

Hazards of Major Accidents Regulation 1999

The Minister of Housing, Spatial Planning and the Environment;

acting in agreement with the State Secretary of the Interior and Kingdom Relations and the State Secretary of Social Affairs and Employment, J.F. Hoogervorst;
Having regard to Articles 5, paragraph five, 10, paragraphs two to four, 21, paragraph two, and 29 of the Major Accidents (Risks) Decree 1999;

Hereby decrees:

Article 1

In this Regulation the following definitions shall apply:

- a. Decree: Major Accidents (Risks) Decree 1999;
- b. safety management system: safety management system as referred to in Article 5, paragraph three, of the Decree;
- c. risk analysis: risk analysis as referred to in Annex III, at 1 (o), to the Decree;
- d. substances: dangerous substances as referred to in Article 1 (b), of the Decree and other substances which can pose a hazard.

Article 2

The document setting forth the policy on prevention of major accidents and the general objectives and principles of policy on managing the hazards of major accidents referred to in Article 5, paragraph two, of the Decree, shall include:

- a. an outline of the nature and severity of the hazards of major accidents;
- b. the principles underlying the organisation of the safety management system such as to give insight into the relationship between this system and policy;
- c. the criteria applied in determining the hazards of major accidents;
- d. the principles underlying the measures taken to prevent major accidents, such as to give insight into the relationship between these measures and the hazards of major accidents.

Article 3

1. The procedures for systematically identifying undesired events and the assessment of the hazards of major accidents as referred to in Annex II, at c, to the Decree shall relate to:
 - a. the systematic analysis of the major accident hazards associated with an installation during its design, construction, use and maintenance and during planned modifications thereto;
 - b. the criteria for determining the methodology for the analysis referred to at a;
 - c. the methods for assessing the hazards of major accidents.
2. The analytical methodology referred to in paragraph one, at b, shall be specific to the various phases referred to in that paragraph, at a.
3. The methods referred to in paragraph one, at c, shall be suitable for determining the measures necessary to prevent major accidents or to mitigate their consequences.

Article 4

A statement of the chemical name and CAS number of the substances found in the establishment shall suffice as the description referred to in Annex III, at 1 (j), to the Decree provided these identify the physico-chemical properties and the hazard properties of the substances concerned.

Article 5

1. The description of the scenarios referred to in Annex III, at 1 (k), to the Decree shall relate to the parts of installations with which the greatest risks of a major accident are associated. The parts of the installations concerned shall be identified using a method described in the safety report.
2. In describing the scenarios referred to in paragraph one, consideration will at least be given to which of the following incidents can initiate such scenarios: corrosion, erosion, external loading, impact, overpressure, underpressure, low temperature, high temperature, vibration, human error during use, alteration or maintenance.
3. The qualitative probability and the effects should be given for each scenario, as well as the measures which have been taken to prevent the scenario from occurring. Furthermore, so that the acceptability of the hazards can be assessed, a coherent account should be given, allowing for the measures already taken, of:
 - a. the residual likelihood of occurrence of a major accident;
 - b. the severity of the consequences of the accident in that case;
 - c. the additional measures that are technically possible to further reduce the likelihood of a major accident to a level therein indicated;
 - d. an indication of the costs of taking the measures referred to at c.
4. The scenarios should be chosen so as to show that the complete system of technical and procedural measures and facilities in place will control the hazards of major accidents to a sufficient degree.

Article 6

1. In carrying out the risk analysis:
 - a. the results presented in the safety report pursuant to Annex III, at 2, to the Decree shall be calculated using the data included in that report as referred to in Annex III, at 1 (a), (b) and (c) in so far as these relate to persons outside the establishment, and (d), (f), (g), (h), (i), (j), (k), (p) and (q), to that Decree;
 - b. the calculations referred to at a shall be performed using models and parameter values which in the opinion of the competent authority are appropriate for these calculations;
 - c. the results to be presented in the safety report pursuant to Annex III, at 2 (b) and (c), to the Decree shall be obtained using the results calculated in accordance with paragraph two, at a, of the said Annex;
 - d. the calculations referred to at a shall be performed for the parts of the establishment selected in accordance with Annex A to this Regulation.
2. The competent authority may, if the nature and quantities of the substances present in the establishment so warrant, require that specific possible major accident scenarios which it indicates be included in the risk analysis.

