

## REGULATION

of the Ministry of the Environment of the Slovak Republic  
dated April 27, 1993

on the specification of areas requiring special protection of the atmosphere  
and on the operation of smog warning and control systems

Ministry of the Environment of the Slovak Republic (hereafter "ministry" only), according to Article 17 subpars. f) and g) of the Slovak National Council Act No. 134/1992 Coll. on the state administration for the protection of the atmosphere (hereafter "Act") establishes as follows:

## Article 1

## Subject of the Regulation

This Regulation is to

- a) specify region requiring special protection of the atmosphere and establish special orders on the reduction of air pollution in the regions.
- b) establish principles for the creation and operation of the warning and regulating systems including special emission limits.

## Regions requiring special protection of the atmosphere

## Article 2

(1) Regions requiring special protection of the atmosphere are as follows:

- a) regions under an environmental burden,
- b) National Parks, 1)
- c) protected land regions, 1)
- d) spa locations. 2)

(2) For the purpose of this Regulation, regions under an environmental burden are territories where such air pollution occurs, which contains a high concentration of polluting substances, 3) duration, frequency of occurrence or the mixed influence of various contaminating substances can cause, in an increasing amount, a harmful impact on the health of the population and environment.

(3) A territory with an area of more than 50 km<sup>2</sup> can be declared as under an environmental burden, if

- a) the average annual concentration of some contaminating substance exceeds the year's limit, 4)
- b) the brief concentrations of a two contaminating substances during a year exceed, in more than 5% of instances, emission limits in the duration of half an hour, 4)
- c) the average daily concentrations of two contaminating substances during a year exceed, in more than 5% of instances, the daily emission limits, 4)
- d) the index of air pollution for three contaminating substances 4) exceeds the value 2; calculation of the index of air pollution is listed in Annex No. 1 of this Regulation,
- e) a smelly contaminating substances occur in concentrations distressing the population. 4)

## Article 4

(1) If the emission limits of contaminating substances are not specified, then those territories can be declared as under an environmental burden, where concentrations and deposits of harmful substances develop a high level of endangerment of the health of the population and environment.

(2) The method of detection of the inadmissible high risk of endangerment of the health of the population will be specified by the ministry in co-operation with the Ministry of Health of the Slovak Republic. 5)

## Article 5

- (1) The territories under an environmental burden to the day this Regulation enters into force are stated in Annex No. 2 of this Regulation.
- (2) The ministry will delete the territory from the list of territories under an environmental burden, if within a period of five successive years no such reasons occur that lead one to include it on the list.

- 
- 1) Article 6 of the Slovak National Council Act No. 1/1955 Coll. SNR on the state protection of nature.
  - 2) Article 44 par. 1 of the Act No. 20/1966 Coll. on the health care of the people.  
Articles 8 to 11 and Article 18 par. 2 c) of the Ministry of Health of the Slovak Socialist Republic No. 15/1972 Coll. on the protection and development of natural therapeutic spas and natural medicinal springs.
  - 3) Article 2 of Act No. 309/1991 Coll. on the protection of air against contaminating substances (Act on the atmosphere)  
Annex No. 1 of the Federal Council for the Environment Regulation to Act No. 309/1991 coll. on the protection of the atmosphere against contaminating substances, published in section 84/1991 Coll. from Oct. 1. 1991 in wording of the Federal Council for the Environment Regulation from June 23, 1992 published in section 84/1992 Coll. (hereafter "Regulation").
  - 4) Annex No. 4 of the Regulation.
  - 5) Article 2 par. 1 a) and Article 70 par. 1 b of Act No. 20/1996 Coll. in wording of later provision.

## Article 6

- (1) The concentration level of contaminating substances, for which were specified the emission limits 4) and factors of creation and spread of pollution in the territories under an environmental burden, are verified by the Slovak Hydrometeorologic Institute (hereafter "Institute").
- (2) The Institute evaluates, in territories under an environmental burden, the data on kinds, quantity, spatial and timely distribution of contaminating substances with the meteorological situation taken into account and generates a files of information on this data for an information system on the environment.

