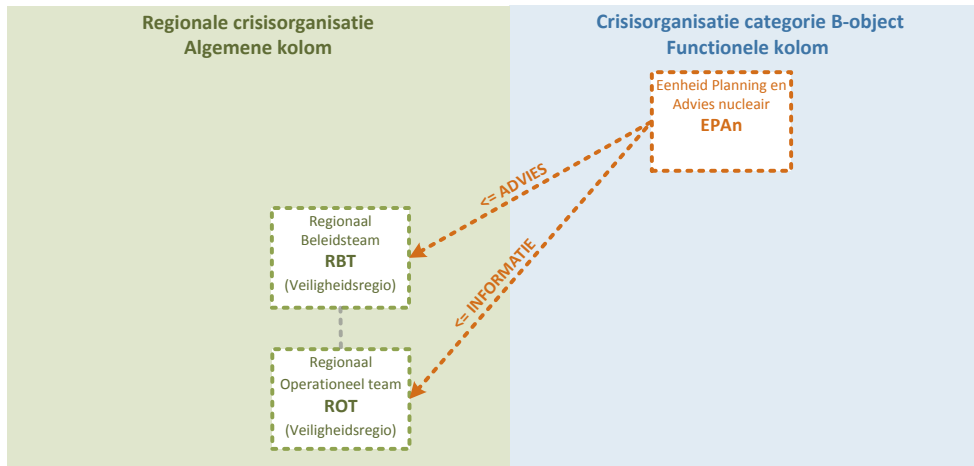


In the case of radiological incidents with a category B object, the mayor or (if the incident is scaled up) the president of the safety region can request the assistance of the EPAn.

The following diagram shows the *local crisis organization* in the case of a radiation incident with a category B object:



In the following diagram the *regional crisis organization* has been visualized in the case of a radiation incident with a category B object:





## 5. Crisis phases

The management of radiation incidents and the management of the consequences can be subdivided into a number of phases:

- Normal phase: business as usual, preparation.
- Alarm phase: notification, verification and up-scaling the crisis organisation.
- Response phase: consequence management for the (threatening) radiation incident situation
- Recovery phase: downscaling, remediation and evaluation.

These phases are displayed in the following diagram:



### 5.1 Alarm phase

Within the alarm phase we differentiate between notification of radiation incidents, the verification and the evaluation of the radiation incident and up-scaling the crisis organization.

#### *Notification of radiological incidents*

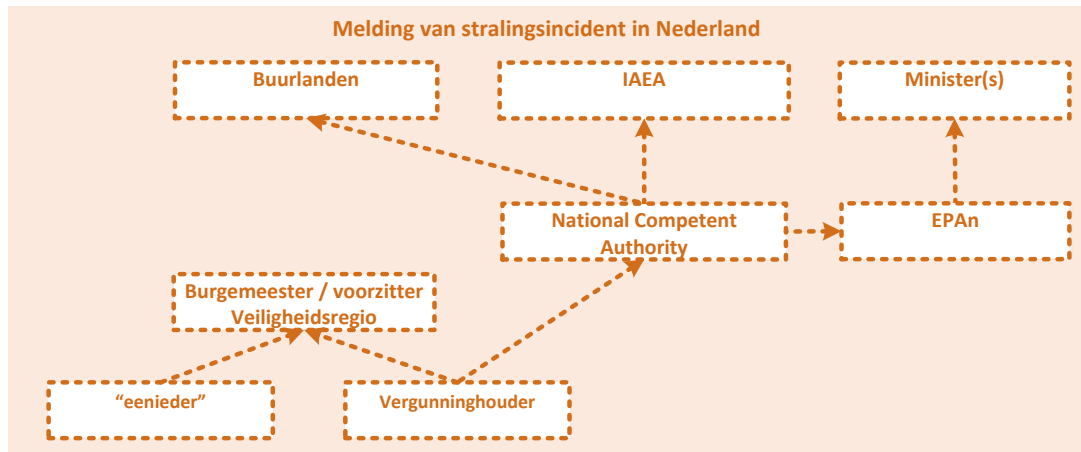
1. A radiation incident in the Netherlands<sup>15</sup>: Everyone who knows or can reasonably assume that a radiation incident is taking place, is obligated to notify the mayor. License holders are obligated to notify a radiation incident to the *National Competent Authority*<sup>16</sup>. The *National Competent Authority* will then inform the EPAn. The EPAn notifies the Minister of Economic Affairs and the National Competent Authority will, depending on the nature, cause and consequences of the incident, inform the IAEA, the EU and the neighbouring countries.