Article 7

The risk analysis shall be presented in the safety report in the manner described in Annex B to this Regulation.

Article 8

The safety report shall contain, in relation to the hazards for the environment as referred to in Annex III, at 1 (o), to the Decree the following data:

- a. an estimate of the likelihood that significant undesired environmental effects resulting from a major accident occur in surface water, and an estimate of the magnitude of these effects;
- b. a summary of the measures taken to limit the hazards of major accidents for the environment.

Article 9

1. The competent authority may, at the request of the operator of an establishment as referred to in Article 8 of the Decree, decide that the safety report does not have to deal with a dangerous substance present in the establishment or a part thereof if it can demonstrate to the satisfaction of the competent authority that the substance concerned:
 - a. is present in a solid form so that no matter or energy can be released, whether in normal circumstances or special circumstances which can reasonably be foreseen, which can pose a major accident hazard,
 - b. has been packaged or enclosed in such a manner and is present in a quantity such that it can in no circumstances pose a major accident hazard,
 - c. is present in such a quantity and at such a distance from other dangerous substances inside or outside the establishment that it can neither cause a major accident on its own nor cause one in which other dangerous substances are involved, or
 - d. belongs to one or more categories specified in Annex I, Part 2, to the Decree, but cannot pose a major accident hazard.
2. If the competent authority accedes to the said request, a reference to its decision shall be included in the safety report.

Article 10

1. A request as referred to in Article 9 shall be submitted at least 16 weeks before a safety report must be submitted under Article 14 or Article 28 of the Decree.
2. If a safety report is submitted with an application as referred to in Article 5.15, 5.17 or 5.18 of the Environmental Management Act Establishments and Licences Decree the request may be submitted together with the licence application.
3. The procedure set forth in Part 3.4 of the General Administrative Law Act shall apply in preparing the decision on a request as referred to in paragraph one.
4. A safety report as referred to in paragraph one shall not be processed before a decision is taken on the request.

Article 11

1. A request as referred to in Article 9 shall include the following data:
 - a. the name or trade name of the operator of the establishment and his address;
 - b. the address of the establishment;
 - c. the name and position of the person in charge of the establishment if such person is not the operator of the establishment;
 - d. a general description of the activities carried on in the establishment and specific data on the part

- of the installation within the establishment for which the request is being made;
- e. a detailed description of the immediate environment of the establishment in so far as is needed to take a decision on the request;
 - f. a description of the dangerous substance or substances for which the request is being made:
 - 1°. the identity of the dangerous substance or substances: chemical name, CAS number, name according to the IUPAC nomenclature and classification;
 - 2°. the maximum quantity for which the licence has been granted in accordance with Article 8.1 of the Environmental Management Act or, if this is not stipulated in the licence, the quantity appropriate to the licensed maximum capacity of the establishment;
 - 3°. the physical, chemical, toxicological and ecotoxicological properties;
 - 4°. the physical and chemical behaviour under normal conditions of use or under foreseeable accidental conditions;
 - g. data with which the applicant can demonstrate that at least one of the conditions referred to in Article 9, paragraph one, applies;
 - h. a list of the data which will not be included in the safety report.
2. The data referred to in paragraph one do not have to be provided in so far as they have been included in an application for a licence as referred to in Article 10, paragraph two, or in a notification as referred to in Article 26, paragraph one, of the Decree.

Article 12

- 1. The competent authority shall state in its decision on an application as referred to in Article 9:
 - a. the substances to which the decision relates;
 - b. the parts of the establishment in which the substances concerned can be found;
 - c. the data which do not have to be included in the safety report.
- 2. Conditions can be attached to a decision as referred to in paragraph one.

Article 13

- 1. The list of dangerous substances present in the establishment referred to in Article 21, paragraph one, of the Decree shall be updated at least once per month.
- 2. The list referred to in paragraph one shall at least state the chemical name and trade name of each dangerous substance.