### Special orders on the reduction of air pollution

## Article 7

The competent District Environmental Institution in co-operation with the competent Subdistrict Environmental Institutions, 6) Hygienic service bodies, 7) the Institute and affected communities 8) will workout a program for the prevention of air pollution for the territory under an environmental burden, resulting from the evaluation of the condition and analyses of air pollution reasons.

## Article 8

In regions with requiring special prevention of air, the state administration body competent for the prevention of air pollution can in the approvals issued according to Article 4 par. 1 b), Article 5 par. 1 a), c) and e) and Article 6 a) and f) of the Act, specify conditions on the prevention of air pollution depending on the emission concentration of the contaminating substances in the region, so that the pollution is as low as possible and in accordance with the latest technological progress.

## Article 9

### Smog warning and control systems

(1) The smog warning and control system (hereafter “smog control system”) is a group of measures created step by step and fixated on a time-limited control of those sources of pollution, that in a decisive share in the pollution of air.

(2) The Smog Control Systems are established in the territories under an environmental burden.

### Principles of the creation of Smog Control Systems

#### Article 10

(1) The smog control system consists from

- a) information files on
  - 1. the location and parameters of pollution sources,
  - 2. the air pollution acquired from a monitoring measurement net,
  - 3. the state of dispersion conditions,
- b) forecasting of dispersion conditions and emission situation,
- b) warning and controlling signals

(2) The administrative centre of the smog control system is the Institute, providing central acquisition, processing and declaring the information and forecasts according to par. 1 subpars. a) and b).

(3) The competent Environmental Institution 9) on the basis of the data from the Institute will give warning and control commands by the signal specified in par. 1 c), if due to unfavourable diffusing conditions, special emission limits 10) were exceeded, established on issuing the proper signal of warning, the first control stage or second control stage according to Annex No. 3 of this Regulation and if such a situation is forecasted for at least eight subsequent hours.

(4) The competent Environmental Institution 9) on the basis of the data from the Institute will recall a warning and control commands by the signal specified in par. 1 c), if during at least the past twelve hours the special emission limits were not exceeded. After the favourable diffusing conditions have been found and forecasted, the above stated period can be reduced to three hours.

(5) Obligatory texts of issuing and recalling the signals according to par. 1 c) are listed in Annex No. 4 of this Regulation.

#### Article 11

(1) In the territories under an environmental burden, the Institute establishes and operates the monitoring measurement net on the continual measuring of emission concentration of contaminating substances in the air. It also uses the results from measurements performed by the Hygiene and Epidemiology Institutes. 11)

(2) The location of measuring stations, instrumentation, measuring and regulating procedures are implemented so that the representativeness and reliability of the data was also achieved in places of residential agglomerations. The Institute will discuss the location of measuring stations with the competent District Environmental Institutions and locally competent Hygienic Service bodies. 7)

#### Article 12

For the territories under an environmental burden, the Institute provides the data on diffusing conditions of contaminating substances in the atmosphere on the basis of the meteorological situation evaluation and forecasts its development.

- 
- 1) Article 4 and 5 of the Slovak National Council Act No. 134/1992 Coll. on the state administration for the protection of the atmosphere.
  - 2) Article 75 par. 1 and Article 75 par. 2 a) of Act No. 369/1990 Coll. in wording of later issue.
  - 3) Article 4 par. 2 g) of the Slovak National Council Act No. 369/1990 Coll. on public provision.

- 4) Article 4 par. 1 c) and Article 5 par. 2 d) of the Slovak National Council Act No. 134/1992 Coll. in wording of the Slovak National Council of the Slovak Republic Act No. 148/1994 Coll.
- 5) Article 14 par. 4 of the Act No. 309/1991 Coll. in wording of the Act No. 218/1992 Coll.
- 6) Article 34 of Act No. 20/1966 Coll. in wording of later issue.

