BINDING STATEMENT ON THE ENVIRONMENTAL IMPACT ASSESSMENT OF PROJECT IMPLEMENTATION

(hereinafter referred to as "Binding Statement")

pursuant § 9a, section 1 of Act No. 100/2001 Coll., on environmental impact assessment and on amendments to some related acts (Environmental Impact Assessment Act), as subsequently amended (hereinafter referred to as "Act")

Operative part

Project title:	**New Nuclear Source at the Dukovany Site**
Scope of the Project:	The construction and operation of a new nuclear source at the Dukovany site comprising 1 or 2 nuclear units having net power output of up to 2,400 MW_e in total as a maximum, including all related building objects and technological complexes (technological equipment), used for power generation and transmission and for assurance of operational safety of the nuclear facilities. The proposed Project further comprises construction areas and equipment, i.e. main construction site and the construction site installations comprising all elements as necessary for the Project contractors during civil engineering or constructional works (outside the public infrastructure).
Project classification pursuant to Annex 1 to the Act	Point 8 (Nuclear power plants and other nuclear reactors including dismantling or decommissioning of such power plants or reactors with the exception of research installations for production and transformation of fission and fertile substances, where maximum power output does not exceeds 1 kW of continual thermal output of category I). The project qualifies as pursuant to § 4 Section 1a) of the Act.
Place of the Project implementation:	region: Vysočina municipality: Dukovany, Slavětice, Rouchovany

c. a.: Skryje nad Jihlavou, Lipňany u Skryjí, Dukovany, Slavětice and Heřmanice u Rouchovan

Company Name of the Notifier: Elektrárna Dukovany II, a. s.

Company ID of the Notifier: 04669207

Registered Office of the Notifier: Duhová 1444/2, 140 53 Prague 4

The Ministry of the Environment as a competent authority pursuant to § 21 c) and f) of the Act and pursuant to § 9a Section 1 and Annex 6 to the Act

is issuing

P O S I T I V E B I N D I N G S T A T E M E N T

on the Project of

"New Nuclear Source at the Dukovany Site"

The Ministry of the Environment pursuant to § 9a Section 1 of the Act

is laying down

following conditions for subsequent proceeding:

<u>Conditions for the stage of Project preparation:</u>

1. Within the site permit documentation for the waste water drain pipe from the New Nuclear Source („NNS") to the Mohelno Water Reservoir („WR"), locate the piping, which is to be routed above the confluence of the Skryjský Creek and the Luhy stream in the forest section, only alongside the existing road of a tourist route marked in green; in other sections, give preference to side-run with infrastructure (such as roads).
2. Within the site permit documentation for the drain pipe of waste water containing radioactive substances from the NNS to the Mohelno WR, locate the piping, which is to be routed above the left bank of the Skryjský Creek, downstream the confluence of the brook and the Luhy stream, in order to rigidly respect the boundary of Site of Community Importance (SCI) CZ0614134 – Jihlava Valley, extending above the right stream bank downstream the confluence – specifically it is the section between the Skryjský Creek and the confluence of the brook and the Luhy stream having a distance of approximately 0.3 km in length of the Skryjský Creek.
3. Within the site permit documentation, provide the NNS rain water drainage system to dispose rain water to the Olešná catchment with tanks to trap any potential leaks of oil

substances and sediments as to not affect the subject of protection in SCI CZ0623819 – Rokytná River.

4. Within the building permit documentation, provide further details on the constructional solutions, including implementation schedules, of emergency shelters, Emergency Control Centre, Technical Support Centre, External Emergency Support Centre, Stand-by Emergency Control Centre, and Stand-by Technical Support Centre shall be documented in further detail.
5. Within the building permit documentation, demonstrate that the technical and technological solutions of the NNS provide for limitation of liquid effluents (waste water) containing radioactive substances from the NNS, namely tritium (H-3), in case of low flow rate in the Jihlava river.
6. Within the building permit documentation, update water balance calculations (relative to secured consumption) based both on new data to be provided by selected contractor for the NNS and on the extended flow rate series for the Jihlava river in the Jihlava – Ptáčov profile, at that time updated values of minimum residual flow rate in the Jihlava – Mohelno profile and other real data on weather changes (temperatures, rainfall).
7. Within the building permit documentation, solve the NNS site illumination in the manner avoiding distinctive luminous pollution in the surroundings, e.g. employ directional light sources.
8. Within the building permit documentation:
   a) exclude permanent and temporary occupation of land determined to be forest land (LDBFL) for the purpose of construction site installation, temporary soil deposition or temporary deposition of the NNS construction material except for inevitable cases,
   b) exclude permanent and minimize temporary occupation of LDBFL for the purpose of construction site installation, temporary soil deposition or temporary deposition of the NNS construction material in corridors of connected line buildings of the NNS in sections routed in forest except for inevitable cases,
   c) specify a consistent forest restoration plan for forest stands affected by construction.
9. Within the building permit documentation, prefer urbanistic and Architectural solutions considering the existing landscape and setting and adapt the architectural solution of the Project (including colour) to the existing landscape, including architectural relations to the existing premisses of EDU1–4.
10. In further project preparation (before filing a building permit application), examine the possibility of shielding optically the municipality of Rouchovany from the NNS site using new landscape elements of greenery, e.g. taking advantage of the ridge northward of the Rouchovany village between the village and the Olešná river valley, further partly the ridge southward of the proposed site installation area B along the road from the little chapel around the Hlinsko elevation point and the Pod alejí agricultural line. If the result of such examination is positive, implement such shields.
11. In further stages of the project documentation, but at the latest within the process of working out the building permit documentation after having specified positions of NNS building objects in area A, spatial structures of site installations in area B, and positions of

proposed infrastructure elements in areas C and D, work out a complex dendrological survey, including identification of woody plants that will be preserved or cut down.

12. In further project preparation stages (having specified final transport routes from sources of main commodities to the NNS Site and introduced transport intensities during the stage of construction), arrange with owners of affected roads a method or rule for possible compensation for using affected road system, considering the character of transport introduced because of the Project, the road system condition, service duties of owners of the road infrastructure, and tax liabilities of transporters of the commodities; implement an agreed method or rule for compensation without delay.
13. In further project preparation stages, give evidence of:
    a) none or insignificant radiological impact being required according to WENRA recommendations for design basis accidents as well as design extension conditions without core melting, i.e. no exigent measures will be necessary to implement for protection of population in the NNS surroundings and none or only small (space- and time-limited) restrictions on food and agricultural product will be required
    b) for severe accidents (design extension conditions with core melting), space- and time-limited radiological impacts will be required according to WENRA recommendations, which will ensure compliance with the following requirements:
        i. avoiding the need for evacuation at a distance exceeding approximately 3 km,
        ii. avoiding the need for sheltering and iodine prophylaxis at a distance exceeding approximately 5 km,
        iii. agricultural production at a distance of more than approximately 5 km will be suitable for consumption one year after a radiation accident,
        iv. no permanent relocation anywhere outside the premises of the power plant (for the purpose of practical application interpreted as no permanent relocation at a distance exceeding 800 m from the reactor).
14. The NNS design shall provide protection of the NNS against consequences of a radiological emergency occurrence at any other on-site nuclear installations.
15. In further stages of the NNS project preparation, work out a project for monitoring radiation situation.
16. The NNS design will include provisions for reduction of individual effective dose received by a representative person especially as a consequence of discharge of liquid effluents containing radioactive substances from the NNS.
17. In subsequent stages of the project preparation, monitor climatic conditions and in case of provable changes reflect such changes in the project preparation, particularly in terms of provisions for meeting the NNS water demand.
18. For the purpose of assessment of the chemical status of surface water bodies, in further stages of the project licensing process continue monitoring indicators of deterioration of chemical status of surface water bodies, exceeding the environmental surface water quality standards for raw and waste water.
19. Ensure that no mode of the NNS operation synchronous with EDU1–4 will exceeds the net electric power of 3,250 MW_e in total at the Dukovany NPP site.

20. Ensure that the technical and technological solutions of the NNS guarantee that the envelope of environmental parameters as specified in the environmental impact documentation (Chapters B.II. Data of Inputs and B.III. Data of Outputs) will not be exceeded.
21. In subsequent project stages, put emphasis on optimization of water management in the manner preventing deterioration of water quality in the Jihlava river downstream the waste water outfall facility as it is necessary to prevent deterioration of the condition of affected water body.
22. In further preparation of the project, keep giving precision to tender documentation requirements for assurance of the nuclear safety of the NNS in reference to effective nuclear legislation.
23. In the construction contractor selection process, include specification of guarantees of minimization of negative environmental impact of the construction and of the total duration of construction;; in the selection process, reflect requirements for application of modern and progressive construction practices (using less noisy and more environmental friendly technologies).
24. Before the beginning of construction of the NNS, ensure that the condition of affected road network is identified and diagnosed. If necessary, ensure implementation of adaptations of roads and road network objects as to prevent their significant degradation because of the construction, taking into consideration service and maintenance duties of the road infrastructure owners.
25. Having selected the construction contractor, work out a detailed acoustic study evaluating noise impact of the selected design in the most affected protected external area or protected external area of buildings of surrounding municipalities. Submit this study to a competent public health protection authority and identify possible provisions leading to the noise load reduction.

Project implementation stage (construction) conditions:

26. Prior to commencing construction works, carry out noise measurements in areas potentially most affected by construction-related transportation based on real situation at the time of commencement of the construction; subsequently work out an acoustic study evaluating impact of the construction-related transportation on the noise situation; based on these data adopt measures (such as road coat adaptations, transport organization provisions, speed limit adaptation, replacements of windows of affected buildings, etc.). Submit this study for approval to a competent public health protection authority.
27. In transporting main commodities (especially constructional commodities), give preference to the possibility of using railway, giving consideration to the condition of the railway infrastructure, rail loading possibilities, and access to the railway transport at the commodity source facilities.
28. Carry out the deforestation to a negotiated and minimized extent and gradually within the stage of construction, only during the season of vegetation inactivity, and based on a precise land survey identifying a necessary deforestation extent in field.

29. During the NNS construction period, ensure that air quality impacts are minimised, adopting preventive measures to eliminate dustiness in line with the South-East zone air quality improvement programme (Code BD3 "Reducing Dustiness Produced by Constructional Activities). In consideration of the dominant impact of on-site transportation, put emphasis on selecting a suitable combination of measures (such as optimization of on-site transport route lengths, use of on-site paved roads, cleaning vehicles, cleaning road and handling area surfaces, adopting transport mechanism speed constraints, etc.) minimising emissions produced by vehicles being moved on on-site roads, potentially minimizing dust emissions produced by other activities (such as minimization or elimination of fine-grained material depositions, preserving sufficient moisture of open surfaces, etc.)
30. For the purpose of construction, work out construction organization principles concerning minimization of noise load impacts during the stage of construction and surface and ground water impacts that will comprise the following requirements:
    a) notify residents of nearest buildings well ahead of the planned construction and the length and type of each stage of construction
    b) all construction works associated with transportation of construction and technological materials taking place in the vicinity of any residential development will only be carried out during the daytime with the exception of acoustically insignificant activities such as transports of oversized or heavy components as the night time is more convenient for carrying out such transports owing to lower traffic, and with the exception of transportation of materials for works that have to be carried out ceaselessly for technological reasons – such activities will be identified well in advance within the construction organization principles
    c) all noisy construction works in the vicinity of protected objects will only be carried out during the daytime, i.e. from 6 a.m. to 10 p.m.
    d) construction works in the vicinity of Slavětice (surroundings of the switching station) will be limited to the daytime bar early morning and late evening hours (i.e. from 7 a.m. to 9 p.m.)
    e) at the beginning of construction works, check measurements of noise levels in the nearest residential developments will be carried out and anti-noise provisions will be adopted
    f) within the construction works, low-noise-guaranteed machines will be employed; hours of operation of significant noise sources per day will be reduced – works will be divided into several days with shorter work time period per day – with the exception of works that have to be carried out ceaselessly for technological reasons – such works will be identified well in advance within the construction organization principles
    g) for the purpose of construction, an emergency plan pursuant to Act No. 254/2001 Coll., on waters and on amendments to some laws (Water Act), as amended, will be worked out, the contents of which will be made familiar to all employees involved in the construction
31. Throughout the stages of preparation, construction and operation of the NNS, ensure keeping in contact with surrounding municipalities and the public in order to communicate and give information about the project preparation and implementation progress and its potential impacts on its surroundings, including giving prompt response to raised suggestions and questions.

32. Ensure that prior to commencing construction works an environmental (biological) supervision is established for the entire duration of construction, which will inspect adherence to prescribed nature conservation conditions, and which will monitor building sites in terms of presence of plants or animals. The choice of biological supervision to be negotiated with a competent nature conservation authority. Further, an environmental services contractor will be identified as well in order to address required protective and preventive measures proposed by the biological supervision. The biological supervision within its scope of responsibilities will assure that all adopted measures of nature conservation are registered, documented and archived in detail, and through interim and final reports handed over to contractual partners.

33. In reference to the previous condition, aim the environmental supervision paying a special attention to SCI CZ0614134 – Jihlava Valley. Considering the presence of sensitive biotopes – subjects of protection in SCI CZ0614134 – Jihlava Valley at the border with development area D (right bank of the Skryjský Creek upstream of its discharge to the Mohelno WR), ensure that the defined border of development area D strictly observes the delimitation of this SCI and that its boundary is not breached.

34. If there is a risk of excessive pollution due to dust generated during construction work, the person responsible for biological surveillance ensures through the contractor that measures (such as spraying dusty surfaces on the construction site and of service roads connected with SCI areas with water on dry days) to prevent excessive dustiness and potential pollution of areas inside SCI CZ0614134 – Jihlava Valley.

35. Ensure that prior to commencing the construction project and during 2 vegetation periods, floristic and faunistic surveys in the affected territory will be carried out in order to identify and localize the most valued societies and presence of species of plants and animals under special protection; based on these survey results and prior to commencing the construction project apply for exemption from protective measures concerning affected species under special protection; appropriate mitigation and compensation measures will be identified based on these survey results and prior to commencing the construction project.

36. For purposes of prevention of a significant increase in traffic through SCI CZ0614134 - Jihlava Valley (and the Mohelenská hadcová step National Nature Reserve (NNR)) on road II/392 during the NNS construction stage, organize the construction -related transportation within the construction organization principles in the manner limiting to the maximum extent transits of lorries on the road in the difficult terrain through SCI Jihlava Valley and the Mohelenská Hadcová Step NNR.

37. During the stage of construction, arrange monitoring of presence of non-indigenous and invasive plant species; if such species are detected, immediately liquidate them and adjust the vegetation of the affected area making space for natural restoration.

38. After the construction completion, roads affected by the construction shall be restored to their original conditions as specified in negotiations held with their owners; exact scope of necessary repairs will result from diagnostics and surveys taking place prior to the commencement of the NNS construction and after the NNS construction completion taking into consideration the construction-related traffic intensity compared to other traffic and maintenance obligations of the road owner and the road operator.

39. Protect the chapel situated at the place of extinct Lipňany village, which is inside the site installation area, throughout construction works using fence, including prevention (such as crash barrier) of accidental damage caused by motor vehicles. After the NNS construction completion, rehabilitate the chapel and the area around the chapel, and open it up for the public.

The NNS operation stage conditions:

40. In the period of 1 year as a minimum prior to putting the NNS Unit 1 into test operation and subsequently at interval of 10 years, carry out health assessments of population in the distant exposed area E2 (districts of Třebíč, Znojmo and Brno-countryside), and disclose results of the assessment to the public.
41. In summary annual reports made public on the operator's website, regularly inform the public about the environmental impacts of the NNS operations.
42. Secure on a consistent basis that minimum residual flow rate in the Jihlava–Mohelno Downstream profile in the Jihlava river from the Mohelno WR will remain as a minimum at the level of that with the existing operations of Dukovany NPP, which shall ensure protection of biotopes in the Jihlava river within the SCI CZ0614134 – Jihlava Valley.
43. Secure on a consistent basis that rainfall water trapped in retention tanks will be discharged gradually as to achieve as uniform drainage rate as technically feasible.

The NNS environmental impact analysis and monitoring conditions:

44. Upon commencing the NNS test operation as well as subsequently commercial operation, carry out noise level measurements of noise from the operations; the measurements will include detection of tone component presence; if hygienic limits for noise are violated, implement additional anti-noise measures to observe the limits.
45. Ensure that the discharge of the Jihlava river from the Mohelno WR after the NNS test operation commencement is monitored annually in terms of physical and chemical parameters (temperature, content of oxygen, pH, content of organics, nitrogen, phosphorus, and other substances as identified in the decision issued as a result of relevant water legislation proceedings); as an indicator of effluent water quality, at least every 5 years conduct monitoring of extent of aquatic plant biotopes in the Jihlava river in SCI CZ0614134 – Jihlava Valley; for comparison purposes, the results of mapping of the structure and extent of these biotopes from years 2013, 2014 and 2016 can be used; if the condition of these biotopes degrades as a result of implementation of the Project and the NNS operation, adopt corrective measures.
46. Ensure that rainfall water drained from the NNS site to the Olešná river catchment is regularly monitored (at least 4 measurements per year) for the water contamination, including measurements of tritium concentration level as to not affect the subject of protection in SCI CZ0623819 – Rokytná River.
47. Ensure that rainfall water drained from the NNS site to the Skryjský Creek catchment is regularly (at least 4 times per year) monitored in terms of the water contamination and tritium concentration level is measured as to ensure that the subject of protection in SCI CZ 0614134 – Jihlava Valley is not affected; the scope of indicators to be monitored is subject to discussion with and approval by the competent water authority.

Grounds of Statement

Reasons for the decision to issue this Positive Statement, including the reasons for laying down said conditions:

The subject matter of the Project is construction of a new nuclear source, having its net electric power output of up 2,400 MW_e, at the Dukovany site. It will consist of two power plant units with net electric power output of up to 2 x 1,200 MW_e, or one power plant unit with net electric power output of up to 1 x 1,750 MW_e. Multiple variants of the Project sitting are not considered. The implementation of NNS at the Dukovany site complies with strategic documents of the Czech Republic concerning the power industry, in particular the National Energy Policy and the National Action Plan of Nuclear Power Development. The NNS will be placed in the area adjacent to the existing EDU1–4 currently being in operation. The area proposed for placing the NNS follows from the feasibility study conclusions and the assessments of three alternative areas adjacent to the existing EDU1–4 site — north-west, south, and south-east areas. Based on a multi-criteria assessment, the area extending north-west of the existing EDU1–4 site (area A) has been selected, in particular due to its suitability consisting in geological and hydro-geological conditions and its convenient approach to the existing infrastructure (raw water supply from the Jihlava River, waste water drainage to the Jihlava River, and electric power transmission to the Slavětice electrical substation). In the selected area, the NNS site will connect to the existing EDU 1–4 site in the most suitable manner, disturbing the surrounding landscape as little as possible. The area southward of the existing EDU1–4 site (area B) has been determined as a basis for the site installation, considering less suitable basement conditions, and more complicated supply of raw water and power transmission to the grid.

The basic technical data of the new nuclear source is summarised as follows:

One or two nuclear units (the existing power plant has four nuclear units), pressurised water reactor (i.e. a similar type as that being in operation at the existing power plant), net electric power output up to 2,400 MW_e (the net electric power output of the existing power plant is approx. 2,000 MW in total), generation III+ (the best available technology of nuclear reactors), design lifetime at least 60 years. Electrical power generated by the NNS will be transmitted to the Slavětice substation (as for the existing power plant). Raw water for the NNS will be taken from the Jihlava River, specifically the Mohelno Water Reservoir to which waste water will be discharged as well (analogously to the waste water discharge design and connections of the existing power plant). Each NNS unit will be provided with one or two cooling towers.

For the purpose of carrying out a screening process, the Notifier submitted on 20/7/2016 to the Ministry of the Environment, Department of EIA and Integrated Prevention (hereinafter referred to as "MZP"), a Notice of Intent pursuant to Annex 3 to the Act (Amec Foster Wheeler s.r.o., Ing. Petr Mynář, March 2016). The Notice of Intent was distributed to concerned municipalities ("DÚSC"), concerned administrative authorities ("DSÚ"), and MZP Departments, for their opinions. The Notice of Intent was distributed further to potentially concerned countries (Austria, Germany, Slovakia, Poland and Hungary) for their decisions on participation in the international EIA process. The Notice of Intent information was made public on the official boards of the South Moravian Regional Authority and Vysočina Regional Authority on 8/8/2016. Subsequently all the addressed countries expressed their interest to participate in the international EIA process. Anyone was invited to send in their opinions in writing to the presented Notice of Intent, within 30 days of the day of publishing the Notice on the official board of relevant region. The term of receiving opinions of the concerned countries was pursuant to the

Convention on Environmental Impact Assessment (Espoo Convention) extended as to allow the public in the concerned countries the 30-day comment period.

Upon the completion of the screening and scoping process, the Ministry of the Environment issued on 9/12/2016, ref. 81300/ENV/16, the Conclusion based on the screening and scoping procedure, specifying areas of focus to be addressed in the EIA documentation ("Documentation").

For the environmental and health impact assessment of the Project, the Ministry of the Environment on 6/11/2017 was presented the Documentation originated by a group of authors under the direction of Ing. Petr Mynář, the licence holder pursuant to § 19 of the Act (certificate of professional qualification ref. 1278/167/OPVŽP/97, extended by decision ref. n. 23110/ENV/16) in the scope pursuant to Annex 4 to the Act. The Ministry of the Environment distributed the Documentation in letters dated 16/11/2017 to concerned municipalities ("DÚSC"), concerned authorities ("DO"), MZP Departments, and concerned countries, to publish the Documentation and for their comments. Anyone was invited to send in their opinions on the presented Documentation in writing within 30 days of the day of publishing the Notice on the official board of relevant region. The period of receiving opinions of the concerned countries was pursuant to the Espoo Convention extended as to allow the public in the concerned countries the 30-day comment period. The information about the Documentation was published on 20/11/2017 on the official board of the South Moravian Region and on 21/11/2017 on the official board of the Vysočina Region.

The Documentation and its Annexes evaluate the impact of the Project on each individual component of the environment and public health, in all aspects, and in each stage, i.e. in the stages of preparation, construction, and operation. The Documentation was based on a number of preceding expert studies, each with a particular focus on detail analysis and assessment of particular aspects of the Project in terms of the public health and the environment. The impact of the Project was evaluated in detail in the following expert studies: Vlivy na veřejné zdraví (Impacts on Public Health, Amec Foster Wheeler s.r.o., prof. MUDr. Jaroslav Kotulán, CSc., February 2017), Biologické průzkumy a hodnocení (Biological Surveys and Assessment, CONBIOS s.r.o., RNDr. Vlastimil Kostkan, Ph.D., May 2017), Hodnocení vlivů záměru výstavby a provozu na předměty ochrany soustavy Natura 2000 podle § 45i zákona č. 114/1992 Sb., o ochraně přírody a krajiny v platném znění (Assessment of the Impacts of Construction and Operation on the Subjects of Protection under the Natura 2000 Network pursuant to § 45i of Act No. 114/1992 Coll., on Nature and Landscape Conservation, as amended, CONBIOS s.r.o., RNDr. Vlastimil Kostkan, Ph.D., April 2017), NJZ EDU – Souhrnné zhodnocení vlivů na krajinný ráz a vlivy zastínění okolí NJZ (EDU NNS – Summary Assessment if Impacts on Landscape Character and Shading Impacts on NNS Surroundings (Centrum pro krajinu s.r.o., prof. Ing. Petr Sklenička, CSc., 2016), Vyhodnocení vlivů nového jaderného zdroje v lokalitě Dukovany na povrchové a podzemní vody (Assessment of the Impacts of the NNS at the Dukovany Site on Surface and Ground Waters, T. G. Masaryk Water Research Institute, Mgr. Pavel Rosendorf, Ing. Roman Hanák at al., April 2017), Souhrnná zpráva radiačních vlivů NJZ EDU (Summary Report on Radiation Effects of Dukovany NPP NNS, Amec Foster Wheeler s.r.o., Ing. Petr Vymazal, February 2017), Podrobná hluková studie (Detailed Noise Study, Amec Foster Wheeler s.r.o., RNDr. Tomáš Bartoš, Ph.D., November 2016) and Podrobná rozptylová studie (Detailed Dispersion Study, Amec Foster Wheeler s.r.o., RNDr. Tomáš Bartoš, Ph.D., October 2016). On top of mandatory particulars pursuant to Annex 4 to the Act, further documents were attached to the Documentation as follows: The Information of the Ministry of Interior of the CR on the

protection of nuclear installations from terrorist attacks and the Statement of the Radioactive Waste Repository Authority ("SÚRAO") on handling radioactive waste (RaO) and radioactive fuel (spent nuclear fuel).

It follows from the assessment of impacts on public health (prof. MUDr. Jaroslav Kotulán, CSc., February 2017) that the NNS will not observably affect the health of population. Even when taking a highly conservative approach, the lifetime health detriment risk in the critical group of population, associated with radioactive effluents from operations, reaches the level of $1{:}10^{-5}$ by order of magnitude and lower for any considered NNS power output alternatives and throughout the NNS operation stage, considering effects of concurrent EDU1–4 operations, and therefore it is acceptable from the point of health. As compared with the local background, it is by 3 orders lower already in the near residential area. Transboundary impacts do not entail any health problems, possible immissions of radionuclides from the NNS air effluents are negligible and, from the standpoint of a potential health impact, absolutely negligible, and impacts from liquid effluents are insignificant. Moderate and temporary disturbing impacts during the stage of construction are acceptable from the point of health and partially suppressible by protective measures.

It follows from the scattering study (RNDr. Tomáš Bartoš, Ph.D., October 2016). Models have been developed to address the impacts of all the non-active stationary, line and planar sources, both for the NNS operation and the construction stage. From the point of atmosphere, the NNS comprising 2 units was found to be the most unfavourable option. The impact of induced vehicle traffic was also assessed on a cumulative basis for each stage of the Project. Potential changes in immission load for all pollutants, for which the described technological equipment and activities (including transportation) are a relevant source, have been calculated. These include nitrogen dioxide, PM_{10} and $PM_{2,5}$ fraction dust particles, benzene, and benzo(a)pyrene. It can be stated that under the current conditions none of pollutants monitored in the affected territory has been observed to overrun legislative limits; yearly average concentrations have been found to show significant immission margins. In the prospective state, during the NNS operation period, only insignificant change in immission levels in the area can be expected, and the area can be regarded thenceforth as reliably under limits.

The impact on air quality has also been assessed for the construction stage, both for the rough grading works as well as for the erection stage. For harmful substances of nitrogen dioxide, benzene, and benzo(a)pyrene, more significant impact has been calculated for the period of concurrent construction works at two units. With regard to a considerable immission margin, immission levels of these pollutants during the construction period can be regarded as below the limits. On the contrary in solid pollutants, the process of rough grading in the area is considered to be an issue as a dominant impact of secondary emissions of dust particles from rough grading activities and vehicles being moved on unpaved surfaces can be expected. From the point of view of residential areas, the significant indicator is maximum daily concentrations of PM_{10}; however, the permissible excess rate should be met by margin. Considering such significant impacts on the solid matter immission load, preventive measures are therefore suggested for elimination of dustiness during the Project construction.

In terms of the impacts of the Project on the climate, it can be stated that these impacts are insignificant and therefore acceptable. In terms of the Project vulnerability to climate change, it follows from the data contained in relevant chapters that the Project represents a robust solution which is reliably resistant to potential climate change at the NNS site.

It follows from the acoustic study (RNDr. Tomáš Bartoš, Ph.D., November 2016) that from the point of view of operations of EDU1–4 stationary installations, the current situation can be characterised as being below the limit, even together with noise from the Slavětice switching station operations. In the prospective state during operations of the NNS having two units with 4 cooling towers in total, observance of hygienic limits can be expected, even together with noise from the extended Slavětice switching station operations. According to model calculations, hygienic limits will not be violated even in case of alternative layout or change in elevation of the acoustically dominant cooling towers. For the temporary state of concurrence of the EDU1–4 power plant operation and the operation of the one-unit NNS with 2 cooling towers, it was confirmed by calculations that hygienic limits during the daytime as well as night time will be observed.

The results of calculations further imply that there will be no violation of hygienic limits for construction-related noise any time during the day in the period from 6 a.m. to 10 p.m. in the most affected protected external area of buildings in the nearest residential area during the NNS construction period, not even in case of choosing the other considered alternatives for placing the car park and raw material transportation routes. In the construction stage, only construction activities required to be carried out continuously for technological reasons and construction conditions are considered to be carried out during the night-time. In view of the noise levels reached at the nearest protected objects at the time of full use of machinery (max. 47.2 dB), it can be assumed that during night hours the construction noise limit for the period from 10 p.m. to 6 a.m., which is 55 dB, will be reliably observed.

The said calculations confirm observance of noise exposure limits in case that railway is employed to transport the main raw materials for the NNS construction. The levels of noise produced by motor transport have been assessed both for the current situation and, using conservative assumptions, for all crucial NNS implementation stages (such as the concurrence of construction of both units of the NNS 2 and the EDU1–4 operation as well as the concurrence of the NNS 2-unit operation and EDU1–4 decommissioning). Based on calculations of motor transport noise it can be stated that in the majority of villages under assessment in all the calculation scenarios, the basic noise exposure limit is violated, both during the daytime and the night-time (60/50 dB for class II roads and 55/45 dB for class III roads). However, these noise exposure limits are being violated at present as well. As this situation existed before 1st January 2001, it was possible, having observed legislation requirements, to apply 70/60 dB noise exposure limit. However, even if the old noise load institute is considered, the above-limit impact is expected in the most affected residential areas in some municipalities. Based on these facts, it is recommended to monitor noise levels in the most affected areas during the NNS operation and based on the noise level assessment take measures reducing the noise load in the area monitored. At this stage no concrete solution in relevant municipalities can be specified in detail, therefore it is recommended to monitor noise on a regular basis during the NNS construction period in the most affected areas. Based on results of this regular monitoring, it will be possible to identify concrete measures to reduce noise load in affected residential areas.

It follows from the assessment of impacts on surface and ground waters (T. G. Masaryk Water Research Institute, Mgr. Pavel Rosendorf, April 2017) as mentioned below. From the point of view of assessment of guaranteed water supply and minimum residual flow rates it follows from the results of water management model that both the requirements for the NNS supply and for the minimum residual flow rates of 1.2 m^3/s downstream the Mohelno Water Reservoir have been met on a fail safe basis taking into account concurrent demand of all other water

users (consumers) within the river basin of interest for all simulated power output alternatives under assessment. From the point of view of the NNS Project impact on the surface water quality – non-radiation indicator including the time period of synchronous operations of the NNS and the existing EDU 1–4, the water quality was assessed based on indicators specified in the current decision on waste water discharge from EDU 1–4 and further selected additional indicators being of concern in the Jihlava river basin or might be affected in future by operation of the NNS. In radiation situation (RAS) indicators, undissolved substances, sulphates, calcium and ammonia nitrogen, the admissible contamination limits should not be exceeded in any year and any power output alternative under assessment, both without taking into account climatic change and considering 2 °C warm-up. In the NNS power output alternatives, the target values of admissible contamination are allowed to be exceeded exceptionally only for the indicator COD_{Cr}. It is due to the fact that COD_{Cr} values monitored upstream the Dalešice Water Reservoir in the Jihlava–Vladislav profile and downstream in the Jihlava–Vladislav profile commonly fluctuate above the value of admissible contamination and they do not decrease significantly even in passing through the Dalešice–Mohelno WR. The summary assessment of selected additional indicators in the Jihlava – Mohelno profile has shown that target values of admissible contamination according to the Governmental Order No. 401/2015 Coll., on indicators and values of admissible contamination and values of admissible surface water and wastewater contamination, details of the permit to discharge wastewater into surface water and sewage systems, and on sensitive areas (hereinafter referred to as Government Order No. 401/2015 Coll.) are not violated in indicators BSK_5, chlorides and water temperature in any of the NNS power output alternatives. The nitrate-nitrogen and total nitrogen may exceed admissible values in all simulated power output alternatives. This exceeding of admissible values is caused by significant contribution of nitrogenous substances from the river basin upstream the Dalešice Water Reservoir (values reach their limit levels already), by transformation in the Dalešice Reservoir, and further – to a smaller extent – by thickening of waste waters in the operations of NNS and EDU 1–4. Total phosphorus is another indicator that may exceed the target values of admissible contamination; it originates mainly from municipal waste water discharges upstream the Jihlava river. From the point of view of the NNS Project impact on the surface water quality – radiation indicators – the most significant impact of NNS is forecast in tritium volumetric activities, although the established values do not exceed legislative requirements on surface water for any of the simulated power output alternatives and climatic scenarios. In the other indicators, the quantities produced by NNS have been found low and far below legislation requirements in the majority of power output alternatives.

The impact of NNS on the status/potential of surface water bodies at the Jihlava River from the Mohelno Water Reservoir to the Nové Mlýny Water Reservoir II is negligible or suppressed as the case may be by inflows from other tributaries, because the water quality is influenced by a number of other factors besides the NNS operation.

In the boundary profile of Morava – Moravský Svatý Ján, in which the volume of tritium leaving the CR is monitored, the target values according to the Governmental Order No. 401/2015 Coll. are not exceeded in any of the computation alternatives.

The NNS impact on groundwater chemical status has been assessed using selected CHMI groundwater quality monitoring boreholes and groundwater extraction points for human consumption situated adjacent to the Jihlava River and therefore infiltration of surface water into groundwater can be expected. Considering various NNS power output design alternatives, concentration increases for certain pollutants in surface water have been determined, which,

however, will not change the groundwater chemical status in the boreholes and groundwater extraction points.

The biological assessment (RNDr. Vlastimil Kostkan, Ph.D., May 2017) has shown that the NNS project preparation, construction and operation do not present irreversible loss of any of the nature conservation interests. The construction and operation of the NNS will not lead to extinction of significant landscape elements and will not disturb the structure and functionality in the system of ecological stability. No noteworthy trees will be necessary to fell. Surveys have proven that there will be no loss of or significantly negative damage to any special protection area, regional extinction of specially protected species of flora or fauna. Similarly, in relatively rare species that are not included in the lists of specially protected species (usually this concerns species listed in Red Lists), there will be no regional loss of any population. Some populations may be temporarily affected (especially by the construction). These effects then can be partially or fully mitigated or compensated.

The Natura assessment (RNDr. Vlastimil Kostkan, Ph.D., April 2017) has shown that the NNS construction project under assessment is located outside any Natura 2000 site, even outside the closest SCI CZ0614134 - Jihlava Valley. The construction works will not lead to direct intervention in biotopes in SCI CZ0614134 – Jihlava Valley. Any microclimate change influence, including influence of potential shading of thermophilic populations by steam plume, and cumulative impacts on SCI CZ0614134 - Jihlava Valley, have been ruled out based on modelling of these phenomena. Impacts on biotopes of water plants in the Jihlava River, which are the subject of protection in SCI CZ0614134 - Jihlava Valley, cannot be expected. The most important factor affecting the condition of these biotopes is the presence of the Mohelno WR (and the entire Mohelno – Dalešice Water Reservoir System). The Mohelno WR and the entire Mohelno – Dalešice Water Reservoir System management influences the flow rate and temperature of water to such a significant extent that any impacts of EDU1–4 and the NNS are unimportant and undetectable. The construction and operation of the assessed project will not therefore have any significant negative impact on any subject of protection and will not compromise integrity of any Natura 2000 site.

The Face of Landscape Impact Assessment and Impacts of Shading the NNS Surroundings (Centrum pro krajinu s.r.o., prof. Ing. Petr Sklenička, CSc., 2016) evaluated the Project in terms of landscape conservation as acceptable for all implementation alternatives. From the point of view of shading of the surroundings by the existing and proposed new building objects at the EDU 1–4 site and by operation of the existing and proposed cooling towers, impacts on residential settlements in the NNS surroundings and on Natura 2000 sites have been assessed for each computation alternative. The assessment results can be summarised as follows. Building objects will be of lesser influence on the NNS surroundings in terms of shading (shading time shorter by approx. 1 order) than steam rising from cooling towers. The contribution to the shading of the surroundings by building objects therefore cannot have a significant effect compared to the total shading time. SEI CZ0614134 – Jihlava Valley and CZ0622226 – Velký kopec (Big Hill) will be the ones of Natura 2000 sites that will be most shaded by the existing as well as the proposed building objects. Shading up to approx. 10 hours per year can be expected in local areas of the greatest impact on SEI CZ0614134 - Jihlava Valley during the vegetation period. Steam plumes rising from the cooling towers of the new nuclear power source may locally increase the time of shading in SEI areas (most in SEI CZ0614134 Jihlava Valley) up to approx. double (from the existing value at most 19 hours up to the total value of 39 hours during the vegetation period during the concurrent operation of EDU 1–4 or EDU2–4 and NNS). It can be

stated based on evaluation that the shade time increase is acceptable, as total annual incident solar energy has been continuously growing over the last four decades.

It follows from the assessment of radiation impacts (Ing. Petr Vymazal, February 2017) that the basic exposure limits and dose optimisation limit for a representative person will be met safely and with a reserve for all power alternatives, expected concurrences and all possible flow rates in the Jihlava River, considering the project implementation and all operational modes of the NNS including the effect of concurrent operation with EDU1-4. The exposure as a result of discharges into watercourses contributes significantly to individual annual doses. Any person living near the Jihlava River downstream of the Mohelno WR (Biskoupky, Hrubšice, Řeznovice, Ivančice) presents a representative person. As a partial representative person, exposed only to discharge into the air, is presented by any person living in the Kordula settlement. The dose to be received by that person is approximately only one third of that received by the representative person as a result of liquid effluents. The transfer of part of H-3 radionuclides from liquid effluents to the air will ensure compliance with the dose optimisation limits when flow rates are at their minimum levels in extremely dry years. The transfer must be technologically secured and prepared. Discharges and flow should be continuously balanced to ensure a timely transfer. For the purpose of conservativeness of the exposure calculation results for discharges into the air, the transfer of all liquid effluents into the air was modelled for all calculation alternatives. The transboundary impacts are very low for all power alternatives and do not even exceed the value of 2 μSv/year for the nearest countries (Austria, Slovakia). The dose optimisation limit is safely met also for the NNS construction staff. The radiation impacts on the biotic environmental component are insignificant and far below the IAEA reference values for all the power alternatives.

From the point of view of assessment of radiation consequences of severe accidents, it can be stated that the criteria of the State Office for Nuclear Safety ("SÚJB") as well as WENRA recommendations for this category of accidents have been fulfilled. An accident will safely not lead to a radionuclide leak which would require evacuation of residents in the NNS surroundings. The need for sheltering and iodine prophylaxis at a distance exceeding approx. 5 km from the NNS will be avoided to a high degree of certainty (95 %). It can be assumed that there will be no need for considering permanent relocation in the NNS surroundings and this measure can be ruled out in 95% likelihood within the distance of 3 km from the NNS. Restrictions on food consumption and sale of agricultural product will be time-limited to 1 year as a maximum and will be space-limited. Restrictions on sale of agricultural product will not exceed 100 thousand tons. Transboundary influences and impacts in terms of dose will be low. The maximum yearly dose for population abroad in considering ingestion of contaminated food will not exceed 1.8 mSv in 95% likelihood and without considering ingestion 0.7 mSv. Anticipated loss of agricultural products abroad in applying EU rules for putting constraints on placing contaminated products on the market in EU member states only relates to Austria and should not exceed 30 tons of milk.