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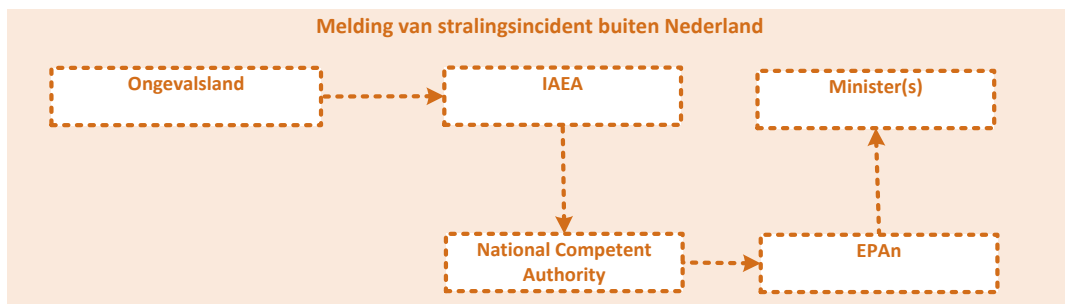
<sup>15</sup> The Atomic Energy Law and the corresponding laws and regulations does not apply to the Caribbean Netherlands. Therefore the NCS does deal with this part of the NL Kingdom.

<sup>16</sup> The *National Competent Authority* is housed under the Human Environment and Transport Inspectorate.

Both for the IAEA convention as for the EU Treaty, *Competent Authorities* are appointed. In the Netherlands, the Human Environment and Transport Inspectorate has been designated as Competent Authority for both. The diagram below visualizes the reporting process of a radiological incident in the Netherlands



2. A radiological incident abroad from the Netherlands: in accordance with the international and bilateral agreements (legally) every country where the radiation incident with transbordering effects takes place is obligated to notify the EU (applies to EU member states only) and the IAEA.<sup>17</sup> The IAEA informs the other parties of the convention via the respective *National Competent Authorities*. The *National Competent Authority* informs the EPAn and the EPAn informs the ministers. Besides the information route via the IAEA as described above, all EU member states are obligated to inform each other about radiation incidents with transboundary effects.<sup>18</sup> The diagram below visualizes the reporting of a radiation incident abroad from the Netherlands.



<sup>17</sup> IAEA Convention on Early Notification of a Nuclear Accident.

<sup>18</sup> EU/ECURIE: Euratom treaty 87/600

3. A radiological incident in Belgium and Germany: reporting is done in accordance with the international and bilateral agreements. In addition to the information route via the IAEA and the EU, the Netherlands have bilateral agreements with Belgium and Germany. In the case of an incident in one of these countries, the Netherlands (in this case: the National Crisis Centre) will be informed directly of the incident via the national crisis centres of the incident country involved. Bilateral agreements are also in place regarding alerting and information exchange such as monitoring data and information necessary for the technical analysis of the situation. This means that the National Competent Authority and the safety regions involved will also receive a notification directly from either the license holder or from the incident country, and in addition, technical information is sent to the various specific governmental bodies, such as the RIVM in the Netherlands. The diagram below visualizes the report process of a radiation incident in Belgium or Germany:



### *Verification and evaluation of the radiation incident*

The Inspectorate verifies the incident report, reviews it and subsequently informs the EPAn. During the alarm phase, the Inspectorate also acts as a national advisor to the Minister and/or mayor or president of the safety region for the time being until the National Nuclear Assessment team is activated.

In case of a radiation incident with a category A object, the operator of the nuclear installation determines the provisional incident classification. In the case of a (threat of) a malicious act, this information is explicitly included in the classification.