Article 14

- 1. The operator of an establishment shall ensure that the public emergency services have immediate access, for each installation, to at least the following up-to-date data on the dangerous substance or substances present in the installation:
 - a. the chemical name or trade name;
 - b. the maximum quantity present;
 - c. the CAS Registry number;
 - d. the UN hazard code;

- e. the GI number.
2. If the data referred to in paragraph one, at c, d and e, do not exist, up-to-date data shall, without prejudice to paragraph one, at a and b, be available on at least:
 - a. the explosion hazard;
 - b. the fire hazard;
 - c. the hazard of a toxic cloud.
3. The data referred to in paragraphs one and two shall be immediately accessible within the establishment.

Article 15

1. As soon as possible after a major accident the operator of an establishment shall provide the supervisor designated by the Minister of Social Affairs and Employment with data on:
 - a. the date, time, place and circumstances of the accident;
 - b. the dangerous substances involved and the quantities of such substances;
 - c. the consequences of the accident for the employees both in the short and the longer term;
 - d. the number of employees who as a result of their exposure to a dangerous substance died or were injured to such an extent that they were admitted to hospital for at least 24 hours;
 - e. the measures and emergency measures planned and taken to protect employees;
 - f. the employee protection measures planned and taken to prevent a repetition of the accident;
 - g. the amount of material damage within the establishment.
2. If further research produces new data which differ from the data provided pursuant to paragraph one and which might lead to a change in the conclusions drawn, these data shall also be provided.
3. The supervisor designated by the Minister of Social Affairs and Employment is responsible for ensuring that the measures referred to in paragraph one at e and f, are actually taken.
4. In so far as the operator of an establishment has already provided the data referred to in this Article in accordance with his obligations under the Environmental Management Act or the Disasters and Major Accidents Act he shall have discharged his obligation pursuant to this Article. In that case the administrative authority which has received the data concerned shall send a copy thereof to the supervisor designated by the Minister of Social Affairs and Employment.

Article 16

Article 1.12 of the Working Conditions Act shall no longer apply.

Article 17

This Regulation shall enter into force with effect from 19 July 1999.

Article 18

This Regulation may be cited as the Hazards of Major Accidents Regulation 1999.

The Hague, 2 July 1999

The Minister of Housing, Spatial Planning and the Environment,
J.P. Pronk

Annex A. to Article 6 of the Hazards of Major Accidents Regulation 1999.

I. Definitions

In this Annex the following definitions shall apply:

- a. designation number: the outcome of the product referred to in Article 2.3 of the Working Conditions Decree;
- b. the selection number: the outcome of the product referred to in part II, at 2 f.

II. Requirements

1. The risk analysis shall be carried out for:
 - a. the parts of the establishment for which the value of the selection number in any point referred to in 2, at d, is greater than 1 and is also greater than half of the highest value of all of the values established for that point;
 - b. the parts of the establishment for which the value of the selection number in a point referred to in 2, at e, is greater than 1.
2. The selection shall be performed in accordance with Article 2.3 of the Working Conditions Decree. In derogation from this:
 - a. the establishment shall be divided into parts which in the event of an accident can very quickly be isolated from each other in a technical and functional sense;
 - b. a substance that occurs in a mixture of substances in a concentration of less than 5% by weight in liquids and solids and less than 5% by volume in gases, does not need to be taken into consideration if that substance is not decisive for the hazard properties of that mixture;
 - c. for every substance that must be taken into consideration and that is present in any part of the establishment as referred to at a, the following circumstantial factors shall be applied:
 - 1°. if the substance is stored, the circumstantial factor shall be 0.1;
 - 2°. if an installation present in the part concerned is enclosed, the circumstantial factor shall be 0.1; this factor shall also apply if the installation is located inside a walled enclosure or a tank pit, unless the process temperature is higher than the atmospheric boiling point; in the latter case the circumstantial factor shall be 1;
 - 3°. if a substance is in the liquid phase at process temperatures lower than the atmospheric boiling point, the circumstantial factor for the steam generating capacity at the storage temperature of the substance is equal to the relative partial vapour pressure;
 - 4°. the circumstantial factor for a liquid with a saturation pressure of 3 bar and higher at a temperature of 20°C is 10; at a saturation pressure of between 1 and 3 bar the circumstantial factor increases in a linear manner from 1 to 10;
 - d. the selection number for every part of the establishment shall be established at at least 8 points on the boundary of the establishment, providing no point is more than 50 metres from the next point on the site boundary; if the establishment borders on surface water, the selection number shall be established at points located on the bank on the opposite side of the water to the installation;

- e. for every part of the establishment the selection number shall furthermore be established at the point of an area with residential development or of an area intended for residential development that is closest to that part;
- f. the selection number shall be established as follows: the designation number calculated for every part of the establishment shall be multiplied by x^2 for a toxic substance and by x^3 for a flammable or explosive substance; where $x = 100/A$; A is equal to the distance in metres from the part of the establishment to which the designation number relates, to a point as referred to at d and e; if the value of x is greater than 1, x is equal to 1.