A large number of opinions have been delivered, a number of them having identical contents, and therefore the Ministry of the Environment sorted them according to the contents into model groups.

The MZP received 7 DÚSC opinions, 11 DO opinions, 5 MZP Department opinions and 7 opinions from the public (societies, civil initiatives, local government units other than those affected) from the Czech Republic within the statutory time period and 5 opinions were delivered

after the statutory time period lapsed. The MZP received 26 opinions from the Slovak Republic. The MZP received 3 opinions from the Republic of Poland, 2 opinions from the Republic of Hungary. Further, a large number of opinions were received from the Federal Republic of Germany (approx. 550) and Austria (approx. 15,000), wherein the opinions having identical contents have been sorted into MODELS 1 – 10a. The competent authority registers 166 opinions, different in contents, on the Documentation.

All comments presented in the received opinions on the Documentation are resolved in Part V of the Expert Report on the Environmental Impact of the Project (RNDr. Tomáš Bajer, CSc., June 2019) ("Expert Report"). All relevant requirements arising from the opinions on the Documentation were adopted by the originator of the Expert Report in the adequate manner into the draft of binding statement and they have been incorporated into this binding statement.

By letter dated 17/1/2018 the MZP entrusted RNDr. Tomáš Bajer, CSc., the licence holder pursuant to § 19 of the Act (certificate of professional qualification ref. 2719/4343/OEP/92/93, extended ref. n. 52153/ENV/15) with working out the Expert Report. In accordance with § 9 Section 3 of the Act, the MZP laid down a deadline of 60 days following the handover of the Documentation including all source documents for the originator to produce the Expert Report. Based on all received opinions and comments presented in the opinions, in the process of origination of the Expert Report pursuant to § 9 Section 6 of the Act the Notifier was requested to produce additional materials mentioned in the Expert Report in Supplement 2.1., Supplement 2.2. and Supplement 2.3. Without this additional information it was not possible to arrive to a definite conclusion on acceptability of the Project or, more precisely, to assess the necessity of establishing further conditions in the draft of the binding statement. On 3/11/2018, the additional materials for elaboration of the Expert Report were delivered to the originator of the Expert Report.

In April and May 2018, consultations took place with the representatives of the Federal Republic of Germany (6/4/2018), the Republic of Austria (10/11/2018), Hungary (in the writing form) and the Republic of Poland (in the writing form). The course of consultation held with the representatives of the Republic of Austria is recorded in detail in Minutes Ref. MZP/2018/710/3039 dated 10/7/2018. The course of consultation held with the representatives of the Federal Republic of Germany is recorded in detail in Minutes Ref. MZP/2018/710/2152 dated 18/4/2018. The Slovak Republic did not express their interest to participate in international consultations.

The MZP distributed by letter dated 7/6/2018 the information about holding a public consultation to DÚSC, DO and affected countries to publish the information, and subsequently published the information pursuant to § 16 Section 1 of Act in the EIA Information System via Internet. The information about holding a public consultation was published 11/6/2018 on the official board of the South Moravian Region and Vysočina Region.

The public consultation pursuant to § 17 of the Act was held on 19/6/2018 at Zimní stadion (the Winter Stadium) of the town of Třebíč, Kateřiny z Valdštejna 1, 674 01 Třebíč at 12:00 hod. At the public consultation, the representatives of the Notifier familiarized the present representatives of DÚSC, DO, affected countries and the public with the Project under assessment. The originator of the Documentation and originators of expert studies made the present representatives familiar with the EIA results. The comments and questions raised by DÚSC, DO, affected countries and the public, received immediate response from the representatives of the attending parties (the Notifier, the originator of the Documentation, MZP

representatives and SÚJB, and SÚRAO). The comments and questions related especially to the following areas: absence of assessment of alternative scenarios for power production, absence of alternatives, renewable energy sources, economy of the Project, power producing safety and self-sufficiency, potential energy dependence of the Czech Republic on Russia or China, absence of assessment of associated uranium mining plans and impacts, spent nuclear fuel and SNF handling, ultimate disposal of nuclear waste, absence of specification of the type of reactors, nuclear safety, practical elimination of early radioactive release and relevant proofs, natural disaster likelihoods, proof of identified safety objectives and preventive measures, apprehension of nuclear energy, detail question concerning Caesium–137 ad its impact on soil, plants, real assessment of severe accident consequences (INES 7), public health, health impacts of the Project and potential increased incidence of cancer, visual impacts of the Project, water issues, potential damage liability and compensation and damage insurance, disagreement with the Project, belief that the Project will be abandoned for reasons of economy, safety or unresolved final disposal of SNF. In general, it can be stated that all the questions and comments are contained in the received opinions on the Documentation. It can be stated that all the questions and comments were answered at the public consultation. The information about the attendance and conclusions of the public consultation are contained in detail in the public consultation minutes ref. MZP/2018/710/2357 dated 16/7/2018.

On 17/7/2019, the Expert Report pursuant to § 9 and Annex 5 to the Act was presented to the competent authority by RNDr. Tomáš Bajer, CSc. The originator of the Expert Report in view of the data contained in the Documentation, opinions received from DÚSC, DO, potentially affected countries and the public including civil initiatives, the course of public consultation, the course of international consultations, additional information, inspection of the concerned area, and verification of the input parameters and data presented in the Documentation, has arrived to the conclusion that the proposed Project solution allows to assure the environmental and public health protection to the extent required by relevant regulations. The originator of the Expert Report therefore proposed to issue a positive binding statement including 47 bindings conditions for the purpose of prevention, elimination, mitigation, and possibly compensation of negative environmental and public health impacts of the Project and for the purpose of the environmental impact monitoring and analyses.

The remuneration for the elaboration of the Expert Report pursuant to § 18, Section 3 of the Act was paid by the Notifier on 1/8/2019.

The results of certified studies presented within the Documentation show mainly local extent of the Project impacts, given by the extent of site area intended for placing the Project and its surroundings. A wider extent of impacts may only occur in the form of outputs to the environment (typically radioactive as well as non-radioactive effluents into atmosphere and watercourses, noise or other factors) and visual impacts. In view of low level of radioactive effluents, the existing impacts of radioactive effluents from the nuclear installation at the site as well as a generally insignificant level of contribution of the nuclear power generation to the population exposure, no significant adverse impacts of radioactive effluents as a result of the Project implementation are expected, not even considering effects of concurrent operations of the other nuclear installations at the site. The extent of the impacts will therefore correspond quantitatively as well as qualitatively to the extent of impacts of the existing nuclear installations at the site, which are insignificant (far below permissible limits) and subject to regular monitoring and checks. From the point of view of further factors the site has both space and capacity to accommodate the NNS in the area adjacent to the existing Dukovany NPP (EDU1–4) and its

infrastructure. Therefore, the existing landscape, which is given by coexistence of agricultural, industrial, natural and residential functions of the land, will not change significantly. The distance separating the place of Project and its components from residential areas or other protected areas (such as areas under special scientific protection) is sufficient to exclude any adverse impacts. The Project implementation will not lead to any significant change in the existing status and the environmental evolutionary trends. The Project will comprise spatially dominant objects that will be visible from considerable distance, placed in the context of the visual impacts of the existing power plant. The extent of visually affected area will only increase insignificantly, and qualitatively will correspond with the existing situation. The distance between the site and the nearest residential areas of the surrounding municipalities is only a few kilometres. The assessment results show that all the environmental protection and public health requirements are met even in this closest surroundings. It can be stated that no facts have been identified that from the environmental point of view would hinder the preparation, implementation, operation and decommissioning of the Project under assessment in any of the monitored areas (impacts on population and public health and environmental impacts, including impacts on air and climate, noise and other physical and biological characteristics (including ionizing radiation impacts), surface and ground waters, soil, natural resources, biological diversity (including impacts on fauna, flora and ecosystems), landscape, tangible assets and cultural heritage, transport and other infrastructure, and possibly other). Anticipated impacts on public health and the environment in all its components, considering concurrent impacts of all other nuclear as well as non-nuclear installations at the site and the environmental background, wherein not taking into account proposed elimination and mitigation measures, do not exceed acceptable levels. The impacts of the Project will not lead to damage to the environment and public health. Risks arising from the Project implementation are acceptable. Significant transboundary impacts are practically ruled out. Transboundary impacts (reaching national dose and agricultural product contamination limits pursuant to Euratom Directive 2016/52) are confined locally relating only to limited cross-border areas of Austria and only in the case of severe accident. Based on the assessment the proposed NNS construction and operation can be regarded for the given territory as tolerable.

The Expert Report originator also associates with this opinion and, in view of data and information contained in the Documentation, opinions received from DÚSC, DO, potentially affected countries and the public including civil initiatives, international consultations, public consultation, and the inspection of the affected area, recommends to implement the Project in compliance with conditions laid down in the draft of positive binding statement. The impacts on each of the environmental component are specified thereinunder in the "Summarised characteristics of anticipated impacts of the proposed project on the environment and public health in terms of their magnitude and significance" part of this binding statement.

Based on the above mentioned, the Documentation and certified studies, opinions on the Documentation, international consultations, public consultation and the Expert Report, the competent authority associates with the conclusions of the Expert Report and has arrived to the conclusion that the negative impacts of the proposed project under assessment do not exceed the extent set out in legal acts and other regulations and that the proposed Project is possible to implement respecting the conditions of this Binding Statement, and thus a positive Binding Statement can be given.

<u>Grounds of the conditions:</u>

In the Expert Report, 47 conditions in total are proposed in the draft of the binding statement. The conditions of this binding statement include all the 47 conditions for mitigation and compensation of the proposed Project impacts on the environment and population (of which 4 conditions impose the duty to monitor the environmental impacts: conditions 44 – 47), which were proposed in the draft of the binding statement.

The conditions of the binding statement arise from the character of the proposed Project and from the characteristics of the environment, in which the Project is situated. The conditions put emphasis on the preparation and implementation of the Project.

Conditions for the stage of Project preparation:

Condition 1 – arises from the fact that in the field of water management, investments are so far proposed in the form of corridors, not in the form of particular line structures. Considering the sloping terrain above the right bank of the Skryjský Creek (possibly rock bars, steep slope) it is necessary to further specify the line construction route as to minimize physical intervention into the slope above the right bank, allowing to take advantage of the previous grading works for the construction of road. The requirement relates to the section above the Skryjský Creek and the Luhy stream confluence. It constitutes a particular technical requirement for the line construction design as it has been formulated by the Expert Report team of originators based on materials presented in the EIA documentation.

Condition 2 – also arises from the fact that in the field of water management, investments are so far proposed in the form of corridors, not in the form of particular line structures. The Natura assessment has shown that the corridor concept of area D had not been expressed in the map in relation to the boundary of SCI CZ0614134 – Jihlava Valley. For this reason, the Expert Report team of originators regards as principal to consistently ensure the preparation of the line construction so that the area above the right bank of the Skryjský brook, which downstream the confluence with the Luhy Creek forms the boundary of SCI CZ0614134 – Jihlava Valley, is spared from any interventions. It constitutes a particular technical requirement for the line construction design arising from the opposing Natura assessment.

Condition 3 – arises from the Natura assessment presented within the Documentation as a completely reasonable preventive measure with regard to SCI CZ0623819 – Rokytná River.

Condition 4 – arises from the fact that so far no information on intended constructional solutions of emergency shelters, Emergency Control Centre, Technical Support Centre, External Emergency Support Centre, Stand-by Emergency Control Centre, and Stand-by Technical Support Centre, i.e., on how the radiation emergency management requirements will be fulfilled. This condition has been imposed based on the SÚJB opinion.

Condition 5 – arises from the requirement to consider climatic and hydrological conditions in the concerned territory, surface water quality, and legislation requirements, in the stage of preparation, including proposing a measure for mitigation of negative impacts on surface water bodies. The condition was formulated based on a number of received opinions and the public consultation.

Condition 6 – arises from the water management points at issue associated with the proposed NNS project and based on water management studies worked out to date, and is directed at the NNS water consumption issues. The condition was formulated based on a number of received opinions and the public consultation.

Condition 7 – aims at reducing the light pollution impacts. The light pollution comes through momentarily, mainly during foggy and snowy weather conditions in combination with low cloud formation, when the light is dispersed and reflected in the atmosphere and forms a typical flare around the power plant; unfavourable atmospheric conditions may bring about a long-term effect of this phenomenon, which may be obtrusive for the residents in the surrounding towns and villages. The condition arises from the EIA conclusions.

Condition 8 – aims at minimizing during the stage of construction the impacts on land determined to be forest land. The condition arises from the EIA conclusions.

Condition 9 – presents a requirement for the resultant general concept of the NNS building objects from the point of view of reducing the impacts on the face of landscape, as from the visual point of view the decisive feature is the height and mass of each element at the site (in the first place, of the cooling towers). The condition arises from the EIA conclusions.

Condition 10 – arises from the request raised by the municipality of Rouchovany, for possible plantation proposed areas may really contribute to shielding Rouchovany visually from the NNS site, which needs to be verified. Additionally, the plantation in the proposed areas may partly compensate for interventions in wood stands in areas A and B. The condition arises from the EIA conclusions and has been modified by the Expert Report team.

Condition 11 – addresses the fact that within the EIA documentation there was no detail assessment of the extent of intervention in trees and wood plant stands growing outside forests (i.a. for internal layouts and organization in areas A and B and technical solutions of infrastructure elements (building objects) in areas C and D have not been identified yet). The condition was proposed by the Expert Report team.

Condition 12 – aims at minimizing the impacts on tangible assets in connection with the construction stage and use of roads during the construction stage, for this stage will represent a certain increase in traffic on the roads that will be used during this stage. Condition arises from the opinion of the Vysočina Regional Authority.

Condition 13 – arises from the requirement relating to assessed radiation impacts to the intent that in subsequent stages a proof will have to be provided for a particular selected reactor unit that the source member for relevant type of radiation emergency will be lower or equal at most as that considered in the EIA documentation; this condition is significant in general for general assessment of public health. The condition reflects requirements of the majority of opinions received from the Federal Republic of Germany and the Republic of Austria.

Condition 14 – arises from the necessity to ensure the NNS resistance to impacts of EDU1–4 and other nuclear installations at the site to the intent that public health impact assessment will be confirmed in all addressed aspects. The condition arises from the EIA documentation and has been fully accepted by the Expert Report team.

Condition 15 – follows from the fact that one of principles of the safe use of nuclear energy and one of general requirements for a nuclear installation project and nuclear installation design is the monitoring of radiation situation. It follows from the fact that the basic mapping of requisites for monitoring of radiation situation during construction, start-up, operation, and decommissioning of the new nuclear source were not fully addressed at this stage of project preparation. The condition arises from the SÚJB opinion.

Condition 16 – arises from the necessity to optimize radiation protection in terms of public health impacts in subsequent stages of the Project preparation. The condition arises from the EIA documentation and has been fully accepted by the Expert Report team.

Condition 17 – corresponds to potential climate changes in relation to water consumption, for the NNS operation is planned for a long term – the NNS decommissioning is anticipated to take place around year 2100 and therefore climate changes at that time cannot be ruled out. The condition reflects requirements in received opinions, mainly from the Republic of Austria.

Condition 18 – arises from the requirement to consider climatic and hydrological conditions in the concerned territory, surface water quality, and legislation requirements, in the stage of preparation, including proposing a measure for mitigation of negative impacts on surface water bodies. The condition reflects the requirements of concerned bodies as well as those in the opinions of the Republic of Austria and the Federal Republic of Germany.

Condition 19 – arises from the transmission grid capacity, quantity of discharges into watercourses, risks associated with future climate changes and their impacts on the quality and quality of water in the Jihlava river, and current knowledge of the site. The condition arises from the assumptions of the EIA Documentation.

Condition 20 – arises from the requirement to meet the fundamental parameters, which served as a basis in assessing the environmental and public health impacts. The condition was formulated by the Expert Report team.

Condition 21 – arises from the requirement to consider climatic and hydrological conditions in the concerned territory, surface water quality, and legislation requirements, in the stage of preparation, including proposing a measure for mitigation of negative impacts on surface water bodies. The condition arises from received opinions, mainly from the opinion received from Povodí Moravy, s.p.

Condition 22 – arises from the requirement relating to assessed radiation impacts of the Project to the intent that it is necessary to reflect knowledge development in the given area, including changes in legislation.

Condition 23 – arises from the fact that at this stage of project preparation, when the construction contractor and the construction work progress are not known yet and especially noise impacts during the construction stage can only be estimated, it is essential to substantially eliminate the risks associated with public health impacts. The condition was formulated by the Expert Report team based on opinions of affected municipalities.

Condition 24 – aims at minimizing impacts on the road network to be used during the stages of construction and operation so as to avoid significant damage to the roads in connection with the Project implementation. The condition was formulated by the Expert Report team based on opinions of affected municipalities.

Condition 25 – arises from the requirement of the public health protection authority and aims at minimizing impacts in terms of noise load in the nearest residential building areas.

Project implementation stage (construction) conditions:

Condition 26 – in accordance with the recommendation of the public health protection authority aims at minimizing noise load in residential areas along the roads used in connection

with the NNS construction and relates to specifying data in the anticipated construction commencement time horizon.

Condition 27 – relates to the organizational provision within the stage of construction, which imposes the use of railway for transportation of selected construction commodities, therewith reducing the freight traffic and associated noise load along the roads used during the construction stage. The condition arises from the South Moravian Regional Authority opinion.

Condition 28 – aims at minimizing impacts on land determined to be forest land in terms of felling and at mitigating impacts on the nature. The condition was formulated by the Expert Report team.

Condition 29 – in view of the anticipated extent of constructional works, this condition aims at minimizing impacts on the atmosphere by adoption of efficient emission reduction measures. The condition arises from the opinions of municipalities.

Condition 30 – aims at minimizing impacts on the noise load in the nearest residential area and on the surface and ground waters during the stage of construction, and at minimizing the risk of influence on the surface and ground water quality. In the noise load aspect, the condition follows from the opinions of the public health protection authorities. In terms of water protection, the condition has been formulated by the Opinion Expert team, having considered the anticipated extent of construction and expected number of building companies on site.

Condition 31 – aims at corresponding communication with affected municipalities in the aspect of minimizing impacts on welfare of residents within the NNS construction impact radius. The condition arises from the opinions of affected municipalities.

Condition 32 – aims at separating the function of environmental (biological) supervision from the construction contractor, by supervising required environmental (or proactive) measures arising as a need to respond promptly to construction-related issues. Further it is expressly prescribed that any activity, which is required at the instance of environmental (biological) supervision, must be adequately documented. The condition was formulated by the Expert Report team.

Condition 33 – arises from the Natura assessment and relates to the fact that part of area D being the only one in the proposed Project is planned in the vicinity of SCI CZ0614134 – Jihlava Valley. The wording of this condition was made more specific within the Natura assessment and its legitimacy is definite in view of the above mentioned circumstance of close contact with the SCI.

Condition 34 – arises from the Natura assessment and has been formulated for the purpose of prevention of local influence on trophic conditions during construction at area D in biotopes along the border with SCI.

Condition 35 – arises from the circumstance that the construction commencement data is in relatively distant future and all important dates will be necessary to update with a view to specifying concrete requirements for prevention, minimization or elimination of impacts on fauna, flora and ecosystems during construction. The condition was formulated by the Expert Report team.

Condition 36 – arises from the Natura assessment, within which concern was expressed over possibly influencing sensitive natural societies and biotopes in SCI CZ0614134 – Jihlava Valley in the area of Mohelenská hadcová step National Nature Reserve along road II/392. It has arisen

from the opposing Natura assessment that a systematic organizational provision concerning on-site transport presents a more efficient solution.

Condition 37 – aims at restoring affected areas after completion of construction to their original state giving space allowing natural regeneration and migration of organisms from the surroundings, with planting greenery as possible in the NNS development area and maintaining it in the manner not allowing dissemination of invasive plant species. The condition was formulated by the Expert Report team.

Condition 38 – aims at minimizing impacts on tangible assets after completion of the NNS construction. The condition was formulated based on opinions received from municipalities and the public.

Condition 39 – aims at saving the chapel in remembrance of the extinct village of Lipňany. The condition arises from the EIA conclusions and has been accepted by the Expert Report team.

The NNS operation stage conditions:

Condition 40 – aims at giving a proof confirming the public health assessment conclusions. The area proposed represent the distant exposed area E2 as specified in the EIA documentation. The condition arises from the EIA documentation and has been fully accepted by the Expert Report team.

Condition 41 – aims at providing updated information relating to the NNS operation, therewith verifying anticipated impacts of the NNS operations on particular components of the environment and public health. The condition arises from the EIA documentation and has been fully accepted by the Expert Report team.

Condition 42 – arises from the Natura assessment and aims at ensuring the continuity of regeneration of the Jihlava river flow conditions downstream the Mohelno WR. This condition ensures that even in case of legislation change directed to reducing minimum residual flow rates, the flow rate will be preserved at the level of the minimum residual flow at the time of issue of this binding statement. On the contrary, i.e. if the minimum residual flow rates will be increased, it will be possible to increase the flow rate according to the legislation provisions.

Condition 43 – aims at preserving uniform rainfall water drainage flow from retention tanks, which will have a positive impact on water quality and watercourse regeneration. The condition arises from the EIA documentation and has been fully accepted by the Expert Report team.

The NNS environmental impact analysis and monitoring conditions:

Condition 44 – arises from the requirement of the public health protection authority and aims at monitoring noise load in relation to objects of the nearest residential development area.

Condition 45 – arises from the Natura assessment and presents a principal condition in terms of the NNS impacts on the fluvial ecosystem of the Jihlava river downstream the Mohelno WR.

Condition 46 – arises from the Natura assessment and presents a principal condition in terms of monitoring the NNS impacts on the fluvial ecosystems of the Olešná and Rokytná rivers at the rainfall drainage routes.

Condition 47 – imposed in relation to analogical requirements for monitoring, which is proposed for the Olešná catchment. The condition arises from the Natura assessment.

The above Conditions react particularly to facts established in the course of EIA process. The Conditions do not comprise conditions and requirements following from generally binding regulations, even in the case they were referred to in opinions of DÚSC, DO and the public. The duty to fulfil such conditions is imposed upon the Notifier by applicable legal regulations, thus there is no need to impose them in this Binding Statement. In this respect and for the purpose of proposed Project preparation and operation the legal framework of the Czech Republic is sufficient, wherein the prescribed conditions impose some further duties giving thus concrete form to the manner of meeting the legal requirements or possibly specifying further duties beyond the scope of special legal regulations (pursuant to § 5 Section 4 of the Act).

The EIA process assesses the proposed Project from the point of view of acceptability of its implementation in terms of environmental protection. In this aspect, no factor as significant from the point of view of the competent authority as to hinder implementation of the proposed Project having accepted relevant conditions formulated by the Documentation originator, affected authorities, DÚSC, public, and the Expert Report originator that form part of this Binding Statement.

Summarised characteristics of anticipated impacts of the proposed Project on the environment and public health in terms of their magnitude and significance

The subject matter of the proposed Project under assessment is construction and operation of a new nuclear source at the Dukovany site comprising 1 or 2 nuclear units having net power output of up to 2,400 MW_e in total as a maximum, including all related building objects and technological complexes (technological equipment) intended for power generation and transmission and for assurance of operational safety of the nuclear facilities. The proposed Project further comprises construction areas and equipment, i.e. main construction site and the construction site installations comprising all elements as necessary for the Project contractors during civil engineering or constructional works (outside the public infrastructure).

Those that are particularly crucial are impacts on population and public health, impacts on water and noise, and further impacts on the air and Natura 2000 sites. Further significant impacts include impacts on the face of landscape, impacts on the agricultural soil fund and land determined to be forest land, and other spheres of impacts. The impacts on particular components of the environment have been identified as being small or of little significance, possibly acceptable.

The characterization of impacts of the proposed project on the environment and public health in terms of their magnitude and significance focuses in the first place on description and evaluation of dominant impacts caused by construction and operation.

Detail characteristics of impacts on particular components of the environment and public health are as follows:

<u>Impacts on Population and Public Health:</u>

The assessment of impacts on population and on the population health is based on conclusions of certified expert studies that form appendices to the Documentation and the results of which are summarized in the Documentation. They include assessment of impacts on public health (prof. MUDr. Jaroslav Kotulán, CSc., February 2017), assessment of impacts on surface and ground waters (T. G. Masaryk Water Research Institute, Mgr. Pavel Rosendorf, April 2017), assessment of radiation impacts (Ing. Petr Vymazal, February 2017), acoustic study (RNDr.

Tomáš Bartoš, Ph.D., November 2016), dispersion study (RNDr. Tomáš Bartoš, Ph.D., October 2016).

Radiation effects

It follows from the results presented in the Documentation that NNS impacts (for any power output alternative) in their cumulative impact together with other on-site nuclear installations will not reach the dose optimisation limits pursuant to Act 263/2016 Coll., Atomic Law, as amended (the Atomic Law). This applies both to liquid effluents, where the dose optimisation limit is established as the yearly collective dose value of 50 μSv (5,0E-05 Sv), and effluents to the atmosphere, where the dose optimisation limit is established at 200 μSv (2,0E-04 Sv). In observing these limits, the exposed population is protected in a socially accepted manner.

Even when considering a highly conservative scenario of living conditions of a representative individual, the lifetime health detriment risk associated with radioactive effluents from the NNS and other on-site nuclear operations, reaches the level of 10^{-5} by order of magnitude and lower for any considered NNS power output alternatives. In terms of health, this degree of risk is well acceptable. The most radiation-loaded area is the NNS immediate surroundings and a bank strip along the Jihlava river from the Mohelno reservoir to the confluence of the Jihlava river with the Oslava river at Ivančice. With regard to extremely conservative assumption in the calculation (considering lifetime consumption of drinking water from a water source supplied exclusively from the Jihlava river), it is possible to regard the risk as acceptable in this area as well.

In comparison with radiation background in the given area, the NNS contribution to the lifetime risk of detriment is absolutely insignificant as compared with the other ionising radiation. These conclusions are further supported by results of population health assessments in the surroundings after a 30-year operation of EDU1–4, see Chapter C.II.1.3 of the Documentation.

Despite these conclusions, future licensing processes will include optimization of radiation protection in discharges of radioactive substances from the NNS as required under the Atomic Act, for the reasons of further health risk reduction.

Air Pollution

Critical outcoming pollutants that in connection with the Project may have potentially adverse effects on human health include PM_{10} and $PM_{2,5}$ solid fraction particles, nitrogen dioxide, benzene, and benzo(a)pyrene, particularly during the stage of implementation of the proposed Project.

According to the study of impacts on public health (prof. MUDr. Jaroslav Kotulán, CSc., February 2017) in terms of the atmosphere pollution assessment, for majority of air pollutants under assessment the concentrations in the atmosphere during construction as well as in the period of operation in total with background are under limits; the exception is short-term above-limit maximum concentration PM_{10} during some stages of the proposed Project construction; in view of rare occurrence of these concentrations and expected efficiency of proposed measures, it is possible to accept these loads in the health aspect.

Noise

According to the study of impacts on public health (prof. MUDr. Jaroslav Kotulán, CSc., February 2017) in terms of noise assessment states that noise contributions from stationary sources in all assessed combinations are low and cannot influence the general level of local noise load (by adding to background); thus they are not significant from the point of view of health.

Noise produced in connection with construction activities contributes to local noise levels, which in the residential development areas are close to 50 dB or lower; as far as the local noise

background is below the limit, which can be anticipated, the mentioned contributions will be well acceptable in terms of health, especially because these loads will be temporary and short-term.

A more serious situation can be identified during construction in connection with traffic on public roads in exposed transit municipalities where the noise load is relatively high even without the NNS construction – this applies in the first place to Ivančice with its noise level of 73.2 dB, Moravské Bránice (up to 69.5 dB), Slavětice (up to 62.9 dB), Hrotovice (up to 67.8 dB) and Dolní Kounice (up to 67.3 dB); even though the NNS contributions in these municipalities are relatively low, they shift noise levels inside the critical band (risk of ischemic heart disease) – in these municipalities, preventive measures should be particularly carefully adopted (adaptations of roads, increased smoothness and decreased speed limit, etc.) – these measures are incorporated in Condition 26 of this Binding Statement; in the rest of cases the smallish contributions of the NNS construction mostly do not influence the position of given location in the noise load range. With regard to the temporariness of these impacts, which is limited to the period of construction of the NNS, they can be regarded as acceptable in terms of health.

As to the operation period, the calculations of noise levels with and without the NNS over the time horizon of year 2034 given in the noise study imply that the NNS operation will contribute to local noise levels in villages with several tenths of dB. Such shift is not of health-related significance. For more detailed information about noise-related issues, see the relevant chapter of this Binding Statement.

Vibrations

Vibration parameters, both from technological operations and transports, are far below limits prescribed in health protection regulations. This state will be preserved even after the NNS Project implementation. Hence in terms of health, vibrations do not present a limiting factor.

Electromagnetic Field

According to the study of impacts on public health (prof. MUDr. Jaroslav Kotulán, CSc., February 2017) in terms of electromagnetic field assessment states in the final evaluation that considering the long distance between the residential buildings and the assessed high voltage line the public health concerns will not be compromised.

Psychological Impacts

The Documentation gives evidence that the existence and proximity of the nuclear power plant do not disturb significant personality traits or psychological balance and well-being of population. It is possible to expect that this situation will not change in the NNPS operation period. The level of population mental health quality depends undoubtedly on failure-free operations of power plants and nuclear energy production safety as a whole. As far as the NNS and EDU1–4 will stay free of emergency situations and show routine and stabilised operations, the NNS and EDU1–4 existence shall have no adverse effects on the psychological characteristics of the population in future either.

Social and Economic Impacts

According to the Documentation, it is likely that in conjunction with the NNS construction and operation there will be a smooth continuation of trends currently associated with the existing

operation of EDU1-4, in which gradual transfer of the current employees to new units and certainly natural age-related replacement of employees can be expected. On the contrary, if the EDU1-4 operations are terminated without continuation in the form of the NNS construction and operation, then with regard to the peripheral position of the area a significant population drop in the area due to moving out can be expected. In the municipalities, which are currently able to attract relatively young people in production age, this trend would likely reverse (similarly to other peripheral areas). It is possible to expect that particularly a number of young and relatively more educated people would leave as they would not be able to find their professional career fulfilment in the region. Further the region would not attract potentially incoming young people, particularly those of academic background. Depopulation trends would be accompanied by ageing of local population.

The presence of the EDU1–4 operations positively influences the labour market and employment rate in the region. The nuclear power plant operations require high percentage of specialized professions, which is reflected in the power plant employees and subcontractors having higher educational background. The presence of the EDU1–4 operations positively influences economy in the region owing to relatively high buying power of the power plant employees and subcontractors. For the employee balance, see the Documentation.

The Expert Report team associates with the above assessment of the impacts of the proposed Project on population and public health. Corresponding measures have been incorporated into conditions in this Binding Statement, asking the Notifier in relation to the opinions of the public health protection authorities pursuant to § 9 Section 6 of the Act to produce additional materials concerning particularly the health consequences of low frequency noise component produced by road traffic and its monitoring. In the requested document, the Notifier provided explanatory information necessary for working out the Expert Report that was subsequently submitted to the Ministry of Health, which in turn send in its positive opinion dated 25/6/2018. Additional information did not yield any new facts that would influence assessment of the magnitude and significance of impacts on the environment and public health.

Impacts on the Atmosphere and Climate:

The air quality impact assessment is based on conclusions of the dispersion study concerning the construction and operation stages (RNDr. Tomáš Bartoš, Ph.D., October 2016).

Impacts on the atmosphere in the construction stage

According to the dispersion study, the process of on-site rough grading will be of greatest importance in solid pollutants, when secondary emissions of dust particles produced during rough grading activities and vehicles being moved on unpaved surfaces can be expected to have the dominant impact. As to annual averages of concentrations, the increase in concentrations in PM_{10} solid pollutants can be expected up by the imission limit value. In daily concentration maxima, the contributions from rough grading activities reach high levels above immission limits even in distant residential areas, where thus the increase up to 16 per year can be expected in the occurrence of daily concentration maximum overrun. The legal permissible number of overruns is 35 per year, this limit probably will not be exceeded in the nearest residential area. Average annual $PM_{2,5}$ fraction concentrations can be expected to be below the limit at the very site boundaries. With regard to such significant impacts on the solid pollutant immission load, preventive measures have been set out for elimination of dustiness during the proposed Project

construction that form part of Conditions of this Binding Statement. Further according to the dispersion study, nitrogen dioxide, benzene, and benzo(a)pyrene will be under limits both at the construction site and in the project-affected area.

Impacts on the atmosphere in the operation stage

According to the dispersion study, the Project does not comprise a combustion source, therefore it will not present a significant source of emissions of air pollutants. Within the NNS, only auxiliary stationary sources and an auxiliary boiler plant, and DGS securing the NNS operation, will be implemented, the impact of which in cumulation with the impact of NNS-related road traffic is described below. From the point of atmosphere, the NNS comprising 2 units was found to be the most unfavourable option. The impact of induced vehicle traffic was also assessed on a cumulative basis for each stage of the Project.

It can be stated that under the current conditions none of pollutants monitored in the affected territory has been observed to overrun legislative limits; yearly average concentrations have been found to show significant immission margins. In the prospective state, during the NNS operation period, only insignificant change in immission levels in the area can be expected, and the area can be regarded thenceforth as reliably under limits.

It follows from the dispersion study that in solid pollutants ($PM_{2,5}$ and PM_{10}), NO_2, benzene, and benzo(a)pyrene) their greatest calculated contribution to the average annual immission concentration due to the NNS operations will reach at the maximum 1 % immission limit. Maximum calculated NNS contributions to the NO_2 maximum hourly immission concentration will reach approx. the level of 3 % of the immission limits; as to the PM_{10} maximum daily concentration, it will be approx. 10 % of the immission limit. It is expected that even with contributions from the proposed Project, the maximum hourly/daily immission concentrations and average yearly concentrations of these pollutants will reliably stay inside the immision limits.

Impacts on Climate

According to the Documentation, in comparison with the existing EDU1–4 cooling tower system, the air temperature and air humidity values are higher, if the system is extended to new NNS cooling towers, particularly during the concurrence of the NNS and EDU1–4 operations. Maximum average air temperature increases are very low, having the order of magnitude at °C hundredth; in maximum daily air temperature increases, the differences are at the level of tenths of °C. The maximum differences in average air humidity increase reach the order of magnitude of 10^{-3} g/kg (order of magnitude 0.01 % to 0.1 % of usual specific humidity values) and the differences in maximum daily increase reach the order of magnitude of 10^{-2} g/kg (order of magnitude 0.1 % up to 1 % of usual specific humidity values). The insignificant difference in increases in these climatic characteristics follows from the generally low impact of the cooling tower steam plumes on ground values.

The calculated falling precipitation estimates have not proven any significant influence of the NNS. The liquid water, which sediments from the plume, will vaporize in the unsaturated conditions under the plume. Very small changes in temperature and humidity in high plumes are the fundamental reason for which even no increase in the frequency of occurrence of conditions suitable for formation of fog has been proven. During the cool weather season from October to March, flue liquid water from the cooling towers may lead to ice formation. The maximum liquid water deposition will occur during combined operations of the NNS and EDU1–4. The maximum

values are confined to the area in the very vicinity of the cooling towers and they drop steeply with the distance.

According to the Documentation, during the daytime when the Sun is above the skyline the visible plume can block the sunlight similarly to natural cloud formation, shading the Earth surface. This may contribute to shade rate, when Earth surface is not shaded by natural cloud formation. Besides the calculations for the whole year, vegetation season (warmer half of year, April to September) has been calculated separately. The calculations have confirmed that the steam plumes in the new cooling tower configuration will be more massive and will reach higher. The maximum shade rates in the prospective period of only the NNS in operation reach the levels similar to the existing operations, wherein the 10% increase in the shade rate is confined to the close surroundings of the cooling towers. The maximum values of the maximum rate then pertain to the configuration in the transient period of combined operations of the NNS and EDU1–4. The most significant characteristic of the vegetation season outputs is the drop in the extent of area with short time of shade in comparison with outputs from the round-year calculations. Maximum rates are higher than the round-year maxima at the same time with equal or even lower average values. It is because during summer, when the Sun is high above the skyline, the shade area concentrates closer to the cooling towers.

The NNS will not have any impact, which would be quantifiable and detectable using operational methods, on any extreme meteorological conditions of the site. In case of using smaller cooling towers, moderate increase in the impact on the ground temperature and humidity values can be expected in comparison with the EDU1-4 impact, but the differences are insignificant.

According to the Documentation, the nuclear energy in terms of power plant operations belong to almost zero emitters of greenhouse gases. Greenhouse gases are only emitted and only in low quantities during periodic tests of auxiliary equipment (such as stand-by diesel generators) and during the NNS unit outages (auxiliary boiler plant). Therefore, in comparison with e.g. fossil energy sources, the NNS has high potential for greenhouse gas emission reduction, therewith reducing contributions to climatic changes.

Vulnerability of the Project to climate change

The NNS is planned for a long-term operation. As it follows from the schedule presented in the Documentation, the NNS decommissioning is anticipated around year 2100. Thus in the course of this period the climate change effects cannot be ruled out. Therefore the analyses carried out within the Documentation relate both to the climate scenario ±0 °C (which presents the current state of climate) and to the climate scenario ±2 °C (which presents a conservative change of temperature as of year 2100 in comparison with the current state). This particularly relates to the NNS water take-off (see the Documentation B.II.2. Water), hydrological characteristics of the affected watercourses including the analysis concerning secured water supply for the NNS (see the Documentation C.II.4. Surface and Ground Waters) and impacts of the NNS on the water environment (Section C.II.4. Impacts on Surface and Ground Waters). Further, all natural impacts of the NNS site on the NNS Project have been considered, including considering potential climatic change. As it follows from the data presented in relevant sections of the Documentation, the Project represents a robust solution which is reliably resistant to potential climate change at the NNS site. This is taken care of in the very initial design, which will be resistant to potential climatic change at the NNS site, and in regularly updated safety

assessment of the NNS, which will consider actual impact of the climatic change at the NNS site based on real course of climatic indicators.

The Expert Report team associates with the above assessment of the impacts on the atmosphere and climate. Corresponding measures have been incorporated into conditions in this Binding Statement.

Impacts on Noise Situation and possibly Other Physical and Biological Characteristics:

The noise impact assessment is based on conclusions of measurements and noise analyses concerning the construction and operation stages (RNDr. Tomáš Bartoš, Ph.D., November 2016).

Impacts on the noise in the construction stage

According to the Documentation, the Project construction stage will be associated with intensive activity on the main construction site (main construction site, construction site installations, infrastructure network corridors) as well as with traffic of construction-related transports on public roads (transport of building and constructional materials as well as transport of workers). The noise impact of these activities is evaluated in the acoustic study, see Annex 5.2 to the Documentation.