## Operation principles of Smog Control Systems

### Article 13

#### Operation Rules of Smog Control Systems

- (1) The competent District Environmental Institution issues the Operation Rules of the Smog Control Systems by generalised order, 12) after negotiation with the competent Hygienic service bodies, 7) communities and operators of large and medium size sources of contamination located in the existing territory.
- (2) The Operation Rules contain as follows:
  - a) signals of the Smog Control Systems according to Annex No. 3 of this Regulation,
  - b) criteria on taking measurements for exceeding the particular emission limit with regard to the meteorological situation
  - c) warning commands, classification of control measures into levels, the criteria on its declaration and recalling,
  - d) Ways and means of passing the information on the declaration and recalling of the warning and regulating orders including the approved texts according to Annex No. 4 of this Regulation and determination of the time schedule,
  - e) list of the sources that will be involved in the intro-smog control system.

### Article 14

#### Control Systems of the contamination sources

- (1) Operators of large and medium size sources of contamination in the territories under an environmental burden workout the Control Systems, 13) to be instructed during the control of emissions after the warning and control orders have been issued. The Subdistrict Environmental Institution approves the Control Systems. 14)
- (2) The Control systems contain as follows:
  - a) calculation of orders on curbing of emissions from the source of contamination,
  - b) time schedule on applying the orders according to a) related to the start of single levels of warning and control signals operation,
  - c) group of persons responsible for the execution of orders established by a) and b).

### Article 15

#### Operation of the Smog Control Systems

- (1) The Institute works out the forecast on diffusing conditions, evaluates and forecasts the emission situation and works out the found data and provides cost free to
  - a) the competent Environmental Institutions, 6)
  - b) the Slovak Inspection for the Environment, 15)

- c) communities, 16)
- d) Hygienic service bodies, 7)
- e) operators of the sources liable to the control according to Article 13 par. 2 e) of this Regulation.

(2) If the Institute finds out that in the territories under an environmental burden the conditions on issuing or recalling the warning or control signals came into being, it will immediately inform the competent Environmental Institution, 9) that will declare or recall the appropriate warning and control commands by the signal according to the Operation Rules of the Smog Control System for

- a) operators of the sources liable to the control according to Article 13 par. 2 e) of this Regulation,
- b) local state administration bodies,
- c) communities, 16)
- d) Hygienic service bodies, 7)
- e) competent Inspectorate of the Slovak Environmental Inspection, 15)
- f) energy dispatching system. 17)

(3) According to the level of signal issued,

- a) operators of large and medium size sources of contamination in the territories under an environmental burden will perform steps to promote the curbing of emissions according to control commands.
- b) Environmental Institutions inform the population on the decline of air quality, the issuing and recalling of warning and control signals and on related steps in the form stated in the Operation Rules according to Article 13 par. 2 d) of this Regulation. 18)

#### Article 15a

##### Ozone smog warning system

(1) For cases of smog situations caused by the increased concentration of ozone, an ozone smog warning system is created from

- a) information file on the contamination of air by ozone, acquired from monitoring measurement net data,
- b) forecasts on the meteorological conditions and emission situation,
- c) noticing and warning signals.

(2) The control centre of the ozone smog warning system is the Institute providing the acquisition, workout and issuing of information, forecasts and signals according to par. 1.

(3) The Institute will issue noticing and warning signals according to par. 1 c) by means of public communication facilities, 19) if due to unfavourable meteorologic conditions, special emission limits 10) of ozone were exceeded as is established in Annex No. 3 of this Regulation and if this situation remains for the next 24 hours according to the forecast.

(4) The Institute will recall the noticing and warning signals according to par. 1 c) by means of public communication facilities, 19) if during not less than 24 hours the special emission limit of ozone has not been exceeded and a worsening of meteorological conditions was not forecasted.

(5) In the time when the ozone smog situation persists, the Institute provides mass media facilities with daily information on the level of measured concentrations and forecasts on the emission situation.

