

WATRP Mission to the Czech Republic

International peer review
of the Czech programme of the geological repository development

Background materials

**Regulation No. 215/1997 Coll. of the State
Office for Nuclear Safety on Criteria for
Siting Nuclear Facilities and Very
Significant Ionising Radiation Sources**

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**REGULATION No. 215/1997 Coll.
of the State Office for Nuclear Safety
on Criteria for Siting Nuclear Facilities and Very Significant
Ionising Radiation Sources**

The State Office for Nuclear Safety stipulates in accordance with § 47, par. 7 to implementation of the item A.I.1., of the Annex to the Law No.18/1997 Coll., on peaceful utilisation of nuclear energy and ionising radiation (the Atomic Law) including supplements and amendments of related acts (further on “the Law”):

1 Subject of Regulation § 1

The Regulation stipulates the criteria decisive for the assessment of selected locality availability for the siting of the nuclear installations and workplaces with very significant ionising radiation sources¹⁾ (further on only “the siting“) from the viewpoint of nuclear safety and radiation protection.

2 § 2

For the purposes of this Regulation there is understood:

- a) the site vicinity zone is an area up to 3 km distance from the boundary of land proposed for the siting,
- b) the locality is an area up to 20 km distance from the boundary of land proposed for the siting.

3 § 3 Types of Criteria

- (1) The exclusion criteria definitely make impossible the utilisation of the area for the siting.
- (2) The conditional criteria enable to utilise the area or the land for the siting provided that there is possible or available the technical solution of the unfavourable aerial conditions.

4 § 4 Exclusion Criteria

The exclusion criterion is:

- a) the expected exceeding of the determined mean annual effective doses for the exposure of the individuals¹⁾ from the critical population group being in the locality, corresponding to the supposed siting during the operation of the nuclear installation or workplace with very significant ionising radiation sources (further on only “the installation or the workplace”),
- b) the non-performance of the early implementation and complete performance of the all urgent countermeasures for the population protection¹⁾ under the conditions of the radiation emergency of installation or workplace, especially in respect to the population distribution and presence of the residency formations being in the locality corresponding to the supposed siting,

¹ The SÚJB Regulation No.184/1997 Coll., on the Requirements for the Radiation Protection Assurance.

- c) the occurrence of karstic phenomena in the extent endangering the stability of the rock massif in the bedrock and in the rock cover of the lands or area selected for the siting,
- d) the manifestations of post-volcanic activity such as the escapes of gases, thermal, mineral and mineralised waters, found on the lands or area of the supposed siting and in their site vicinity zones,
- e) the achievement or exceeding of the value of intensity of the maximum calculated earthquake 8° MSK (scale of Medveděv-Sponheuer-Kárník for estimation of the macroseismic effects of earthquakes) on the lands of supposed siting,
- f) the occurrence of the capable and seismogenic faults with the recent surface deformations of area and with the possibility of origination of secondary faults, found by a geological survey²⁾ on the land of supposed siting,
- g) the occurrence of the geodynamic phenomena, such as landslides, block landslides, plastic uplift of the bedrock and soil liquefaction, which endanger the rock massif stability on the land selected for the siting,
- h) the occurrence of the present or expected surface deformations of the area selected for the siting and their site vicinity zones as the consequence of exploitation of gas, oil, water or deep mining the minerals, the application of technologies of dissolving (leaching) the minerals and their withdrawal, which can endanger the rock massif stability in the bedrock, eventually in the rock cover of the construction,
- i) the occurrence of the tectonic activity in the site vicinity zone which in the period of the installation or workplace operation will lead to the change of the present surface slope of the lands selected for the siting in the extent exceeding the stipulated technological requirements,
- j) the existence of the significant underground waters supply³⁾ or mineral waters⁴⁾ in the site vicinity zones, in which the permanent decrease water changes would be occurred as a result of construction or operation of the work from the viewpoint of the radiation influence,
- k) the bearing capacity of the foundation soils on the lands selected for the siting lower than 0.2 MPa and with the soft and much swelling foundation soils and with the foundation soils with the organic component share larger than 3 %, with such layer thickness which makes its removal or replacement impossible⁵⁾,
- l) the occurrence of the geological conditions of area selected for the siting, such as the waterbearing soils, the non-cohesive or soft cohesive soils, predetermining for the 3rd degree of the tunnel driving⁶⁾,

² The § 2 of the ČNR Act No. 62/1988 Coll., on Geological Works and on the Czech Geological Office, in wording later Regulations.