The highest increases during the construction period can be expected on the approach route from Slavětice through Rouchovany, Rešice, Tulešice and Vémyslice with the highest value up to approx. 6 dB in Rouchovany, and further in the direction from Ivančice through Jamolice and Polánka (increase up to approx. 4 dB). These increases can only be expected for a limited period of time during concurrence of traffic induced by construction of 2 units at the same time (the calculation conservatively considered transports of raw materials for each unit in the span of 1.5 year, which means the potential concurrence period of 6 months considering the time shift in the second unit construction by 1 year). In the other stages, half or lower intensities, which would mean increases at least by 3 dB lower, can be anticipated. Considering the conservative traffic model, in which the possibility of overlapping raw material transports from possible alternative routes was taken into account, this increase in principle cannot take place in all the localities at the same time. In fact, a decrease in the number of affected route sections (when one particular supplier of material is selected) or a much lower impact of construction-related traffic as a result of raw material transports being divided among several suppliers from different directions can be expected.

The list of objects potentially affected above the limit in Ivančice, Náměšť nad Oslavou and Rouchovany residential developments will probably be extended in the construction period with some objects along other approach routes (Mohelno, Jamolice, Slavětice, Rešice, Neslovice, Moravské Bránice, Kralice, Valeč, Třesov, Kuroslepy and Březník). In consequence of the natural modernisation of the fleet, it is reasonably possible to expect that the hygiene limits for traffic noise will be met in a substantial number of localities. Among protected objects, at which noise will still reach above the limit during the daytime, residential development area of Ivančice, which is already under the current conditions exposed significantly above the limit, some further objects in villages of Rouchovany and Rešice and critically situated building object in Slavětice, i.e. land-registry number 50, which will be increasingly exposed particularly as a result of the NNS construction, can be included. Given a considerable uncertainty of the actual route selection, no concrete solutions in particular villages can be specified in detail at this Project stage, therefore, on the basis of this prediction, regular monitoring of noise in the most affected areas during the NNS construction is recommended. Based on results of such monitoring, it will be

possible to adopt concrete temporary measures for noise load reduction in the vicinity of the affected residential development.

In view of that no anti-noise measures in the noise propagation path (noise barriers) are possible in relevant urban areas of these villages, technical and organisational arrangements are recommended. They include adaptations of road surfaces giving preference to what-is-called quite road surface, in which case the noise can be expected to decrease by 2 - 3 dB during the road surface life span, possibly further measures that will be implemented directly at the building objects.

If it will not be possible to eliminate significantly the noise load increase through implementation of anti-noise measures, there is a mechanism provided in the Act No. 258/2000 Coll., § 31, on public health protection and amendments to some related regulations, as amended, in case that a noise source operator has no further possibility of decreasing noise level below the noise limits. The noise source operator can apply for a time-limited permission to be issued by the public health protection authority.

Employee and material transports during construction will be limited to only the daytime hours, with the exception of acoustically insignificant activities (such as transports of oversized or heavy components, and exceptionally works that have to be carried out ceaselessly for technological reasons). These activities with regard to their short-time character, will not influence the night-time noise load. Noise from transport on public roads in the course of construction is summarised in Table D.11 in the Documentation.

In the Documentation, for the purposes of elaboration of the Documentation, conservative assumption is made that all transports (100 %) of raw and constructional materials as necessary for the construction will take place on roads, however, rail transport noise impacts have been analysed as well. The transports of cement and lime using Uacs (capacity 52 t) wagons have been considered, potentially transports of gravel and sand using freight wagons of the same capacity. The maximum daily amount of materials then represents 17 wagons per day, potentially (gravel and sand transports) 87 wagons per day. The calculations clearly show that hygiene noise limits are not violated in the most affected protected external area of buildings in the surroundings of the railway siding track. This is given by more than sufficient distance between the siding and the protected area. In case that a larger amount of raw materials than the average daily demand would be transported, there is still a sufficient margin in terms of meeting hygiene limits.

As to the construction site, the most intensive stage in the rough grounding process is soil mining and soil transport to dumpings within the construction site installation area or main construction site. This activity will only take place in the daytime (6 a.m. to 10 p.m.). For resultant values of equivalent sound pressure level in the nearest or potentially most affected protected external areas of objects for the stage of rough grounding works, see Table D. 9 in the Documentation.

The results clearly show that hygienic noise exposure limits any time in the daytime from 6 a.m. to 10 p.m. in the most affected protected external area of the nearest residential development objects during the rough grading period will not be violated. Although grading and follow-up soil transportation in area C (area for placing electrical connections) and area D (area for placing water connections) are not expected to take place simultaneously with activities in areas A and B, a potential contribution of these activities in case of a theoretical concurrence with the most intensive rough grading stage has been assessed as well. The calculations further

show that for the most affected object in Slavětice in the closest vicinity of the switching station, carrying out the activities in area C alone represents an above-the-limit situation in relation to meeting hygienic limit for construction noise in the period from 6 a.m. to 7 a.m. (possibly from 9 a.m. to 10 p.m.). Therefore, the activities in this area in the vicinity of Slavětice needs to be limited to the period only from 7 a.m. to 9 a.m. Thus in case of concurrence of the activities and the activities in areas A and B, hygienic limit 65 dB for construction noise will be met. Regarding area D, in view of the considerable distance from the protected areas, the anticipated contribution from the point of view of total acoustic pressure level is of lower significance and as such does not represent a limiting factor in employing construction machinery in area D simultaneously with activities taking place in areas A and B any time during the daytime (6 a.m. to 10 p.m.).

The period of erection works will be more favourable in terms of noise impacts in comparison with the rough grounding period and hygienic noise exposure limits any time during the day from 6 a.m. to 10 p.m. in the nearest or possibly the most affected protected external area of buildings in the surrounding municipalities will not be violated.

In the night-time in this stage only those construction activities are considered that have to be carried out continuously for technological reasons such as concreting and associated on-site transports. Considering the noise levels reached at the nearest protected objects at the time of full use of machinery (max. 47.2 dB), it can be reliably assumed that the construction noise exposure limit for the night-time (10 p.m. to 6 a.m.), which is $L_{Aeq,T}$ = 55 dB, will be reliably observed.

Noise impacts in the operation stage

The NNS operation noise impact is evaluated in the acoustic study (RNDr. Tomáš Bartoš, Ph.D., November 2016). In all calculations for the prospective situation, the maximum operating power is considered, i.e. the maximum concurrence of all technological equipment at the NNS site as well. The calculation further considers the Slavětice switching station operations after its intended extension and on-site transport (including on-site EDU 1–4 transport) that satisfy a stationary source definition.

Equivalent sound pressure level values, presented in the Documentation in the prospective situation and for the most unfavourable case of the NNS having two units, in the most affected protected external areas or external areas of buildings in Table D.6 in the Documentation. The EDU1–4 operation noise is not considered in calculations for this operation state as all the technological equipment emitting significant noise to the surroundings will no longer be in operation. In the prospective situation with the NNS having two units with 4 cooling towers, in the most affected protected external area and in protected external area of building in the nearest residential development, daytime and night-time noise exposure limits can be expected to be met, even if in combination with noise from the extended Slavětice switching station. According to model calculations, hygienic limits will not be violated even in case of alternative layout or change in elevation of the acoustically dominant cooling towers. For the temporary state of concurrence of the EDU1–4 power plant operation and the operation of the one-unit NNS with 2 cooling towers, it was confirmed by calculations that hygienic limits in the daytime as well as in the night-time will be met as it follows from Table D.7 of the Documentation. It further follows from the section D.I.3.1.1. of the Documentation that from the acoustic point of view the operation of NNS 2 units in relation to the nearest or the most affected protected external area

(Slavětice) less favourable than the operations of NNS 1 unit and EDU1-4. For the purpose of assessment, decisive is the operation of NNS 2 units (without EDU1-4 operation).

The NNS operation (similarly to the existing EDU1–4) comprises abnormal operational conditions that can include tests or anticipated responses of relief valves, steam generators, steam dump stations to atmosphere, relief valves of pressure reducing stations and diesel-generator stations. This equipment does not take action under normal operation, only in periodical tests and absolutely exceptionally under abnormal operation conditions. Considering the distance of the residential buildings and very short test times, the measurements carried out during the tests of this equipment at EDU1-4 imply no significant disturbing impacts on or hazards to health of population in the surrounding villages. A similar situation can be expected in testing the NNS equipment.

The levels of noise produced by motor transport have been assessed both for the current situation and, using conservative assumptions, for all crucial NNS implementation stages (such as the concurrence of construction of both units of the NNS 2 and the EDU1–4 operation as well as the concurrence of the NNS 2-unit operation and EDU1–4 decommissioning), which will remain important for a certain period of time after EDU1–4 decommissioning.

The noise produced by traffic on public roads will be connected with the traffic contribution of the Project to the background intensities of road transport on transport routes that form the main access road to the Dukovany site (particularly on road II/152).

Based on calculations of motor transport noise it can be stated that in the majority of villages under assessment in all the calculation scenarios, the basic noise exposure limit is violated, both during the daytime and the night-time (60/50 dB for class II roads and 55/45 dB for class III roads). As this situation in most cases existed before 1st January 2001, it was possible, subject to meeting legal conditions, to apply the provision of hygienic noise exposure limit at the level of 70/60 dB. However, even if the old noise load institute is considered, the above-limit impact can be expected in the most affected residential areas in some municipalities.

In the current situation, the impact is above the limit in localities with a considerable traffic intensity in the near vicinity of protected objects (Ivančice, Náměšť nad Oslavou, Dolní Kounice, Pohořelice, Moravské Bránice and Neslovice), furthermore at some objects, at which the old noise loads could not be applied (Rouchovany), or at the critical object in the village Slavětice where the affected protected object is considerably close to the road.

After the NNS Project implementation, it can be assumed that noise levels will increase as compared with the current situation. The highest increases due to NNS operation can be expected on the main approach route from Třebíč in the village Slavětice (increase by approx. 0.8 dB during the daytime and approx. 1.2 dB during the night-time), and further in villages Dalešice and Valeč. From the opposite direction, the highest increase is expected in the village Jamolice (increase by approx. 0.6 dB during the daytime and approx. 0.9 dB during the night-time), and similar values in the village Polánka. In the other sections, the Project-related transport demands get distributed over broader part of road network and the increase in noise values can be regarded as insignificant. The list of objects potentially affected above the limit in Ivančice, Náměšť nad Oslavou and Neslovice residential developments will probably be extended in the prospective situation with some objects along other approach routes (villages Hrotovice, Mohelno, Jamolice, Slavětice, Valeč and Březník). In consequence of the natural modernisation of the fleet, it is reasonably possible to expect that in future the hygiene limits for traffic noise will be met in a substantial number of localities. Among protected objects, at which noise will

still reach above the limit, residential development area of Ivančice, some further objects in Náměšti nad Oslavou or critically situated building object in Slavětice, i.e. land-registry number 50, can be included. Concerning these objects, the above-limit situation already existed before 1st January 2001, therefore it is attributable to the direct impact of implementation of the Project under assessment. Based on these facts, it is recommended to monitor noise levels in the most affected areas during the NNS operation and based on the noise level assessment take measures reducing the noise load in the area monitored.

As anti-noise measures in the noise propagation path (noise barriers) in the urban areas of these villages are not possible to implement, it is recommended to adopt technical and organisational arrangements, e.g. decrease the speed-limit for passing vehicles, which can be an effective regulatory provision leading to a considerable decrease of traffic noise emissions, therefore also the resultant sound pressure level in the protected external area of the affected objects.

Based on these facts, it is recommended to monitor noise levels in the most affected areas during the NNS operation and based on the noise level assessment take measures reducing the noise load in the area monitored.

Vibration Impacts

According to the Documentation, vibration impacts will not be significant and will not significantly vary from the existing realisably satisfactory state. In relation to vibrations, no conditions need to be determined in this Binding Statement.

Impacts on other physical and biological characteristics

Considering the NNS source term, as inputs the maximum envelope values of discharges for each radionuclide type as specified by suppliers of reference units have been used. For practical reasons (considering power concurrency), the envelope discharges from the NNS determined separately for power alternative up to 2x1200 MW_e and up to 1x1750 MW_e.

It follows from the assessment of radiation impact of the NNS operation in the Documentation (Ing. Petr Vymazal, February 2017) that it applies to the Dukovany site in general that impacts of discharges into the atmosphere are significantly lower than impacts of liquid effluents to watercourses. The NNS discharges (in combination with EDU1–4 effect) to water courses lead under average flow rate conditions in the Jihlava river in the profile downstream the Mohelno WR (3.0 - 3.7 m^3/s) to maximum yearly individual effective dose (IED) including dose load of a representative person at the level of approx. 14 to22 μSv per year (depending on considered envelope power alternative). Discharges into the atmosphere lead to yearly IED for a representative person the most exposed to air discharges to significantly lower IED (7 to 13 μSv per year), even in considering a possible transfer of portion of liquid effluents, which were conservatively increased by total liquid discharge from the NNS in all power alternatives.

Maximum potential impacts have been established for a representative person living in sectors along the Jihlava river, between the Mohelno WR and the confluence of the Oslava and Jihlava rivers at Ivančice.

It can be stated in general, that the NNS power alternative 2 x 1200 MW_e represents in terms of individual and collective doses an envelope for all other power alternative with exception of assessment of radiation impacts on biotic component of the Environment (see below). For this

power alternative as well as for all the other power alternatives, however, dose optimization limits set out in the Atomic Act are not reached. This applies to exposure to liquid discharges as well, where dose optimization limit is fixed at the level of yearly effective dose of 0.05 mSv, i.e. 50 μSv. In discharges to the atmosphere, there are considerable margins in reaching the limit established at 0.2 mSv, i.e. 200 μSv per year, even in considering a possible transfer of all discharges from the NNS to the atmosphere.

Radiological impacts on population in surrounding countries of the NNS operation in combination with EDU1–4 operation are very low, reaching the maximum yearly individual effective dose approx. 1 μSv and do not require implementation of any further mitigation measures.

The assessment of radiation impacts on the biotic component of the Environment show that the most exposed biological group in the NNS surroundings as a result of the NNS operation in combination with the EDU1-4 operation or commissioning is aquatic animals (reference species is trout), possibly further animals that live in water such as ducks and frogs. These animals live downstream the Mohelno WR in the Jihlava river or its closest surroundings. The most exposed animal is trout, in considering the power alternative NNS 1 x 1750 MW_e in combination with the EDU2-4 operation and EDU1 decommissioning. The trout dose rate as a result of discharges to watercourses is at the level of 2 μGy per day. This is approx. 500 to 1000 times lower dose rate value than the reference value derived in accordance with the relevant guide of the International Atomic Energy Agency (IAEA).

Concerning the radiation impact on surface waters, the NNS in combination with EDU1–4 will meet the environmental standard quality (yearly averages) of the radioactivity indicators pursuant to Governmental Order No. 401/2015 Coll. also in maximum envelope discharges (waste water with content of radioactive substances), even in minimum flow rates in the Jihlava river and without taking into account any technical measures for reduction of liquid discharges of H-3 (tritium). In spite of this a Binding Statement condition has been set out for minimization of risk associated with radiation impacts.

Impacts of non-ionizing radiation (i.e. magnetic or electric field in the surroundings of electrical installations) will not be significant and will meet the required limit. This limit is set out in Governmental Order No. 291/2015 Coll., on health protection against non-ionizing radiation, which for the other individuals (i.e. the public anywhere in freely accessible space) and frequency 50 Hz (frequency in the electrical grid of the Czech Republic) prescribes the highest permissible value of intensity of electric field induced in tissue at level of E_{mod} (t) = 0.2 V/m. This value cannot be exceeded at any time.

The NNS site illumination design will reflect up-to-date lighting technologies available and in the manner limiting light pollution in the night sky and surrounding landscape. However, for reasons of physical protection of the site, it is necessary to maintain a certain level of illumination of the site. For the site illumination, directional lights that will limit radiation into not necessary directions (such as in the sky direction) will be used. It is possible to assume that in spite of adoption of these measures the NNS site will be distinctly visible in the night, particularly under the foggy weather conditions. However, this impact will be minimized by optimized NNS site illumination design.

The Expert Report team associates with the conclusions presented in the Documentation at the level of existing available technical solution, respecting the Conditions of the Binding

Statement, of the proposed Project under assessment of the impacts on the environment and public health.

Impacts on Surface and Ground Waters:

It follows from the assessment of impacts on surface and ground waters (T. G. Masaryk Water Research Institute, Mgr. Pavel Rosendorf, April 2017) as mentioned below. From the point of view of assessment of guaranteed water supply and minimum residual flow rates it follows from the results of water management model that both the requirements for the NNS supply and for the minimum residual flow rates of 1.2 m^3/s downstream the Mohelno Water Reservoir have been met on a fail safe basis taking into account concurrent demand of all other water users (consumers) within the river basin of interest for all simulated power output alternatives under assessment. From the point of view of the NNS Project impact on the surface water quality – non-radiation indicator including the time period of synchronous operations of the NNS and the existing EDU 1–4, the water quality was assessed based on indicators specified in the current decision on waste water discharge from EDU 1–4 and further selected additional indicators being of concern in the Jihlava river basin or might be affected in future by operation of the NNS. Further in this study the NNS impact was assessed on water bodies as follows: DYJ_0935_J - the Dalešice Water Reservoir at the Jihlava river and DYJ_0945_J - Mohelno WR at the Jihlava river pursuant to Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy. In radiation situation indicators, undissolved substances, sulphates, calcium and ammonia nitrogen, BSK_5, sulphates, chlorides and ammonia nitrogen, the admissible contamination limits should not be exceeded in any year and any power output alternative under assessment, both without taking into account climatic change and considering 2 °C warmup or, as the case may be, the good state target values are not exceeded in any year of simulated time series in power output alternatives and in addition the majority of simulated values are far below the target value between the good and medium states.

In the NNS power output alternatives, the target values of admissible contamination are allowed to be exceeded exceptionally only for the indicator COD_{Cr}. It is due to the fact that COD_{Cr} values monitored upstream the Dalešice Water Reservoir in the Jihlava–Vladislav profile and downstream in the Jihlava–Vladislav profile commonly fluctuate above the value of admissible contamination and they do not decrease significantly even in passing through the Dalešice–Mohelno WR. The nitrate-nitrogen and total nitrogen may exceed admissible values in all simulated power output alternatives. This exceeding of admissible values is caused by significant contribution of nitrogenous substances from the river basin upstream the Dalešice Water Reservoir (values reach their limit levels already), by transformation in the Dalešice Reservoir, and further – to a smaller extent – by thickening of waste waters in the operations of NNS and EDU 1–4. Total phosphorus is another indicator that may exceed the target values of admissible contamination and impact on water bodies; it originates mainly from municipal waste water discharges upstream the Jihlava river. The target values of maximum pH can only be exceeded in isolated cases in waterbody DYJ_0945_J Mohelno Reservoir. In the Jihlava-Mohelno Downstream profile, which is assessed according to type reference values of the Jihlava–Řeznovice representative sampling point, considering the 2×1,200 MW power output configuration the target values of good status for nitrate nitrogen may be exceeded permanently and for pH and water temperature in isolated cases. The overrun occurs especially in years with very low flow rates when dilution and cooling of waste waters may not be sufficient. This alternative differs from the current status of NPP DU 1–4 operation because of exceeding the

water temperature. The target values of pH as well as of water temperature may exceed more frequently in case of simulations of the synchronous operation of NPP DU 1–4 and NNS and even the total phosphorus begins to be exceeded scarcely. Minimum pH values do not fall short for any of the alternatives and it is obvious therefore that failing to meet the good environmental status is connected rather with symptoms of subsequent eutrophication that accompany the growth of maximum pH values in watercourses.

From the point of view of the NNS Project impact on the surface water quality – radiation indicators – the most significant impact of NNS is forecast in tritium volumetric activities, although the established values do not exceed legislative requirements on surface water for any of the simulated power output alternatives and climatic scenarios. In the other indicators, the quantities produced by NNS have been found low and far below legislation requirements in the majority of power output alternatives.

The impact of NNS on the status/potential of surface water bodies at the Jihlava River from the Mohelno Water Reservoir to the Nové Mlýny Water Reservoir II is negligible or suppressed as the case may be by inflows from other tributaries, because the water quality is influenced by a number of other factors besides the NNS operation.

In the boundary profile of Morava – Moravský Svatý Ján, in which the volume of tritium leaving the CR is monitored, the target values according to the Governmental Order No. 401/2015 Coll. are not exceeded in any of the computation alternatives.

According to the Documentation, Section D.I.4.2 Impacts on Ground Waters, in connection with the Project construction and as a result of local anthropogenic changes of land in consequence of rough grading, new preferential paths of flow of ground waters will be formed, entailing possible changes in outflow. As a result of rough grounding of land, the groundwater level will decline as compared with the former. Considering the type of hydrogeological structure of the territory, the Project cannot interfere with or influence the hydrogeological conditions in broader surroundings of the NNS site. The NNS impact has been assessed considering the groundwater bodies listed in the Documentation, Section C.II.4.2. Ground waters. For the purpose of assessment of the chemical status, those subjects of monitoring or groundwater take-off points have been selected that are situated within the radius of 500 m from the Jihlava river, where infiltration of surface water into groundwater can be expected (four CHMI groundwater quality monitoring boreholes and six groundwater extraction points in total for human consumption, of which five have data on quality). The groundwater quality might be potentially negatively influenced by infiltration of contaminated surface waters into ground waters. According to modelling alternative NNS/EDU1–4 power output configurations, the status does not degrade in any of assessed objects/bareholes; on the contrary, the status improved in a few cases owing to lower concentration in surface waters – but this represents a hypothetical situation, in which supply of contaminants from planar sources of contamination in the catchment downstream the Mohelno WR would not take place. At present, no significant impact is known in connection with EDU1-4 on groundwater quality state and none is expected to occur in connection with NNS. Alike no NNS impact is anticipated on quantitative status of groundwater bodies. The NNS impacts will not cause degradation of the status of affected groundwater bodies.

There are no protected areas of natural accumulation of ground waters or sources of surface or ground waters in the territory involved that could be disturbed by the Intent realisation.

The Expert Report team associates with the above assessment of the impacts on the surface and ground waters, asking the Notifier in relation to working out the Expert Report pursuant to

§ 9 Section 6 of the Act to produce additional materials concerning the issues of service water supply for nuclear installations at the Dukovany Site, and corresponding measures based on these explanatory materials have been incorporated in the form of this Binding Statement Conditions.

Impacts on Soil:

The permanent occupation for the purpose of the NNS site (placing the power plant units in area A, including connected infrastructure) according to the Documentation, Section D.I.5.1. Impacts on Soil, considered to the extent of approx. 88 ha, permanent occupation for other purposes of the NNS Project (areas C and D), i.e. elevated components of electrical connections and elevated components of water management connections, will not exceed the area of approx. 13 ha. The extent of permanent occupation will be 101 ha in total. No permanent occupation is required in area B (construction site installations). The Project will mostly be implemented on the Agricultural Land Fund (ZPF) land under protection of categories I, II, III and V, i.e. on land classified in the given region mostly as of above-average, average and under average land capability. At the NNS site (area A), 5 types of Evaluated Soil Ecological Units (BPEJ) is registered (4.10.00 - Protection Class I, 4.12.00 - Protection Class II, 4.26.01 and 4.29.01 - Protection Class III, 4.37.15 - Protection Class V). The major occupation is expected on Protection Class II soils and it is approx. 58 % of the total extent of occupation, next Protection Class II soils take 27 % of the total extent of occupation, 10 % are Protection Class III soils, and approx. 5 % are Protection Class V soils. In area D (area intended for water system connection), land determined to be forest land will be affected to the extent of 5 ha. This land will be under permanent restraint (pipeline corridors, including protection zone) to the extent of approx. 3 ha, permanent alienation of approx. 2 ha (for placing a pumping station of raw water). There is a requirement set out for removal of overburden and its dumping in earth-deposits for later recultivation purposes. In general it is possible to assume that the NNS implementation will require removal of 670,000 m^3 of cultivated soil layers, of which 450,000 m^3 will be topsoil and 220,000 m^3 will be under-topsoil. After the construction completion, the original soil profile will be restored on land of temporary occupation, the land will be recultivated and restored to its original use. The excess topsoil and under-topsoil will remain deposited after the construction completion in the east part of area B (construction site installations) having 1 m in thickness. The anticipated amount is up to 480,000 m^3. The impact is regarded as significant in respect of occupation of Agricultural Land Fund land, but acceptable having taken into consideration strategic documents concerning the nuclear energy. The occupation is justified by compliance of the Project with the planning permission documentation.

The Expert Report team associates with the above assessment of the impacts on soil. Corresponding measures have been incorporated into conditions in this Binding Statement.

Impacts on Natural Resources:

The Project is not in spatial conflict with any protected deposit area or existing mining space.

The Project implementation will influence geomorphological conditions only at the NNS site. The influence of the Project implementation on rock environment is merely insignificant. No geological or palaeontological heritage will be affected by the Project. The rock environment and subsoil will be influenced during construction by rough grading, excavations and footing bottoms, followed by making foundations for building objects. This influence on the rock environment is evaluated as insignificant.

The Expert Report team associates with the above assessment of the impacts on natural resources.

Impacts on biological diversity (fauna, flora, ecosystems, SCI):

The biological assessment (RNDr. Vlastimil Kostkan, Ph.D., May 2017) and analyses of further available information have shown that the NNS project preparation, construction and operation do not present irreversible loss of any of the nature conservation interests, wherein mostly moderately adverse or insignificant impacts have been identified. The construction and operation of the NNS will not lead to extinction of significant landscape elements and will not disturb the structure and functionality in the system of ecological stability. No noteworthy trees will be necessary to fell. There will be no loss of or significantly negative damage to any special protection area, regional extinction of specially protected species of flora or fauna. Similarly, in relatively rare species that are not included in the lists of specially protected species (usually this concerns species listed in Red Lists), there will be no regional loss of any population. Some populations may be temporarily affected (especially by construction), therefore emphasis is put on measures of prevention, elimination or minimization of impacts particularly in the said stage.

The effects of tritium that could cause DNA damages to the tested representatives of water organisms were proven from the dose rate of 0.29 mGy per day according to most of the quoted studies, which corresponds to the tritium volumetric activity of approximately 0.37 MBq/l (370,000 Bq/l). The newest studies investigating the impact of tritium water on fresh water fish used tritium volumetric activity up to 0.1 MBq/l (100,000 Bq/l). No harmful effects of tritium were registered at this level of activity on water organisms (fresh water fish). This confirms with sufficient margin the correctness of legislative requirement (EQS-AA) concerning tritium content in surface water at 1,000 Bq/l (0.001 MBq/l) defining the tritium content that would not jeopardize water ecosystems. Average annual volumetric activities of tritium in surface water forecast for the NNS operation (eventually for synchronous operation with EDU 1–4) do not exceed EQS-AA 1,000 kBq/l according to GR No. 401/2015 Coll. Therefore, it is obvious that tritium volumetric activity that might provoke DNA changes of water organisms, are much higher than the tritium volumetric activity conservatively forecast for the operation of NNS (or even for the synchronous operation of NNS and EDU 1–4).

The Natura assessment (RNDr. Vlastimil Kostkan, Ph.D., April 2017) has shown that the NNS construction project under assessment is located outside any Natura 2000 site, even outside the closest SCI CZ0614134 - Jihlava Valley. During construction work, there will be no direct interference with the biotopes in SCI CZ0614134 – Jihlava Valley; however, there may be locally, in the border area of the SCI and development area D, some air pollution due to dust particles. The risks associated with failure to comply with technological discipline (interference of building machinery beyond the defined area of interest, dust from the construction site) can be easily avoided by ensuring biological surveillance at the construction site during construction and by making sure that construction machinery does not leave the border area between the SCI and the development area. Any microclimate change influence, including influence of potential shading of thermophilic populations by steam plume, and cumulative impacts on SCI CZ0614134 - Jihlava Valley, have been ruled out based on modelling of these phenomena. Impacts on biotopes of water plants in the Jihlava River, which are the subject of protection in SCI CZ0614134 - Jihlava Valley, cannot be expected. The most important factor affecting the condition of these biotopes is the presence of the Mohelno WR (and the entire Mohelno – Dalešice Water Reservoir System). Their management controls the flow rate and temperature of water so much that in light of them, the impacts of EDU1-4 and the NNS are minor and not measurable. The construction and operation of the assessed project will not therefore have any significant negative impact on any subject of protection and will not compromise integrity of any Natura 2000 site. Some impacts may have a minor negative impact on the subjects of protection (-1)

in SCI CZ0614134 – Jihlava Valley and SCI CZ0623819 – Rokytná River. In SCI CZ0623819 – Rokytná River, the impact is very low (rather on hypothetical level) and may only occur in case of accident. This impact can be eliminated by dams and reservoirs in the Olešná catchment and by measures proposed in the form of retention tanks below the construction site and the NNS buildings to trap any potential emergency more than 8 km upstream the Olešná river before it enters the Rokytná river. Change of insolation in SCI CZ0614134 - Jihlava Valley cannot be mitigated by any other measure but given the expected change of climate, the receipt of the total amount of energy will not decline anyway. Shading cannot even compensate increase in incident solar energy in the territory, as follows from the results of the already ongoing measurements. In spite of the impacts of steam plume from EDU1-4, the total annual incident solar energy has been continuously growing over the last four decades.

The proposed NNS construction and operation will be implemented in the territory, in which agroecosystems of low biodiversity predominate. Other types of ecosystems will be affected merely to a minimum extent, wherein these other ecosystems will not be occupied permanently, they will only be partially modified, on top of that in the manner not affecting significantly their biodiversity. The Project will not lead to reduced ecosystem services, loss or degradation of natural sites, loss of biodiversity or loss of genetic diversity. The impact of the Project thus will not lead to reduced biological diversity of the affected area.

The Expert Report team associates with the above assessment of the impacts on biodiversity, even in view of requested additional document pursuant to § 9 Section 6 of the Act from the Notifier with the aim to clarify some inaccuracies in the presented Documentation, which were found formal and as such cannot influence conclusions of the environmental and public health impact assessment. The conditions arising from the Natura assessment were formulated in the Expert Report for the purpose of Binding Statement in the manner allowing understanding that they are well-founded and require that the Notifier will observe these conditions during the preparation and implementation of the Project, possibly in the form of operational measures.

Impacts on Landscape and its ecological functions:

The Face of Landscape Impact Assessment and Impacts of Shading the NNS Surroundings (Centrum pro krajinu s.r.o., prof. Ing. Petr Sklenička, CSc., 2016) consist in identification of changes in the Project influence, wherein the existing EDU 1–4 is real at the time of assessment and as such has to be considered in assessing the affected landscape. To this intent the affected landscape area can at present be considered as significantly affected by the EDU 1–4 visual expressions and these impacts can be classified as strong (in zones of perceptible visibility and strong visibility). The expert study further evaluated the Project in terms of conservation of the face of landscape as acceptable for all implementation alternatives. From the point of view of shading of the surroundings by the existing and proposed new building objects at the EDU 1–4 site and by operation of the existing and proposed cooling towers, impacts on residential settlements in the NNS surroundings and on Natura 2000 sites have been assessed for each computation alternative. The assessment results can be summarised as follows. Building objects will be of lesser influence on the NNS surroundings in terms of shading (shading time shorter by approx. 1 order) than steam rising from cooling towers. The contribution to the shading of the surroundings by building objects therefore cannot have a significant effect compared to the total shading time. In either power configuration, the scenario with two cooling towers per unit is less favourable in terms of shading the NNS surroundings by cooling towers. A potential change and

the total time of shading of residential communities caused by the construction objects even in case of the most unfavourable scenario for layout of the new NNS objects will be insignificant (a change on the order of hours per year and at most approx. 20 minutes per day). The project impact in the form of shading surrounding residences by steam plumes from the cooling towers will be insignificant up to very significant depending on the locality and power configuration. The impact on Slavětice will be of greatest significance and that on Rouchovany will be of little significance. A larger shading caused by steam plume will result from the high power alternative. SEI CZ0614134 – Jihlava Valley and CZ0622226 – Velký kopec (Big Hill) will be the ones of Natura 2000 sites that will be most shaded by the existing as well as the proposed building objects. Shading up to approx. 10 hours per year can be locally expected in the areas of the greatest impact on SEI Jihlava Valley during the vegetation period. Steam plumes rising from the cooling towers of the new nuclear power source can locally increase the time of shading of the natural localities (SEI Jihlava Valley the most) up to approx. double (an increase from the existing value at most 19 hours up to the total value of 39 hours during the vegetation period during the concurrent operation of EDU 1-4 or EDU 2-4 and NNS). It can be stated based on the assessment that the shade time increase considering the impact on the affected area is acceptable, as the total annual incident solar energy has been continuously growing over the last four decades.

In general, the Project in the given place can be characterised as having a considerably extensive visually affected area (up to 340 km^2), in the landscape mostly with average but also decreased (in the zones of perceptible and strong visibility) and here and there increased (in the zones of poor visibility) aesthetic values. General impacts on the face of landscape after the implementation of the Project (taking into account joint impacts of EDU1–4 and NNS) are assessed as strong up to absolute. The general impact after the implementation of the Project taking into account only NNS (after physical removal of EDU1–4 building objects) is assessed as strong. The harmonic scale and relations are already significantly disturbed in zones of perceptible and strong visibility. In areas under special scientific protection, in view of the present state, perception intensity and subject to protection, the impact can be assessed as none, week or medium strong (in zones of perceptible visibility), the Project impact will lead to week up to medium strong influence on significant landscape features, the Project impact will lead as a maximum to medium strong influence disturbance of the face of landscape particularly in natural parks of Střední Pojihlaví, Rokytná and Oslava, and in the natural parks as a maximum to weak disturbance of the face of landscape. The anticipated impact on cultural dominant features in the landscape has been assessed as medium strong (in zones of perceptible visibility and strong visibility), or none or weak (in zones of medium strong visibility and poor visibility). From the point of view of conservation of the face of landscape, the Project in the given location is acceptable in all assessed alternatives of the topical implementation configuration.

The Expert Report team associates with the above summary and regards as purposeful to examine the possibility of shielding optically the NNS site using greenery at some advanced horizons.

Impacts on tangible assets, cultural heritage, including architectural and archaeological aspects:

The Project will not have any direct impact on tangible assets (preserved chapels of the extinct villages of Skryje, Lipňany and Heřmanice) or interests of heritage conservation, further

it does not represent any impact on local or regional cultural traditions, including architectural and archaeological aspects, nor it has impact on other cultural values of non-tangible nature.

The Project affects roads owned by municipalities and regions though, particularly at the time of construction, when mainly construction material will need to be transported to the construction site. All the roads, on which the motor transport related to the NNS construction and operation will take place, have sufficient capacity and will be adequately adapted for the intended traffic.

The highest percentage increase in load of the road network during NNS construction is assumed in the vicinity of construction on road no. II/152. On this route (access roads to EDU from the west and east directions) due to traffic induced by construction, increase in the traffic intensity up to approx. 650 heavy-duty vehicles and approx. 1,850 cars per day is assumed. Regarding relatively low background intensity on road ll/152, these represent relatively high percentage increases (more than 60 % in passenger transport and more than 100 % in freight transport). The data are very conservative as in particular commodities distribution of transports over different directions is not considered, i.e. 100 % traffic load is considered in each potential route. For this reason they are limitary maximum values.

According to the Documentation, the impact of the total traffic load after increase in transport intensity on the most affected roads during the Project operation can be regarded from the traffic point of view as of relatively little significance.

As far as railway transport is concerned, impact of use of railway transport can be identified as insignificant, the site railway connection has a capacity reserve that is more than sufficient. Impacts on other transport infrastructure (airlines, cycling, etc.) in the affected territory are practically ruled out.

The Expert Report team associates with the above conclusions and sets out relevant conditions for minimization of the Project impact on the road network in this Binding Statement.

Radiation impacts:

The radiation impacts on the environment and public health have been duly assessed in the Documentation both for the stage of construction and the stage of operation. The dose optimization limit is reliably met for the NNS site, surrounding villages, and the NNS construction workers. The radiation impacts on the environment and public health are insignificant and far below the IAEA reference values for all the power configurations. Considering concurrent impacts of all other nuclear as well as non-nuclear installations at the site and the environmental background, taking into account proposed elimination and mitigation measures, do not exceed acceptable levels. Maximum potential impacts of the operations have been established for a representative person living in sectors along the Jihlava river, between the Mohelno WR and the confluence of the Oslava and Jihlava rivers at Ivančice. In terms of individual effective doses, an envelope is represented by power configuration of NNS 2 x 1,200 MW_e in combination with the effects of decommissioning of the existing NNP. For this power configuration as well as for all the other power configurations, dose optimization limits set out in the Atomic Act are not reached. This applies both to liquid effluents, where the dose optimisation limit is established as the individual effective dose at the level of 50 μSv per year, and discharges to the atmosphere, where the dose optimisation limit is established at 200 μSv per year.

Regarding average flow rates in the Jihlava river and envelope maximum yearly discharges from the NNS, the yearly individual effective dose of a representative person will be 23.4 μSv

(of which 22.0 μSv attributable to discharges to watercourses and 1.4 μSv to early discharges to the atmosphere). Regarding extremely low flow rates in the Jihlava river (year-round at the level of minimum permissible residual flow rate) and envelope maximum yearly discharges from the NNS, the yearly individual effective dose of a representative person will be at the level of 37.3 μSv (of which 35.9 μSv attributable to discharges to watercourses and 1.4 μSv to yearly discharges to the atmosphere).

Radiological impacts on population in the nearest surrounding countries, through which flows the watercourse (the Morava river) affected by discharges, reach in the said envelope scenario in considering average flow rates the yearly individual effective dose of 1.7 μSv (Austria), 1.6 μSv (Slovakia) and in more distant countries without the watercourse affected by discharges (Germany, Poland) less than 0.05 μSv.

Radiation emergencies:

In terms of radiological impacts of radiation emergencies, both design basis accidents involving partial damage to fuel cladding and severe accidents with core melting have been analysed. Acceptance criteria in this case are based on SÚJB criteria and WENRA recommendations, which are defined as follows: In design basis accidents as well as design extension conditions not involving core melting, none or merely small radiological impacts, i.e. no measures will be necessary to implement for protection of population in the NNS surroundings and none or only small, space- and time-limited restrictions on food and agricultural product will be required. In severe accidents (design extension conditions involving core melting), the need is ruled out for evacuation at a distance over approximately 3 km, the need is ruled out for sheltering and iodine prophylaxis at a distance of more than approximately 5 km, agricultural production at a distance over approximately 5 km will be suitable for consumption one year after a radiation accident and no permanent relocation anywhere outside the power plant site.

The said criteria are fulfilled. None of analysed accidents leads to a radionuclide leak which would require evacuation of residents anywhere in the NNS surroundings. In sever accidents, to a high degree of certainty (95 %) the need is ruled out for sheltering and iodine prophylaxis at distances over approximately 5 km from the NNS. Based on results of the analyses it can be assumed that there will be no need for considering permanent relocation anywhere in the NNS surroundings and this measure can be ruled out in 95% likelihood within the radius of 3 km of the NNS. Restrictions on food consumption and sale of agricultural product will be time-limited to 1 year as a maximum and will be space-limited. Restrictions on sale of agricultural product will not exceed 100 thousand tons.