The EPAn also evaluates the radiological incident using the IAEA's INES scale.<sup>19</sup>

The INES-scale is internationally used in particular to inform the public in case of a radiation incident. The INES scale has no relationship with the Dutch incident classification system.<sup>20</sup>

<sup>19</sup> *International Nuclear and Radiological Event Scale.*

### *Up-scaling of the crisis organisation*

The type of object (A or B), the severity and extent of (the effects of) the radiation incident determines whether or not up scaling of the crisis organisation is necessary and if so, to which level.

The up-scaling process takes place on three levels, related to the extent of functions required both in the National Nuclear Assessment team (EPAn) as well as for the response on local/regional and national level.

Level	Explanation
Standby	(The president) of the National Nuclear Assessment team monitors the situation and informs the ministries and safety regions (via the NCC). There is no need for coordinated national response. <sup>21</sup>
Partial up-scaling	The National Nuclear Assessment team is scaled up. The EPAn evaluates the situation and informs all the ministries and safety regions involved. (The president of) the EPAn can recommend activation of certain national organisations. Coordination of the national response is required
Full up-scaling	The national crisis organisation is scaled up. The EPAn advises the national level (AT, MCCb/ICCB) and informs local/regional crisis teams. Crisis communication advisors from the ministries involved and from the National Core Team Crisis Communication (“NKC”) are activated.

The president of the EPAn can advise on the up scaling of the national crisis organisation in the case of a radiation incident.

## **5.2 Response phase**

- In the case of a radiation incident *in* the Netherlands: the crisis structures are activated on a national, regional and local level. Information management, decision making, coordination and crisis communication are central processes.

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<sup>20</sup> See appendix D for an overview of the IAEA-classifications. See appendix E for a clarification of INES.

<sup>21</sup> This does not detract (wat betekent dit? btere vertaling??) from the fact that (in support of the regional capacity) national organisations involved in the response.

- Information management: Providing the correct organisations with the necessary information in a timely manner to enable consequence management and public information regarding the radiation incident involved.
  - Decision making and coordination: decision making and coordination applies to the management of the crisis organisation, the countermeasures to be taken and their execution.
  - Crisis communication: crisis communication applies to the notification (Information management, communication and damage control) in relation to the victims or people involved, press and society in general.
- In the case of a radiological incident in *a neighbouring country*: three safety regions with nuclear installations in or near the border area have made arrangements with neighbouring countries regarding crisis management. They can also make use of crisis structures on national, regional and local level.
    - Safety region Zeeland has transbordering agreements in place with the Governors of the Flemish provinces of West-Vlaanderen, Oost-Vlaanderen and Antwerp. These agreements cover police, fire brigade and medical cooperation in general and in the framework of crisis management. Concerning the information exchange between the governors, the Kings Commissioner and president of the safety region, a separate information protocol has been agreed which deals with information management on operational, tactical and strategic level in the case of a disaster, incident or crisis situation.
    - Safety region Zuid Limburg has made structural agreements in the EU-region Maas-Rijn (Belgium, the Netherlands and Germany). All agreements concerning radiological incidents are merged into a multidisciplinary factsheets for radiation incidents.
    - Safety region Twente has made agreements on alerting and exchange of information, about the situation at the installations and about the countermeasures taken by the authorities involved.
  - In the case of a radiological incident *abroad (further away from the Dutch borders)*: in general there is no actual radiation threat to the population in the Netherlands and therefore there is no need for crisis response in terms of direct protective countermeasures. If any indirect countermeasures will be prepared or executed, the generic and specific crisis structures will be used.

### 5.3 Recovery phase

- Downscaling. The highest, activated authority (mayor, president of the safety region or minister) determines the response phase is completed and decides the crisis organisation to be scaled down if the following criteria are met:

- the source or cause of the radiation danger is under control;
  - the contamination is under control and causes no further risks to the population;
  - no additional countermeasures are needed except those already in place;
  - the prepared or executed radiation-mitigated countermeasures have been lifted or are in control (eg. due to monitoring).
- Recovery policy: The relevant organisations develop a concept for the recovery and the return to the normal situation. Depending on the nature of the radiation incident (A or B objects) this happens under the responsibility and coordination of the minister or the mayor or the president of the safety region. After a large-scale nuclear incident, possibly large areas of the Netherlands will be contaminated. Depending on the scale of contamination and the size of the affected area, this could lead to social unrest and disruption of the community. This is why during the response phase of an incident it is essential to prepare and draft a detailed recovery plan. The recovery plan must be developed within the framework of the national remediation or recovery policy and tailored to the specific situation. In certain cases it can be necessary for the relevant government organizations to coordinate their efforts aimed at long-term activities, taking into account the fact that this can take weeks, months or years. In the recovery phase, the concept of operations applies as stated in National Manual on Decision-making in Crisis Situations (NHC).
  - Evaluation of a radiation incident. Depending on the nature of the radiological incident (A or B object) the minister, the mayor or the president of the safety region, authorizes the execution of an evaluation of the response in case of the radiation incident. The Human Environment and Transport Inspectorate authorizes the evaluation of the National Nuclear Assessment team.

## 6. Risk and crisis communication

### 6.1 Risk communication

Risk communication is aimed to inform the public in general about the risks in the Netherlands or a certain region (including the neighbouring border area) in general. Risk communication applies also to nuclear or radiological activities, the possibility of radiation incidents and the potential effects. Risk communication also deals about countermeasures the government could take in the case of a radiation incident and on which extend citizens should take responsibility for self-reliance.

The Minister of Economic Affairs is responsible for risk communication about radiation incidents with a category A object towards the public. The president of the safety region handles the risk communication about radiological incidents with a category B object towards the population in the relevant region. Risk and crisis communication should be established in cooperation with the parties involved as much as possible. The safety region ensures that persons who possibly may be involved in the response to a radiation incident are informed about the risks and about the precautionary countermeasures. The corresponding legislative text:

Kernenergiewet, artikel 43:

1. Onze Minister en Onze Minister wie het aangaat, dragen er zorg voor dat de Nederlandse bevolking op passende wijze informatie wordt verstrekt over mogelijke ongevallen met een categorie A-object, de maatregelen ter voorkoming en bestrijding daarvan, daaronder begrepen maatregelen ter bescherming van de gezondheid, en de bij deze ongevallen te volgen gedragslijn.
2. De in het eerste lid bedoelde informatie heeft in ieder geval betrekking op:
  - a. gegevens inhoudende basiskennis over radioactiviteit en de gevolgen daarvan op mens en milieu;
  - b. de gevaren en de gevolgen van een ongeval;
  - c. de wijze waarop de bevolking bij een ongeval wordt gewaarschuwd, op de hoogte gehouden en beschermd;
  - d. de wijze waarop de bevolking dreigend gevaar kan herkennen;
  - e. de door de bevolking te volgen gedragslijn en de maatregelen die zij bij een ongeval dient te treffen om de schadelijke gevolgen daarvan zoveel mogelijk te beperken
3. De verschaffing van de informatie, bedoeld in het tweede lid, onder c, d en e, geschiedt ten minste één maal per jaar en daarnaast wanneer in de beschreven maatregelen significante wijzigingen worden aangebracht. Voor zover nodig wordt de te verstrekken informatie dan bijgewerkt.
4. De verschaffing van de informatie, bedoeld in het tweede lid, onder a en b, geschiedt ten minste één maal per vijf jaar en daarnaast wanneer in de beschreven maatregelen significante wijzigingen worden aangebracht. Voor zover nodig wordt de te verstrekken informatie dan bijgewerkt.

5. Onze Minister en Onze Minister wie het aangaat verschaffen de informatie, bedoeld in het vierde lid, eerder en werken deze eerder bij, indien naar hun oordeel ontwikkelingen in de kennis over de veiligheid, over de beoordeling van risico's of over een doelmatige ongevallenbestrijding hiertoe nopen

Wet veiligheidsregio's, artikel 45, tweede en derde lid:

Het bestuur van de veiligheidsregio draagt er zorg voor dat de bevolking informatie wordt verschaft over de rampen en de crises die de regio kunnen treffen, over de maatregelen die zijn getroffen ter voorkoming en bestrijding of beheersing hiervan en over de daarbij te volgen gedragslijn.