³ The § 2 of the Act No. 138/1973 Coll., on the Waters (Water Act).

⁴ The § 47 of the Act No. 20/1966 Coll., on the Care for Public Health, in wording later Regulations.

⁵ Standard ČSN 73 1001. Foundation Soils under Aerial Foundations.

⁶ Standard ČSN 73 7010. Tunnels and other Underground Structures,

- m) in the space of underground structures the impossibility of overlapping the main part of the underground structure by a rock massif with the thickness larger than three maximum widths of the underground structure, however 30 m as a minimum,
- n) the occurrence of the old mining activities in the site vicinity zones, where there is a danger of consequences of the undermining, of pit water bursts, and of destroying effects of large rockbursts eventually mining shocks,
- o) the occurrence of the raw materials mining in the site vicinity zones, which ought to have the unfavourable impacts on the construction and operation of the installation or workplace,
- p) the intervention of the lands selected for the siting into the flood areas of rivers which are flooded at Q_{100}^7), and into the areas which can be flooded as a result of failures of water reservoirs,
- q) the intervention of the lands selected for the siting into the motorways protection zones⁸) or state railway protection zones⁹).

5 § 5 Conditional Criteria

The conditional criteria are:

- a) the other karstic phenomena, which are not given in the § 4, ad c) of this Regulation and the active geodynamic phenomena in the localities selected for the siting,
- b) the unfavourable properties of the foundation soils, surrounding soils and rocks on the lands selected for the siting,
- c) the achievement of the value of intensity of the maximum calculated earthquake in the range of 7° up to 8°MSK-64,
- d) the occurrence of the hydrogeological conditions on the building lands, which make difficult to monitor and to predict the underground water behaviour,
- e) the occurrence of aggressive underground water with the possible contact with the construction structures on the lands selected for the siting,
- f) the occurrence of the well permeable soils and the underground water levels in the depth less than 2 m under the planned level of ground pre-treatment of the lands selected for the siting,
- g) the high percolation or joint permeability of rocks found by the geological survey of the underground structures⁷),
- h) the occurrence of the geological features predetermining the 2nd degree of the tunnel driving⁹) of the underground structures,

⁷ Standard ČSN 75 1400. Hydrogeological Data of Surface Water.

⁸ The § 30 of the Act No. 13/1997 Coll., on the Terrestrial Communications.

⁹ The § 8 of the Act No. 226/1994 Coll., on the Railways.

- i) the occurrence of the exceptionally unfavourable conditions for the effluents dispersion into the atmosphere especially given by the morphology of the site vicinity zones,
- j) the occurrence of the continuously wooded area in the localities selected for the siting, where a forest fire would endanger the installations or workplace, eventually their operation or their personnel,
- k) the occurrence of the industrial facilities, energy sources, road-, rail-road and water transport and storage of dangerous materials (substances) in the site vicinity zones, which might under the unfavourable conditions endanger the installation or workplace, their operation or their personnel,
- l) the intervention of the routes and protection zones of transit gas pipelines, oil pipelines and product pipelines and the localities of the underground storage of transported raw materials into the lands selected for the siting,
- m) the occurrence of the radio and television transmitters and their protection zones into the lands for the siting,
- n) the intervention of the airports protection zones¹⁰), especially their take-off and landing areas and ground airports installations into the site vicinity zones,
- o) the possibility of the aircraft crash on the installation or workplace with the effects exceeding the building resistance, with the probability greater than 10^{-7} /year.

6 § 6 Requirements for Documentation

The certificate of the suitability of the area selection for the siting the installation or workplace from the viewpoint of the § 4 and § 5 of this Regulation, there are the demonstrably documented results and analyses of the target investigations and surveys performed within the given area, eventually obtained from the archived bases, data and information of the past investigations and surveys, as far as such bases did not evidently become worthless due to the time elapsed.

7 § 7 Force

This Regulation comes into force by the day of proclamation.

¹⁰ The § 37 of the Act No. 49/1997 Coll., on the Civil Aviation and on Alterations and Amendments of the Act No. 455/1991 Coll., on Trade (Trade Act).