Average yearly individual effective doses not considering ingestion in the first year following the accident at the distance of 1 km from the point of leak reach 21 mSv, at the distance of 3 km from the point of leak 11 mSv and decreases with the distance. Considering ingestion (consumption of local food production) and applying average adult consumption basket in the Czech Republic, the yearly individual effective dose in the first year following the accident at the distance of 1 km from the point of leak reach 28 mSv, at the distance of 3 km from the point of leak 15 mSv and decreases with the distance. These are doses that do not present health hazards to population.

Transboundary influences and impacts in terms of dose will be low. The maximum yearly doses for population abroad in considering ingestion of contaminated food and considering national consumption basket will not exceed 1.8 mSv in 95% likelihood in the first year and not

considering ingestion 0.7 mSv. It follows from the probabilistic analyses of impacts of severe accident on surrounding countries:

Austria (30 km): Average individual effective doses in 2 days are at the level of 0.26 mSv (95% quantile 0.54 mSv) as a maximum. Average yearly individual effective dose without ingestion is 0.45 mSv (95% quantile 0.86 mSv). Average yearly individual effective dose with ingestion in the territory of Austria will reach as a maximum 0.7 mSv (95% quantile 1.8 mSv). In 50% likelihood there will be no need in the territory of Austria for restriction on any agricultural product with exception of 30 tons of milk. The quantity follows from applying EU rules for putting constraints on placing contaminated products on the market in EU member states pursuant to Euratom Directive 2016/52.

Slovakia (75 km): Average effective doses in 2 days are at the level of 44 mSv (95% quantile 0.12 mSv) as a maximum, average yearly individual effective dose without ingestion is 0.08 mSv (95% quantile 0.2 mSv). Average yearly individual effective dose with ingestion is 0.14 mSv (95% quantile 0.44 mSv). In the territory of Slovakia, limits for putting constraints on placing contaminated commodities/food on the market will not be exceeded.

Poland (>110 km): Average individual effective doses in 2 days are at the level of 0.6 mSv (95% quantile 5.3 mSv) as a maximum, average yearly individual effective dose without ingestion is 1.6 mSv (95% quantile 14 mSv). In the territory of Poland, limits for putting constraints on placing contaminated commodities/food on the market will not be exceeded.

Germany (>170 km): Average individual effective doses in 2 days are at the level of 1.9 mSv (95% quantile 10 mSv) as a maximum, average yearly individual effective dose without ingestion is 4.3 mSv (95% quantile 20 mSv). In the territory of Germany, limits for putting constraints on placing contaminated commodities/food on the market will not be exceeded.

Hungary (>140 km): Average individual effective doses in 2 days are at the level of 2.2 mSv (95% quantile 9.7 mSv) as a maximum, average yearly individual effective dose without ingestion is 4.9 mSv (95% quantile 23 mSv). In the territory of Hungary, limits for putting constraints on placing contaminated commodities/food on the market will not be exceeded.

The Expert Report team associates with the above conclusions, provided that corresponding measures incorporated in Conditions of this Binding Statement will be respected. Preventive and mitigation measures considering German/Austrian catalogue of measures have been consulted with German/Austrian representative within international consultations.

Other effects – possibility of cumulation:

No intents are notified in the affected territory that could result in significant cumulation of the effects with the intent of the NNS.

The intent is located in the area of the Dukovany - Dalešice electrical power system, i.e. area connected to the premises of the existing Dukovany power plant in operation (EDU1-4), the Dalešice-Mohelno waterworks and the Slavětice transformer station. The intent effects will therefore interfere with the effects of these facilities.

There are four independent nuclear facilities in the premises of the EDU1-4 - the nuclear power plant, two spent nuclear fuel storage facilities and the radioactive waste storage facility. Therefore, all effects of the NNS intent are assessed in their concurrent effect together with other nuclear or other facilities. The effects on the environment and public health were assessed, in particular parallel operation and its impact on radiation effects, effects on water and

landscape. The assessment carried out in the documentation shows that the effects of NNS and EDU1-4 during operation are acceptable in the cumulation.

From the viewpoint of the potential for simultaneous accident conditions at several nuclear facilities in the site, the independence of technological solutions for individual nuclear facilities would realistically allow such situation only in the case of extreme external event. Due to the fact that the units of the NNS will be design-protected from the effects of potential severe accident at any nuclear facility located in the site (including EDU1-4 units and spent fuel storage facility) and the favourable site characteristics, simultaneous accident conditions at several units due to common cause failure from external factors can be considered to be virtually excluded.

In terms of the potential influence on nuclear safety of the NNS in case of accident conditions on any of the units of the EDU1-4 in operation or in the case of two units of the NNS, during accident on the adjacent unit of the NNS, it is taken into account that the safety systems of each NNS unit will be completely technology-independent of other nuclear facilities in the site and, at the same time, will be capable of independent accident condition management, without the support from other units and equipment. Technical and personnel safety measures for each unit of the NNS will be self-sufficient. The concept of autonomy of each unit of the NNS includes the long-term habitability of the control room and other back-up places of the NNS so as to allow for personnel activity in all states including severe accident conditions.

The consequences of potential severe accident of the NNS as well as the design basis accidents will be limited and will not jeopardize, in the period of possible parallel operation of one unit of NNS and EDU1-4, the possibility of safe shutdown of the existing EDU1-4 units (distance of the service points of the EDU1-4 from the nearest NNS unit is 800 m).

The team preparing the report agrees with the above findings.

Transboundary effects:

The documentation states that the distance of the intent from the state boundaries of neighbouring states is in the order of tens to hundreds of kilometres. In this context, when requirements for protection of the environment and public health in the nearest affected area are met, occurrence of significant transboundary effects is virtually excluded. However, regardless of this fact, the documentation includes analyses of radiation effects for the border areas of the nearest neighbouring states, i.e. both for operating conditions of the intent and (in particular) for accident conditions, i.e. representative conservative case of a design basis accident and a severe accident. These analyses confirmed that the operation of the NNS does not produce any effects that could have a significant negative impact on neighbouring states (see Chapter "Radiation effects").

The team preparing the report agrees with the above findings on the understanding that in relation to the transboundary effects, information was added on radiation effects of the EDU NNS on Austria to a distance of 380 km from the EDU NNS, for the source term "DEC, severe accident, ground release", as required by the Austrian party in the context of consultations, as requested additional document according to Section 9(6) of the Act. This addition brought no new facts that would affect the evaluation of the magnitude and significance of the effects of the intent on the environment and public health.

Similarly, the requested additional document according to Section 9(6) of the Act arising from the "Joint Opinion of Austrian legal representation to protect the environment and nature"

concerning the issue of the effects of ionizing radiation on flora and fauna brought no new facts in relation to the assessed effects of the intent on the environment and public health.

Even in the context of the assessment of transboundary effects that relate to the issue of effective doses and committed effective doses where, according to Section 9(6) of the Act, the notifier was requested to provide a more detailed explanation on the basis of the statement of the "Ministry of Energy, Department of Nuclear Energy" of the Republic of Poland, no new facts were brought which would affect the assessment of the magnitude and significance of the effects of the intent on the environment and public health.

The conducted assessment of the effects of the considered intent on the environment and public health referred to in the documentation shows that the envisaged effects on public health and the environment in all its aspects, also considering the co-acting effect of other facilities in the site and the environmental background, do not exceed the acceptable level, while taking into account the measures proposed to eliminate and minimize the effects. Based on the nature of the intent itself, the findings of the various expert studies and based on the comprehensive assessment of potential negative effects of the considered intent on the environment, the intent is feasible in the given site when all the proposed and recommended minimization and compensation measures are complied with.

The intention was assessed in the EIA procedure in all relevant aspects and effects. The conducted assessments provided sufficient data to assess the possibility of implementing the project in terms of environmental impacts.

In relation to the above, the competent authority agrees that the specific effects on individual environmental components are assessed as acceptable and justified in terms of magnitude and significance.

The intent is in line with the National Action Plan for the Development of the Nuclear Energy Sector in the Czech Republic (2015) concerning the provision of energy security but also with respect to the overall social and societal benefit. The State Energy Policy or its updated version of 2015 considers immediate preparation desirable for construction of one nuclear reactor at the Temelín site and one nuclear reactor at the Dukovany site and, at the same time, it is necessary to protect possible risks by means of necessary permits for the potential construction of two reactors at both sites. Furthermore, the intent is also in line with the Climate Protection Policy of the Czech Republic, which assumes its implementation and operation as one of the factors of climate protection in the Czech Republic. Also the Spatial Development Policy of the Czech Republic and the Principles of Land Development of the Vysočina Region protect the Dukovany site for the potential construction of a new nuclear source.

The conditions of this binding statement include the appropriate reasonable measures to prevent, avoid, reduce, or compensate for adverse impacts on environmental components. From an overall perspective, the effects of the intent on the environment with the conditions of this binding statement complied with can be considered acceptable.

Assessment of the technical solution of the plan in the light of current knowledge of environmental contamination

The subject matter of the Project is construction of a new nuclear source, having its net electric power output of up 2,400 MW_e, at the Dukovany site. It will consist of two power plant units with net electric power output of up to 2 x 1,200 MW_e, or one power plant unit with net

electric power output of up to 1 x 1,750 MW_e. Multiple variants of the Project sitting are not considered. The implementation of NNS at the Dukovany site complies with strategic documents of the Czech Republic concerning the power industry, in particular the National Energy Policy and the National Action Plan of Nuclear Power Development. The NNS will be placed in the area adjacent to the existing EDU1–4 currently being in operation. The area proposed for placing the NNS follows from the feasibility study conclusions and the assessments of three alternative areas adjacent to the existing EDU1–4 site — north-west, south, and south-east areas. Based on a multi-criteria assessment, the area extending north-west of the existing EDU1–4 site (area A) has been selected, in particular due to its suitability consisting in geological and hydro-geological conditions and its convenient approach to the existing infrastructure (raw water supply from the Jihlava River, waste water drainage to the Jihlava River, and electric power transmission to the Slavětice electrical substation). In the selected area, the NNS site will connect to the existing EDU 1–4 site in the most suitable manner, disturbing the surrounding landscape as little as possible. The area southward of the existing EDU1–4 site (area B) has been determined as a basis for the site installation, considering less suitable basement conditions, and more complicated supply of raw water and power transmission to the grid.

Generally applicable information and requirements related to nuclear energy and nuclear power plants with PWR reactors; requirements for nuclear safety; requirements for radiation protection; requirements for security of a nuclear facility and nuclear material, and requirements for radiation extraordinary event management are described.

Specific data of the intent - the basic technical data of the new nuclear source is summarised in the following points:

- nuclear units with the PWR type, generation III+ reactor,
- net electric output to 2,400 MW_e (up to two units, each with net electric output to 1,200 MW_e, or one unit with net electric output to 1,750 MW_e),
- minimum life time of 60 years,
- existing commercially available design,
- design in accordance with the set hierarchy of regulations and standards including legislation of the Czech Republic and international safety requirements, and adapted to the site conditions.

In addition, the following is included in the documentation:

- Principles of safe use of nuclear energy
- Safety assessment for the life time period of the NNS
- Way of assuring nuclear safety in the site for nuclear facilities already in operation
- Component Specific Ageing Management Programme and Ageing Management Programme
- Suitability of the site for the NNS

Due to the nature of the intent, its solution is sufficiently described for the needs of the assessment of the impacts on the environment and public health in the documentation; more detailed solution with regard to the requirements arising from relevant legislation is envisaged

in the context of further preparation of the intent for the appropriate administrative procedures for the authorization of the intent in question.

In the opinion of the party preparing the report, the technical solution of the intent is sufficiently described for the needs of the EIA procedure in the documentation and the requirements are respected with respect to the limitation or exclusion of potential negative effects on the environment in terms of the intent itself. The technical solution of the intent corresponds to the achieved degree of knowledge in terms of environmental pollution.

If all legal requirements for the method of construction are complied with, the technical solution of the intent consisting in the implementation of power units with PWR, Generation III+ reactor and net electric output to 2,400 MW_e can be considered feasible. Commercially available Generation III+ units will be used, when none of the available designs meeting the legal requirements is excluded in advance. The power units will include all the necessary civil structures and technological equipment of the primary circuit, the secondary circuit, the off-site cooling circuits, off-site plants and other buildings including all the related and induced investments for the construction and operation of the intent.

Based on the documented data and while respecting the conditions set in this binding statement, the competent authority can conclude that the negative effects will not exceed the level stipulated by law and other regulations. For the intent, no such negative impacts on the environment and public health have been identified that would prevent its implementation. An essential requirement is still the inclusion of measures to protect the environment and public health in the construction project. These measures must be based on the EIA documentation, the report and other knowledge in the course of the project preparation or on the findings made during the preparation of the area for the intent implementation.

Order of variants (if any) in terms of environmental impacts:

The intent was submitted on a single-variant basis. The documentation included the main reasons for selecting the variant presented. The notifier was thus able to sufficiently cope with the requirement of the Act referred to in point B.I.5. of Annex 4 to the Act. The present intent is in line with the town and country planning documentation of the affected municipalities.

Settlement of statements on the documentation:

Czech Republic

The competent authority received a total of 30 statements from the Czech Republic on the published documentation, within the time limit set in accordance with Section 8(3) of the Act, which expired in the Czech Republic on 21 December 2017. These included 11 statements of the DO (State Office for Nuclear Safety; Regional Hygiene Station of the Vysočina Region based in Jihlava; Czech Environmental Inspectorate, Regional Inspectorate Brno; Czech Environmental Inspectorate, Regional Inspectorate Havlíčkův Brod; Morava River Basin; Agency for Nature Conservation and Landscape Protection of the Czech Republic, Regional Office SCHKO Žďárské vrchy; Regional Authority of the South Moravian Region, Department of the Environment; Regional Authority of the Vysočina Region; Municipal Authority of Třebíč, Department of the Environment; Municipal Authority of Náměšť nad Oslavou, Department of the Environment and Trade Licensing; Municipal Authority of Moravský Krumlov, Department of the Environment), 6 statements of other public authorities (Ministry of the Environment, Department of Species Protection and Implementation of International Commitments; Ministry of the Environment, Department of Water Protection; Ministry of the Environment, Waste Department; Ministry of

the Environment, Department of Energy and Climate Protection; Ministry of the Environment, Department of Air Protection; Regional Authority of the Hradec Králové Region, Department of the Environment and Agriculture), 7 statements of the affected local authorities (South Moravian Region; Vysočina Region; Municipality of Dukovany; Hrotovice Town; Municipality of Rešice; Municipality of Rouchovany; Municipality of Slavětice), 2 statements of other local authorities (Municipality of Jamolice; Municipality of Dubňany), and 4 statements of the registered associations (Calla - Association for Preservation of the Environment; Energetické Třebíčsko, Jihočeské matky; Občanská iniciativa pro ochranu životního prostředí z.s.).

The competent authority has received 5 statements from the Czech Republic after the time limit set in accordance with Section 8(3) of the Act (Ministry of Health of the Czech Republic; Regional Hygiene Station of the South Moravian Region based in Brno; Regional Authority of the Olomouc Region, Department of the Environment and Agriculture; Municipality of Hluboké Mašůvky; Hradec Králové Region).

In case of public authorities, there were no significant comments on the intent on the part of the SÚJB. The comments related to certain inaccuracies in terminology in the documentation and partly also stemmed from the fact that Decree No. 329/2017 Coll., on basic design criteria for a nuclear installation came into force after the submission of the EIA documentation assessed. However, the above mentioned does not affect the impact assessment of the intent on the environment and public health.

Other comments of the public authorities related to certain inaccuracies in the documentation or, where applicable, notice in terms of further preparation of the intent.

In case of local authorities, the Ministry of the Environment has not received any negative comments on the intent. The comments mainly concerned the traffic load on the roads, especially in the construction period in the vicinity of the NNS.

In the case of registered associations, the received statements included 3 negative and one affirmative statements.

The following comments dominated in the statements on the documentation:

- envelope method of assessment (CR1)

Settlement: The so-called "envelope method" is used in the documentation for the environmental and public health impact assessment, which assesses all environmental impacts (including radiation effects) to their potential maximum extent. This maximum is the not-to-exceed limit for the NNS. The facility parameters of a subsequently selected supplier will be better (or the same at least) in all the indicators than the parameters used for the impact assessment. The EIA documentation does not state that the transboundary effects are virtually excluded, although this statement applies to all effects outside of accident conditions. Chapter D.III of the documentation states that significant transboundary effects are virtually excluded. This is documented by means of the results of detailed analyses of radiation effects for the border areas of nearest neighbouring states, both for the operating conditions of the intent and (in particular) for radiation extraordinary events. The transboundary effects (in terms of achieving national dose limits and values of contamination of agricultural products in accordance with Council Regulation (Euratom) 2016/52) are limited locally and would have concern, only to a limited extent, the border areas of Austria, i.e. in reality, only in the event of a severe accident.

- severe accident modelling (CR2)

Settlement: The assumption of maintaining the integrity of the containment is the design requirement for the NNS. This requirement is also included in the WENRA document "WENRA Reactor Harmonisation Working Group (RHWG) - Report on Safety of new NPP designs, 3/2013", where Article O.3.4 Measures to Limit the Radiological Consequences of Core Melting states that in the case of severe accident it is necessary to maintain the integrity of the containment. Maintaining the integrity of the containment during severe accident will be part of the design and licensing bases, the demonstration of which will be required within the licensing procedure. It is the requirement, which stems from the EUR requirements on new nuclear reactors and is known to all suppliers of the reference units and all of them declare that they meet the requirement in the context of their designs, and will have to adequately demonstrate and prove it within the tender procedure and the licensing process for the selected unit.

- form of the energy mix of the Czech Republic (CR3)

Settlement: In the case of the Czech Republic, the basic framework for the future energy mix is set out by the approved State Energy Policy (SEK) of 2015. The long-term vision of energy sector in the Czech Republic, which formed the basis for the creation of the SEK, is reliable, affordable and sustainable supply of energy to households and the economy. Thus defined vision is summarized in the three top strategic goals (pillars) of the energy sector of the Czech Republic: security - competitiveness - sustainability.

- method of ensuring spent nuclear fuel management, (CR4)

Settlement: After having been removed from the reactor, spent nuclear fuel is moved to the spent fuel storage pool. It is located either next to the reactor in the reactor hall, or in an auxiliary fuel storage building which is connected with the reactor hall by means of a transport corridor. The size of the storage pool meets the requirements for the storage of spent nuclear fuel produced during at least 10 years of reactor operation and throughout this period also provides additional free space for storage of all fuel from the reactor core in case of need for its complete removal and possibly other free storage capacity. Fuel is stored in the pool under a layer of water containing boric acid and in a compact grid that contains an integrated material for absorption of neutrons (usually steel containing boron). Such configuration ensures, with a sufficient margin, constant subcriticality, shielding and removal of heat produced by decay of radionuclides which are in spent nuclear fuel. The radionuclide composition of spent nuclear fuel is dependent on the initial amount of fissile material and the amount of energy taken from the fuel during the stay in the core, which is generally called "burn-out". After removal from the reactor, the spent fuel contains about 95.5% of uranium, 3.1% of stable fission products, 0.9% of plutonium, 0.2% of medium-lived fission products (Cs and Sr), 0.1% of long-lived fission products (in particular isotopes Tc and I-129), 0.1% of other long-lived fission products, and 0.1% of minor actinides.

After removal from the spent nuclear fuel storage pool, spent fuel from the NNS will be further stored in a new spent nuclear fuel storage facility. The spent nuclear fuel storage facility will be a new nuclear facility, which will be built on the premises of NNS or within the existing EDU1-4, or in another selected location.

Spent fuel will be stored in that facility until a deep geological repository will be available, whose commissioning is planned in 2065 under the current Concept of Radioactive Waste and Spent Nuclear Fuel Management (2002). This concept does not exclude its use as a secondary raw material for further energy recovery. The draft Update of the National Concept of Radioactive Waste and Spent Nuclear Fuel Management (2014) works with the same assumptions.

The spent nuclear fuel storage facility will be a new separate nuclear facility for which a separate EIA procedure and a separate licensing procedure will be conducted.

- assessment of health status of the population in the area surrounding the Dukovany NPP (CR5)

Settlement: The analysis of health status of the population, referred to in the documentation (Chapter C.II.1.3.4.), concluded that no adverse effect of the EDU1-4 has been identified with respect to any of the indicators of health used. This conclusion is clear and based on an extensive analysis. The conclusion includes discussion of the results and possible uncertainties. Thus, the basic requirements for objective work are fulfilled. It is of course possible to discuss further sub-wording and expressions, but the sense of the statement is clear. On the basis of established facts, the requirement for population health monitoring is not justified (discharges from nuclear facilities and their effects on the representative persons are monitored). However, the ČEZ company performs monitoring, evaluation and publication of population health in all areas of nuclear facilities in the Czech Republic from the standpoint of "good neighbourliness" with neighbouring municipalities. In the future, health monitoring is thus taken into account.

- assessment of socio-economic impacts (CR6)

Settlement: The implementation of the intent will not lead to building new or cancelling existing settlement structures. All social impacts already exist in the area (existence of the existing power plant, its impact on the structure of demand for labour, quality of staff, impact on the social security of the population including mediated reflection in property prices and generation of more jobs in supplier companies) and will be rather intensified as a result of the implementation of the NNS. Due to the nature of supplier work on the projects of a similar type (i.e. use of external suppliers on an ad-hoc basis), significant impacts cannot be expected on the existing social structure of the population of the area - workers will be mostly present on a temporary basis and in varying numbers at various stages of construction of the NNS (with the maximum in the fourth year of construction when there will be up to 5,000 jobs for construction workers). Due to the nature and expertise of work, a significant threat from the increase in social-pathological phenomena cannot be expected. In addition, the strengthening of cooperation with the Police of the Czech Republic in the region is envisaged for the period of construction of the NNS.

In order to assess the possible impacts of the NNS on the quality of life of the population of the region, the Socio-economic Development Study of the Region was drawn up, GaREP, spol. s r.o., Brno, in October 2016, which concluded that the quality of life in the affected area should be maintained at least as in the current state and the situation should not be deteriorated in any area. The affected area will retain its "rural" character but with a high quality of life further enhanced by the construction of the NNS.

- location of the NNS project at a different place of the Czech Republic (CR7)

Settlement: Location of the NNS at the Dukovany site is also based on the State Energy Policy, which requires to begin preparing the NNS in the locations of the existing Temelin and Dukovany Nuclear Power Plants, in particular in terms of maintaining the generation of power using the existing infrastructure and personnel relations and with respect to future decommissioning of the operated Dukovany NPP (EDU1-4). Therefore, the implementation of NNS at the Dukovany site complies with strategic documents of the Czech Republic in the power sphere, the mentioned State Energy Policy and also the National Action Plan for the Development

of the Nuclear Energy Sector. The NNS will be placed in the area adjacent to the existing EDU1-4 operated. The area proposed for placing the NNS follows from the feasibility study conclusions and the assessments of three alternative areas adjacent to the existing EDU1–4 site — north-west, south, and south-east areas. Based on a multi-criteria assessment, the north-west area has been selected, from the existing EDU1-4 area (area A), in particular, due to its suitability thanks to geological and hydro-geological conditions, and its suitable interfaces to the infrastructure (raw water supply from the Jihlava River, waste water drainage to the Jihlava River, and offsite power transmission to the Slavětice switching station). In the selected area, the NNS site will connect to the existing EDU 1–4 site in the most suitable manner, disturbing the surrounding landscape as little as possible. The area south from the existing EDU1-4 area (area B) has been selected as a basis for the site equipment, because of less suitable basement conditions, and more complicated supply of raw water, and off-site power transmission solution.

Slovak Republic

In the Slovak Republic, documentation was published in accordance with the Espoo Convention and the time limit for submitting comments was set to be at least 30 days, i.e. until 22 January 2018. The competent authority received a total of 26 statements from public authorities of the Slovak Republic on the published documentation, within the time limit set in accordance with the Espoo Convention (Ministry of the Environment of the Slovak Republic, Section of the Environmental Assessment and Waste Management, Department of Environmental Impact Assessment; Public Health Authority of the Slovak Republic, Section of Environmental Assessment and Management, Department of Environmental Assessment; Ministry of Transport and Construction of the Slovak Republic, Section of Road Transport and Infrastructure; Regional Authority of the Trnava Region, Section of Regional Development; Nuclear Regulatory Authority of the Slovak Republic; District Auhority of Trnava, Department of Environmental Control; Ministry of the Environment of the Slovak Republic, Section of Climate Change and Air Protection, Department of Air Protection; Slovak Environment Agency, Department of Environmental Impact Assessment; District Authority of Žilina, Department of Environmental Control; Ministry of Economy of the Slovak Republic, Section of Energy, Department of Fuel and Energy; Jadrová a vyraďovacia spoločnosť, a.s. (Nuclear and Decommissioning Company, plc.); Ministry of Agriculture and Rural Development of the Slovak Republic, Section of Rural Development and Direct Payments, Department of the Management Authority of the Programme for Rural Development; Ministry of the Environment of the Slovak Republic, Section of Environmental Assessment and Waste Management, Department of Waste Management; District Authority of Nitra, Department of Environmental Control, State Administration of Water and Selected Components of the Environment Unit; Ministry of the Environment of the Slovak Republic, Section of Geology and Natural Resources, Department of State Geological Administration; Ministry of Culture of the Slovak Republic; Regional Authority of Trenčín, Department of Environmental Control; Ministry of the Environment of the Slovak Republic, Section of Conservation of Nature, Biodiversity and Landscape; Ministry of the Environment of the Slovak Republic, Section of Waters; Ministry of Economy of the Slovak Republic, Section of Environmental Assessment and Waste Management, Department of Environmental Risks and Biological Security; Regional Authority of Košice; Regional Authority of Prešov, Department of Regional Development; Regional Authority of Banská Bystrica; Ministry of Defence of the Slovak Republic; National Labour Inspectorate, Department of Labour Inspection, Department of Occupational Health and Safety; District Authority of Banská Bystrica, Department of Environmental Control.

The competent authority has not received any statement from the Slovak Republic after the time limit set in accordance with Section 8(3) of the Act.

Comments of the public authorities on:

- notice in terms of further preparation of the intent and, where applicable, comments on fuel transport across the territory of the Slovak Republic, radiation situation monitoring (SR1)

Settlement: Basic transports of radioactive materials, related to the NNS operation, include transport of fresh nuclear fuel from the producer (supplier) to the NNS, transport of treated radioactive waste from the NNS to the radioactive waste storage facility, transport of spent nuclear fuel from the NNS to the spent fuel storage facility, and transport of spent nuclear fuel from the spent nuclear fuel storage facility to the place of permanent storage (or reprocessing). The risk management in transport of radioactive materials is based on the principles laid down in legislation:

- *transport requires authorization or approval to be issued by licensing authorities under the applicable laws of the Czech Republic, the laws of the sending state and the laws of the transit states;*
- *transport must take place according to approved procedures and related requirements of national and international legislation and international obligations and contracts of the Czech Republic;*
- *transport procedures must take into account possible risks and minimise the probability of accident occurrence;*
- *materials being transported must be stored in approved transport casks (or storage and transport casks) that provably ensure that no radioactive material will leak to the vicinity in case of an accident and subcriticality will not decrease below a permissible limit in case of nuclear fissionable materials, i.e., nor in case of water floods;*
- *dose rate on the surface of the cask and at a specified distance therefrom and surface contamination cannot exceed the limit values specified in the relevant regulation.*

For transport of fresh nuclear fuel, it is possible, taking into account the current operation of EDU1-4 units, to expect maximum of 5 transports of fresh nuclear fuel to the site on average per year in normal operation of the NNS, while in accordance with the State Energy Policy, fuel stockpiling for several years ahead and the associated adequate increase in the number of transports prior to the commencement of NNS operation are expected. Since it is not possible to realistically envisage production of fresh nuclear fuel for the NNS in the Czech Republic, they will be supplies from abroad, by using one or more usual modes of transport - rail, road, ship or air transport.

Transport of spent nuclear fuel from the NNS to the spent fuel storage will be realised depending on location of the storage either within the premises of the NNS or EDU1-4, or in any other location. Spent nuclear fuel can be transported by rail or by road. Both cases will involve maximum of units of transports per year.

In relation to radiation situation monitoring, it can be noted that the NNS will require to ensure an effective system of radiation protection, not only in the area of nuclear source but also in its surroundings. In addition to the basic principles, criteria and requirements for radiation protection, the NNS project under SÚJB Decree No. 422/2016 Coll., on radiation protection, and IAEA Standards GSR Part 3 (2014) and SSR 2/1 Rev. 1 (2016) for nuclear facility design requires:

- *To identify possible radioactive sources in the NNS in all operating conditions (power operation, outage, refuelling, radioactive waste management) and emergency situations, and the anticipated exposures and radiation risks caused by them.*
- *To ensure constant leakage monitoring of fuel cladding and limit the activity of the primary coolant and the formation of corrosion and activation products in the primary coolant by means of design of materials, design of treatment plants and chemistry. To manufacture structures, systems and components with the use of such construction materials, which minimize the probability of their activation by radiation or contamination with radioactive substances.*
- *To apply design and organizational measures to prevent the release or dispersal of radioactive substances and contamination in the premises of the power plant.*
- *To design liquid and gaseous waste treatment plants with the application of the technical solutions effectively minimizing the activity of effluents and their compositions in terms of impact on the environment and public exposure.*
- *To suggest such a configuration of the plant to control access of the staff to places with increased radiation risk and places with potential contamination of individuals and eliminate or effectively reduce personnel exposure or contamination.*
- *To zone the areas of the power plant by level of radiation risk in accordance with the specific requirements of national legislation.*
- *To apply measures to prevent unauthorized and uncontrolled movement of persons and material through each zone.*
- *To use the design for shielding and ventilation systems so as to minimize the doses to personnel during normal operation and maintenance of equipment as well as in extraordinary events.*
- *To propose the project for equipment maintenance, handling of fuel and radioactive materials and waste to minimize the doses to personnel.*
- *To ensure minimization of radiation exposure to personnel in the areas with frequent maintenance or manual handling.*
- *To ensure sufficient means for the decontamination of individuals and equipment.*

Republic of Poland

In the Republic of Poland, documentation was published in accordance with the Espoo Convention and the time limit for submitting comments was set to be at least 30 days, i.e. until 22 January 2018. The competent authority received 3 statements on the published documentation, within the time limit set in accordance with the Espoo Convention, from the Republic of Poland - two from the public authorities and one statement of a registered association (General Directorate for the Environmental Protection, Department of Environmental Impact Assessment, Department of Environmental Impacts; State hygienist in Opole, Ecological and Cultural Association "Common Earth", Warsaw).

After the time limit set in accordance with the Espoo Convention, the competent authority received the statement from the Ministry of Energy, Department of Nuclear Energy; Poland asked for the settlement of this statement in the context of ongoing transboundary consultations, which was granted.

Comments of the public authorities on:

- the value of lifelong harm to health from the NNS in the Republic of Poland (PL1)

<u>Settlement:</u> The calculation of annual individual effective doses from operational effluents of the NNS taking into account the co-acting effect of the EDU1-4 power plant in operation was executed in all sectors to a distance of 100 km as shown in Fig. D.7 of the EIA documentation: Schematics of the arrangement of calculation network - whole calculation area. Although this area does not extend to the territory of Poland, sector 24 is situated relatively close (about 20 km from the border with Poland). In the context of answer to the request submitted, this sector 24 and adjacent sectors 12 and 36 were taken as reference sectors for assessing the risk of health damage from the operation of NNS for the inhabitants of Poland. The individual effective dose was calculated for Czech consumer basket, but the consumer basket of the Czech Republic and Poland are very similar according to the statistics data. In the case of Poland as well as reference sectors 24, 12, and 36, exposure of a representative person is realized only through discharges to the atmosphere from the NNS because liquid discharges to watercourses flow off in the Jihlava River and then through the Morava River into the Danube River and cannot affect Poland in any way.

Annual and lifetime value of individual effective dose and risk of injury to health in selected sectors of the NNS 2x1,200 MW_e and decommissioning of the EDU1-4.

	Sector 12	*Sector 24*	*Sector 36*
Annual IED (Sv)	*3.56E-08*	*8.41E-09*	*6.29E-09*
Lifetime dose (70 years) (Sv)	*2.49E-06*	*5.89E-07*	*4.40E-07*
Risk of injury to health (for coefficient of 0.057/Sv under ICRP103)	*1.42E-07*	*3.36E-08*	*2.51E-08*

The maximum annual individual effective dose per capita of Poland living at the border with the Czech Republic can be estimated at less than 3.5E-8 Sv and the consequent risk of injury to health for the inhabitants of Poland will amount to a maximum of 1.42E-07 and, in reality, will be in the order of 1E-08 or lower. The risk of injury to health in the order of 1E-07 and 1E-08 can be interpreted as the probability that one out of 10 or 100 million inhabitants exposed to the appropriate source will suffer health detriment as a result of exposure. The insignificance of exposure of an ordinary inhabitant of Poland due to the operation of NNS can be assumed primarily from the comparison of the estimated maximum annual individual effective dose of 3.5E-8 Sv caused by NPP discharges in the nearest border regions of Poland and the dose received by an ordinary inhabitant of Poland from natural and artificial sources present in the nearest surroundings (by inhalation of decay products of radon, cosmic and cosmogenic radiation, medical exposure, etc., Annual Report, Państwowa Agencja Atomistyki, 2016 http://www.paa.gov.pl/uploads/temp/strony/strona_401/text_images/PAA_Annual_Report_2016_readable_1.pdf), which has a value of 3.5E-03 Sv. The dose caused by the NNS is lower by 5 orders of magnitude, i.e. no health damage should be virtually recorded in the territory of Poland (not even one individual) as a result of the entire period of operation and operational discharges of the NNS. It should be also noted that the doses caused by the NNS were calculated on the basis of very conservative estimates of discharges of radioactive substances from the NNS, which will not be achieved with a high probability (see Annex 5.1 of the EIA documentation, Chapter 4.5, Table 15 and Table 16, which includes comparison of the design and actual discharges of the operated EDU1-4).

- possibilities of cumulative impacts of the planned intent with existing nuclear facilities (PL2)

Settlement: The EIA documentation deals with the issue of cumulation of accident conditions across on several units (Chapter D.II.1.10. Radiation Hazards Associated with Human Activity in Site and Its Surroundings).

In terms of the potential for concurrent accident conditions on several nuclear facilities in the site, such situation could actually occur, thanks to the independence of the technological solution of individual nuclear facilities, only in case of extreme external event such as extreme climatic conditions, extreme earthquake or extreme flood. Due to the fact that the units of the NNS will be design-protected from the effects of potential severe accident at any nuclear facility located in the site (including EDU1-4 units and spent fuel storage facility) and the favourable site characteristics, simultaneous accident conditions at several units due to common cause failure from external factors can be considered to be virtually excluded.

In terms of the potential influence on nuclear safety of the NNS in case of accident conditions on any of the units of the EDU1-4 in operation or in the case of two units of the NNS, during accident on the adjacent unit of the NNS, it should be taken into account that the safety systems of each NNS unit will be completely technology-independent of other nuclear facilities in the site and, at the same time, will be capable of independent accident condition management, without the support from other units and equipment. Technical and personnel safety measures for each unit of the NNS will be self-sufficient. The concept of autonomy of each unit of the NNS includes the long-term habitability of the control room and other back-up places of the NNS so as to allow for personnel activity in all states including severe accident conditions.

The consequences of potential severe accident of the NNS as well as the design basis accidents will be limited and will not jeopardize, in the period of possible parallel operation of one unit of NNS and EDU1-4, the possibility of safe shutdown of the existing EDU1-4 units (distance of the service points of the EDU1-4 from the nearest NNS unit is 800 m).

- spent nuclear fuel management (PL3)

Settlement: In relation to spent nuclear fuel management, this had already been settled under (CR4) of this Chapter, which can be referred to in this point.

- the issue of terrorist attacks (PL4)

Settlement: Basic information on the requirements and the way of securing the NNS against risk of terrorist attack and sabotages is provided in the documentation (Chapter D.II.1.8 Risk of Terrorist Attack). The essential requirements and the ways of securing the NNS against terrorist attack including intentional aircraft crash and also against cyber attacks are specified in the relevant chapter of the documentation. The risk of act of terrorism against the NNS will be assessed in detail in the following phases of the design preparation and development in compliance with the requirements laid down by the Atomic Act, and eliminated by standard means and procedures of the security of nuclear facilities, used in the existing practice in accordance with current requirements of international and national legislation.

The method of securing nuclear facility and nuclear material will match the hazard resulting from design basic threat (DBT), as laid down by SÚJB decision on the basis of the binding statement of the Ministry of Interior, Ministry of Defence, and the Ministry of Industry and Trade, together with the rights and responsibilities in ensuring the security of nuclear material. Design basis threat means a set of features and capabilities of an individual, who is located inside or outside the nuclear facility or near nuclear material and who is capable of using this object intentionally and unlawfully. Design Basis Threat is subject to Act No. 412/2005 Coll., on

Classified Information Protection and on Security Capacity, as amended, and its implementing decrees. The design basis threat is updated regularly once a year or more frequently in case of change in the security situation in the Czech Republic.

Detailed analyses of the consequences of accidents of NNS buildings in case of aircraft crash and other external events caused by human activities could be potentially abused in preparation of sabotage or terrorist attack. Therefore, such evidence of resistance, assumptions and results will be classified in accordance with Act No. 412/2005 Coll., as classified information.

In the case of registered association, the received statement contained comments on:

- the need for other source of nuclear energy in the Czech Republic (PL5)

Settlement: The form of the energy mix was the subject of the energy concept (State Energy Policy of the Czech Republic, 2004, Update of the State Energy Policy of the Czech Republic, 2015), which included the strategic environmental assessment (the so-called SEA). Therefore, the form of the energy mix, or the share of individual sources in the energy mix, has undergone a variant evaluation, which was concluded by approval of the relevant concepts by the Government of the Czech Republic. In the case of SEK 2004, it was a variant and multi-criteria assessment of 6 different scenarios of the coverage of energy needs of the Czech Republic up to 2030 from various types of power plants. The optimised scenario best met all of the criteria. In the case of the Update of the SEK 2015, the SEA assessment contained a multi-criteria assessment of the current state of the energy mix (corresponding to the structure according to the SEK 2004) and its time progression up to 2040 with the proposed new corridors of an optimised energy mix according to the draft Update of the State Energy Policy of the Czech Republic in draft version of 2014. This assessment was concluded by issuing the opinion of the Ministry of the Environment and the approval of the Updated State Energy Policy by the Government of the Czech Republic after the incorporation of requirements from the opinion of the Ministry of the Environment on the SEA in 2015.

Therefore, the documentation deals with the sub-part of the adopted energy mix, its nuclear part - i.e. new nuclear source in the Dukovany site. Other components of the energy mix (including renewable energy sources) are not affected and are prepared by their notifiers or investors as sub-components of the energy mix.

Therefore, if the documentation indicates data concerning the scenarios of energy development and their evaluation and comparison, they are the informative data based on the previously implemented strategies and related evaluations (including their comparison with regard to environmental impacts). The documentation does not evaluate, question and even prefer them in any way. The purpose of these data is to prove the fact that the project of new nuclear source is in accordance with the adopted energy strategies of the Czech Republic and that the strategies have undergone an appropriate process of environmental impact assessment. The requirement to evaluate any other (non-nuclear) energy sources and their impact on nature cannot be fairly required from the Notice Author. And, by analogy, for example, the notifiers of renewable energy sources cannot be imposed an obligation to evaluate gaseous, nuclear or other alternatives.