Annex B. to Article 7 of the Hazards of Major Accidents Regulation 1999

The risk analysis shall be reproduced in the safety report along with the data referred to below.

I. Basic data

- a. a list of the parts of the establishment to which the calculation of the results referred to in Annex III, paragraph two, to the Decree relates; furthermore, an explanation of the method used to select the parts of the establishment referred to in Article 6, paragraph one, at d, shall be provided at the request of the competent authority;
- b. 1°. a list of the computer programs used for the calculation;

2°. if the competent authority is of the opinion that it is necessary for assessing the accuracy of the calculation of the results of the risk analysis referred to in Annex III, paragraph two, to the Decree, an explanation of the operation of the programs shall be provided at the request of the competent authority;
- c. a list of all relevant potential sources of ignition outside the establishment if the flammability in a part of the establishment of a substance present in the establishment was the reason for selecting that part in accordance with Annex A;
- d. a description of the population density surrounding the establishment, stating the method used to obtain this description;
- e. a description of the weather conditions on site, including at least the wind speed, the wind direction and the Pasquill class.

II. Details of the calculation

- a. an overview of the calculations performed, containing at least:
 - 1°. an estimate of the likelihood of a major accident occurring within the establishment, and an estimate of the magnitude of the consequences of that accident outside the establishment, expressed in the number of fatalities;
 - 2°. the results of the calculations referred to in Annex III, paragraph two, at b and c, to the Decree;
 - 3°. a description of the behaviour of the substances released in a major accident, at least containing:
 - the quantities of substances released,
 - the speed at which they are released, and
 - the time during which the substances are released;
- b. if the competent authority is of the opinion that the information provided is insufficient to evaluate the

accuracy of the results referred to in Annex III, paragraph two, to the Decree, the report shall be supplemented with the following information at the request of the competent authority:

- 1°. the spread of the substances involved in the environment in relation to time and place;
- 2°. how the spread of substances can cause human fatalities;
- 3°. the interim results of the calculations referred to at a, 1° and 2°; these results shall be shown separately for the daytime and night-time situation.

III. Models

- a. a list of the physical models used to calculate the results referred to in Annex III, paragraph two, to the Decree; these models shall, where applicable, in any case relate to:
 - the outflow of a substance from a part of an installation,
 - the evaporation rate of that substance,
 - the spread of the substance in the environment,
 - the radiant heat of a fire,
 - the pressure effects of explosions, and
 - the radiant heat of a fireball in a physical explosion of the 'BLEVE' type;
- b. a list of the damage models used to calculate the results referred to in Annex III, paragraph two, to the Decree; these models shall, where applicable, relate to:
 - damage caused by a toxic gas cloud,
 - damage caused by an explosion, and
 - damage caused by radiant heat.

A list as referred to at a and b may consist of references to literature in which the models are described.

IV. Parameters and input data

- a. a list of the parameter values used in the calculations using the models referred to in part III; this list may consist of references to literature in which these parameter values are described;
- b. a list of the input data used for the calculations;
- c. if the competent authority is of the opinion that the information provided is insufficient to evaluate the accuracy of the calculation of the results referred to in Annex III, paragraph two, to the Decree, the choice of the parameter values and input data used shall be substantiated in the report at the request of the competent authority.

V. Likelihoods

- a. an indication of the likelihood of a major accident occurring;
- b. an indication of the likelihood of the accident resulting in a physical effect;
- c. an indication of the likelihood of the physical effect resulting in acute human fatalities;

d. a description of the method by which the likelihoods referred to at a, b and c are determined;

this description shall consist of:

- references to literature and data files;
- any other method used to establish the likelihoods; if the specific circumstances of the installation and the establishment are taken into account, these shall be specified.