Het bestuur van de veiligheidsregio draagt er zorg voor dat de bij de rampenbestrijding en de crisisbeheersing in de regio betrokken personen informatie wordt verschaft over de rampen en de crises die de regio kunnen treffen, de risico's die hun inzet kan hebben voor hun gezondheid en de voorzorgsmaatregelen die in verband daarmee zijn of zullen worden getroffen.

The communication about risks should be regularly and, based on the Nuclear Energy Act, at least once a year. In fact, information about risks is constantly accessible via Internet.

## 6.2 Crisis communication

Crisis communication covers all communication towards victims and other people and parties involved, media and society in general during a specific radiation incident. Crisis communication has three objectives:

- Information management: providing background information on the radiation incident, highlighting decisions and clarifying dilemma's for the preparation or execution of direct or indirect countermeasures. This includes providing process information, what are we doing and why?
- Damage control in general: instructions to the public, focused on minimising damage for and by (groups of) society, including stimulating self-reliance and mutual assistance.
- Clarification: providing information on the various elements of the crisis situation ("What does this mean for us? How bad is this?") and putting this information in a broader perspective, helping to cope with the feelings in (groups of) society. The INES classification mentioned before, can be helpful.

Important issues for communication includes: maintaining deadlines and prompt information, correct reporting, preventing contradictory reporting and analyze messages and discussions in media and in society and to anticipate on signals issues

In the case of a (threatening) radiation incident with a category A object, the minister ensures that the public is informed 'instantly and repeatedly'. In the case of



a (threatening) radiation incident with a category B object, the mayor/president of the safety region ensures that the public is informed (if necessary in coordination with the minister(s)). Crisis communication handles the cause, the scale, human behaviour, the countermeasures taken in response to the radiation incident and the health protective measures taken. The legislation text is:

Kernenergiewet, artikel 43a:

1. Onze Minister en Onze Minister wie het aangaat, dragen er zorg voor dat de bevolking die wordt getroffen door een ongeval met een categorie A-object of door een ongeval met een categorie B-object dat krachtens artikel 42 als een ongeval met een categorie A-object wordt bestreden, onverwijld en bij herhaling doelmatige informatie wordt verstrekt over de te volgen gedragslijn en de maatregelen die zijn getroffen ter bestrijding van dat ongeval, daaronder begrepen maatregelen ter bescherming van de gezondheid.
2. De in het eerste lid bedoelde informatie heeft in ieder geval betrekking op:
  - a. het ongeval, met name over de oorzaak, de omvang en de te verwachten gevolgen voor mens en milieu, alsmede over het te verwachten verloop van het ongeval;
  - b. de wijze waarop de bevolking wordt gewaarschuwd, op de hoogte gehouden en beschermd;
  - c. instructies aan de bevolking die afhankelijk van de aard van het ongeval betrekking kunnen hebben op onder meer het gebruik van verontreinigde levensmiddelen, de hygiëne en ontsmetting, het verblijf binnenshuis, distributie en gebruik van beschermende stoffen en evacuatie;
  - d. de diensten of personen bij wie nadere informatie kan worden ingewonnen

Wet veiligheidsregio's, artikel 7, eerste en tweede lid:

De burgemeester draagt er zorg voor dat de bevolking informatie wordt verschaft over de oorsprong, de omvang en de gevolgen van een ramp of crisis die de gemeente bedreigt of treft, alsmede over de daarbij te volgen gedragslijn.

De burgemeester stemt zijn informatievoorziening, bedoeld in het eerste en tweede lid, af met de informatievoorziening door of onder verantwoordelijkheid van Onze bij rampen en crises betrokken Ministers.

In the case of a radiation incident with a category A object, the minister and the safety region ensure that persons who can be involved in response process are informed about the risks and the precautionary countermeasures.

In the case of a radiological incident with a category B object, the mayor/president of the safety region takes care of this information. The legislation text is:

Kernenergiewet, artikel 44:

Onze Minister, Onze Minister wie het aangaat, en het bestuur van de veiligheidsregio dragen er zorg voor dat de personen werkzaam bij diensten of

organisaties die kunnen worden ingeschakeld bij de bestrijding van een ongeval met een categorie A-object of van een ongeval met een categorie B-object dat krachtens artikel 42 als een ongeval met een categorie A-object wordt bestreden, regelmatig worden geïnformeerd over de tot deze categorie behorende ongevallen, over de risico's die zij bij de uitvoering van hun taak lopen, en over de daarbij te nemen voorzorgsmaatregelen.