- envelope method of assessment (PL6)

Settlement: The comment above had already been settled under (CR1) of this Chapter, which can be referred to in this point.

- assessment of the calculations related to severe accidents (PL7)

<u>Settlement:</u> The limit value of leakage of Cs-137 into the surroundings of 30 TBq for severe accident has been determined with regard to the requirements of Czech legislation and IAEA and WENRA recommendations to reduce the radiological consequences of a severe accident. This maximum permissible value of the source term Cs-137 has to ensure the reduction of long-term and economic impacts of a severe accident. The isotope Cs-137 is selected because of its dominant importance for long-term contamination of the surroundings, as well as its contribution to the health consequences. It is therefore the design envelope restriction, which the selected supplier will have to demonstrate within the licensing process.

However, the resulting source term was compared with the source terms submitted under the "REQUEST FOR INFORMATION FOR STRATEGIC DECISION-MAKING ON THE NEXT PROCESS OF NEW NUCLEAR POWER PLANT CONSTRUCTION PROJECTS" and found equivalent in all significant parameters determining the environmental impacts, which ensures that the consequences of specific DBA and DEC in future licensing documentation for the selected reactor type will always be lower than the consequences presented in the EIA documentation.

The method of indicating the value of the source term up to 500 TBq of Cs-137 for the planned nuclear power plant in Hanhikivi in Finland for the evaluation of a severe accident is misleading. Finnish legislation sets out the maximum leakage of Cs-137 during a severe accident to 100 TBq of Cs-137, which shall only guarantee the limited health consequences of a severe accident. Therefore, this value is used in the Finnish EIAs for the NNS, regardless of the reactor type or a real potential for such a leakage. This fact is mentioned in many places of the EIA study for the power plant in Hanhikivi (Fennovoima - Environmental Impact Assessment Report for a Nuclear Power Plant, February 2014). The EIA study also explains the context in which the value of 500 TBq of Cs-137 was used. For example, in the EIA document, part "Responses to the statements and questions of some foreign countries concerning Environmental Impact Assessment Program", page 13 states that „In order to evaluate the impacts of a nuclear power plant accident, the EIA procedure has included modelling of the spread of a radioactive release caused by a severe reactor accident, the consequent fallout, and radiation dose received by the general public. The studied release was the Caesium-137 release of 100 TBq laid down in the Government Decree (717/2013), which corresponds to a severe reactor accident (INES 6). The impacts of a release five times higher than the 100 TBq release (more than 50,000 TBq of iodine-131 equivalents) were also assessed corresponding to an INES 7 accident. However that release is theoretically impossible in terms of noble gases, because the release would mean that five times more noble gases than the reactor contains would be released. Such a fivefold release would not cause any immediate health impacts. "

The assumption of maintaining the integrity of the containment is the design requirement for the NNS and it is therefore not true that it would be the assumption accepted without any reason. In order to meet the criterion K3 of the SÚJB (see D.II.1.5.1. Criteria according to the statement of the SÚJB) "Such design measures must be taken for postulated accidents of the NNS with the core melting or damage of irradiated nuclear fuel in the storage pools ensuring that it will not be necessary to evacuate population in the immediate surroundings of the NNS and introduce long-term restrictions on food consumption...", the containment integrity must be maintained during severe accident.

This requirement is included in the WENRA document "WENRA Reactor Harmonisation Working Group (RHWG) - Report on Safety of new NPP designs, 3/2013", where Article O.3.4

Measures to Limit the Radiological Consequences of Core Melting states that in the case of severe accident it is necessary to maintain the integrity of the containment. Maintaining the integrity of the containment during severe accident will be part of the design and licensing bases for the NNS, the demonstration of which will be required within the licensing procedure for the NNS. It is also the requirement, which stems from the EUR requirements on new nuclear reactors and is known to all suppliers of the reference units and all of them declare that they meet the requirement in the context of their designs, and will have to adequately demonstrate and prove it within the tender procedure and the licensing process for the selected unit. According to the information of the individual suppliers, radioactive releases in case of severe accidents are several times smaller for all the considered types of nuclear reactors.

The documentation evaluates the effects of a severe accident on the agricultural production pursuant to Council Regulation Euratom 2016/52. The quantities of agricultural products is specified and expressed in total area and in tonnes, which in case of severe accident in the middle of the growing season, may be contaminated above the permitted level for marketing (selling) these products in the EU countries. This regulation is valid in the Czech Republic and other EU countries. According to the results of the analyses carried out for the documentation, during severe accident of the NNS, the agricultural production on the territory of Poland will not be contaminated above the levels set out in Council Regulation Euratom 2016/52.

Other measures according to relevant national regulations, which may include, but are not limited to, immediate harvesting of agricultural products or the sheltering of farm animals in stables (which are all the measures to prevent future economic losses, even if their introduction leads to incurring of costs), which are put in place by relevant national legislation in Germany and Austria, are not defined in the Czech Republic or in a number of other countries including Poland and therefore were not even evaluated in the documentation.

Contrary to the values of the contamination of agricultural products covered by Council Regulation Euratom 2016/52, it is not the limit, but recommended guidance levels, at which precautions according to the Austrian and German procedures should be considered. The aim of these precautions is to avoid economic loss that would have occurred if due to inactivity the levels of contamination set out in Council Regulation Euratom 2016/52 were achieved and these products were prohibited on the EU markets. The consideration of the implementation of precautions should take into account the question whether the costs of the introduction of precautions will not be higher than the potential economic loss that could arise if no precautions were in place. In the case of Poland, according to the results of the evaluation of severe accident of the NNS, the contamination levels of agricultural products under Council Regulation Euratom 2016/52 should not be exceeded and it would not be therefore necessary to introduce any precaution.

The values of deposit of the monitored critical radionuclides as a basis for considering precautions under Austrian and German legislation are presented in the documentation (see Table D94 for severe accident and Tables 86 and 91 for design basis accidents). These are the values of the average maximum and the 95% quantile of maximum deposits throughout the annulus at the given distance. In general, if the considered area is located only in part of the respective annulus, the achieved average and maximum values of the deposit are lower for that area than for the whole annulus (it is also the case of Poland).

If the Austrian and German guidance levels to consider preliminary measures are applied to the territory of Poland, then the calculations show that during severe accident the value of 700

Bq/m^2 of surface activity of I-131 will not be reached with a probability more than 78% anywhere in Poland and the value of surface activity of 650 Bq/m^2 for Cs-137 will not be reached in Poland at all.

- water supplies for the NNS from the Jihlava River (PL8)

Settlement: As for the security of cooling water from the Jihlava River, it is possible to indicate the following facts. The EIA documentation reliably demonstrates that for the NNS with the net electrical output of up to 2,400 MW$_e$, the required security for the supply for the power plant of 99.5 % (the requirement of the Notice Author) will be met, the required security for minimum residual flow rates is 98.5 % (according to the recommendations of the standard ČSN 75 2405 Water management analysis of reservoirs), even when considering climate change +2°C. This security will be met even during a temporary concurrence of the operation of NNS Unit 1 and EDU1-4 or EDU2-4. For details see Chapter D.I.4.1.3.1. Effects on the minimum residual flow rate in the Jihlava River and the security of water supply for the power plant. It should be noted that the presented data relate to the ecological functions of the river, given by compliance with the established minimum flow rates. The supply of water for potential accident conditions is in order of magnitude lower and can be reliably secured.

Supplementary documents were requested to this issue that are part of the report.

Hungary

In Hungary, documentation was published in accordance with the Espoo Convention and the time limit for submitting comments was set to be at least 30 days, i.e. until 22 January 2018. The competent authority received 2 comments on the published documentation from Hungary (Ministry of Agriculture, Department of Environmental Protection; Energiaklub NGO), of which one comment of the public authority and one comment of a registered association, within the time limit set in accordance with the Espoo Convention.

The competent authority has not received any comment from Hungary after the time limit set in accordance with the Espoo Convention.

Comments of the public authorities on:

- a more detailed examination of the two alternative power scenarios with parallel operation of the Dukovany NPP (H1)

Settlement: The following is stated as to the scenario of parallel operation of NNS Unit 1 with the capacity of 1,200 MWe and the existing EDU1-4 power plant in operation in Chapter D.I.1.1.2. Radiation effects:

In terms of radiation effects of operational states, the following power alternatives of the NNS and the EDU1-4 are determined and sensitivity analyses confirmed decisive alternatives:

Operation of the NNS 2x1200 MW$_e$ and decommissioning of the EDU1-4. This power alternative will lead to higher radiation effects than the operation of the NNS 1x1200 MW$_e$ and operation of the EDU1-4.

This is due to the fact that the envelope-based design effluents for critical radionuclides of the NNS with the capacity of 1,200 MWe are significantly higher than for the EDU1-4 in operation, as specified in the relevant tables of Documentation No. D12 and D14 and also D16 and D18. Doses from effluents of one NNS unit with the capacity of 1200 MWe were taken into account only for the nearest surroundings in order to determine the doses for the workers involved in

the construction of the other NNS unit. In terms of the impact on the population, doses are always higher for the operation of the NNS 2x1200 MW_e than for the operation of 1x1200 MW_e and EDU1-4.

In terms of radiological impacts, the scenarios referred to and assessed in the EIA are conservative and cover all other conceivable combinations of the operation of the NNS and the EDU1-4.

- the results of calculations of surface and height leaks - the contribution from food intake should be taken into account (H2)

Settlement: Doses including ingestion are presented in the EIA documentation for both DBA and DEC to a distance of 100 km from the NNS. The nearest distance of the borders of Hungary from the NNS is 142 km and, therefore, any impacts in the territory of Hungary will be lower than those specified for a distance of 100 km.

In the outermost sector (75-100 km from the NNS), for which the doses with ingestion were taken into account, the annual individual effective dose including ingestion of locally produced foodstuffs is at the level of 11 μSv for the envelope-based case of design basis accident (DBA) and the 95% quantile, see Table D.83 of the documentation (without ingestion of 8.1 μSv, see Table D.82 of the documentation). Therefore, the contribution of ingestion is approximately 3 μSv/year for the case of DBA.

For the envelope-based case of design extension conditions (DEC) and the 95% quantile, the annual individual effective dose including ingestion of locally produced foodstuffs at a distance of 75-100 km from the NNS is 270 μSv, i.e. 0.27 mSv, see Table D.93 of the documentation (without ingestion of 120 μSv, i.e. 0.12 mSv, see Table D.92 of the documentation). Therefore, the contribution of ingestion is approximately 0.15 mSv/year for the case f DEC at a distance of 75-100 km from the NNS.

The above analysis therefore shows that the annual contribution of individual effective dose from ingestion for the public in Hungary will be, in any case (even in the case of envelope events of DEC type in the NNS), reliably lower than 0.15 mSv and there will be no need on the territory of Hungary in this event to introduce measures to restrict the consumption of locally produced foodstuffs, feedstuffs and water.

- effluent limitation, radiation load monitoring (H3)

Settlement: In relation to the limitation of effluents, it can be noted that in the Czech Republic, in accordance with the Atomic Act and Decree of the State Office for Nuclear Safety No. 422/2016 Coll., on Radiation Protection, the emissions of radioactive substances (effluents) are limited through the authorized limits. Authorized limit is a quantitative indicator which is a result of radiation protection optimisation for individual activities involving radiation or an individual source of ionising radiation and is usually lower than the dose constraint. The authorized limit is related to exposure of the so-called "representative person". Pursuant to the Atomic Act, representative person is defined as "an individual of the population representing a model group comprising individuals whose exposure relating to a given source and a given pathway of exposure is the highest". The evaluation of the exposure of a representative person shall be performed by conservative estimates. The procedures for the determination of the exposure of a representative person are specified in Annex 5 to Decree of the State Office for Nuclear Safety No. 422/2016 Coll.

The licensee (nuclear facility operator) shall ensure the monitoring of effluents and carry out the balance measurement of effluents of the individual radionuclides and groups of radionuclides, and set the monitoring levels so as not to exceed the authorized limits. The authorized limit is determined in μSv/year for exposure of a representative (from the given source, the most exposed) person from effluents into air and watercourses. The monitoring programme is approved by the State Office for Nuclear Safety.

The State Office for Nuclear Safety, as the regulatory authority, sets only the authorized limit and typically does not set the limit value of the individual radionuclides for emissions to water and air. The State Office for Nuclear Safety shall set the authorized limit in the licence for the activities within the exposure situations (commissioning, operation, closure and decommissioning of nuclear facilities).

In order to determine the authorized limit, the licensee is obliged to draw up an optimisation study, which shall be submitted to the State Office for Nuclear Safety. An optimisation study for stipulating the authorised exposure limit for a representative person pursuant to Decree No. 422/2016 Coll., must:

- *stipulate the representative person and estimate his or her exposure using the procedure pursuant to Annex 5 to Decree of the State Office for Nuclear Safety No. 422/2016 Coll.,*
- *list circumstances affecting exposure of the representative person that are related to the amount of radioactive substances and ionising radiation released into the environment and conditions of their dispersal in the vicinity of a workplace containing a source of ionising radiation,*
- *include a document certifying that radionuclides released during the calendar year into the environment from the workplace containing a source of ionising radiation and their activities and dose rates as a result of radiation dispersing into the vicinity of the workplace correspond to the planned exposure situation resulting from the expected operation of this workplace; this document must take into account available technical and organisational measures to reduce the amount of radioactive substances or ionising radiation released into the environment,*
- *contain the expected profile of radionuclide release into the environment during the calendar year, including consideration of the possibility of releasing the entire activity of some radionuclide during a short period of time all at once,*
- *contain a justified choice of conditions for radionuclide dispersal in the atmosphere or hydrosphere that will be used to stipulate the proposed values of the authorised limit taking into the expected radionuclide release profile pursuant to the preceding point*

With regard to emissions of radionuclides from the operation of a nuclear facility to surface waters, the operator of a nuclear facility shall hold, in addition to the authorized limit specified by the State Office for Nuclear Safety no later than at the time before the start of commissioning, the permit to discharge waste water, issued by the competent water authority. The requirements for the permit to discharge waste water shall be laid down in accordance with the applicable wording of the Water Act (Act No. 254/2001 Coll.), and Governmental Regulation No. 401/2015 Coll. The licence to discharge waste water sets out the restrictions (emission limits) for discharges of pollutants, typically in the amount of discharged substance per unit of time. The emission limits are particularly derived from the allowable pollution of surface waters where the waste water flows, environmental quality standards and evaluation of the forward-looking state.

Permissible pollution is set by Governmental Regulation No. 401/2015 Coll., for both non-radioactive and radioactive substances.

Radiation exposure from the operation of the NNS has two completely different paths of the emissions of radionuclides. These are atmospheric discharges and discharges into watercourses. The two forms of discharges must be solved separately, because not only the characteristics and vectors of the possible transfer of radioactivity are completely different.

In the case of registered association, the received statement contained comments on:

- justification of the need for new nuclear power plant (H4)

Settlement: The comment above had already been settled under (PL5) of this Chapter, which can be referred to in this point.

- types of the reactors considered (H5)

Settlement: Of course, the new nuclear source can be supplied by several suppliers. However, their detailed technical solutions are not subject to the EIA. Legal requirements (both in the field of the environment and in the field of nuclear safety or other) are the same for all potential suppliers. All cases concern the reactors of PWR type (pressurized water reactor) Generation III+. The NNS will be required to have the selected reactor type in compliance with the relevant WENRA and IAEA recommendations for new reactors beyond applicable legislation of the Czech Republic. The hierarchy of regulations and standards to be applied to the NNS of the Dukovany NPP is referred to in the EIA documentation in Fig. B.20.

Specific technical and technological description of all the considered reference reactor types is included in Chapter B.I.6. Description of technical and technological solution, or its Sub-chapter B.I.6.3.1.8. Information concerning reference designs. The descriptions of reference designs are based on the data concerning reference units provided by their suppliers within the "REQUEST FOR INFORMATION FOR STRATEGIC DECISION-MAKING ON THE NEXT PROCESS OF the NEW NUCLEAR POWER PLANT CONSTRUCTION PROJECTS". The safety characteristics of the type of VVER reactor in question are sufficiently obvious from the descriptions. The description of all the types considered is provided at the reasonable level of detail, which corresponds to the purpose of the EIA procedure, including basic technical information on individual reference projects, state of their construction and licensing, implemented measures for extraordinary event management, including description of safety systems and way of protection against release of radioactive substances into the environment, as well as summary technical information on PWR Generation III+ reactor units and their designs.

With regard to the operating experience with the PWR Generation III+ reactors, several units of this type are already in operation or were completed (Russia, China, South Korea, the United Arab Emirates). The construction of other units started, for example, in Turkey, the United Kingdom, the United Arab Emirates, in Belarus, etc. The environmental impact assessment and the assessment of safety documentation were carried out for various stages of the licensing of new nuclear units in several EU countries (Bulgaria, Czech Republic, Finland, Hungary, Slovakia, United Kingdom). The IAEA has assessed compliance with the safety standards for 11 types of new nuclear sources with PWR reactors. Positive operating experience with PWR reactors is long-term experience. The Generation III+ uses proven technologies and differs from the previous generations mainly in greater resistance to external hazards and the significant strengthening of safety systems. All these facts provide sufficient proofs that the current safety requirements are and will be fulfilled.

Basic information on the Management Programme for the whole life cycle of a nuclear installation and the Ageing Management Programme are presented in the Documentation (Chapter B.I.6. Description of Technical and Technological Solution). However, the ageing management is not subject to the EIA procedure and will be taken into account at further stages of project preparation. All suppliers will be obliged to demonstrate, in compliance with the relevant legal requirements and standards, the way of taking into account the requirement for the minimum 60-year design life of their projects. The service life of 60 years is made possible by incorporating operating experience on similar reactors and the results of material research.

- assessment of the calculated severe accident (H6)

Settlement: The comment above had already been settled under (PL7) of this Chapter, which can be referred to in this point.

- the worst-case scenario - which would be a release of a large part of the inventory (H7)

Settlement: It can be noted that basic safety requirements for new reactors are laid down so that in conditions of a severe accident the function of the containment is maintained and the early and large releases of radioactive substances are virtually eliminated in the case of a severe accident. In relation to the documentation, large leak can be regarded as a leak, which significantly exceeds the value of the leak of the main reference isotopes according to Table D.79: Source term for severe accident, which is referred to in the EIA documentation in Chapter D.II.1.6. Determination of the source term for the evaluation of the radiological impacts of abnormal occurrence. For Cs-137, this is the value significantly exceeding 30 TBq.

The leak of 76.05 Pbq of the isotope Cs-137, which is stated in the above mentioned study under the flexRISK project, implicitly assumes a total failure of the containment. This assumption used in the flexRISK study does not substantially correspond to the requirement to maintain the functionality of the containment during a severe accident, which is in compliance with the requirements of legislation of the Czech Republic and WENRA applied to the NNS and other relevant legislative requirements of the Czech Republic and WENRA recommendations below, and for these reasons, this assumption cannot be accepted in the context of the discussion to the documentation for the NNS.

Decree of the State Office for Nuclear Safety No. 329/2017 Coll., on Requirements for the Design of Nuclear Facility, Section 7(5) states:

The design of a nuclear facility with a nuclear reactor must provide reasonably feasible technical and organizational measures for management of design extension conditions in order to achieve such resistance of nuclear facility that

a) severe accident, which could lead to the early radiation accident or a major radiation accident, is the virtually excluded fact, and

b) severe accident, which is not among the virtually excluded facts and which could lead to radiation accident, will be managed so that the protective measures according to Section 104(1) a) will be required (i.e. sheltering, use of iodine prophylaxis, evacuation) and b) points 2 and 3 of the Atomic Act (i.e. restrictions on the use of radionuclide contaminated food and water and restrictions on the use of radionuclide contaminated feedstuffs.

At the same time, the requirement specified by the State Office for Nuclear Safety in Criterion 3 and the related WENRA recommendations for limiting the consequences of a severe accident apply to the NNS.

Criterion K3 (State Office for Nuclear Safety): Such design measures must be taken for postulated accidents of the NNS with the core melting or damage of irradiated nuclear fuel in the storage pools (i.e. for severe accidents) ensuring that it will not be necessary to evacuate population in the immediate surroundings of the NNS and introduce long-term restrictions on food consumption. The NNS accidents with the core melting, which could lead to early and/or large releases, should be practically excluded. An early leak means a leak not allowing safety measures to be taken for the postulated NNS accidents with the core melting, i.e., sheltering and iodine prophylaxis; a large leak means a leak that would require measures taken ruled out by this criterion.

For severe accidents (design extension conditions with core melting), space- and time-limited radiological impacts will be required according to the WENRA recommendations, which will ensure compliance with the following requirements:

- *avoiding the need for the evacuation at a distance of more than approximately 3 km,*
- *avoiding the need for the sheltering and iodine prophylaxis at a distance of more than approximately 5 km,*
- *agricultural production at a distance of more than approximately 5 km will be suitable for consumption one year after the radiation accident,*
- *no permanent relocation anywhere outside the premises of the power plant (for practical application, it is interpreted as no permanent relocation at a distance over 800 m from the reactor).*

Meeting the requirements of Czech legislation, IAEA and WENRA recommendations, and demonstrating this fulfilment within the licensing process of the NNS will ensure that large releases described in the comment will be excluded by design solution for the NNS or, in the terminology according to the Atomic Act, the IAEA and WENRA recommendations virtually excluded. This exclusion will be ensured through the design solution of the NNS, which will be equipped for the case of severe accident either with the system safely holding the melt inside the reactor pressure vessel, or inside the containment and at the same time through the technical design of the containment and other systems ensuring the desired tightness of the containment and limitation of radioactive releases into the environment in conditions of a severe accident.

- spent fuel and radioactive waste (H8)

<u>Settlement:</u> In relation to spent nuclear fuel management, this had already been settled under (CR4) of this Chapter, which can be referred to in this point.

Federal Republic of Germany

In the Federal Republic of Germany (the Land of Bavaria, Lower Saxony, North Rhine-Westphalia, Rhineland-Palatinate and Saxony), the documentation was published in accordance with the Espoo Convention and the time limit for submitting comments was set to be at least 30 days, i.e. until 22 January 2018. The competent authority received 17 types of statements on the published documentation, within the time limit set in accordance with the Espoo Convention, from the Federal Republic of Germany, of which 2 statements were from the public authorities

(Ministry of the Environment, Energy, Food and Forestry, Rheinland-Pfalz, Bavarian State Ministry of the Environment and Consumer Protection).

The competent authority received a large number of comments on the published documentation from the associations and the public that formed the pre-prepared text, individually signed. The texts of the pre-prepared statements or the statements which have been received from several senders were marked as the so-called "PATTERNS".

After the deadline, a petition was submitted in the public discussion in Munich, STOP AKW Neubau in Tschechien.

Comments of the public authorities:

- Following the accident in the Fukushima NPP in 2011, the assessment of risks of nuclear energy has led the German legislative authority in accordance with the large societal majority to decide to withdraw from the peaceful utilisation of nuclear energy. This rapid withdrawal of the Federal Republic of Germany from the peaceful utilisation of nuclear energy was co-shaped by the government of the Land Rhineland-Palatinate and it therefore reaffirms its refusal of the construction of a new nuclear power plant in the Dukovany site. (D1)

Settlement: It is possible to understand the concerns which may the Government of the Land Rhineland-Palatinate and its inhabitants have in relation to nuclear energy. However, in the case of the NNS in the Dukovany site, is not the extension of the existing power plant or the construction of additional nuclear capacity, but the construction of a new power plant to the most modern standards to replace the Dukovany NPP in operation (EDU1-4).

- examination of the zero variant within the examination of alternatives (D2)

Settlement: It may be noted that in the present intention, the zero variant represents non-execution of the new nuclear source in the Dukovany site. It is considered as a reference variant, describing its impacts through the current state of the environment in the territory concerned, or its development trends, referred to in Chapter C.II. CHARACTERISTICS OF THE CURRENT STATE OF THE ENVIRONMENT IN THE INVOLVED TERRITORY.

The often proposed zero variant in form of a realistic concept of decentralized renewable energy generation would represent a completely different strategic variant, which is not in accordance with the State Energy Policy, which envisages the construction of new nuclear sources at the sites of the nuclear power plants in operation.

- reactor types considered (D3)

Settlement: The comment above had already been settled under (H5) of this Chapter, which can be referred to in this point.

- assessment of the subsequent occurrence of radiation in severe accident (D4)

Settlement: The summary of the results of assessment of the consequences of a severe accident is given in Chapter D.II.1.7.2.3. Severe Accident of the EIA documentation and can be recapitulated as follows:

Severe accident characterized by relevant source term does not lead with certainty to the release of radionuclides requiring evacuation of inhabitants anywhere in the surroundings of the NNS. With a high degree of certainty (95%), the need for sheltering and iodine prophylaxis at distances of 5 km from the NNS will be excluded in case of severe accident of the NNS. It can

be assumed that there will be no need for considering permanent relocation in the NNS surroundings and this measure can be ruled out in 95% likelihood within the distance of 3 km from the NNS. Restrictions on food consumption and sale of agricultural product will be time-limited to 1 year as a maximum and will be space-limited. Restrictions on the sale of agricultural products in the application of EU rules to limit the placing of contaminated products on the market of EU countries (Council Regulation (Euratom) 2016/52) will not exceed 100,000 tons. Transboundary influences and impacts in terms of dose will be low. The highest annual doses for the public abroad (Austria) while taking into account the ingestion of contaminated food will not exceed, with the probability more than 95%, 1.8 mSv and 0.7 mSv without ingestion. Anticipated loss of agricultural products abroad in applying EU rules for putting constraints on placing contaminated products on the market in EU member states only relates to Austria and should not exceed 30 tons of milk.

Consequently, they are not negligible consequences, but relatively low consequences with certain but limited economic damage, with no significant threat to the health of the population. The reference to the Fukushima or Chernobyl event, where reactors of a different type and a different generation were operated, is irrelevant. The Fukushima or Chernobyl type events, which represent severe accidents that would lead to early or large releases of radioactive substances into the surroundings of the unit, should be virtually excluded by the NNS design. An early leak means a leak not allowing safety measures to be taken for the postulated NNS accidents with the core melting, i.e., sheltering and iodine prophylaxis; a large leak means a leak that would require measures taken ruled out by this criterion.

For severe accidents, which may not be practically excluded, such design measures need to be adopted that the introduced population and environment protection measures are time and area limited (excluding permanent relocation of population, necessity of evacuation from the vicinity of the power plant, only limited sheltering of persons, and no long-term restriction on food consumption) and there is enough time for implementing the given measures.

The virtual exclusion can be based on:

a) demonstration of the physical impossibility for formation of the accident sequence/event (priority approach),
b) demonstration that the formation of the accident sequence/event is, with a high degree of certainty, extremely unlikely.

Where certain conditions cannot be excluded on the basis of their physical impossibilities, then the virtual exclusion of these conditions requires to take specific, reasonably achievable technical and organizational measures to prevent the mechanism of formation of these conditions and for the scenario leading to the envelope overestimation of the defining parameters of the given conditions, demonstrate the efficiency of the measures taken using deterministic analyses. It should be confirmed using probabilistic methods at the end of the process to demonstrate the virtual exclusion that with a high degree of credibility, the failure rate of the measures taken is extremely low, at the level of the possibility of occurrence no more than once every 10 million years.

Virtual exclusion of any of the above conditions only on the basis of extremely low probability is unacceptable.

- emissions of radioactive substances to the atmosphere during normal operation (D5)

Settlement: The envelope discharges to the air and watercourses were determined in the following very conservative manner, representing the full envelope approach used. The reference units were divided into two groups. The first group included units with net electric power to 1,200 MW_e and the second group included units with higher power level. Data were obtained on maximum design discharges of individual radionuclides to the air and liquid effluents for individual radionuclides. For both groups of units, maximum values were obtained for individual radionuclides and for the units with power capacity up to 1,200 MW_e, these maximum values were doubled (because two units of the NNS with this power capacity are considered), for both discharges to the atmosphere and discharges to water. These results are summarized in Tables 4, 5, 8, 9 in Annex 5.1 to the documentation. Subsequently, the assumption was applied on the conversion of 20% of liquid effluents of H-3 and C-14 to the atmosphere (natural conversion caused by the collection and discharge of water taking place from the same source of water - the Mohelno Reservoir). The liquid effluents were reduced by this portion. Furthermore, a conservative assumption was applied to discharges to the atmosphere that all liquid effluents to the atmosphere can be theoretically converted and discharges to the atmosphere were therefore increased by a whole discharge to water (see Tables 12 and 13 of Annex 5.1 to the documentation).

- public exposure to radiation (D6)

Settlement: German public exposure as a result of the normal operation of the NNS (for all power alternatives considered) has been determined as exposure to global nuclides discharged to the atmosphere and hydrosphere as a result of normal operation. The results are summarized in the table below.

Exposure to globally spreading nuclides was calculated as the collective doses to all inhabitants of the Czech Republic/Austria/the Federal Republic of Germany/Poland living "beyond the calculation zones" (beyond 100 km circle around the NNS) caused by discharges of H-3, Kr-85 and C-14.

Global nuclides mean long-lived nuclides C-14, H-3 and K-85, i.e. nuclides which when discharged to the atmosphere or hydrosphere reach the global natural water cycle (H-3), or are mixed in the atmosphere of the Northern Hemispheres (Kr-85), or become part of the atmosphere and biosphere (C-14), and cause the exposure of the population throughout the world (or the Northern Hemisphere) and, to the effect, of the population in Germany.

From the properties of the individual nuclides causing global exposure, it is possible to derive that the exposure caused by nuclides C-14 (pure beta source with a half-life of 5,730 years) and H-3 (also pure beta source with a half-life of 12 years) is implemented as a committed effective dose.

The exposure to nuclide Kr-85 (with a half-life of almost 11 years) is implemented as an external gamma and beta radiation emitting Kr-85.

C-14: The calculation of exposure caused by annual discharge of C-14 from NNS operation is executed by the ESTE Annual Impacts Programme as follows:

1) *The Veluri model is applied to determine the activity of C-14 in the atmosphere of the world (according to NUREG/CR-4653);*
2) *The calculation includes the discharge of C-14 in both organic and inorganic form;*

3) The calculation includes the population size in Germany; the calculation is not dependent on the distance from the nuclear facility.

H-3: The calculation of exposure caused by annual discharge of H-3 from NNS operation is executed by the ESTE Annual Impacts Programme as follows:

1) The procedure provided for in NUREG/CR-4653 is applied. We assume that the released tritium will be gradually evenly distributed in the hydrosphere of the world (of the whole world) and gets into and irradiates the human through the intake of water in various food (committed effective dose by ingestion);

2) The calculation includes in summary the discharge of H-3 to the atmosphere and to the hydrosphere;

3) The calculation of the collective dose includes the population size in Germany; the calculation is not dependent on the distance from the nuclear facility.

Noble gases: In case of Germany, Kr-85 will be effectively reflected. The calculation of exposure caused by annual discharge of KR-85 from NNS operation is executed by the ESTE Annual Impacts Programme as follows:

1) The procedure provided for in NUREG/CR-4653 is applied. We assume that the released Kr-85 will be gradually evenly distributed in the atmosphere of the world and causes the external exposure for inhabitants ("cloud exposure");

2) The calculation of the ESTE Annual Impacts assumes the "shielding factor", the shielding factor of a residence in the calculation of the external cloud exposure, = 0.5;

3) The calculation of the collective dose includes the population size in Germany.

Germany *Collective doses caused by annual discharges to the atmosphere and hydrosphere*			
	NNS 2x1200 MW_e, EDU1-4 decommissioning	*NNS 1x1750 MW_e, EDU2-4 operation, EDU1 decommissioning*	*NNS 1x1750 MW_e, EDU1-4 decommissioning*
Total collective effective dose and committed effective dose beyond 100 km zone, [manSv]	*1.2E-01*	*1.1E-01*	*8.1E-02*
of which C-14 [manSv]	*1.2E-01*	*1.1E-01*	*8.1E-02*
of which H-3 [manSv]	*3.9E-05*	*3.4E-05*	*3.1E-05*
of which Kr-85 [manSv]	*7.5E-06*	*1.5E-04*	*1.5E-04*

- design basis accidents and events beyond the scope of design (D7)

Settlement: The source term for severe accidents and the determination method are described in detail in Chapter D.II.1.6.2. Source term for radiation extraordinary events of the documentation and specifically for severe accident in Chapter D.II.1.6.2.3.3. Source term for severe accident. Commented results of the radiological consequences of severe accident are described in Chapter D.II.1.7.2.3. Severe accident.

It should be noted that the level of detail used to determine the source term and, in general, the approach to the valuation of the consequences of accidents is beyond the usual level of detail in other EIA and allows everyone who feels affected by the intention to conduct an independent audit of the whole approach and the results.

Determination of the source term for DBA and DEC was primarily not based on data from suppliers. Determination of the source term was based on the EUR requirements for the maximum allowable releases of radioactive substances to reduce short-term and long-term

consequences and, in particular, on the US NRC documents of NUREG series or IAEA and NEA concerning mainly the spectrum of radionuclides in the fuel, level of fuel damage in DBA and radionuclide composition in the containment in DEC and other assumptions used.

Data from suppliers in determining the source term were only complementary (total volume of fuel, fuel burn-up, maximum activities of coolant, etc.). However, the resulting source term was finally compared with the source terms submitted under the "REQUEST FOR INFORMATION FOR STRATEGIC DECISION-MAKING ON THE NEXT PROCESS OF NEW NUCLEAR POWER PLANT CONSTRUCTION PROJECTS" and found equivalent in all significant parameters determining the environmental impacts, which ensures that the consequences of specific DBA and DEC in future licensing documentation for the selected reactor type will always be lower than the consequences presented in the EIA documentation.

In terms of the impact of a severe accident at the NNS on Germany, the average individual effective doses for two days in the nearest border areas will be at a maximum level of 1.9 μSv (95% quantiles of 10 μSv), the average annual individual effective dose without ingestion is 4.3 μSv (95% quantiles of 20 μSv). The levels to impose a ban on the placing of commodities/foodstuffs on the market according to the Council Regulation (Euratom) 2016/52 will not be exceeded in the territory of Germany. The contributions of ingestion have not been determined for regions situated at a distance more than 100 km, but the maximum mean (maximum mean value in the annulus) contribution of year-round ingestion at a distance of 100 km is approximately 30 μSv and 95% quantiles of 150 μSv. They are the doses deeply below the limit not reaching even 1 mSv per year. In the nearest regions of Germany, it can be assumed that they will be one order of magnitude lower.

In addition, all reference suppliers of NNS technology confirmed in the technical information gathered under the "REQUEST FOR INFORMATION FOR STRATEGIC DECISION-MAKING ON THE NEXT PROCESS OF NEW NUCLEAR POWER PLANT CONSTRUCTION PROJECTS" resistance of their power units to the plane crash, including a large commercial aircraft and a military aircraft. The NNS supplier will be required to conduct a realistic assessment of the effects of a crash of a large commercial aircraft and demonstrate compliance with the relevant WENRA recommendation specified above.

Detailed analyses of the consequences of accidents of NNS buildings in case of aircraft crash and other external events caused by human activities could be potentially abused in preparation of sabotage or terrorist attack. Therefore, such evidence of resistance, assumptions and results will be classified in accordance with Act No. 412/2005 Coll., as classified information.

In the case of registered associations, the received statements contained comments on:

- reactor types considered (D8)

<u>Settlement:</u> The comment above had already been settled under (H5) of this Chapter, which can be referred to in this point.

- safety requirements for the transport of radioactive waste (D9)

<u>Settlement:</u> It can be noted that fresh fuel and spent nuclear fuel transport is evaluated in the documentation from the perspective of potential environmental risks (Chapter D.II.1.9. Risks Associated with Radioactive Material Transport). Nuclear fuel is not foreseen to be produced on the territory of the Czech Republic and therefore, ready-made fresh fuel will be transported to the new nuclear source. They will be supplies from abroad, by using one or more usual modes

of transport - rail, road, ship or air transport. Similarly, the fuel is already transported to sites of nuclear power plants in the Czech Republic, so it is not a novelty. For transport of fresh nuclear fuel, it is possible, taking into account the current operation of EDU1-4 units, to expect maximum of 5 transports of fresh nuclear fuel to the site on average per year in normal operation of the NNS, while in accordance with the State Energy Policy, nuclear fuel stockpiling for several years ahead and the associated adequate increase in the number of transports prior to the commencement of NNS operation are expected.

Transport of spent nuclear fuel from the NNS to the spent fuel storage will be realised depending on location of the storage either within the premises or outside the premises. Spent nuclear fuel can be transported by rail or by road. Both cases will involve maximum of units of transports per year.

Compared to the transport of any other dangerous goods (in terms of energy, transport of any other types of fuels), transport of radioactive materials in relation to the environment and the population is much less risky and its amount and frequency of transport are low. The potential for radioactive release into the environment during transport is minimised. Procedures are drawn up for each transport of radioactive materials, i.e. how to restrict any radiation consequences of an accident so that health of population could not be jeopardised. For transport of radioactive materials, strict limitations are set in Decree of the State Office for Nuclear Safety No. 379/2016 Coll., for dose rate on the surface of the cask used for transporting radioactive materials and at a specified distance from that cask. The cask approved by the State Office for Nuclear Safety shall be solely used for transport.

- the case of accident and appropriate measures to protect civilians (D10)

Settlement: From the beginning, the NNS will be design-equipped to manage severe accidents to minimize the consequences on the surroundings. Radiological consequences of severe accidents are dealt with in the documentation in Chapter D.II.1.7.2.3. Severe accident. The results show that the SÚJB criteria and WENRA requirements (safety objectives) for this category of event are met. The event does not lead with certainty to the release of radionuclides requiring evacuation of inhabitants anywhere in the surroundings of the NNS. The need for sheltering and iodine prophylaxis at a distance exceeding approximately 5 km from the NNS will be avoided to a high degree of certainty. It can be assumed that it is not necessary to consider temporary relocation in the vicinity of the NNS and, with a 95% probability, this measure can be excluded at a distance of 3 km from the NNS. The measures to reduce the consumption and sale of agricultural products will be time-limited to a maximum of one year and will be space-limited. Restrictions on sale of agricultural product will not exceed 100 thousand tons. The transboundary effects and impacts for the nearest states, i.e. Austria and Slovakia, in terms of doses will be low and very small for more distant countries.

- the consequences of severe accidents for the ecosystems of the Jihlava River and downstream flows (D11)

Settlement: During a severe accident of the NNS, there would be no release of radioactive water, but gases through microleakages of the containment. The watercourses would only be affected by fallout and would be insignificant (see the last part of Chapter D.II.1.7.2.3. Severe accident, where the impacts on water areas and streams during a severe accident of the NNS are assessed). Waste water within the decontamination after a severe accident would have been stored in waste water pits and treated as radioactive waste.

- lessons learned from the Fukushima reactor accident (D12)

<u>Settlement:</u> The documentation states that the findings from the analysis of radiation accident at the Fukushima nuclear power plant will be applied in the NNS design as essential requirements for safety improvement (currently reflected in new atomic legislation of the Czech Republic, safety standards of the WENRA and the IAEA, in the EU also arising from the stress tests), namely higher resistance to external influences (e.g. earthquakes, floods, etc.), greater autonomy, increased redundancy and reliability of safety systems to address design basis accidents, the use of diverse alternative means for coping with multiple failures and severe accidents as well as the possibility of using mobile devices to perform safety functions in extreme situations.