#### Article 16

##### Efficiency

This Regulation shall enter into force on June 1, 1993

- 1) Article 4 par. 1 c) of the Slovak National Council Act No. 134/1992 Coll. in wording of the Slovak National Council of the Slovak Republic Act No. 148/1994 Coll.
- 2) Article 7 par. 1 g) of the Slovak National Council Act No. 309/1991 Coll.
- 3) Article 5 par. 2 a) of the Slovak National Council Act No. 134/1992 Coll.
- 4) Article 3 of the Slovak National Council Act No. 134/1992 Coll.
- 5) Article 10 of the Slovak National Council Act No. 369/1990 Coll.
- 6) Act No. 79/1957 Coll. on the production, distribution and consumption of electricity (Act on Electrification).
- 7) Article 13 of Act No. 309/1991 Coll.
- 8) For instance, Article 4 par. 2 of the Slovak National Council Act No. 254/1991 Coll. on Slovak Television, Article 5 par. 4 of the Slovak National Council Act No. 255/1991 Coll. on Slovak Broadcasting.

Annex No. 1 of Regulation No. 112/1993 Coll.

Air pollution index and calculation of emission values of contaminating substances

A. Air pollution index

1. For the determination of a territory under an environmental burden, the index on air contamination (IZO) , taking into consideration three contaminating substances (S1 to S3) with the established emission limit. In cases of monitoring the broader spectrum of harmful substances, for specification of IZO a combination of substances showing the highest value of IZO will be taken into account.
2. There are three forms of expressing the IZO:
  - long-term contamination IZOr
  - short-term contamination IZOk
  - daily contamination IZOd

1. Indexes stated in par. 2 are defined as follows:

$$IZOr = \frac{\sum_{i=1}^3 \text{average annual concentration } Si}{\text{limit } IHr}$$

$$IZOk = \frac{\sum_{i=1}^3 \text{95 percentile } k \text{ } Si}{\text{limit } IHk}$$

$$IZOd = \frac{\sum_{i=1}^3 \text{95 percentile } d \text{ } Si}{\text{limit } IHd}$$

4. For the evaluation of air contamination (IZOr, IZOk, IZOd) the following table is valid:

<u>IZO extent</u>	<u>air contamination</u>
0.0 – 0.4	almost none
0.5 – 0.9	light
1.0 – 1.4	mild
1.5 – 2.0	medium
above 2.0	large

B. The calculation of imission values (characteristics) of contaminating substances for the evaluation of the air quality

1. Establishes the procedure and conditions of calculation IHk – the average concentration in duration of half an hour or one hour, IH8h – average 8 hours' concentration, IHd – the average daily concentration and IHr – the average annual concentration of contaminating substances in the air. The calculation of imission values (characteristics) cover the verified data file obtained from continual or discontinual measuring procedures.

2. With discontinual procedure of measuring, finding of IHk requires the read out of at least one instantaneous value per every 30 seconds for the integration. If a minimum 90% of instantaneous values were used for the calculation of IHk, the found value is valid. While there are 50% to 90% instantaneous values in the disposition, 3. With continual measuring procedures and continuous take off samples, for obtaining IHk, IH8h and IHd, the inevitable take off duration is at least 75% but not more than 125% of the total time interval.

4. For the calculation of IH8h, minimum 8 valid IHk must be at the disposition and for the calculation of IHd 24 valid Ihk distributed equally in the whole time interval. For the calculation of IHr must be at the disposition at least 30 valid IHd per quarter of the year, respective 120 valid IHd per year. Concentration IHr estimated from less than 30 values per quarter will be marked /\*.

For the calculation of imission values (characteristics), only valid and verified data can be used. In case of rounding the values, the procedure follows the ČSN 01 1010.

All average values are calculated as arithmetic averages.

5. When comparing the measured or calculated imission values (characteristics) with corresponding imission limits, the imission values error must correspond to the required reliability of the warning. If the imission value (characteristics) has to be significantly higher than corresponding imission limit, the difference of the imission value (characteristics) and the corresponding limit must be considerably higher than the error of imission value (characteristics) estimated.

The imission limit is used for taking measurements on the general state of the atmosphere, mainly from the point of view of hygiene. Due to the uncertainty and width of the dispersion in relation dose – impact, on the basis of which the imission values have been derived, the requirement upon statistical significance of the difference is not reasonable and it is assumed, that the imission limit is exceeded if the characteristic value is higher than the imission limit.