Wet veiligheidsregio's, artikel 7, tweede lid:

De burgemeester draagt er zorg voor dat aan de personen die in zijn gemeente zijn betrokken bij de rampenbestrijding of de crisisbeheersing, informatie wordt verschaft over die ramp of crisis, de risico's die hun inzet daarbij heeft voor hun gezondheid en de voorzorgsmaatregelen die in verband daarmee zijn of zullen worden getroffen.

## **7. Quality assurance**

### **7.1 Managing the NCS**

The Minister of Economic Affairs is responsible for assigning an administrator of the National Plan for Nuclear and Radiological Emergencies (NCS) The administrator of the NCS is responsible for:

- A four-yearly check and if needed, actualisation of the NCS;
- Provisional updates in case important changes should be needed;
- To inform relevant organisations and stakeholders about the coordination and document structure for underlying plans (sub plans, scenario's, local crisis plans) and ensuring the compatibility with the underlying documents with the NCS;
- Ensuring education, training and exercise for National Nuclear Assessment team (EPAn) and regular exercises of the complete nuclear emergency management system (including the generic structure for regional and national crisis management) of the NCS;
- The evaluation of the response of the EPAn in the case of radiation incidents with A-objects.

### **7.2 Education, training and exercise**

The management of the response to radiation incidents requires specific capacities and skills of relevant organisations, crisis teams and officials involved.

To be well prepared it is important to acquire capacities and skills and maintain these skills periodically. For this purpose an education, training and exercise program is established, focussed on these organisations, crisis teams and officials involved in the response management of radiation incidents.

## Appendix

### A. NCS Sub-plans

A number of policy topics described on main features in the NCS, requires further clarification. The following sub-plans are included:

Chapter NCS	Further clarification from NCS
Radiological incidents and objects	1. Sub-plan Scenario's radiation incidents with A and B objects
Crisis structure	2. Sub-plan Crisis structure for radiation incidents
Crisis phases	3. Sub-plan Process for radiation incidents in various crisis phases
Risk and Crisis Communication	4. Sub-plan Crisis Communication for radiation incidents
Quality Assurance	5. Sub-plan Education Training and Practice for radiation incidents
	6. Sub-plan Evaluation of radiation incidents

When the NCS is updated, the list of sub-plans will be subsequently updated to.

## B. Abbreviations

- ANVS Authority for Nuclear Safety and Radiological Protection.
- AT Advisory Team
- DCC Departmental Coordination Center
- EU European Union
- GBT Municipal Policy Team
- EPAn Nuclear Planning and Advisory Unit
- GRIP Coordinated Regional Incident Management Procedure
- NHC National Manual on Decision-making in Crisis Situations
- IAEA International Atomic Energy Agency
- ICCb Interdepartmental Crisis Management Commission
- ILT Human Environment and Transport Inspectorate
- INES International Nuclear and Radiological Event Scale
- KFD Department of Nuclear Safety, Security and Safeguards
- LOCC National Operational Coordination Centre
- LOS National Operational Staff
- MCCb Ministerial Crisis Management Committee
- NCC National Crisis Centre
- NCS National Plan for Nuclear and Radiological Emergencies
- NKC National Core Team for Crisis Communication
- NPK National Plan for Nuclear Emergency Management and Response
- RBT Regional Policy Team
- RIVM National Institute for Public Health and the Environment
- ROT Regional Operational Team
- VenJ Ministry of Safety and Justice
- EZ Ministry of Economic Affairs

### C. Threat Categories IAEA

The IAEA defines *threat categories* that set the standards for the (preparation of) crisis management and the countermeasures to be taken.