Basic requirements in relation to the consequences of accidents are the SÚJB and WENRA requirements set out in the EIA documentation:

SÚJB criteria: *Any accident, which will not result in the core melting or damage of irradiated nuclear fuel in the storage pools, shall not result in a radionuclide release that would require sheltering, iodine prophylaxis and evacuation of population anywhere in the vicinity of the power plant.*

Such design measures must be taken for postulated accidents of a nuclear facility with the core melting or damage of irradiated nuclear fuel in the storage pools ensuring that it will not be necessary to evacuate population in the immediate surroundings of the power plant and introduce long-term restrictions on food consumption. The accidents with the core melting, which could lead to early or large releases, should be practically excluded. An early leak means a leak not allowing safety measures to be taken for the postulated NNS accidents with the core melting, i.e., sheltering and iodine prophylaxis; a large leak means a leak that would require measures taken ruled out by this criterion.

Criteria according to the WENRA recommendations: *For basic design accidents as well as design extension conditions without the fuel melting, no or only small radiological impacts are required according to the WENRA recommendations, i.e. no need for the implementation of urgent protective measures for the population in the surroundings of the power plant of the source and no or only small (limited in time and space) need for the implementation of restrictions in the area of foodstuffs and agricultural products.*

For severe accidents, space- and time-limited radiological impacts are required for the new nuclear power plants according to the WENRA recommendations, which will ensure compliance with the following requirements:

- *avoiding the need for the evacuation at a distance of more than approximately 3 km,*
- *avoiding the need for the sheltering and iodine prophylaxis at a distance of more than approximately 5 km,*
- *agricultural production at a distance of more than approximately 5 km will be suitable for consumption one year after the accident,*
- *no permanent relocation anywhere outside the fenced premises of the power plant, which, for practical application, it is interpreted as no permanent relocation at a distance over 800 m from the reactor.*

When respecting the source term set out in the documentation, the criteria will be fulfilled with a high degree of certainty.

- accidental aircraft crash, terrorist attack (D13)

<u>Settlement:</u> The comment above had already been settled under (PL4) of this Chapter, which can be referred to in this point.

- health impacts as a result of the released radioactivity of INES 7 of the Chernobyl event (D14)

Settlement: Persistent exposure due to the Chernobyl nuclear accident is currently already very low. The documentation also addresses this issue in Chapter C.II.3.3. Ionizing radiation. According to SÚRO data, the average share of persistent exposure from the Chernobyl accident in the Czech Republic is at a level of 0.3%. The average annual individual dose caused by natural background in the territory of the Czech Republic is in the range of about 3,000 to 3,500 μSv/year. Hence the absolute level of the average current contribution of persistent exposure from the Chernobyl accident is at a level of about 10 μSv/year per capita. The impact of the Chernobyl accident can be demonstrated on the data referred to in Chapter C.II.3.3.2.3. Immission situation, where it can be shown that the activity of Cs-137 and other radionuclides already dropped in most environmental media (soil, sediments, etc.) in the vicinity of EDU1-4 below the values before the Chernobyl accident. This drop, to the level lower than it was before the Chernobyl accident, also involves decrease in the concentration of activities in the environment as a result of the termination of atmospheric and ground tests of nuclear weapons. Higher contributions may locally persist, but they are generally already very small. Their contributions to exposure of unborn children of pregnant women are currently negligible.

- soil contamination as a result of a severe accident (D15)

Settlement: The analyses show that during severe accident of the NNS, the probability of reaching the value of 650 Bq/m^2 of surface activity of Cs-137 on agricultural products in the nearest areas of Germany to consider early harvest would be 0%. This consequence can thus be excluded. There may be cases in the German territory where due to a severe accident of the NNS the value of 700 Bq/m^2 (surface soil contamination) will be exceeded for isotope I-131. It is therefore not possible to completely exclude the need to exceptionally apply in these cases preventive measures in agriculture, according to the German catalogue of measures. The appropriate measures could theoretically be: Preventive transitional livestock housing, Preventive introduction of milk monitoring. Given that it would be the I-131, the need for any preventive measures will be limited to 1-2 weeks. In contrast to the values set out in Council Regulation (Euratom) 2016/52, for the catalogue values of surface activity, it is not the limit, but the values, where precautionary measures should be considered. As a matter of course, the costs of measures to prevent economic losses should not be higher than the economic loss that results if no precautionary measures are not introduced and agricultural products that exceed the allowable contamination according to Council Regulation (Euratom) 2016/52 will be disposed of instead of placing on the market. The values set out in Council Regulation (Euratom) 2016/52, will not be provably achieved in the German territory.

Public comments on:

- justification of the need for new nuclear power plant (D16)

Settlement: The comment above had already been settled under (PL5) of this Chapter, which can be referred to in this point.

- reactor types considered (D17)

Settlement: The comment above had already been settled under (H5) of this Chapter, which can be referred to in this point.

- zero experience with the operation of planned reactor types (D18)

Settlement: The PWR Generation III+ type reactor is considered for the NNS. The inherent safety for this reactor type is (as in the previous types of PWR reactors) mainly assured by

physical properties of uranium as fuel (the fission reaction tends to decrease with the increasing fuel temperature) and water as coolant and moderator (during boiling, the moderation efficiency of neutrons decreases significantly and the fission reaction in nuclear fuel decreases). The massive full-pressure containment with a large thermal capacity is the relevant factor of inherent safety.

The Generation III/III+ projects use the general principles of inherent safety of PWR type reactors:

- *stability due to a negative power feedback (which counteracts the rapid increase in reactivity) and a negative feedback to the density of a moderator (which leads to stopping the fission reaction in a loss of reactor coolant),*
- *passive scram system of the reactor (control rods are held in the upper position by electromagnets and if necessary, they are inserted into the reactor core by means of dead weight, which results in safe cessation of chain fission reaction),*
- *separation of the primary and secondary circuits (the secondary circuit is separated from the primary circuit so that water in the secondary circuit virtually contains no radioactive substances, which restricts the possibility of radionuclides escaping into the environment).*

These principles of inherent safety apply to all presented reference units, i.e. also to the EPR (without disputing the comment that the concept of EPR safety systems is primarily based on active systems).

- tense situation in the supply of cooling water (D19)

<u>Settlement:</u> On the basis of the statements received, interstate consultations and public hearing, the team preparing the report in accordance with Section 9(6) of the Act have requested to add explanatory documents relating to the issue of the supply of process water to nuclear equipment at the Dukovany site. This explanatory supplementation is documented in the relevant annex to the opinion. Furthermore, it is necessary to note that the documentation quite rightly does not consider the above variant - parallel operation of four existing units (2,040 MW_e or more correctly 2,000 MW_e), e.g. unit with the EPR reactor (1,750 MW_e) because the investor does not allow such operation, which is clearly declared in the documentation. The intention also does not consider the parallel operation of any other unit with a power capacity more than 1,200 MW_e with all four units of the existing power plant.

The maximum parallel power capacity permitted by the EIA is the operation of the new unit 1,200 MW_e + four existing units 500 MW_e or one new unit with a maximum power capacity of 1,750 MW_e and three existing units 500 MW_e, thus in total 3,200-3,250 MW_e wherein in this range, the same heat removed to the cooling tower is considered, which is more substantial in terms of water balances.

- spent nuclear fuel repository (D20)

<u>Settlement:</u> The basic strategy of the Czech Republic for management of spent nuclear fuel is, according to the applicable National Concept of Radioactive Waste and Spent Nuclear Fuel Management (approved in 11/2017), the direct disposal of spent nuclear fuel in a deep geological repository, which will be ready for operation by 2065. Until such time, spent nuclear fuel will be safely stored with the producers (operators of nuclear installations) in a suitable storage facility compliant with the requirements of Czech legislation. The state of the preparatory work on the

date of update of the concept allows to ensure the selection of the final locality in 2025 and the start of operation of a deep geological repository (hereinafter referred to as "DGR") in 2065.

The selection of the locality for the future deep geological repository for spent nuclear fuel is not subject to the EIA for the NNS. The preparation of a deep geological repository is fully within the competence of the Radioactive Waste Repository Authority. In its strategy, ČEZ, a. s., has declared its intention to declare SNF as waste and hand over SNF to the RAWRA for disposal after 2065.

- the case of accident, disaster and appropriate measures to protect civilians (D21)

<u>Settlement:</u> The primary protection against intentional attacks is the responsibility of the state. The state has a variety of resources (intelligence services, army, police, monitoring of terrorist activities, protection of airspace, prevention in terms of aviation, special forces, etc.), the application of which through the Ministry of Defence of the Czech Republic, the Ministry of Interior of the Czech Republic and the SÚJB means that the risk of a successful terrorist attack on a nuclear facility is very likely eliminated and minimized. Types of the analysis to assess the risk of terrorist attacks are not the subject of the documentation and are subject to Act No. 412/2005 Coll., on the Protection of Classified Information and on Security Capacity, as amended, and its implementing decrees.

Basic information on the requirements and the way of securing the NNS against risk of terrorist attack and sabotages is provided in the documentation (Chapter D.II.1.8 Risk of Terrorist Attack). The essential requirements and the ways of securing the NNS against terrorist attack including intentional aircraft crash and also against cyber attacks are specified in the relevant chapter of the documentation. The risk of act of terrorism against the NNS will be assessed in detail in the following phases of the design preparation and development in compliance with the requirements laid down by the Atomic Act, and eliminated by standard means and procedures of the security of nuclear facilities, used in the existing practice in accordance with current requirements of international and national legislation.

The method of securing nuclear facility and nuclear material will match the hazard resulting from design basic threat (DBT), as laid down by SÚJB decision on the basis of the binding statement of the Ministry of Interior, Ministry of Defence, and the Ministry of Industry and Trade, together with the rights and responsibilities in ensuring the security of nuclear material. Design basis threat means a set of features and capabilities of an individual, who is located inside or outside the nuclear facility or near nuclear material and who is capable of using this object intentionally and unlawfully. Design Basis Threat is subject to Act No. 412/2005 Coll., on Classified Information Protection and on Security Capacity, as amended, and its implementing decrees. The design basis is updated regularly once a year or more frequently in case of change in the security situation in the Czech Republic.

Note: Other external influences resulting from human activities are assessed in the documentation in Chapter D.II.1.10. Radiation hazards associated with human activity in site and its surroundings. Naturally external influences that must be reflected in the design of the NNS are described in Chapter B.I.6.3.1.6. Suitability of the site for NNS location.

The plans for the protection of the population are given in Chapter D.II.1.11. Measures for radiation extraordinary event management and it is not clear what information the commenting party lacks. The measures for radiation extraordinary event management are currently

implemented in the EDU1-4 in operation and are regularly reviewed, also with participation of representatives of the Austrian side.

- lessons learned from the Fukushima reactor accident (D22)

Settlement: The comment above had already been settled under (D12) of this Chapter, which can be referred to in this point.

- extraordinary events - accident of INES 6 or INES 7, is not in principle excluded (D23)

Settlement: The event belonging to category INES 7 (as well as INES 6) must be excluded by the NNS design. Preserving the integrity of the containment during a severe accident, which has a decisive influence on the potential radiological consequences, will be part of the design and licensing bases, the proof of which will be required in the licensing procedure. It is the requirement, which stems from the EUR requirements on new nuclear reactors and is known to all suppliers of the reference units and all of them declare that they meet the requirement in the context of their designs, and will have to adequately demonstrate and prove it within the tender procedure and the licensing process for the selected unit.

- health impacts as a result of the released radioactivity of INES 7 of the Chernobyl event (D24)

Settlement: The comment above had already been settled under (D14) of this Chapter, which can be referred to in this point.

- statement that "the highest effective personal dose" in the 170 km distant Germany would not exceed "1 μSv all year round" (D25)

Settlement: The statement is true, but relates to the consequences of design basis accident. The radiological consequences of a severe accident of the NNS in Germany are summarized on page 540 of the documentation. The highest individual annual effective doses in Germany should not exceed 20 μSv.

- uranium mining and also operation of the uranium ore processing plant (D26)

Settlement: The intention of the new nuclear source is not tied to any particular deposit of uranium ore or nuclear fuel. Their environmental impacts are addressed by their operators.

- safety requirements for the transport of radioactive waste (D27)

Settlement: The comment above had already been settled under (D9) of this Chapter, which can be referred to in this point.

- electrical connection by means of the 400 kV overhead line (D28)

Settlement: Adjustment of the Slavětice substation and other elements of the transmission system associated with the strengthening and enhancement of the reliability and efficiency of operation of the transmission system and also with the connection of a new nuclear source to the transmission system is not part of the intent. This is a separate intent of another investor (the transmission network operator - ČEPS, a.s.) who shall also ensure its assessment from the point of view of environmental impacts. However, the impacts of the NNS intent are assessed in the documentation, taking into account the potential contributing effects of the transmission system and the extended Slavětice substation.

- accidental aircraft crash, terrorist attack, etc. (D29)

Settlement: The comment above had already been settled under (PL4) of this Chapter, which can be referred to in this point.

- nuclear energy concerns (D30)

Settlement: It is possible to understand the concerns which may the inhabitants have in relation to nuclear energy. However, in the case of the NNS in the Dukovany site, is not the extension of the existing power plant or the construction of additional nuclear capacity, but the construction of a new power plant to the most modern standards to replace the Dukovany NPP in operation (EDU1-4).

- liability for damage (D31)

Settlement: The means of liability for nuclear damage are described in the Documentation (Chapter D.II.1.12. Liability for Nuclear Damage). The liability of the operator of nuclear installations for nuclear damages is provided for by the Atomic Act and is also governed by the provisions of the Vienna Convention on Civil Liability for Nuclear Damage declared under No. 133/1994 Coll., which is binding upon the Czech Republic. The operator of a nuclear installation is obliged to take out liability insurance for nuclear damage. In case of nuclear damage to the extent of sums insured (up to the limit laid down by law), the state provides the guarantee for settling the claims for compensation for nuclear damage, which are not paid under the compulsory insurance or any other specified financial security.

The liability of the operator for nuclear damage up to CZK 8 billion is sufficient, with a reserve, to cover the direct damages that might occur during a severe accident, which is presented in the documentation. This would be particularly the damages to agricultural production as a result of time- and space-limited attainment of the limits on part of the production according to the Council Regulation (Euratom) 2016/52.

- generally negative position of the public and registered associations on the implementation of the intent (D32)

Settlement: All relevant comments were settled in the opinion and the conditions were set out in the draft binding statement. On the basis of the assessment in the EIA documentation, it can be stated that the intent of construction and operation of the NNS for the territory in question can be considered acceptable.

Republic of Austria

In the Republic of Austria, documentation was published in accordance with the Espoo Convention and the time limit for submitting comments was set to be at least 30 days, i.e. until 22 January 2018. The competent authority received 85 types of statements on the published documentation, within the time limit set in accordance with the Espoo Convention, from the Republic of Austria, of which 3 statements were from the public and local authorities (the Federal Ministry for Sustainability and Tourism; the Joint Opinion of Burgenland, Carinthia, anti-nuclear coordination of Lower Austria and Upper Austria, Salzburg, Styria, Tyrol, Vorarlberg and Vienna legal representation to protect the environment as the authorized body for anti-nuclear protection of Vienna; the Office of the Provincial Government of Upper Austria, Dipl. Ing. Dalibor Strasky).

After the time limit set in accordance with the Espoo Convention, two additional statements have been received from the Office of the Provincial Government of Upper Austria, Dipl. Ing. Dalibor Strasky.

The competent authority received a large number of comments on the published documentation from the associations and the public that formed the pre-prepared text, individually signed. The texts of the pre-prepared statements or the statements which have been received from several senders were marked as the so-called "PATTERNS".

Comments of the public and local authorities on:

- demonstration that the planned Dukovany Nuclear Power Plant represents, compared with other variants of energy generation, the variant with the lowest impacts on humans and the environment (A1)

Settlement: The documentation deals with the sub-part of the adopted energy mix, its nuclear part - i.e. new nuclear source in the Dukovany site. Other components of the energy mix (including renewable energy sources) are not affected and are prepared by their notifiers or investors as sub-components of the energy mix. Therefore, if the documentation indicates data concerning the scenarios of energy development and their evaluation and comparison, they are the informative data based on the previously implemented strategies and related evaluations (including their comparison with regard to environmental impacts). The documentation does not evaluate, question and even prefer them in any way. The purpose of these data is to prove the fact that the project of new nuclear source is in accordance with the adopted energy strategies of the Czech Republic and that the strategies have undergone an appropriate process of environmental impact assessment. The requirement to evaluate any other (non-nuclear) energy sources cannot be fairly required from the Notice Author.

- storage or disposal of spent fuel elements (A2)

Settlement: After having been removed from the reactor, spent nuclear fuel shall be moved to the spent fuel storage pool. The capacity of the storage pool for all reference designs meets the requirements for the storage of spent nuclear fuel produced during at least 10 years of reactor operation and throughout this period also provides additional free space for storage of all fuel from the reactor core in case of need for its complete removal and possibly other free storage capacity.

The exact schedule of activities for the construction of spent fuel storage facility is not currently established. The preparation and construction of spent fuel storage facility is, compared with the nuclear power plant, much easier and less time consuming. Having regard to the possibility to store spent nuclear fuel for at least 10 years after the start of operation of the NNS in spent fuel storage pools of the NNS, the preparation of a new storage facility will be essential to start no later than at the time of putting the NNS into trial operation.

The capacity of the new storage facility will allow to store all spent nuclear fuel produced for 60 years of the planned minimum lifetime of the NNS in the appropriate power alternative. Data on the production of SNF from the NNS are presented in Chapter B.III.4. Other emissions and residues as well as in Table B.24: Production of spent nuclear fuel of existing and future nuclear power plants in the Czech Republic. These sources indicate that the power alternative 2 x 1,200 MW_e can be expected to produce 46 t of UO_2 per year, or 2,748 tons of spent nuclear fuel for 60 years of operation expressed in tons of heavy metal.

In terms of the current state of knowledge and the National Concept of Radioactive Waste and Spent Nuclear Fuel Management in the Czech Republic (updated version approved by the Government in 11/2017), it can be assumed that the new spent nuclear fuel storage facility will be located in the Dukovany site. The storage facility shall be situated in the area for NNS location

or in the adjacent area. However, the possibility cannot be excluded that the new spent fuel storage facility will be located in a different location. The alternative locations would include the Temelín Nuclear Power Plant site or the possibility of using the Skalka site for the future construction of a central spent nuclear fuel storage facility or constructing a new central spent nuclear fuel storage facility in the selected location of the future DGR.

In terms of Czech legislation (Act on Environmental Impact Assessment and the Atomic Act), the spent nuclear fuel storage facility is a separate intent (item 12 of Annex 1 to the Act) or a nuclear facility. The environmental impact assessment of the new storage facility and the licensing procedure will be thus conducted at the time of its preparation, taking into account the best technology available at the time of its preparation, the current state of knowledge, the environmental condition, and the appropriate legislative procedures. From all these aspects, the assessment of the storage facility would be currently premature. However, the future new storage facility is taken into account in the current assessment of the NNS in terms of its co-factors. This is made with the use, among other things, of experiences and outcomes of the environmental impact assessment of existing spent nuclear fuel storage facilities as well as operational monitoring, both in the Dukovany site and in other locations. The final proof of environmental acceptability of the new storage facility will (and should) be made in the relevant separate EIA procedure.

The basic strategy of the Czech Republic for management of spent nuclear fuel is, according to the applicable National Concept of Radioactive Waste and Spent Nuclear Fuel Management (approved in 11/2017), the direct disposal of spent nuclear fuel in a deep geological repository, which will be ready for operation by 2065. Until such time, spent nuclear fuel will be safely stored with the producers (operators of nuclear installations) in a suitable storage facility compliant with the requirements of Czech legislation. The state of the preparatory work on the date of update of the concept allows to ensure the selection of the final locality in 2025 and the start of operation of the DGR in 2065.

The selection of the locality for the future deep geological repository for spent nuclear fuel is not subject to the EIA for the NNS. The preparation of a deep geological repository is fully within the competence of the Radioactive Waste Repository Authority. In its strategy, ČEZ, a. s., has declared its intention to declare SNF as waste and hand over SNF to the RAWRA for disposal after 2065.

- reactor types proposed (A3)

<u>Settlement</u>: The comment above had already been settled under (H5) of this Chapter, which can be referred to in this point.

- safety and reliability of nuclear power plants (A4)

<u>Settlement</u>: It may be recalled that in the Final Expert Opinion of the Federal Ministry this requirement was evaluated as answered on the basis of the interstate consultations. In accordance with the requirements of Czech legislation (the Atomic Act), the organization preparing and operating the NNS will set up a system of continuous improvement (including feedback and taking into account the current state of knowledge - the state of the art and good practice). In terms of safety, periodic safety assessment will be regularly carried out, which includes the assessment of ageing management. Likewise, the impact on safety will be assessed for any of the changes to the design made in operation. In the area of reliability system, which

includes the ageing/specific ageing management system, this is an essential item of the whole process - the so-called "continuous improvement of reliability".

- taking into account the experience from ongoing projects around the world (A5)

Settlement: The past experience will be taken into account in the selection of a supplier.

- probabilistic safety objectives for the frequency of fuel damage events (A6)

Settlement: The design will be made in accordance with the safety objectives of the design according to SÚJB Decree No. 329/2017 Coll., on basic design criteria for a nuclear installation. The quantitative probabilistic objectives are not set out by the Decree, but Section 4(1)c) requires that the radiation accident in which there is not enough time for the introduction of urgent protective measures for the population (hereinafter referred to as the "early radiation accident") and the radiation accident that requires urgent protective measures for the population, which cannot be limited in place or time (hereinafter referred to as the "large radiation accident") are virtually excluded. All considered designs declare compliance with the usually set probabilistic objectives (CDF < 1E-05/year, LRF < 1E-06/year) but it is clear that the requirement for virtual exclusion is more stringent.

- external cooling of the reactor pressure vessel for catching the melt (A7)

Settlement: This cooling method is used only for AP1000 and HPR1000 designs. The feasibility of this application has been verified by calculation and experiment, and successfully passed the licensing at the US NRC, China Atomic Energy Authority.

- sufficient cooling water for the NNS from the Jihlava River (A8)

Settlement: The basic answer to this question is given in Chapter B.I.6.3.4.6. Water connections and systems: Available inventory of cooling water for the removal of residual heat from the NNS reactors will be guaranteed for a sufficiently long period of time to ensure alternate supply of water in conditions of complete isolation of the NNS from the surrounding environment. Sufficient coolant inventory will be available directly in the tanks of safety systems. Another volume of water will be available in the tanks and piping system of supply of raw water, in the pools under the cooling towers or in other systems according to the design. An alternative source of replenishment of cooling water will be directly the Mohelno Reservoir or the holding tank on the Skryjský Creek from which water can be delivered to the NNS by means of stationary or mobile devices (fire tankers, fire hoses and mobile fire pumps). Another alternative source of cooling water will be the connection to the Slavětice - Moravský Krumlov water main, used for supplying drinking water. After reactor shutdown, the need for make-up water for cooling is decreasing exponentially.

It can be added to the information contained in the documentation that the availability of the inventory of cooling water directly in the existing power plant for residual heat removal of the EDU1-4 is more than 30 days. The total water consumption for EDU1-4 after 30 days from shutdown is about 40 m^3/hour. Given that the operating power of the NNS will be similar to the EDU1-4 and the residual power after the shutdown of the reactor, which should be removed, as well as the need of water to ensure removal of residual heat will be similar. For the NNS, it is assumed that the available inventories of coolant on the site will be similar to the EDU1-4.

The role of the Jihlava pumping station is thus only operational, and not safety-based. Therefore, the questions often raised about the possibility of clogging of the intake screens (which never happened and the possibility is rather hypothetical in the conditions of the EDU1-

4) have no safety relevance. The EDU1-4 and the NNS do not use once-through cooling from the river where the safety impact could be quick. Raw water is used only to replenish the losses of cooling water due to evaporation in towers, which is about 1 m^3/s for the EDU1-4 at 100% power of all units. Extremely prolonged drought may affect the operational availability of the NNS, not the heat removal from shutdown reactors. The safety systems will be designed to resist extreme temperatures and other extreme meteorological influences as listed in Chapter B.I.6.3.1.6.3. Extreme climatic effects and floods.

In terms of short-term dry periods of several months, the compensatory role is played by the Dalešice- Mohelno water work system. The Dalešice Reservoir has the total storage volume of 129 mil. m^3 of water and the control storage area of 63 mil. m^3 of water. This storage volume is sufficient both to cover the needs of several months of the NNS at full power (!) and to maintain the minimum residual flow at the outlet of the Mohelno Reservoir. For non-power (shutdown) state of the NNS or the EDU1-4, this is virtually time-unlimited source of water to ensure the removal of residual heat from the reactors.

On the basis of the statements received, interstate consultations and public hearing, the team preparing the report in accordance with Section 9(6) of the Act have requested to add explanatory documents relating to the issue of the supply of process water to nuclear equipment at the Dukovany site. This explanatory supplementation is documented in the relevant annex to the opinion.

- demonstration of the level of safety and requirements and specifications in the field of ageing management to continually reflect the current state of the art (A9)

<u>Settlement</u>: Basic information on the Management Programme for the whole life cycle of a nuclear installation and the Ageing Management Programme are presented in the Documentation (Chapter B.I.6. Description of Technical and Technological Solution). However, the ageing management is not subject to the EIA procedure and will be taken into account at further stages of project preparation. All suppliers will be obliged to demonstrate, in compliance with the relevant legal requirements and standards, the way of taking into account the requirement for the minimum 60-year design life of their projects. The service life of 60 years is made possible by incorporating operating experience on similar reactors and the results of material research.

- failures and accidents without influences of a third party (A10)

<u>Settlement</u>: The NNS design will correspond to current legislation in force in the Czech Republic, the current state of the art and, where relevant, will use the best available technologies (BAT). The hierarchy of requirements to be fulfilled by the NNS in general are set out in the EIA documentation, Figure B.20. The WENRA requirements are set out in the so-called "Level II" and, therefore, will be binding on the NNS design in its entirety. Similar provisions such as WENRA O2 and O3 (2013) are enshrined in Czech legislation in SÚJB Decree No. 329/2017 Coll., on basic design criteria for a nuclear installation.

Neither WENRA nor relevant Czech legislation provides quantitative probabilistic values for virtual exclusion. This value is set in legislation for the virtual exclusion of accidental aircraft crash, with a frequency of 1E-07 per year. It can be assumed that in order to demonstrate the virtual exclusion of other conditions using probabilistic methods, the level of probability of 1E-07 per year and less will be sufficient. However, it should be noted that the very low value of frequency is not sufficient for virtual exclusion; practically feasible design and operational measures should be taken in advance.

- failures and accidents caused by the influences of a third party (A11)

Settlement: According to the statement of the notifier, all reference suppliers of NNS technology confirmed in the technical information gathered under the "REQUEST FOR INFORMATION FOR STRATEGIC DECISION-MAKING ON THE NEXT PROCESS OF NEW NUCLEAR POWER PLANT CONSTRUCTION PROJECTS" resistance of their power units to the plane crash, including a large commercial aircraft and a military aircraft. The NNS supplier will be required to conduct a realistic assessment of the effects of a crash of a large commercial aircraft and demonstrate compliance with the relevant WENRA recommendation specified above.

Detailed analyses of the consequences of accidents of NNS buildings in case of aircraft crash and other external events caused by human activities could be potentially abused in preparation of sabotage or terrorist attack. Therefore, such evidence of resistance, assumptions and results will be classified in accordance with Act No. 412/2005 Coll., as classified information.

The method of securing nuclear facility and nuclear material will match the hazard resulting from design basic threat (DBT), as laid down by SÚJB decision on the basis of the binding statement of the Ministry of Interior, Ministry of Defence, and the Ministry of Industry and Trade, together with the rights and responsibilities in ensuring the security of nuclear material. Design basis threat means a set of features and capabilities of an individual, who is located inside or outside the nuclear facility or near nuclear material and who is capable of using this object intentionally and unlawfully. Design Basis Threat is subject to Act No. 412/2005 Coll., on Classified Information Protection and on Security Capacity, as amended, and its implementing decrees. The design basis is updated regularly once a year or more frequently in case of change in the security situation in the Czech Republic.

- parallel operation of the new facility with the existing reactors of the Dukovany NPP (A12)

Settlement: In the documentation, Chapter B.I.6.4.2. Operation and Decommissioning Schedule for Nuclear Facilities in the Site, it is stated that a fundamental requirement in terms of the construction process is that the EDU1-4 units will be in operation at least until 2035. The first unit of the NNS can be constructed and put into operation approximately in 2035. The second unit of the NNS could be put into operation after shutdown of the EDU1-4, when the period of parallel operation of one unit of the NNS and the EDU1-4 is considered to be a maximum of 10 years. The SÚJB license to continue operation of the EDU 3,4 on this assumption does not change anything. The binding statement in relation to the limits of the site, which are given by the capacity of the transmission system, the amount of released effluents to the watercourse, risks associated with the future development of the climate and its impact on the quantity and quality of water in the Jihlava River and based on the current state of knowledge of the site, formulates the condition that no variant of parallel operation of the NNS and the EDU1-4 will not exceed net electrical power in the Dukovany site of 3,250 MW_e.

- justification of the need for new nuclear power plant versus other energy sources (A13)

Settlement: The comment above had already been settled under (PL5) of this Chapter, which can be referred to in this point.

- distribution of the frequency of drought (A14)

Settlement: On the basis of the statements received, interstate consultations and public hearing, the team preparing the report in accordance with Section 9(6) of the Act have requested to add explanatory documents relating to the issue of the supply of process water to nuclear equipment at the Dukovany site. This explanatory supplementation is documented in the annex to the opinion.

Relevant chapter B.I.6.3.1.6.3. Extreme climatic effects and floods serves as a basis to determine the extremes that may occur in the location. The method of modelling the effects of climatic change of +2°C on precipitations and run-offs is described in Annex 4.1 to the EIA documentation in Chapter 3. Development forecast for the amount of water in the EDU site taking into account the expected climate change. Fig. 11 shows that although the mean temperature for the reference period from 1960 increases, the curve of long-term total precipitations is affected to a very small extent (moderate increase is observed), however, the extremes increase and evaporation increases generally with increasing temperature, causing in particular the future decline in runoff during the summer months with small increase in runoff during the winter months. In the scenario used (with the increase of air temperatures by + 2°C and the variable change of rainfall totals throughout the year):

- *runoff depths increase in winter months by circa 10 % in winter months*
- *runoff depths decrease in the order of 30 % in the summer period*

With these assumptions (i.e. in principle in accordance with the comment), calculations were performed for security of raw water supply within the flow series modelled based on the measured 84-year period and corrected for the effect of climate change of +2°C.

For the needs of the NNS of the EDU, an extensive analysis of climate models for the Jihlava catchment basin was carried out.

With regard to precipitation and temperature changes, the analyses of the extensive set of models can be summarised as follows:

- *Precipitation changes are negligible compared with their year-to-year variability, the simulations show a slight increase (circa 8 % for RCP8.5 around 2100, changes are lower around 2050) on average nevertheless. The reason for a lower increase of average precipitation in the nearer period is that the impact of enhanced greenhouse effect is not that distinct in the mid-21st century as at its end. All changes (e. g. the decrease of summer precipitation, the increase of winter precipitation) are generally more distinct in later periods of time.*
- *For the first two time horizons (2021 - 2050 - ref. 2035 and 2031 - 2060 - ref. 2045), the probable increase in temperature is in the range of 0,5-2°C and 1-2.5°C; for the farthest period (2071 - 2100 - ref. 2085), the increase as assumed by about 1-4.5°C with the mean around 2.5°C.*
- *Historical temperature simulation corresponds to observed anomalies relatively well. An underestimation of long-time variability in case of precipitation is evident, i. e. simulations provide more balanced long-time averages than observations. A lack of consistency between observed precipitation changes with simulations of climatic models is one of the consequences.*
- *The observed temperature growth lies above medium projection of climatic models and corresponds rather to the upper envelope of projected changes.*
- *Temperature changes up to 2050 are similar for all RCP scenarios.*

- *If we consider as the area of changes the area, in which values for 50% simulations lie, then this area comprises the increase of temperature by 2°C for RCP2.6 in the 2014-2088 period, for RCP4.5 in 2026-2100 period, and for RCP8.5 in the 2034-2066 period, therefore the temperature increase by 2°C is the relevant scenario of climate change for the period around mid-century above all.*
- *Temperature changes differ from the total average change up to circa 0.5°C in individual months, a lower warming is projected in spring months and in November, the highest in August. The amplitude of changes is higher in cases of individual simulations as a rule.*
- *Precipitation changes in individual months differ from the average change differ by less than 10 %. The precipitation growth is projected for the end of winter and beginning of spring above all, the drop for summer months and beginning of autumn. The amplitude of changes is higher in case of individual simulations like for the temperature as a rule.*
- *Temperature changes lead to increasing the potential evapotranspiration. In relative terms, the most distinctive increase will occur in winter months (by almost 100 %), in absolute terms, the growth will be the highest in the summer – up to circa 10 mm, 1-5 mm in the winter.*
- *Including the entire seasonal cycle of temperature changes has a small impact on potential evapotranspiration only. We assume that other effects (e. g. on dynamics of snow cover) are irrelevant for the area of interest.*

The uncertainty in the precipitation forecast follows among others also from the position of the Czech Republic in the zone of transition between the area of increased precipitation in the north and decreased precipitation in the south of Europe. In view of a large uncertainty of forecast of precipitation changes, the contemporary literature considers sufficient sometimes to include the observed historical variability of precipitation (e. g. by analysing a sufficiently long time period) adequately. Based on the analysis of precipitation trends observed above all, however, it is possible to consider that the annual precipitation is increasing slightly, however, the distribution of rainfall totals throughout the year changes.

It can be stated based on above mentioned facts that using the climatic scenario +2°C is justified for the period around mid-21st century.

- reduction of H-3 emissions to the environment (A15)

<u>Settlement</u>: In the documentation, in Chapter D.I.3.3.3.4. Other assumptions used, it is stated that the transfer is considered only when determining the highest annual IED for extremely dry years (these are the presented calculation cases 2a and 2b), characterized by minimal residual (authorized) average flow in the Jihlava River under the Mohelno Reservoir. At the same time, technical solution is assumed leading to the reduction of liquid effluents of H-3 (and hence C-14) from the NNS by 50%, by their targeted transfer to the discharges to the atmosphere. However, any other technical solution leading to the reduction of the radioactive substances discharged to watercourses is not excluded, see Chapter B.I.6.3.4.4. Radioactive Substances in Effluents from NNS into Watercourses. The specific proposal of design measures to reduce discharges of tritium in waste water will be specific for each type of reactor and it is currently not possible to define the precise technological process, which will reduce tritium (and hence C-14).

Reducing discharges of H-3 in extremely dry years is also desirable because of the limitations of penetration of H-3 into drinking water sources in the most affected area under the Mohelno Reservoir.

In subsequent licensing procedures, radiation protection will be optimized in the event of discharges of radioactive substances from the NNS as required by Act No. 263/2016 Coll., in order to reduce the risk of health damage.

In terms of the impact on Austria, several key factors should be mentioned. In order to determine the dose, the discharges to the air in all analysed alternatives were increased by the whole (100% of complete radionuclide composition) discharge to watercourses. All results include this conservative assumption, which is described in Chapter D.I.3.3.3.4. Other assumptions used and in greater detail in Annex 5.1 to the documentation. Therefore, the presented results of maximum effects on Austria, see Table D28, comprise this conservative assumption. The assumption about potential redirection of a part of liquid effluents into the air is not applied to the presented calculations of the radiation effects of liquid effluents on Austria and Slovakia and the entire liquid effluent is discharged into the watercourse. At the same time, however, it is assumed, as with the Czech Republic, for the calculation of doses from discharges into the air that the entire liquid discharge is transferred to the air.

Another important fact is that even with the conservative assumption mentioned above for doses from discharges to the atmosphere, the maximum annual individual dose from discharges to the atmosphere in the most affected sector 106 (sector where the municipalities of Obritz, Guntersdorf are situated) is 4.36E-07 Sv while the maximum annual individual dose only from discharges to watercourses in the most loaded sector of Austria affected also by discharges to watercourses, i.e. sector 83 (sector where the municipalities of Wilhelmsdorf, Poysdorf are situated) is 1.65E-06 Sv. This is almost 4 times larger. Although in both cases the doses are very small (negligible compared to the natural radiation background), it is preferable in terms of operating effects of the NNS on Austria to convert a portion of liquid effluents to the atmosphere or otherwise minimize than to implement them in the form of liquid effluents to the Jihlava River, which subsequently forms, like Dyje and Morava Rivers, a boundary river of Austria.

It should also be noted that in terms of radiological impacts on the surrounding population, more convenient way for the release of tritium in the Dukovany site to the environment is the form of gaseous effluents rather than the form of liquid effluents. Considering the same amount of tritium discharged to watercourses, from ventilation stack and cooling towers, the effective dose to the population from the ventilation stack would be about 10 times lower than from watercourses and from the cooling tower more than 10 times lower than that from watercourses. However, it is also necessary to note that the radiological effects of discharges to the air and watercourses on the population in both cases are so small (in the order of μSv) and in comparison with the natural background (in the order of mSv) virtually insignificant that it is not appropriate on the basis of their comparison to prefer one of these pathways of release of radionuclides to the environment.

On the subject of pumping raw water it can be added that it is not the design error but the approach which is the modern standard forcing the companies to improve the quality of their waste water by sucking back what they discharge.

- seismic hazard to the Dukovany site (A16)

Settlement: The resistance of the power plant to the maximum design earthquake, represented by the value of maximum peak ground acceleration at the level of open terrain, will be at least 0.25 g, which exceeds with a wide margin both the level of seismic hazard to the site (SL2 = 0.047 g) and the requirement of Decree No. 329/2017 Coll., and IAEA Safety Guide NS-G-3.3, which sets out the minimum ground component of acceleration to the value of 0.1 g. However, it should be noted that even the minimum required ground acceleration of 0.1 g would provide a sufficient margin (more than two times) compared to the level of seismic hazard to the site.

- installation of additional reactors in the Dukovany Nuclear Power Plant (A17)

Settlement: The binding statement in relation to the limits of the site, which are given by the capacity of the transmission system, the amount of released effluents to the watercourse, risks associated with the future development of the climate and its impact on the quantity and quality of water in the Jihlava River and based on the current state of knowledge of the site, formulates the condition that no variant of parallel operation of the NNS and the EDU1-4 will not exceed net electrical power in the Dukovany site of 3,250 MW_e.

In the case of registered associations and the public, the received statements contained in particular comments on:

- justification of the need for new nuclear power plant (A18)

Settlement: The comment above had already been settled under (PL5) of this Chapter, which can be referred to in this point.

- storage or disposal of spent fuel elements (A19)

Settlement: The comment above had already been settled under (A2) of this Chapter, which can be referred to in this point.