6. The 95 percentile for the calculation of short-term or daily contamination will be calculated on the basis of valid values measured during the respective year as follows:

a) measured valid values rounded to the integer according to the STN 01 1010,

b) all valid values will be sequenced in ascending order

$x_1, x_2, x_3, \dots, x_k, \dots, x_{n-1}, x_n,$

c) A 95 percentile is that valid value of  $x_k$ , that corresponds to the  $k$ 's succession calculated from

$$k = 0.95 * n$$

where  $n$  is the number of measured valid values. The value  $k$  is rounded to the integer according to the STN 011010.

Annex No. 2 of Regulation No. 112/1993 Coll.

List of territories under an environmental burden

Annex No. 3 of the Regulation No. 112/1993 Coll.

Special Emission Limits for purposes of issuing attention, warning and control signals

A.	<p>Signal "Attention" follows the exceeding of :</p> <ol style="list-style-type: none"> <li>1. the 3-hour moving average concentration of sulphur dioxide nitrogen pentoxide (expressed as NO<sub>2</sub>) carbon monoxide or</li> <li>2. sum of the moving 24 hour average of concentration sulphur dioxide with double the moving 24 hour average of fluttering dust concentration</li> <li>3. the 3-hour average concentration of ozone</li> </ol>	<p>350 ug.m<sup>3</sup> or 400 ug.m<sup>3</sup> or 10 000 ug.m<sup>3</sup></p> <p>700 ug.m<sup>3</sup> 180 ug.m<sup>3</sup></p>
B.	<p>Signal "First level of control" follows the exceeding of :</p> <ol style="list-style-type: none"> <li>1. the 3-hour moving average concentration of sulphur dioxide nitrogen pentoxide (expressed as NO<sub>2</sub>) carbon monoxide or</li> <li>2. sum of the moving 24 hour average of concentration sulphur dioxide with double the moving 24 hour average of fluttering dust concentration</li> </ol>	<p>700 ug.m<sup>3</sup> or 700 ug.m<sup>3</sup> or 15 000 ug.m<sup>3</sup></p> <p>900 ug.m<sup>3</sup></p>
C.	<p>Signal "Second level of control" follows on exceeding of :</p> <ol style="list-style-type: none"> <li>1. the 3-hour moving average concentration of sulphur dioxide nitrogen pentoxide (expressed as NO<sub>2</sub>) carbon monoxide or</li> <li>2. sum of the moving 24 hour average of concentration sulphur dioxide with double the moving 24 hour average of fluttering dust concentration</li> </ol>	<p>1 050 ug.m<sup>3</sup> or 1 000 ug.m<sup>3</sup> or 20 000 ug.m<sup>3</sup></p> <p>1 100 ug.m<sup>3</sup></p>
D.	<p>Signal "Warning" follows the exceeding of :</p> <p>the 1-hour average concentration of ozone</p>	<p>360 ug.m<sup>3</sup></p>

Annex No. 4 of Regulation No. 112/1993 Coll.

Firm texts on issuing attention, control stages and their cancellation

A. Text on issuing the signal “Attention”:

“This is to notify that in the next hours a smog situation may arise, and so there is a possibility of issuing a control signal. Validity of the signal is from .....o’clock on the day ..... until cancellation.”

Text on the cancellation of the signal “attention”:

“This is to cancel the signal “attention” related to the possibility of a smog situation occurrence. Validity of the signal terminates at ..... o’clock on the day ..... .”

B. Text on issuing the signal “First level of control”:

A smog situation has arisen. This is to issue the signal “First level of control”. Validity of the signal starts at .....o’clock on the day ..... “

Text on cancellation of the signal “First level of control”:

“This is to cancel the signal “First level of control”. Validity of the signal terminates at ..... o’clock on the day ..... .”

C. Text on issuing the signal “Second level of control”:

The smog situation has worsened. Conditions on issuing the signal “Second level of control” has arisen. Validity of the signal starts at .....o’clock on the day ..... “

Text on the cancellation of the signal “Second level of control”:

“This is to cancel the signal “Second level of control”. Validity of the signal terminates at ..... o’clock on the day ..... .”