TABLE I. FIVE CATEGORIES OF NUCLEAR AND RADIATION RELATED THREATS FOR THE PURPOSES OF THE REQUIREMENTS

- 1) Facilities, such as nuclear power plants, for which on-site events (including very low probability events) are postulated that could give rise to severe deterministic health effects off the site, or for which such events have occurred in similar facilities.
- 2) Facilities, such as some types of research reactors, for which on-site events are postulated that could give rise to doses to people off the site that warrant urgent protective action in accordance with international standards, or for which such events have occurred in similar facilities. Threat category II (as opposed to threat category I) does not include facilities for which on-site events (including very low probability events) are postulated that could give rise to severe deterministic health effects off the site, or for which such events have occurred in similar facilities.
- 3) Facilities, such as industrial irradiation facilities, for which on-site events are postulated that could give rise to doses that warrant or contamination that warrants urgent protective action on the site, or for which such events have occurred in similar facilities. Threat category III (as opposed to threat category II) does not include facilities for which events are postulated that could warrant urgent protective action off the site, or for which such events have occurred in similar facilities.
- 4) Activities that could give rise to a nuclear or radiological emergency that could warrant urgent protective action in an unforeseeable location. These include non-authorized activities such as activities relating to dangerous sources obtained illicitly. They also include transport and authorized activities involving dangerous mobile sources such as industrial radiography sources, nuclear powered satellites or radiothermal generators. Threat category IV represents the minimum level of threat, which is assumed to apply for all States and jurisdictions.
- 5) Activities not normally involving sources of ionizing radiation, but which yield products with a significant likelihood of becoming contaminated as a result of events at facilities in threat category I or II, including such facilities in other States, to levels necessitating prompt restrictions on products in accordance with international standards.

## **D. Incident classifications IAEA**

The IAEA defines five incident classifications:

- 1) General emergencies at facilities in threat category I or II involving an actual, or substantial risk of, release of radioactive material or radiation exposure<sup>23</sup> that warrants taking urgent protective actions off the site. Upon declaration of this class of emergency, actions shall be promptly taken to mitigate the consequences and to protect people on the site and within the precautionary action zone and urgent protective action planning zone (see para. 4.48), as appropriate.
- 2) Site area emergencies at facilities in threat category I or II involving a major decrease in the level of protection for those on the site and near the facility. Upon declaration of this class of emergency, actions shall be promptly taken to mitigate the consequences, to protect people on the site and to make preparations to take protective actions off the site if this becomes necessary.
- 3) Facility emergencies at facilities in threat category I, II or III involving a major decrease in the level of protection for people on the site. Upon declaration of this class of emergency, actions shall be promptly taken to mitigate the consequences and to protect people on the site. Emergencies in this class can never give rise to an off-site threat.
- 4) Alerts at facilities in threat category I, II or III involving an uncertain or significant decrease in the level of protection for the public or people on the site. Upon declaration of this class of emergency, actions shall be promptly taken to assess and mitigate the consequences and to increase the readiness of the on-site and off-site response organizations, as appropriate.
- 5) Other emergencies such as an uncontrolled source emergency involving the loss, theft or lack of control of a dangerous source, including the re-entry of a satellite containing such a source.

## **E. International Nuclear and Radiological Event Scale**

The INES-scale (International Nuclear and Radiological Event Scale) was established in 1990 by the International Atomic Energy Agency (IAEA), to inform the public about the severity of a nuclear incident. From the IAEA-documentation about INES:

What is INES? INES is a tool for promptly communicating to the public in consistent terms the safety significance of reported nuclear and radiological incidents and accidents, excluding naturally occurring phenomena, such as radon. The scale can be applied to any event associated with nuclear facilities, as well as the transport, storage and use of radioactive material and radiation sources.

What is the purpose of the INES Scale? The primary purpose of the INES Scale is to facilitate communication and understanding between the technical community, the media and the public on the safety significance of events. The aim is to keep the public, as well as nuclear authorities, accurately informed on the occurrence and potential consequences of reported events.

How does INES operate? The scale was designed by an international group of experts first convened jointly in 1989 by the IAEA and the Nuclear Energy Agency of the Organisation for Economic Co-operation and Development (OECD/NEA). Since then, the IAEA has overseen its development in cooperation with the OECD/NEA and with the support of more than 70 designated INES National Officers who officially represent the INES Member States in biennial technical meetings.