- reactor types proposed (A20)

Settlement: The comment above had already been settled under (H5) of this Chapter, which can be referred to in this point.

- supply of cooling water from the Jihlava River (A21)

Settlement: The comment above had already been settled under (A8) of this Chapter, which can be referred to in this point.

- the given climate scenario (A22)

Settlement: The site limit in the current conditions determined by proposer's analysis in several aspects including the water management aspect and the radiation aspects is 3,250 MWe. The envelope net electrical power of the NNS to 2,400 MW_e conforms in all aspects considered including consideration of climate change of +2°C until 2100.

- safety and reliability of nuclear power plants (A23)

Settlement: The comment above had already been settled under (A4) of this Chapter, which can be referred to in this point.

- lessons learned from the Fukushima reactor accident (A24)

Settlement: The comment above had already been settled under (D12) of this Chapter, which can be referred to in this point.

- failures and accidents caused by the influences of a third party (A25)

Settlement: The comment above had already been settled under (A11) of this Chapter, which can be referred to in this point.

- in general, rejection of the use of nuclear energy to generate electricity on the part of the public and registered associations (A26)

Settlement: All relevant comments were settled in the opinion and the conditions were set out in the draft binding statement. On the basis of the assessment in the EIA documentation, it can be stated that the intent of construction and operation of the NNS for the territory in question can be considered acceptable.

Settlement of interstate consultations

INTERSTATE CONSULTATIONS - REPUBLIC OF AUSTRIA

The protocol of the interstate consultation shows that the questions were divided into the following topics: Alternatives and disposal of spent fuel elements and radioactive waste, reactor types designed including long-term aspects of the operation, failure and accident without any influence of a third party, failure and accident caused by the influence of a third party, transboundary consequences.

The protocol itself does not imply any range of problems to be addressed. On the basis of interstate consultation, the Austrian party has sent the "Final Expert Opinion and Report on Consultation". The Expert Report team addresses in the Expert Report those comments of the final expert opinion that were evaluated as essential in terms of the EIA procedure.

The following overview formulates critical recommendations of the final expert opinion and their settlement.

The energy generation alternatives must be subjected to a comparative assessment with regard to the SEA Directive and with regard to the environmental impacts of specific alternatives of the design.

Settlement: The multi-criteria assessment referred to in the documentation (Chapter B.I.5.2.5.) serves to illustrate the overall context of the NNS in the overall energy strategy of the Czech Republic. The result is not (and as indicated in the text of documentation, cannot be) the choice of the final scenario. The environmental impact assessment procedure for specific sub-source (NNS) cannot substitute strategic assessments. The data presented hereinafter are therefore generally for information. The primary need for the intent is defined in the State Energy Policy of the Czech Republic (SEK CR, 2015), where the need for construction of other nuclear sources in the existing sites of nuclear power plants is justified to ensure national energy security and to fulfil international commitments to climate protection.

In documentation of the need for the NNS intent specifically in the Dukovany site and justification of capacity solution of the NNS intent in this site, criteria-based assessment of five variant scenarios is performed in accordance with the requirements of the finding of the screening and scoping procedure:

- *Reference*
- *Nuclear*
- *Simple recovery scenario*
- *Green*

- *Coal*

The assessment is performed by the internationally recognized set of criteria for sustainable development of the energy sector (see below) in order to assess both the general societal contribution of all scenarios and the acceptability of scenario with a new nuclear source.

The multi-criteria analysis has been prepared by ENVIROS, s.r.o., in cooperation with VUPEK-ECONOMY spol. s r.o., as a basis for the preparation of EIA documentation for the NNS in the Dukovany site. It is necessary to reiterate that the purpose of this assessment, conducted in the framework of preparation of EIA documentation, was not to select the final scenario (it was the subject of the analyses carried out in the above mentioned strategic documents, in particular SEK CR, 2015), but to document and cross-compare the characteristics of individual scenarios of the NNS sub-intent in the overall energy concept.

The individual scenarios used in the multi-criteria analysis are based on the scenarios used in the preparation of the SEK CR (2015) and further elaborate the possibilities of their real fulfilment with different energy sources. The assessed scenarios reflect the essential long-term energy balances, balances of emissions of pollutants and greenhouse gases, development of import energy dependence, development of increase in quality of management of energy resources (decrease in energy intensity) and other parameters. The energy scenarios were modelled from various composition of the future energy mix, where the individual variants allow for differently intensive development of nuclear energy of the Czech Republic as well as for the development of other energy sources (lignite beyond mining limits, renewable energy sources). The scenarios model the development of energy management until 2050. The reference and green scenario used in the multi-criteria analysis corresponds in key parameters to the optimized and green scenario used in the preparation of the SEK CR (2015).

The results of the assessment of scenarios are given in Chapter B.I.5.2.5 of the documentation.

It is recommended to take into account in the selection of suppliers the experience from previous licensing and construction procedures of the proposed reference solutions as they highlight the conceptual weaknesses of each reference solution or the relevant technical aspects (e.g. with regard to the proposal of safety control technology).

<u>Settlement:</u> *The individual experience will be taken into account in the selection of a supplier.*

It is recommended to conduct an assessment of conceptual differences of reference projects before the end of the tender procedure.

<u>Settlement:</u> *The NNS project will be implemented in accordance with Czech legislation, with current IAEA safety standards and WENRA recommendations. These recommendations also include the practical exclusion of early or large releases, which implicitly requires an adequate level of the use of passive or active safety equipment, a sufficient level of redundancy, spatial separation, etc. The fulfilment of that recommendation ensures that in terms of environmental impact, various technological solutions are virtually equivalent. However, adequate combination of different options is the particularity of appropriate technological solution and its specification would be counter-productive.*

The EIA documentation is not the safety documentation but addresses only the environmental effects. In this respect, it is not even possible to conduct detailed technical

assessments within the EIA - they are the subjects of other procedures, where the requirement will be taken into account.

It is recommended to set the probabilistic safety goals for the frequency of fuel damage before the end of the tender procedure.

Settlement: Probabilistic frequency values are not included because in terms of the effect on human health and on the environment they are implicitly overlapped by stricter requirements on the virtual exclusion of early or large releases of radioactive substances. Therefore, the specific values of the frequency of fuel damage are insignificant. Current nuclear legislation requires the implementation of probabilistic safety assessment and assessment of acceptability of the calculated probabilistic values will be assessed by the supervisory authority.

It is recommended to define and implement project-specific methods before the end of the tender procedure to demonstrate the virtual exclusion of early or large releases.

Settlement: The successful candidate must comply with the tender documentation, which will include all safety requirements resulting from national legislation, WENRA and IAEA standards including requirements for the virtual exclusion of large and early releases. The virtual elimination of large and early releases will be demonstrated within the construction permit on the specific design.

It is recommended to indicate the project-specific methods to demonstrate that the repeated failures of safety equipment is prevented.

Settlement: These methods will be indicated in the construction permit on the specific design.

It would be desirable if the catalogue of the sets of norms and standards to be met by the designs as a minimum is presented for levels III to V of the sets of standards according to the pyramid of the sets of standards in the EIA report. These should include the requirements for designing structures, systems and components as well as requirements for electrical equipment and safety control system.

Settlement: The approach to the application of standards including the list of mandatory standards of each level will be already included in the initial safety analysis report and will be further refined on the basis of project development.

It is recommended to:

- set the probabilistic safety objective for demonstrating the virtual exclusion before the end of the tender procedure. This must comply with the WENRA requirement
- that compliance with the probabilistic safety objectives will be demonstrated through an Extended Probabilistic Safety Analysis (Extended PSA)

Settlement: The successful candidate must comply with the tender documentation, which will include all safety requirements resulting from national legislation, WENRA and IAEA standards including requirements for the virtual exclusion of large and early releases. The virtual elimination of large and early releases will be demonstrated within the construction permit on the specific design.

It is recommended to systematically assess and take into account in designing any possible combinations of hazardous events.

Settlement: The evaluation of the characteristics of the area including evaluation of hazards and their possible combinations will be the subject of the Initial Safety Analysis Report.

It is recommended to investigate reliability of the results of PSHA for seismic hazard through sensitivity analyses. It is recommended that the PSHA for seismic hazard to the Diendorf-Boskovice quarry take into account several seismotectonic models (non-segmented quarry, segmented quarry)

Settlement: The PSHA is prepared in accordance with the latest IAEA recommendation SSG-9 concerning the assessment of seismic risk. Under this project, ČEZ will make maximum use of the practical experience of other states that are involved in this assessment.

It is recommended to determine seismic resistance for safety equipment required to ensure containment function (Defence in Depth (DiD) level 4) to ensure that such safety equipment will remain functional after an earthquake event with the probability of occurrence of 10-7/year.

Settlement: The required resistance of the power plant to the maximum design earthquake, represented by the value of maximum peak ground acceleration at the level of open terrain, will be at least 0.25 g, which exceeds with a wide margin both the level of seismic hazard to the site (SL2 = 0.047 g) and the requirement of Decree No. 329/2017 Coll., and IAEA Safety Guide NS-G-3.3, which sets out the minimum ground component of acceleration to the value of 0.1 g. However, it should be noted that even the minimum required ground acceleration of 0.1 g would provide a sufficient margin (more than two times) compared to the level of seismic hazard to the site.

The given frequency of 10^{-7} is not applied in cases of external hazards of natural character but only to events of internal origins. It seems that there was a misunderstanding on the Austrian side, although the above was discussed in detail in consultations. The probabilistic assessment of external hazards of natural origin is performed to the level of 10^{-4} (design basis). Demonstration by means of virtual elimination is not performed but reasonable safety margin must be determined to ensure that there will be no loss of basic safety functions.

The requirement for choosing seismic resistance of safety equipment so as to remain functional even after the event in form of earthquake with the probability of occurrence of 10^{-7}/year is methodologically incorrect and contrary to the IAEA and WENRA recommendations and for this reason it must be rejected.

It is recommended to take into account the possible effects of snowstorms on pollution of substations, blocking of ventilation equipment and their abrasive effects.

Settlement: A complete list of design basis will be drawn up within the framework of the Initial Safety Analysis Report. The evaluation of the characteristics of the area including evaluation of hazards and their possible combinations will be the subject of the Initial Safety Analysis Report.

Based on experience with the effects of leaves and rubbish carried by wind onto the cooling towers of the existing Dukovany Nuclear Power Plant, analyse this hazard and plan protective measures.

Settlement: A complete list of design basis will be drawn up within the framework of the Initial Safety Analysis Report. The evaluation of the characteristics of the area including evaluation of hazards and their possible combinations will be also the subject of the Initial Safety Analysis Report.

It is recommended to prove that neither external event nor any combination of events leads to failure of components, systems and equipment that are necessary to maintain the containment function. Evidence should be submitted for individual events and combinations of events with the probability of occurrence of 10^{-7}/year. The requirement is derived from the notification of the Czech party, for virtual exclusion set the value of 10^{-7}/year as the probabilistic safety objective.

Settlement: The given frequency of 10^{-7} is not applied in cases of external hazards of natural character but only to events of internal origins. It seems that there was a misunderstanding on the Austrian side, although the above was discussed in detail in consultations. The probabilistic assessment of external hazards of natural origin is performed to the level of 10^{-4} (design basis). Demonstration by means of virtual elimination is not performed but reasonable safety margin must be determined to ensure that there will be no loss of basic safety functions.

It is recommended to systematically analyse interactions in accidents in the planned reactors and in the existing reactors in the site and exclude that such interactions may intensify the effects of the accident.

Settlement: This evidence will be given in the subsequent licensing procedure.

For the effects for which detection of the frequency of occurrence is not reasonably possible (e.g. targeted aircraft crash), deterministic analyses should be carried out on the basis of reasonably justified assumptions of hazards and loads.

Settlement: All analyses will be carried out in accordance with the requirements of Czech legislation with regard to the IAEA and WENRA recommendations.

It is recommended to determine the transboundary effects of a severe accident based on existing technical data (with the failure of containment).

Settlement: It is not possible to model an event, which is in conflict with Czech legislation and the IAEA and WENRA recommendations. This event must be excluded.

It is recommended to take into account the possibly existing different levels of protection of individual reference projects against terrorist attacks when selecting a supplier or technology for a new nuclear power plant and for the interim storage facility for spent fuel elements.

Settlement: The way to protect nuclear facilities in different countries is not important, but what is required by legislation of the Czech Republic. It is not possible to compare because each country has a different design basis threat. The interim storage facility for spent nuclear fuel is not part of this environmental impact and public health assessment procedure.

It is recommended to set out the minimum requirements in the regulations regarding protection against targeted fall of commercial aircraft and/or specify them in the documentation of invitation to tender.

Settlement: The requirements for resistance of a nuclear facility to an intentional attack by means of aircraft are set out in the WENRA recommendations and therefore will be applied to the design.

The detailed results of the calculations for contamination and doses in the Austrian territory which have been submitted as part of the consultation should be available to the public in the EIA expert report.

Settlement: Based on the requirements of the Austrian party within the consultations, the requested supplementary document according to Section 9(6) of the Act involved the adding of information on the radiation effects of the EDU NNS on Austria to a distance of 380 km from the EDU NNS, for the source term "DEC, severe accident, ground release" - Annex 2.2 of the opinion submitted, which will be fully published.

Only such reactor type should be chosen for which it is virtually possible to exclude that even in case of severe accident, there will be no significant impacts in Austria. These impacts include the need for intervention measures by the Austrian Intervention Regulation (IntV 2017) but also the need for agricultural protective measures such as early harvest. Estimation of the levels of contamination or doses should be also based on the most adverse weather conditions for Austria.

Settlement: The recommendation cannot be accepted, particularly in relation to the Austrian catalogue of measures to protect agricultural production, which is set as very strict and deep below the levels at which it would be prohibited to sell the affected products on the EU markets. Artificial selection of the most adverse weather conditions reduce the likelihood that such consequences will occur and it is therefore always necessary to indicate the likelihood of such an event. The NNS design will correspond to current legislation in force in the Czech Republic, the current state of the art and, where relevant, will use the best available technologies (BAT). The hierarchy of requirements to be generally fulfilled by the NNS is referred to in the documentation, Figure B.20.

The reactor should be selected so as not to exceed the dose limit of 1 mSv/year in any failure or accident situation in Austria. It is necessary to take into account local Austrian food consumptions.

Settlement: The general limit for inhabitants is 1 mSv (Article 12, 2013/59/Euratom) but it does not apply to emergency exposure situations or 1 mSv (Article 10) but it applies to pregnant exposed workers. In both cases, it is the limit as a result of authorized activities, not accident/emergency exposure.

It is recommended to calculate the transboundary impacts of severe accident with the failure of the safety envelope and of severe accident with damage to the fuel elements in pools, independently of the specified probability of their occurrence, if physically possible.

Settlement: It is not possible to model an event, which is in conflict with Czech legislation and the IAEA and WENRA recommendations. This event must be excluded.

It is recommended, as part of the EIA procedure, to analyse the impacts of potential accident-conditional spread of radioactive substances in water or, if necessary, to develop appropriate intervention measures.

Settlement: These consequences have already been sufficiently analysed in the EIA documentation.

INTERSTATE CONSULTATIONS - FEDERAL REPUBLIC OF GERMANY

The protocol of the interstate consultation shows that the questions mainly concerned the assessment of radiation effects and were divided into three topics: emissions of radioactive substances to the atmosphere during operating conditions; emissions of radioactive substances during accident conditions including severe accident; determination of the collective dose.

The protocol itself does not imply any range of problems to be addressed. Annexes 4 and 5 to the protocol of consultation with the Federal Republic of Germany to the EIA documentation of the intent "New Nuclear Source at the Dukovany Site" include the following statements:

- Statement of the Bavarian State Ministry for the Environment and Consumer Protection of 17 January 2018
- Statement of the Ministry of the Environment, Energy, Food and Forestry, Rhineland-Palatinate, of 29 December 2017

The team preparing the report addresses those comments evaluated as essential in terms of the EIA procedure.

Statement of the Bavarian State Ministry for the Environment and Consumer Protection of 17 January 2018

The Bavarian state government participated in a certain way in formation of the withdrawal of Germany from the use of nuclear energy and refuses new construction at the Dukovany site.

Settlement: As evident from the whole environmental impact assessment procedure, the NNS project will be implemented in accordance with legislation of the Czech Republic and the current internationally accepted IAEA and WENRA safety recommendations. The hierarchy of requirements to be generally fulfilled by the NNS is referred to in the EIA documentation, Figure B.20.

For discharges with air during normal operation of the two planned units, it should be provably demonstrated how the values shown in Table 1 were set and what is their relevance to the actual evaluation of annual exposure in the vicinity of the planned power plant units. The maximum values of discharge of radioactive substances with air in a calendar year are based on data from suppliers of reference projects, "according to which actual lower amounts discharged can be expected based on operational experience".

Settlement: The envelope discharges to the air and watercourses were determined in the following very conservative manner, representing the full envelope approach used. The reference units were divided into two groups. The first group included units with net electric power to 1,200 MW_e and the second group included units with higher power level. Data were obtained on maximum design discharges of individual radionuclides to the air and liquid effluents for individual radionuclides. For both groups of units, maximum values were obtained for individual radionuclides and for the units with power capacity up to 1,200 MW_e, these maximum values were doubled (because two units of the NNS with this power capacity are considered), for both discharges to the atmosphere and discharges to water. These results are summarized in Tables 4, 5, 8, 9 in Annex 5.1 to the documentation. Subsequently, the assumption was applied on the conversion of 20% of liquid effluents of H-3 and C-14 to the atmosphere (natural conversion caused by the collection and discharge of water taking place from the same source of water - the Mohelno Reservoir). The liquid effluents were reduced by this portion. Furthermore, a conservative assumption was applied to discharges to the atmosphere that all liquid effluents to the atmosphere can be theoretically converted and discharges to the atmosphere were therefore increased by a whole discharge to water (see Tables 12 and 13 of Annex 5.1 to the documentation). The procedure is described in detail in Chapters 3.5 Other Assumptions Used for Individual Doses and 4.3 Applied Assumptions about Distribution of Discharges from EDU NNS and EDU1-4 in Annex 5.1 to the documentation. The procedure is then briefly described in Chapter D.I.3.3.3.4. Other assumptions used in the documentation. Regarding the course of

discharge in time, uniform distribution of the maximum annual discharge on particular days of the year was assumed. Although discharges in real operation show some unevenness, it is not significant based on operational monitoring and these minor unevenness has no effect on the evaluation of annual individual effective dose. This fact can be demonstrated on the monitoring reports of the Temelín NPP (VVER 2 x 1,000 MW_e). The activities of isotopes H-3 and C-14 in ventilation stacks before discharge to the atmosphere were selected as an example, in the form of percentage of monthly discharge in relation to yearly discharge (100%). Potential suppliers are familiar with these technologies. In transfer, the following two methods are possible in principle:

- *by transporting the waste water with a higher concentration of tritium through the circulating cooling water system to the cooling towers from which the cooling water with tritium will be evaporated,*
- *by evaporation of water with a higher concentration of tritium in technological evaporators and removal of steam into the ventilation stack.*

However, it is also necessary to note that the radiological effects of discharges to the air and watercourses on the population in both cases are so small (in the order of μSv) and in comparison with the natural background (in the order of mSv) virtually insignificant that it is not appropriate on the basis of their comparison to prefer one of these pathways of release of radionuclides to the environment.

Design basis accidents and events beyond the scope of design. For reliable assessment, detailed technical documentation should be submitted, which shows under what boundary conditions of dimensioning and with what safety margins the complete integrity of safety equipment can be assured. To assess affection of Bavaria and Germany, load assumptions for SEWD events, the amount and type of released radionuclides (Quellterm) and the resulting exposure must be specified.

<u>Settlement:</u> *The source term for severe accidents and the determination method are described in detail in Chapter D.II.1.6.2. Source term for radiation extraordinary events of the documentation and specifically for severe accident in Chapter D.II.1.6.2.3.3. Source term for severe accident. Commented results of the radiological consequences of severe accident are described in Chapter D.II.1.7.2.3. Severe accident. Determination of the source term was based on the EUR requirements for the maximum allowable releases of radioactive substances to reduce short-term and long-term consequences and, in particular, on the US NRC documents of NUREG series or IAEA and NEA concerning mainly the spectrum of radionuclides in the fuel, level of fuel damage in DBA and radionuclide composition in the containment in DEC and other assumptions used. In terms of the impact of a severe accident at the NNS on Germany, the average individual effective doses for two days in the nearest border areas will be at a maximum level of 1.9 μSv (95% quantiles of 10 μSv), the average annual individual effective dose without ingestion is 4.3 μSv (95% quantiles of 20 μSv). The levels to impose a ban on the placing of commodities/foodstuffs on the market according to the Council Regulation (Euratom) 2016/52 will not be exceeded in the territory of Germany. The contributions of ingestion have not been determined for regions situated at a distance more than 100 km, but the maximum mean (maximum mean value in the annulus) contribution of year-round ingestion at a distance of 100 km is approximately 30 μSv and 95% quantiles of 150 μSv. They are the doses deeply below the limit not reaching even 1 mSv per year. In the nearest regions of Germany, it can be assumed that they will be one order of magnitude lower. Detailed analyses of the consequences of accidents of NNS buildings in case of aircraft crash and other external events caused by human*

activities could be potentially abused in preparation of sabotage or terrorist attack. Therefore, such evidence of resistance, assumptions and results will be classified in accordance with Act No. 412/2005 Coll., as classified information.

For population exposure during normal operation, the annual collective dose for inhabitants of Germany is indicated, which is caused by the impacts of annual removed volume from a new nuclear power plant, with approximately 0.12 Sv. More detailed explanation of how the collective dose for inhabitants of Germany was identified is missing.

Settlement: The consultations clarified that German public exposure as a result of the normal operation of the NNS (for all power alternatives considered) has been determined as exposure to global nuclides discharged to the atmosphere and hydrosphere as a result of normal operation.

Statement of the Ministry of the Environment, Energy, Food and Forestry, Rhineland-Palatinate, of 29 December 2017

We are very concerned about the plans of the Czech Republic to extend and carry on with the use of nuclear energy and we strongly oppose the intent of the new construction in the Dukovany site and the plans presented for that purpose.

Settlement: It is possible to understand the concerns which may the Government of the Land Rhineland-Palatinate and its inhabitants have in relation to nuclear energy. However, in the case of the NNS in the Dukovany site, is not the extension of the existing power plant or the construction of additional nuclear capacity, but the construction of a new power plant to the most modern standards to replace the Dukovany NPP in operation (EDU1-4). From the beginning, the NNS will be design-equipped to manage severe accidents to minimize the consequences on the surroundings. Radiological consequences of severe accidents are dealt with in the documentation in Chapter D.II.1.7.2.3. Severe accident. In terms of the impact of a severe accident at the NNS on Germany, the average individual effective doses for two days in the nearest border areas will be at a maximum level of 1.9 μSv (95% quantiles of 10 μSv), the average annual individual effective dose without ingestion is 4.3 μSv (95% quantiles of 20 μSv). The levels to impose a ban on the placing of commodities/foodstuffs on the market according to the Council Regulation (Euratom) 2016/52 will not be exceeded in the territory of Germany. The contributions of ingestion have not been determined for regions situated at a distance more than 100 km, but the maximum mean (maximum mean value in the annulus) contribution of year-round ingestion at a distance of 100 km is approximately 30 μSv and 95% quantiles of 150 μSv. They are the doses deeply below the limit not reaching even 1 mSv per year. In the nearest regions of Germany, it can be assumed that they will be one order of magnitude lower.

Examination of the zero variant within the examination of alternatives. The project concerning the new construction of nuclear facility at the Dukovany site is an essential part of the mix of fuels for energy generation in the Czech Republic. Other energy sources and tools of the energy policy (including savings) should remain unaffected and will be developed in respective connections. It is also stated that the aim and obligation of the Czech Republic is to reach the energy industry with low carbon emissions by 2050. The zero variant should be thus preferred, which represents the refraining from the construction of a new nuclear power plant at the Dukovany site.

Settlement: The documentation is focused on a specific design of a new nuclear source in the Dukovany site, which forms a sub-part of the energy mix. It is not and cannot be a conceptual document, assessing the industry strategies. The form of the energy mix was the subject of the

energy concept (State Energy Policy of the Czech Republic, 2004, Update of the State Energy Policy of the Czech Republic, 2015), which included the strategic environmental assessment (the so-called SEA). Therefore, the form of the energy mix, or the share of individual sources in the energy mix, has undergone a variant evaluation, which was concluded by approval of the relevant concepts by the Government of the Czech Republic. The strategic documents referred to in the above chapters clearly document the need for a new nuclear source and its location.

Unspecific reactor types and indefinite number of reactor units. The presented documentation is unspecific in relation to the type of reactor to be used. It only describes the specific details and requirements that apply to a new nuclear power plant at the Dukovany site.

Settlement: Commercially available reactor means a reactor, which is already offered for sale. The given reference projects comply with the requirement - they are already offered in the world and therefore they are not only studies of NNS projects. The EPR reactor is mentioned in the documents available with the power capacity up to 1,750 MW_e (depending on the conditions of the site). This is a gross power capacity. Basic information on the Management Programme for the whole life cycle of a nuclear installation and the Ageing Management Programme are presented in the Documentation (Chapter B.I.6. Description of Technical and Technological Solution). However, the ageing management is not subject to the EIA procedure and will be taken into account at further stages of project preparation. All suppliers will be obliged to demonstrate, in compliance with the relevant legal requirements and standards, the way of taking into account the requirement for the minimum 60-year design life of their projects. The service life of 60 years is made possible by incorporating operating experience on similar reactors and the results of material research.

Assessment of the subsequent occurrence of radiation in severe accident. The conclusion that radiation from the planned Dukovany Nuclear Power Plant during normal operation, during partial and design failures does not pose any danger and in case of accidents, causes problems in a maximum radius of 3 km, cannot be accepted after the events of 11 March 2011 in Fukushima.

Settlement: According to the team preparing the report, conclusions of the documentation on the assumptions and consequences of severe accidents are inaccurately reflected in the comment. The summary of the results of assessment of the consequences of a severe accident is given in Chapter D.II.1.7.2.3. Severe Accident of the documentation and can be recapitulated as follows: Severe accident characterized by relevant source term does not lead with certainty to the release of radionuclides requiring evacuation of inhabitants anywhere in the surroundings of the NNS. With a high degree of certainty (95%), the need for sheltering and iodine prophylaxis at distances of 5 km from the NNS will be excluded in case of severe accident of the NNS. It can be assumed that there will be no need for considering permanent relocation in the NNS surroundings and this measure can be ruled out in 95% likelihood within the distance of 3 km from the NNS. The measures to reduce the consumption and sale of agricultural products will be time-limited to a maximum of one year and will be space-limited. Restrictions on the sale of agricultural products in the application of EU rules to limit the placing of contaminated products on the market of EU countries (Council Regulation (Euratom) 2016/52) will not exceed 100,000 tons. Transboundary influences and impacts in terms of dose will be low. The highest annual doses for the public abroad (Austria) while taking into account the ingestion of contaminated food will not exceed, with the probability more than 95%, 1.8 mSv and 0.7 mSv without ingestion. The envisaged loss of agricultural production abroad in the application of EU rules to

restrict the placing of contaminated products on the market of EU countries applies only to Austria and should not exceed 30 tons of milk. For severe accidents, which may not be practically excluded, such design measures need to be adopted that the introduced population and environment protection measures are time and area limited (excluding permanent relocation of population, necessity of evacuation from the vicinity of the power plant, only limited sheltering of persons, and no long-term restriction on food consumption) and there is enough time for implementing the given measures. In relation to the reported high level of risk of nuclear energy, it may be noted that it is stated in the EIA documentation that the Energy-Related Severe Accident Database (ENSAD) shows that nuclear energy is, in terms of fatalities recorded as a result of accidents per unit of generated electricity, one of the safest sources. The NNS intent does not compete development of renewable energy sources. The approved updated State Energy Policy of the Czech Republic (2015) is, in terms of electrical power generation base, based on the preference of the development of nuclear energy and preference of renewable energy resources (OZE). According to the SEK, the proportion of OZE in the mix of the sources of electrical energy should amount up to 25 % in 2040. The proportion of OZE in gross electricity consumption is currently about 14% (2015, source: Ministry of Industry and Trade of the Czech Republic). Therefore, even during NNS implementation, a considerable space remains for the development of renewable resources, which are considered in the approved Energy Policy.

INTERSTATE WRITTEN CONSULTATIONS - REPUBLIC OF POLAND

On 24 January 2018, the Ministry of the Environment of the Czech Republic received the letter from the General Directorate for the Environmental Protection of the Republic of Poland of 18 January 2018 which forwarded the questions and comments on the documentation submitted under Article 5 of the Espoo Convention and which requested a written explanation of them in the context of transboundary consultations.

In the context of interstate consultations, the Statement of the Ministry of Energy, Department of Nuclear Energy, of 8 March 2018 was delivered. The statement has been received by the competent authority after the deadline for comments, however, Poland asked for its settlement in the context of interstate consultations.

On the basis of that letter, the Ministry of the Environment of the Czech Republic appealed to the notifier with a request for settlement of the questions and comments raised. The notifier has compiled a comprehensive set of answers to respond to the questions and comments, and such material was sent in the letter of the Ministry of the Environment of the Czech Republic, ref. no. MZP/2018/710/1288, of 16 June 2018 to the General Directorate for the Environmental Protection of the Republic of Poland.

On 18 May 2018, the General Directorate for the Environmental Protection of the Republic of Poland responded, under ref. no. DOOŠ-tos.0442.6.2016.az15., that "the provided answers and explanations to the questions of the Polish party are sufficient and the Polish party has no other comments on the procedure of the transboundary impact of the intent on the environment". It was also requested to keep informed on the next stages of the procedure including submission of the final decision in accordance with Article 6 of the Espoo Convention.

The team preparing the report addresses those comments evaluated as essential in terms of the EIA procedure.

Statement of the Ministry of Energy, Department of Nuclear Energy, of 8 March 2018

The Ministry of Energy requests information on whether, and if yes, how the selection procedure for technology for nuclear power plant will take into account the aspects of nuclear safety - e.g. by conducting a pre-licensing safety assessment by the State Office for Nuclear Safety of the Czech Republic (SÚJB), and if not, whether an interaction between the potential suppliers of technologies for nuclear power plant (e.g. according to a "short list") and the SÚJB is expected before the formal application for building permit.

Settlement: The NNS project will be implemented in accordance with legislation of the Czech Republic and the current internationally accepted IAEA and WENRA safety recommendations. The hierarchy of requirements to be generally fulfilled by the NNS is referred to in the documentation, Figure B.20. At this time, the investor is not aware of the SÚJB planning the so-called "pre-licensing procedure". However, this cannot exclude the fact that the SÚJB may decide to take this step in the future. Before applying for the construction permit, the particular supplier of the new nuclear source will already be known and close communication will take place between the applicant, the supplier and the SÚJB, especially to discuss the technical issues for this application.

Please indicate how the requirement of independence of backup power supply for internal consumption was met - the connections shown in diagram in Fig. B.40 are routed to one electricity station.

Settlement: The diagram (Fig. B.40: Ideological wiring diagram of the NNS to the electricity network) is only for information and shows, in particular, the method of connection of the NNS to the Slavětice transformer station. This ideological diagram does not address the internal configuration of the transformer station and, therefore, inconsistency with the IAEA document SSG-34 cannot be drawn on the basis thereof. The Slavětice transformer station includes both the 400 kV section intended for power output and the 110 kV section intended for securing the reserve power supply to cover the internal consumption of the NNS. At the same time, it has a sufficient amount of connections to the transmission or distribution system, at both voltage levels, so as to ensure the necessary reliability of securing the reserve power supply to cover internal consumption. The IAEA document SSG-34 is included in a licensing basis of the NNS design and its requirements will therefore be required to be adequately fulfilled.

Please specify where the technical support centre and the emergency control centre will be located? Will they be situated in the same building? The NNS will also be provided with the centre for emergency management to manage and coordinate activities in emergency conditions.

Settlement: In accordance with the information referred to in the documentation, in Chapter D.II.1.11.3.3., the NNS project will include the emergency control centre and the technical support centre to ensure radiation extraordinary event management. These centres will be located in accordance with the requirements set out in SÚJB Decree No. 329/2017 on basic design criteria for a nuclear installation. Each of the centres performs different function and their location in the same building is not excluded. The specific location will be agreed with the SÚJB in the permit for construction of a nuclear facility.

Childhood leukaemia is not specified, although the whole subsection on pages 225-226 is dedicated to this topic.

Settlement: Leukaemia, code C91 to C95, and the so-called non-Hodgkin's lymphomas, code C82 to C85, belong to malignant neoplasms of lymphoid, haematopoietic and related tissue (C81 to C96) and are under the indicators examined in Chapter C.II.1.3.3.2.1. The introductory

section of Chapter C.II.1.3.3.2.3. Incidence of malignant neoplasms explains why special attention is given to childhood leukaemia, which is subsequently addressed in a separate section in Chapter C.II.1.3.3.2.3.

One of the discussed parameters is the overall mortality as a result of all causes for all reference groups. It should be noted, however, that this parameter does not provide any actual epidemiological information (as the total mortality of all persons eventually amounts to 100%). Real information is given by mortality in relation to another parameter, such as child mortality and mortality of people under 50 years of age, because such parameters inform readers about health status of inhabitants or health situation in the area.

Settlement: Mortality is very often used in technical literature as one of the basic health indicators, which is sufficiently explained in the text of documentation. Mortality expresses the number of deaths in the given population over a certain period of time, most often a year, usually converted to a common denominator (100,000; million of inhabitants). Mortality could achieve the value of 100% only in the event that the whole assessed sample of population dies within a year. All indicators of mortality were calculated separately for men and women. The mortality rate in the different geographical areas (exposed and control) was compared with the national level. For comparison, the so-called "age standardization" is always used, i.e. mathematical conversion that corrects the results so as to eliminate the effect of different age structures. Therefore, the mortality indicators were age-standardized in all cases and the results are presented as the Standardized Mortality Ratio (SMR) in the documentation.

It was stated that the average annual effective dose from natural sources in the Czech Republic represents 90% of the total average annual effective dose for the average inhabitant. But this seems very unlikely given that the average annual effective doses of medical X-ray examination in Europe are at the level of 20-40%, not 10%. It is possible that this portion in the Czech Republic amounts to 10%, which, however, should be commented on.

Settlement: Information in Chapter C.II.3.3.1 (i.e. information on the average annual effective dose from medical exposure) was processed on the basis of publicly available data from the National Radiation Protection Institute (https://www.suro.cz/cz). The founder of the SÚRO is the SÚJB (State Office for Nuclear Safety). The party preparing the documentation and the notifier of the intent shall not comment on the timeliness of such official sources.

The monitoring comprising the following was described:

a) measurement of the gamma activity of radioactive aerosols and the activity of iodine in the air;

b) measurement of the activity and concentrations of radioactive samples from the environment;

c) measurement of the dose rate. In the latter case, the dose rate is estimated on the basis of the measurements performed by means of thermoluminescent dosimeters (TLD), most often read on a quarterly basis, which raises a big issue of the absence of real measurement of the dose rate in real time.

This situation should be appropriately described as reading, e.g. in Chapter D.II. 1.11.3.2.1, will lead us to learning that such real-time measurements are being performed ("teledosimetric system").

Settlement: In accordance with the information provided in the documentation, Chapter C.II.3.3.2.3. Immission situation, the TLD (thermoluminescent dosimeters) system measures the dose equivalent rate of gamma radiation and thus allows to identify the possible excessive presence of gamma sources in its vicinity. The TLD system is one of many methods of radiation situation monitoring in the surroundings of the EDU1-4 and its basic goal is to control the impact of operation of the EDU1-4 on the environment and confirm the non-exceeding of general exposure limits. However, its purpose is not to timely identify potential releases of radioactive substances (there are other systems for that purpose, e.g. TDS) or accurately determine exposure of the population and, therefore, the TLDs are evaluated only on a quarterly basis.

Poland - annual collective effective doses and committed effective doses. What will be the annual collective effective doses and committed effective doses? The table shows only one value and, by definitions, there are two types of doses.

Settlement: After studying the assessed documentation, the team preparing the report concluded that the following requirements resulting from the statement of the "Ministry of Energy, Department of Nuclear Energy" of the Republic of Poland of 8 March 2018 in relation to the transboundary impacts that relate to the effective doses and committed effective doses in the territory of the Republic of Poland are not included in the assessed documentation. Therefore, the notifier was requested to provide an additional document that is included in Annex 2.3. of the present opinion.

What will be the annual effective dose and the committed effective dose for an adult and a child representative for Poland [Sv/year]?

Settlement: The calculation of annual individual effective doses from operational effluents of the NNS taking into account the co-acting effect of the EDU1-4 power plant in operation was executed in all sectors to a distance of 100 km as shown in Fig. D.7: Schematics of the arrangement of calculation network - whole calculation area. Although this area does not extend to the territory of Poland, sector 24 is situated relatively close (about 20 km from the border with Poland). In the context of answering the submitted request, this sector 24 and the adjacent sectors 12 and 36 were taken as reference sectors for evaluating the effective dose and committed effective dose for an adult and a child representative for inhabitants of Poland in the nearest border areas. For more information see below.

What will be the annual committed effective dose equivalent for thyroid gland of an adult and a child representative for Poland [Sv/year]?

Settlement: Detailed assessment of radiation impacts of the operation of the NNS on representative persons through all routes of exposure has been carried out within 100 km from the NNS. For the purposes of determining the exposure of representative person in the territory of Poland, it is possible to apply the results of exposure of hypothetical representative person in the nearest area of the Czech Republic (distance from the Polish border is about 20 km). In order to prepare the answer to the question, a new calculation has been developed because the calculation of committed effective dose equivalent for thyroid gland from normal operation of the NNS was not part of the underlying studies for documentation. The calculation was executed for sector 12 because the highest individual doses from 3 border sectors (12, 24, 36) have been identified in this sector in the context of answer to the previous question. The category under 1 year of age is selected as representative for the age category "children". Justification: In this age category, the calculated doses to the thyroid gland are the highest, in all other age categories (i.e. 1-2, 2-7, 7-12, 12-17), the calculated doses to the thyroid gland are lower. The dominant

contribution to the dose to the thyroid gland is caused by nuclide I-131. The dominant part of the dose to the thyroid gland is caused by ingestion of iodines, the minor part (10-30%) by inhalation of iodines. The committed dose equivalent to the thyroid gland of children in Poland, due to annual discharges, does not exceed the value of 7 nSv. The committed dose equivalent to the thyroid gland of an adult in Poland, due to annual discharges, does not exceed the value of 2 nSv.

Please indicate the location of the Backup Emergency Control Centre (power plant owner) and the Backup Technical Support Centre? At what distance from the planned power plant these centres will be located? Will they be situated in the same building? Please indicate the location of the Off-site Emergency Support Centre (for the purposes of management and intervention actions outside the power plant)?

Settlement: In accordance with the information in the documentation specified in Chapter D.II.1.11., the backup emergency control centre, the backup technical support centre and the off-site technical support centre of the NNS will be designed as required by Czech legislation (in particular SÚJB Decree No. 329/2017 Coll., on basic design criteria for a nuclear installation). The specific location of the backup emergency control centre, the backup technical support centre and the off-site emergency support centre will be agreed with the SÚJB within the stages of the licensing procedure. The centres will be at a sufficient distance from the planned power plant so that their functions and habitability were not affected by radiation extraordinary event in the premises of the power plant. Their location in the common building outside the premises of the nuclear facility is possible and also appropriate due to the functions in extraordinary event management.

INTERSTATE WRITTEN CONSULTATIONS - HUNGARY

On 15 December 2017, the Ministry of the Environment of the Czech Republic received the letter from the Ministry of Agriculture of Hungary of 6 December 2017 in which the Hungarian party submitted its comments and queries on the EIA documentation.

The subsequent e-mail correspondence showed that Hungary requests, under Article 5 of the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention), only a written settlement of the statement sent.

On the basis of that letter, the Ministry of the Environment of the Czech Republic appealed to the notifier with a request for settlement of the questions and comments raised by letter of the Ministry of the Environment of the Czech Republic, ref. no. MZP/2017/710/3185 of 12 April 2018.

The notifier has compiled a comprehensive set of answers to respond to the questions and comments, and such material was sent in the letter of the Ministry of the Environment of the Czech Republic, ref. no. MZP/20128/710/1412, of 4 May 2018 to the Ministry of Agriculture of Hungary.

At the time of preparation of the opinion, the current response of Hungary to the answers of the notifier was not available despite repeated reminders.

However, it can be concluded that the documents that have been prepared by the notifier in the context of written interstate consultation provided sufficient answers to questions of the Hungarian party, and also did not bring any new facts. For the above reasons, the team preparing the report can therefore consider the questions to be fully answered.

The team preparing the report addresses those comments evaluated as essential in terms of the EIA procedure.

There is a lack of investigation of the scenario which considers the parallel operation of a 1,200 MW_e UNF unit and EDU1-4 during the time period from 2035 to 2045. From the perspective of radiation safety, we consider this case scenario to be important.

Settlement: The following is stated as to the scenario of parallel operation of NNS Unit 1 with the capacity of 1,200 MW_e and the existing EDU1-4 power plant in operation in the documentation in Chapter D.I.1.1.2. Radiation effects:

In terms of radiation effects of operational states, the following power alternatives of the NNS and the EDU1-4 are determined and sensitivity analyses confirmed decisive alternatives:

Operation of the NNS 2x1200 MW_e and decommissioning of the EDU1-4. This power alternative will lead to higher radiation effects than the operation of the NNS 1x1200 MW_e and operation of the EDU1-4. This is because the envelope design discharges of the NNS with a power capacity of 1,200 MW_e are significantly higher for critical radionuclides than for the EDU1-4 in operation. Doses from effluents of one NNS unit with the capacity of 1200 MW_e were taken into account only for the nearest surroundings in order to determine the doses for the workers involved in the construction of the other NNS unit. In terms of the impact on the population, doses are always higher for the operation of the NNS 2x1200 MW_e than for the operation of 1x1200 MW_e and EDU1-4. In terms of radiological impacts, the scenarios referred to and assessed in the EIA process are conservative and cover all other conceivable combinations of the operation of the NNS and the EDU1-4.

In order to determine the effective dose however, we advise to take into account the contribution from food intake; as this is the only factual way to determine whether or not the restriction of food distribution is necessary.

Settlement: The annual contribution of individual effective dose from ingestion for the public in Hungary will be, in any case (even in the case of envelope events of DEC type in the NNS), reliably lower than 0.15 mSv and there will be no need on the territory of Hungary in this event to introduce measures to restrict the consumption of locally produced foodstuffs, feedstuffs and water.

What this available safety documentation is and how the representative basic designs were defined.

Settlement: The procedure for the determination of the source term for a representative scenario is shown and described in detail in Chapter D.II.1.6.2.3. Quantitative determination of the source term for radiation extraordinary events.

Areas of influence according to activity phases (establishment, implementation, termination) are not defined. As a consequence those in the affected area, such as the circle of the clients involved in the proceedings have not been determined.

Settlement: The criterion for the determination of this territory, i.e. in the wording of the Act on Environmental Impact Assessment "the territory the environment and population of which could be significantly affected by the implementation of the plan of conception", is the significance of the effects. That is, in the case of the effects of normal operation, defined by the fulfilment of relevant legal requirements, applicable to the individual spheres of the environment; and in the case of radiation extraordinary events (design basis accidents, design extension

conditions), by the fulfilment of the WENRA criteria. The concept of safe closure of the NNS is presented in Chapter B.I.6.3.6. Data concerning closure and decommissioning. Radiation and all other effects are conceptually addressed for the individual impacts to be assessed in Chapter D.I. Specifically, the radiation effects of closure and decommissioning are addressed in Chapter D.I.3.3.8. The degree of detail of information concerning the closure of the NNS is given by the fact that it is not decided at present which method of decommissioning will be used for the NNS.

The documentation does not provide guidance on whether the new facility has been set for the limit or, if not in the environmental permit, in which licence is the limit established? What is the process of establishing the limit?

Settlement: For required information see Chapter B.I.6.2.2.3. Requirements for Radiation Protection The exposure limit for individuals from the population is stipulated by Decree of the State Office for Nuclear Safety No. 422/2016 Coll., on Radiation Protection, which sets the value of 1 mSv/year as a general effective dose limit in any calendar year, which defines as the sum of effective doses from external exposure and committed effective doses from internal exposure from all licensed or registered activities (this limit does not include therefore the doses resulting from natural exposure or medical exposure of the person as a patient). On the basis of the above, the limit is not determined in the stage of environmental impact assessment (EIA). Will be determined in subsequent procedures.

Regarding the existing and new nuclear power plant is there or is there going to be a limit value established for emissions to water and air, for example in Bq/year? If national legislation provides for such a requirement, which authorization procedure will be used to establish emission limit values?

Settlement: In relation to the comment above, it can be noted that in the Czech Republic, in accordance with the Atomic Act and Decree of the State Office for Nuclear Safety No. 422/2016 Coll., on Radiation Protection, the emissions of radioactive substances (effluents) are limited through the authorized limits. Authorized limit is a quantitative indicator which is a result of radiation protection optimisation for individual activities involving radiation or an individual source of ionising radiation and is usually lower than the dose constraint. The authorized limit is related to exposure of the so-called "representative person". Pursuant to the Atomic Act, representative person is defined as "an individual of the population representing a model group comprising individuals whose exposure relating to a given source and a given pathway of exposure is the highest". The evaluation of the exposure of a representative person shall be performed by conservative estimates. The procedures for the determination of the exposure of a representative person are specified in Annex 5 to Decree of the State Office for Nuclear Safety No. 422/2016 Coll. With regard to emissions of radionuclides from the operation of a nuclear facility to surface waters, the operator of a nuclear facility shall hold, in addition to the authorized limit specified by the State Office for Nuclear Safety no later than at the time before the start of commissioning, the permit to discharge waste water, issued by the competent water authority. The requirements for the permit to discharge waste water shall be laid down in accordance with the applicable wording of the Water Act (Act No. 254/2001 Coll.), and Governmental Regulation No. 401/2015 Coll. The licence to discharge waste water sets out the restrictions (emission limits) for discharges of pollutants, typically in the amount of discharged substance per unit of time. The emission limits are particularly derived from the allowable pollution of surface waters where the waste water flows, environmental quality standards and evaluation of the forward-

looking state. Permissible pollution is set by Governmental Regulation No. 401/2015 Coll., for both non-radioactive and radioactive substances.

The documentation does not describe the radiological emission monitoring plan of the new activity, which should have been disclosed at least at the concept level.

Settlement: The monitoring programme for radiological emissions and immissions of the existing nuclear facilities in the Dukovany site is described in detail in Chapter C.II.3.3.2. Radiation situation of the affected territory, including the results of monitoring. The monitoring of effluents from the NNS at the conceptual level is sufficiently described in Chapter B.I.6.3.4.3. Ensuring of the radiation protection and radiation situation monitoring. The expected concept of the monitoring of effluents from the NNS released into the environment will correspond to applicable legislation of the Czech Republic, the relevant recommendations of IAEA and WENRA, and will be similar to the current monitoring of effluents of the EDU1-4.

The need for new nuclear power plant is not justified. According to the EIA Directive (Directive 2014/52/EU) an assessment of alternatives has to be made, and the decision has to be based on a comparison of the environmental impacts of the project. For the EIA process for the NNS, no alternatives for electricity production have been assessed in such a way that the decision for the new NPP is based on this assessment. It is argued that the decision for a new NPP was already made in the Czech Energy Strategy (2015) and the National Action Plan for the Development of the Nuclear Energy Sector in the Czech Republic (2015). But in the Energy Strategy also no alternatives have been assessed properly, and the National Action Plan has not been subjected to a SEA at all.

Settlement: The documentation is focused on a specific design of a new nuclear source in the Dukovany site, which forms a sub-part of the energy mix. It is not and cannot be a conceptual document, assessing the industry strategies. The form of the energy mix was the subject of the energy concept (State Energy Policy of the Czech Republic, 2004, Update of the State Energy Policy of the Czech Republic, 2015), which included the strategic environmental assessment (the so-called SEA). Therefore, the form of the energy mix, or the share of individual sources in the energy mix, has undergone a variant evaluation, which was concluded by approval of the relevant concepts by the Government of the Czech Republic.

For the different reactor types it would be necessary to prove their safety relevant features, e.g. if they have enough redundancies or if they can resist seismic events that can occur at the site. It is not enough to refer to regulatory requirements that the new reactors should fulfil defined safety margins if there is no proof that those requirements can be fulfilled at all.

Settlement: Of course, the new nuclear source can be supplied by several suppliers. However, their detailed technical solutions are not subject to the EIA. Legal requirements (both in the field of the environment and in the field of nuclear safety or other) are the same for all potential suppliers. All cases concern the reactors of PWR type (pressurized water reactor) Generation III+. The NNS will be required to have the selected reactor type in compliance with the relevant WENRA and IAEA recommendations for new reactors beyond applicable legislation of the Czech Republic. The hierarchy of regulations and standards to be applied to the NNS of the Dukovany NPP is referred to in the documentation in Fig. B.20. Specific technical and technological description of all the considered reference reactor types is included in Chapter B.I.6. Description of technical and technological solution, or its Sub-chapter B.I.6.3.1.8.

Assessment of the calculated severe accident. In the document impacts of a severe accident with partial fuel meltdown are calculated. It is assumed that the containment will basically remain intact, which is an assumption without proof. For this calculation a source term of 30 TBq Cs-137 and 1,000 TBq I-131 is used. (For comparison: for the planned Hanhikivi NPP in Finland for accident assessment a source term up to 500 TBq Cs-137 was used!) Under these assumptions no individual doses in 100 km or above occur that would lead to radiation protection measures, according to the EIA documents.

Settlement: The limit value of leakage of Cs-137 into the surroundings of 30 TBq for severe accident has been determined with regard to the requirements of Czech legislation and IAEA and WENRA recommendations to reduce the radiological consequences of a severe accident. This maximum permissible value of the source term Cs-137 has to ensure the reduction of long-term and economic impacts of a severe accident. The isotope Cs-137 is selected because of its dominant importance for long-term contamination of the surroundings, as well as its contribution to the health consequences. It is therefore the design envelope restriction, which the selected supplier will have to demonstrate within the licensing process. The source term for accident conditions, which was used in the documentation, was also compared with the information obtained within the "REQUEST FOR INFORMATION FOR STRATEGIC DECISION-MAKING ON THE NEXT PROCESS OF NEW NUCLEAR POWER PLANT CONSTRUCTION PROJECTS". Such information included information derived from the safety analysis reports of the individual suppliers of the reference projects referred to in the documentation. On the basis of the information provided by the reference suppliers, the source term was found equivalent in all the significant parameters determining the environmental impacts, which ensures that the consequences of particular DBA and DEC in the future licensing documentation for the selected reactor type will always be lower than the consequences presented in the documentation.

The discussed calculations of a severe accident are not showing the worst scenario – which would be a release of a large part of the inventory. Such a large release was modelled in the flexRISK project for a release of 76,05 PetaBecquerel Cs-137 (which is 2,500-fold the source term of 30 TBq that was used in the EIA). Even if such a big release has a very low possibility it cannot be excluded totally from assessment!

Settlement: Basic safety requirements for new reactors are laid down so that in conditions of a severe accident the function of the containment is maintained and the early and large releases of radioactive substances are virtually eliminated in the case of a severe accident. In relation to the documentation, large leak can be regarded as a leak, which significantly exceeds the value of the leak of the main reference isotopes according to Table D.79: Source member for severe accident, which is referred to in the documentation in Chapter D.II.1.6. Determination of the source term for the evaluation of the radiological impacts of abnormal occurrence. For Cs-137, this is the value significantly exceeding 30 TBq. Meeting the requirements of Czech legislation, IAEA and WENRA recommendations, and demonstrating this fulfilment within the licensing process of the NNS will ensure that large releases described in the comment will be excluded by design solution for the NNS or, in the terminology according to the Atomic Act, the IAEA and WENRA recommendations virtually excluded. This exclusion will be ensured through the design solution of the NNS, which will be equipped for the case of severe accident either with the system safely holding the melt inside the reactor pressure vessel, or inside the containment and at the same time through the technical design of the containment and other systems ensuring the desired tightness of the containment and limitation of radioactive releases into the environment in conditions of a severe accident.

The intention of building a new nuclear power plant in 2017 is utterly unacceptable when financing of the plant, the issue of water supply at the NPP site and the technology and site for the nuclear waste repository remain unsolved.

Settlement: It may be recalled that the basic strategy of the Czech Republic for management of spent nuclear fuel is, according to the applicable National Concept of Radioactive Waste and Spent Nuclear Fuel Management as well as the updated National Concept of Radioactive Waste and Spent Nuclear Fuel Management (approved 11/2017), the direct disposal of spent nuclear fuel in a deep geological repository, which will be ready for operation by 2065. Until such time, spent nuclear fuel will be safely stored with the producers (operators of nuclear installations) in a suitable storage facility compliant with the requirements of Czech legislation. The questions concerning the method of funding the project are not the subject of the EIA procedure. The questions concerning the technology (1 to 2 units of PWR Generation III+ type with a net electrical output up to 2,400 MW_e), structure of licensing reference designs and supplier selection are described in the documentation to the extent sufficient for the EIA procedure, determination of the envelope of environmental impacts and their assessment. The security of water supply for the NNS is addressed in detail in the documentation.

The competent authority received a total of 166 statements different in terms of content on the published documentation, within the time limit set in accordance with Section 8(3) of the Act or the Espoo Convention. Statements identical in content were sorted out into PATTERNS 1 - 10a; therefore, the competent authority records about 16,000 statements in total. In addition, statements were received in the context of interstate consultations with the Republic of Austria, Federal Republic of Germany, Poland and Hungary.

On the basis of all received statements and the comments contained therein, the notifier was requested to provide the following additional documents listed in the report in the context of preparation of the opinion pursuant to Section 9(6) of the Act:

Annex 2.1.:

- Explanatory documents in relation to the statement of the Regional Health Office of the Vysočina Region
- Explanatory documents in relation to the statements of the Ministry of the Environment, Department of Species Protection and Implementation of International Commitments and the statements of the Nature Conservation Agency of the Czech Republic, Regional Office Žďárské vrchy SCHKO

Annex 2.2.:

- Explanatory documents relating to the issues of supply of process water to nuclear equipment at the Dukovany site
- Adding explanatory information on radiation effects of the NNS on Austria as required by the Austrian party in the context of consultation from a distance of 380 km from the NNS, for the source term "DEC, severe accident, ground release"

Annex 2.3.:

- Adding explanatory documents relating to the issues of the effect of ionizing radiation on the fauna and flora in relation to the statement of the "Joint Opinion of Austrian legal representation to protect the environment and nature" of 12 January 2018

- Adding explanatory documents to the statement of the "Ministry of Energy, Department of Nuclear Energy" of the Republic of Poland of 8 March 2018 in relation to the transboundary impacts relating to the effective doses and committed effective doses

Without knowledge of this additional information, it was not possible to make a definite conclusion about the acceptability of the intent or to evaluate the need to set out further conditions of this binding statement.

The requested additional documents resulted in more specific requirements in the area of demands for process water, in terms of designing the conditions in this binding statement in relation to the capacity of the evaluated intent. Other additional documents only elaborated in more detail data from the documentation referring to the content of the received statements and were used in the preparation of the report, but did not bring any new facts with respect to the formulation of the conditions of this binding statement.

All requests and comments contained in the statements to the documentation were settled in the report in Chapter V. (Settlement of all received statements to the documentation) and even those that are not directly related to the environmental impact assessment procedure under law. No comments have been identified that would prevent the favourable binding statement to the intent under assessment from being issued. The statement is published in the EIA Information System on the website of the CENIA, Czech Environmental Information Agency (http://www.cenia.cz/eia), on the website of the Ministry of the Environment (http://www.mzp.cz/eia), under the code of the intent - MZP469, in the section "Report".

The relevant comments in the statements are included in the conditions of binding statement. Conditions no. 8, no. 9, no. 14, no. 19, no. 22, no. 31, no. 39, no. 40, no. 41, and no. 43 are based on the documentation. Conditions no. 2, no. 3, no. 33, no. 34, no. 36, no. 42, no. 45, no. 46, and no. 47 are based on the nature assessment. Conditions no. 4, no. 5, no. 6, no. 10, no. 12, no. 13, no. 15, no. 16, no. 17, no. 18, no. 21, no. 24, No. . 25, no. 26, no. 27, no. 29, no. 30, no. 38, and no. 44 are based on the statements received in the environmental impact assessment procedure and public health. Conditions no. 1, no. 7. no. 11, no. 20, no. 23, no. 28, no. 32, no. 35, and no. 37 were formulated by the team preparing the report.

A number of comments were received after the deadline for comments on the documentation under assessment. According to Section 8(3) of the Act, they are disregarded by the Office. Despite, given the nature of the intent, the statements were studied by the author of the report and commented on in Chapter V. of the report. The statements received after the deadline for comments on the documentation under assessment did not bring any new ideas or information in relation to the intent under consideration or which were not already contained in the statements received within the time limit, except for two statements received from the Office of the Provincial Government of Upper Austria, Dipl. Ing. Dalibor Strasky, Austria. The two statements, which brought specifying facts than those contained in the statements received within the time limit, were settled in the report. In contrast to the statement of the Office of the Provincial Government of Upper Austria, Dipl. Ing. Dalibor Strasky, Austria, which was sent within the time limit for comments on the documentation under consideration, there was no need to modify the formulated conditions or set out additional conditions in this binding statement.

The impacts on individual components of the environment and public health are assessed as acceptable in the documentation and in the report. The facts stated in the comments are

considered and taken into account. The results of the assessment referred to in the documentation do not confirm the unacceptable level of impacts on the population and public health and on the individual environmental components as reported in the comments.

In relation to the above, the competent authority agrees with the conclusions of the originator of the report, thus referring to the settlement of comments on the documentation by the originator of the report, which is part of the report and which is available in electronic form on the above website.

Circle of the affected local authorities:

1. Vysočina Region
2. South Moravian Region
3. Dukovany Municipality
4. Slavětice Municipality
5. Rouchovany Municipality
6. Lhánice Municipality
7. Mohelno Township
8. Kladeruby nad Oslavou Municipality
9. Kramolín Municipality
10. Dalešice Township
11. Hrotovice Town
12. Litovany Municipality
13. Přešovice Municipality
14. Horní Kounice Municipality
15. Rešice Municipality
16. Horní Dubňany Municipality
17. Biskoupky Municipality
18. Ivančice Town
19. Moravské Bránice Municipality

This binding statement is issued pursuant to Section 149 of Act No. 500/2004 Coll., Code of Administrative Procedure, as amended, as a basis for a decision in subsequent proceedings pursuant to Section 3 g) of the Act.

The validity of this binding statement is 7 years from the date of issue that can be extended at the request of the notifier, in accordance with Section 9a(4) of the Act.

Lessons learned

Filing a separate appeal against this binding statement is not admissible. Pursuant to Section 149(5) of Act No. 500/2004 Coll., Code of Administrative Procedure, as amended, this binding statement is reviewable under the appeal filed against the decision issued in subsequent procedure which was conditioned by this binding statement.

Mgr. Evžen Doležal
Director of Environmental Impact
Assessment and Integrated Prevention
Division

electronically signed
(official stamp)

The local authorities concerned under Section 16(2) of the Act shall **immediately** publish their binding statements on the notice boards. Pursuant to Section 16(2) of the Act, the minimum publication period is 15 days. At the same time, in compliance with this provision, **the local authorities concerned shall notify the competent authority, by means of an electronic data or e-mail message *(dukovany@mzp.cz)* or in writing, of the date of posting a binding statement on the notice board**, within the shortest possible time limit.

The binding statement may also be consulted in the EIA Information System on the website of the CENIA, Czech Environmental Information Agency (http://www.cenia.cz/eia) and on the website of the Ministry of the Environment (http://www.mzp.cz/eia), under the code of the intent - MZP469.

Along with this statement, the minutes of public hearing are sent, ref. no. MZP/2018/710/2357 dated 16/7/2018.

Distribution list for ref.no. MZP/2019/710/7762:

The local authorities concerned:

Vysočina Region, Regional Governor
Žižkova 1882/57, 587 33 Jihlava

South Moravian Region, Regional Governor
Žerotínovo náměstí 3/5, 601 82 Brno

Dukovany Municipality, Mayor
Dukovany 99, 675 56 Dukovany

Slavětice Municipality, Mayor
Slavětice 58, 675 55 Hrotovice

Rouchovany Municipality, Mayor
Rouchovany 35, 675 57 Rouchovany

Lhánice Municipality, Mayor
Lhánice 25, 675 75 Mohelno

Mohelno Township, Mayor
Mohelno 84, 675 75 Mohelno

Kladeruby nad Oslavou Municipality, Mayor
Kladeruby nad Oslavou 36, 675 75 Mohelno

Kramolín Municipality, Mayor
Kramolín 10, 375 77 Kramolín

Dalešice Township, Mayor
Dalešice 87, 675 54 Dalešice

Hrotovice Town, Mayor
Náměstí 8. května 1, 675 55 Hrotovice

Litovany Municipality, Mayor
Litovany 57, 675 57 Rouchovany

Přešovice Municipality, Mayor
Přešovice 29, 675 57 Rouchovany

Horní Kounice Municipality, Mayor
Horní Kounice 117, 671 40 Tavíkovice

Rešice Municipality, Mayor
Rešice 97, 671 73 Tulešice

Horní Dubňany Municipality, Mayor
Horní Dubňany 41, 671 73 Tulešice

Biskoupky Municipality, Mayor
Biskoupky 40, 664 91 Ivančice

Ivančice Town, Mayor
Palackého náměstí 6, 664 91 Ivančice

Moravské Bránice Municipality
Moravské Bránice 325, 664 64 Dolní Kounice

The authorities concerned:

Vysočina Regional Authority, Director
Žižkova 57, 587 33 Jihlava

South Moravian Regional Authority, Director
Žerotínovo náměstí 3/5, 601 82 Brno

Třebíč Municipal Authority (municipal authority with enlarged jurisdiction)
Masarykovo náměstí 116/6, 674 01 Třebíč

Náměšť nad Oslavou Municipal Authority (municipal authority with enlarged jurisdiction)
Masarykovo nám. 104, 675 71 Náměšť nad Oslavou

Moravský Krumlov Municipal Authority (municipal authority with enlarged jurisdiction)
Klášterní nám. 125, 672 11 Moravský Krumlov

Ivančice Municipal Authority (municipal authority with enlarged jurisdiction)
Palackého náměstí 6, 664 91 Ivančice

Ministry of Health
Palackého nám. 4, 128 01 Prague 2

Regional Hygiene Station of the Vysočina Region based in Jihlava
Tolstého 1914/15, 586 01 Jihlava

Regional Hygiene Station of the South Moravian Region based in Brno
Jeřábkova 4, 602 00 Brno

Agency for Nature Conservation and Landscape Protection of the Czech Republic Regional Office of the Administration of Protected Landscape Area of Žďárské vrchy
Brněnská 39, 591 01 Žďár nad Sázavou

Czech Environmental Inspection, Regional Inspectorate Havlíčkův Brod
Bělohradská 3304, 580 01 Havlíčkův Brod

Czech Environmental Inspection, Regional Inspectorate Brno
Lieberzeitova ul. 14, 614 00 Brno

State Office for Nuclear Safety

Senovážné nám. 9, 110 00 Prague 1

Ministry of Industry and Trade
Na Františku 32, 110 15 Praha 1

Railway Administration, Olomouc Region
Nerudova 1, 772 58 Olomouc

Povodí Moravy, s. p., Dyje Plant
Dřevařská 11, 601 75 Brno

Departments of the Ministry of the Environment:

Department of General Nature and Landscape Protection
Department of Special Spatial Nature and Landscape Protection
Department of Species Protection and Implementation of International Commitments
Department of Geology
Department of Wastes
Department of Water Protection
Department of Environmental Risks and Environmental Damage
Department of Energy and Climate Protection
Department of Air Protection

Notify:
Ministry of the Environment - Department of State Administration I - IX
Ministry of the Environment - Department of Environmental Impact Assessment and IPPC - Subdepartment of IPPC and IRZ

Notifier:
Elektrárna Dukovany II, a. s.
Ing. Martin Uhlíř, MBA
Duhová 1444/2, 140 00 Prague 4

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533 51 Pardubice

Notify:

Prague City Hall, Department of the Environmental Protection
Jungmannova 35, 110 00 Prague 1

Regional Authority of the South Bohemian Region, Department of the Environment, Agriculture and Forestry
U Zimního stadionu 1952/2, 370 76 České Budějovice

Regional Authority of the South Moravian Region, Department of the Environment and Agriculture
Žerotínovo náměstí 3/5, 601 82 Brno

Regional Authority of the Karlovy Vary Region, Department of the Environment and Agriculture
Závodní 353/88, 360 01 Karlovy Vary

Regional Authority of the Hradec Králové Region, Department of the Environment and Agriculture

Pivovarské náměstí 1245, 500 02 Hradec Králové

Regional Authority of the Liberec Region, Department of the Environment and Agriculture
U jezu 642/2a, 461 80 Liberec 2

Regional Authority of the Moravian-Silesian Region, Department of the Environment and Agriculture
28. října 117, 702 18 Ostrava

Regional Authority of the Olomouc Region, Department of the Environment and Agriculture
Jeremenkova 40a, 779 11 Olomouc

Regional Authority of the Pardubice Region, Department of the Environment and Agriculture
Komenského náměstí 125, 532 11 Pardubice

Regional Authority of the Plzeň Region, Department of the Environment and Agriculture
Škroupova 18, 306 13 Plzeň

Regional Authority of the Central Bohemian Region, Department of the Environment and Agriculture
Zborovská 81/11, 150 21 Praha 5

Regional Authority of the Ústí Region, Department of the Environment and Agriculture
Velká Hradební 3118/48, 400 02 Ústí nad Labem

Regional Authority of the Vysočina Region, Department of the Environment and Agriculture
Žižkova 57, 587 33 Jihlava

Regional Authority of the Zlín Region, Department of the Environment and Agriculture
tř. Tomáše Bati 21, 761 90 Zlín

Czech Environmental Inspection
Na Břehu 267, 190 00 Praha 9

Ministry of Foreign Affairs of the Czech Republic, Department of the Central European States
Loretánské náměstí 5, 118 00 Praha 1

Popůvky Municipality, Mayor
Popůvky 17, 675 75 Mohelno

Sedlec Municipality, Mayor
Sedlec 96, 675 71 Náměšť nad Oslavou

Březník Municipality, Mayor
Březník 247, 675 74 Březník

Kuroslepy Municipality, Mayor
Kuroslepy, 675 75 Mohelno

Senorady Municipality, Mayor
Senorady 120, 675 75 Mohelno

Jamolice Municipality, Mayor
Jamolice 8, 672 01 Moravský Krumlov

Dobřínsko Municipality, Mayor
Dobřínsko 60, 672 01 Moravský Krumlov

Dolní Dubňany Municipality, Mayor
Dolní Dubňany 40, 671 73 Dolní Dubňany

Vémyslice Township, Mayor
Vémyslice 31, 671 42 Vémyslice

Tulešice Municipality, Mayor
Tulešice 18, 671 73 Tulešice

Čermákovice Municipality, Mayor
Čermákovice 52, 671 73 Tulešice

Džbánice Municipality, Mayor
Džbánice 50, 671 71 Hostěradice

Medlice Municipality, Mayor
Medlice 58, 671 40 Tavíkovice

Přeskače Municipality, Mayor
Přeskače 45, 671 40 Tavíkovice

Tavíkovice Municipality, Mayor
Tavíkovice 1, 671 40 Tavíkovice

Újezd Municipality, Mayor
Újezd 5, 671 40 Tavíkovice

Bačice Municipality, Mayor
Bačice 36, 675 55 Hrotovice

Krhov Municipality, Mayor
Krhov 25, 675 55 Hrotovice

Račice Municipality, Mayor
Račice 5, 675 55 Hrotovice

Stropešín Municipality, Mayor
Stropešín 3, 675 55 Hrotovice

Vícenice u Náměště nad Oslavou Municipality, Mayor
Vícenice u Náměště nad Oslavou 125, 675 71 Náměšť nad Oslavou

Náměšť nad Oslavou Town, Mayor
Masarykovo nám. 104, 675 71 Náměšť nad Oslavou

Naloučany Municipality, Mayor
Naloučany 29, 675 71 Náměšť nad Oslavou

Ocmanice Municipality, Mayor
Ocmanice 47, 675 71 Náměšť nad Oslavou

Jasenice Municipality, Mayor
Jasenice 50, 675 71 Náměšť nad Oslavou

Pucov Municipality, Mayor
Pucov 19, 675 71 Náměšť nad Oslavou

Kralice nad Oslavou Municipality, Mayor
Jinošovská 78, 675 73 Rapotice

Újezd u Rosic Municipality, Mayor
Újezd u Rosic 111, 664 84 Zastávka

Hluboké Municipality, Mayor
Hluboké 31, 675 71 Náměšť nad Oslavou

Jinošov Municipality, Mayor
Jinošov 24, 675 71 Náměšť nad Oslavou

Stanoviště Municipality, Mayor
Stanoviště 13, 664 84 Zastávka u Brna

Krokočín Municipality, Mayor
Krokočín 18, 675 71 Náměšť nad Oslavou

Sudice Municipality, Mayor
Sudice 11, 675 73 Rapotice

Lesní Jakubov Municipality, Mayor
Lesní Jakubov 30, 675 73 Rapotice

Ketkovice Municipality, Mayor
Ketkovice 87, 664 91 Ivančice

Rapotice Municipality, Mayor
Hlavní 55, 675 73 Rapotice

Vysoké Popovice Municipality, Mayor
Vysoké Popovice 35, 664 84 Zastávka

Příbram na Moravě Municipality, Mayor
Příbram na Moravě 33, 664 84 Zastávka

Zbraslav Municipality, Mayor
Komenského 105, 664 84 Zbraslav

Lukovany Municipality, Mayor
Lukovany 70, 664 84 Lukovany

Zakřany Municipality, Mayor
Zakřany 7, 664 84 Zastávka u Brna

Zastávka Municipality, Mayor
Hutní osada 14, 664 84 Zastávka

Čučice Municipality, Mayor
Čučice 131, 664 91 Ivančice

Zbýšov Town, Mayor
Masarykova 248, 664 11 Zbýšov

Babice u Rosic Municipality, Mayor
Náves 14, 664 84 Zastávka

Kratochvilka Municipality, Mayor
Kratochvilka 7, 664 91 Ivančice

Neslovice Municipality, Mayor
Hlavní 14, 664 91 Ivančice

Rosice Town, Mayor
Palackého nám. 13, 665 01 Rosice

Tetčice Municipality, Mayor
Palackého 177, 664 17 Tetčice

Nová Ves Municipality, Mayor
Nová Ves 67, 664 91 Ivančice

Oslavany Town, Mayor
nám. 13. prosince 51/2, 664 12 Oslavany

Moravský Krumlov Town, Mayor
nám. Klášterní 125, 672 11 Moravský Krumlov

Vedrovice Municipality, Mayor
Vedrovice 326, 671 75 Loděnice u Mor. Krumlov

Jezeřany – Maršovice Municipality, Mayor
Jezeřany-Maršovice 1, 671 75 Jezeřany-Maršovice

Rybníky Municipality, Mayor
Rybníky 59, 672 01 Moravský Krumlov

Dobelice Municipality, Mayor
Dobelice 77, 672 01 Moravský Krumlov

Bohutice Municipality, Mayor
Bohutice 8, 671 76 Bohutice

Olbramovice Township, Mayor
Olbramovice 23, 671 76 Olbramovice

Petrovice Municipality, Mayor
Petrovice 9, 672 01 Moravský Krumlov

Lesonice Municipality, Mayor
Lesonice 73, 672 01 Moravský Krumlov

Kadov Municipality, Mayor
Kadov 23, 672 01 Moravský Krumlov

Miroslavské Knínice Municipality, Mayor
Miroslavské Knínice 1, 671 72 Miroslav

Našiměřice Municipality, Mayor
Našiměřice 48, 671 76 Našiměřice

Miroslav Town, Mayor
nám. Svobody 1, 671 72 Miroslav

Skalice Municipality, Mayor
Skalice 92, 671 71 Hostěradice

Hostěradice Municipality, Mayor
Hostěradice 57, 671 71 Hostěradice

Trstěnice Municipality, Mayor
Trstěnice 122, 671 71 Hostěradice

Morašice Municipality, Mayor
Morašice 121, 671 71 Hostěradice

Vítonice Municipality, Mayor
Vítonice 54, 671 61 Vítonice

Višňové Township, Mayor
Višňové 212, 671 38 Višňové

Horní Dunajovice Municipality, Mayor
Horní Dunajovice 102, 671 34 Horní Dunajovice

Želetice Municipality, Mayor
Želetice 49, 671 34 Horní Dunajovice

Žerotice Municipality, Mayor
Žerotice 154, 671 34 Horní Dunajovice

Tvořihráz Municipality, Mayor
Tvořihráz 169, 671 34 Horní Dunajovice

Kyjovice Municipality, Mayor
Kyjovice 2, 671 61 Prosiměřice

Prosiměřice Township, Mayor
Prosiměřice 197, 671 61 Prosiměřice

Výrovice Municipality, Mayor
Výrovice 63, 671 34 Horní Dunajovice

Křepice Municipality, Mayor
Křepice 45, 671 40 Tavíkovice

Mikulovice Township, Mayor
Mikulovice 1, 671 33 Mikulovice

Rudlice Municipality, Mayor
Rudlice 36, 671 53 Jevišovice

Němčičky Municipality, Mayor
Němčičky 49, 671 53 Jevišovice

Plaveč Municipality, Mayor
Náves 48, 671 32 Plaveč

Hluboké Mašůvky Municipality, Mayor
Hluboké Mašůvky 10, 671 52 Hlubokém Mašůvky

Běhařovice Township, Mayor
Běhařovice 43, 671 39 Běhařovice

Vevčice Municipality, Mayor
Vevčice 10, 671 53 Jevišovice

Černín Municipality, Mayor
Černín 49, 671 53 Jevišovice

Jevišovice Town, Mayor
Jevišovice 56, 671 53 Jevišovice

Bojanovice Municipality, Mayor
Bojanovice 19, 671 53 Jevišovice

Slatina Municipality, Mayor
Slatina 1, 671 53 Jevišovice

Střelice Municipality, Mayor
Střelice 122, 671 53 Jevišovice

Boskovštejn Municipality, Mayor
Boskovštejn 1, 671 54 Hostim

Biskupice – Pulkov Municipality, Mayor
Biskupice 4, 675 57 Rouchovany

Rozkoš Municipality, Mayor
Rozkoš 1, 671 53 Jevišovice

Jiřice u Moravských Budějovic Municipality, Mayor
Jiřice u Moravských Budějovic 7, 671 54 Hostim

Hostim Municipality, Mayor

Hostim 165, 671 54 Hostim

Radkovice u Hrotovic Municipality, Mayor
Radkovice u Hrotovic 13, 675 59 Radkovice u Hrotovic

Příštpo Municipality, Mayor
Příštpo 57, 675 51 Jaroměřice nad Rokytnou

Jaroměřice nad Rokytnou Town, Mayor
nám. Míru 2, 675 51 Jaroměřice nad Rokytnou

Blatnice Municipality, Mayor
Blatnice 132, 675 51 Jaroměřice nad Rokytnou

Myslibořice Municipality, Mayor
Myslibořice 14, 675 60 Myslibořice

Odunec Municipality, Mayor
Odunec 6, 675 55 Hrotovice

Zárubice Municipality, Mayor
Zárubice 5, 675 52 Lipník u Hrotovic

Lipník Municipality, Mayor
Lipník 106, 675 52 Lipník u Hrotovic

Ostašov Municipality, Mayor
Ostašov 7, 675 52 Lipník u Hrotovic

Petrůvky Municipality
Petrůvky 3, 675 52 Lipník u Hrotovic

Výčapy Municipality, Mayor
Výčapy 79, 674 01 Třebíč

Dolní Vilémovice Municipality, Mayor
Dolní Vilémovice 142, 675 52 Lipník u Hrotovic

Klučov Municipality, Mayor
Klučov 5, 675 52 Lipník u Hrotovic

Valeč Municipality, Mayor
Valeč 109, 675 53 Valeč

Třebenice Municipality, Mayor
Třebenice 58, 675 52 Lipník u Hrotovic

Slavičky Municipality, Mayor
Slavičky 29, 675 01 Vladislav

Číměř Municipality, Mayor
Číměř 50, 675 01 Vladislav

Vladislav Township, Mayor
Vladislav 76, 675 01 Vladislav

Smrk Municipality, Mayor
Smrk 30, 675 01 Vladislav

Zahrádka Municipality, Mayor
Zahrádka 6, 675 71 Náměšť nad Oslavou

Hartvíkovice Municipality, Mayor
Hartvíkovice 31, 675 76 Hartvíkovice

Třesov Municipality, Mayor
Třesov 6, 675 02 Koněšín

Kozlany Municipality, Mayor
Kozlany 12, 675 02 Koněšín

Koněšín Municipality, Mayor
Koněšín 145, 675 02 Koněšín

Studenec Municipality, Mayor
Studenec 160, 675 02 Koněšín

Okarec Municipality, Mayor
Okarec 35, 675 02 Koněšín

Pozďatín Municipality, Mayor
Pozďatín 75, 675 03 Budišov

Pyšel Municipality, Mayor
Pyšel 120, 675 71 Náměšť nad Oslavou

The states concerned:

Bundesministerium für Nachhaltigkeit und Tourismus
Allgemeine Umweltpolitik Sektion V
Stubenring 1
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Ministry of the Environment of the Slovak Republic
Department of Environmental Assessment
RNDr. Gabriel Nižňanský
Námestie L. Štúra 1
812 35 BRATISLAVA
SLOVAK REPUBLIC

Generalna Dyrekcja Ochrony Srodowiska
Dpt. Ocen Oddzialywania na Srodowisko
ul. Wawelska 52/54
00-922 WARSZAWA
RZECZPOSPOLITA POLSKA

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Dr. Hans Kühlewind
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B.R.D.

Bundesamt für Strahlenschutz
Postfach 10 01 49
D - 38201 SALZGITTER
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