REPLIES TO REMARKS (COMMENTS) OF THE LITHUANIAN PARTY, STATED IN THE LETTER OF THE MINISTRY OF ENVIRONMENT OF LITUANIA № (10-3)-D8-4486 DATED 7 MAY, 2010 Г.

№	Remarks (Comments) of the Lithuanian Party	Replies of the Belarusian Party
1.	The question is not fully answered. The Preliminary Report was send to Lithuania, but such kind of Reports is not presented in the explanation of the EIA procedure. The difference between Application of possible environmental impact and Report on environment impact assessment is not clear. Also it is not clear if the comments, remarks and suggestions of other countries will be taken into account. It will be very useful to know when the decision on site selection according to Belarusian legislation should be made. If site has not been selected yet, the radiological impact from all three alternative sites should be evaluated that was not been done in this Report (also see Question No, 5).	The procedure of carrying out of environment impact assessment in the course of development of preproject and project documentation has been described in Chapter 4 of "The Instruction of the Order of execution of Environment Impact Assessment of the Planned Economic and Other Activity in the Republic of Belarus. Has been approved by Resolution № 30 of the Ministry of Nature of the Republic of Belarus dated June 17, 2005". The comments, remarks and proposals of other countries will be taken into consideration in the course of upgrading of EIA. As it has been stated in EIA, the Ostrovets site has been chosen as the priority (basic) site, Section 4.1., p. 59. The Decision on the choice of the site will be taken in conformity with Law of the Republic of Belarus № 426-3 dated July 30, 2008 "On Use of Atomic Power".

2.	The question is not fully answered. The information about the licensing authority, requirements on licensing and other regulations is presented, but the licensing procedure, during which the main step - safety assessment of NPP - must be performed, is not explained. To understand overall view of authorization procedure of the new NPP the time schedule of different steps of authorization should be presented.	The requirements on licensing have been stated in Law of the Republic of Belarus № 122-3 dated January 5, 1998 "On Radiation Safety of Population".
3.	From the response of the Republic of Belarus to the Question No. 3, it became clear that Ministry of Emergency carries out state control in the field of nuclear and radiation safety, and that Belarus is still developing the legal and regulatory framework for licensing of a new nuclear power plant. The answers provided by Belarus to the Question No. 3 seem acceptable at this early stage of the new nuclear power development program in Belarus with that understanding that Belarus will: • continue work on development of the efficient, clear and transparent regulatory framework; • develop independent regulatory authority, that will implement itself and also will require from licensees and organizations providing technical support for development of the national nuclear power program such management systems, that are compliant with the international standards for	We agree with the assessment of our reply. Your remarks will be taken into consideration at the relevant stages of work.

	management systems, e.g. GS-R-3 IAEA; • improve and continue practices of communicating with interested parties within the state and with international community on nuclear and environmental safety related issues.	
4.	The answer contradicts to information presented in The Preliminary Report. According to the Preliminary Report the possibility of suffusion and karst processes activation is the only complicating factor for selection of Kukshinovo and Krasnaya Polyana sites. But in the answer to our request to complement and justify the priority of Ostrovets site it is stated that according to the valid legislation of the Republic of Belarus it is prohibited to locate NPP on the territories where active karst has been detected or where there is a possibility to activate diffusion-karst processes. If it is true the site alternatives in the environmental impact assessment were not evaluated and the Ostrovets site is not the priority site but only one site proper for NPP placing. Also it is not clear if research and prospecting works on choice of the site for placing of NPP were performed in accordance with IAEA Safety Requirements "Site Evaluation for Nuclear Installations", NS-R-3, and other guides on site evaluation for nuclear power plants.	In Section 4.1. of EIA* "Alternative Sites of Nuclear Power Plant Construction", p.59, it is stated that: - for all three competitive sites there are no prohibiting factors (that is the factors, conditions which do not permit location of the NPP site as per the requirements of the standard documents. - At Krasnaya Polyana and Kukshinovo sites there is a possibility of activization of suffusion-karst processes which is the complicating factor. Engineering-geological and hydrogeological conditions of the Kukshinov site are complicated (there is no regularity in occurrence of soils of different structure and properties, there is pressure water the piezometric levels of which is being located close to the ground surface up to 1,5 m). - By the complex of factors which have great importance Ostrovets site has an advantage before Krasnaya Polyana and Kukshinovo sites. - With regard to the above-stated, as well as with regard to the recommendations of the

		International Atomic Energy Agency, as well as taking into consideration the significance of the issues of ensuring safety, the Ostrovets site has been determined as the priority (basic) site.
5.	The response concerns criteria of the NPP site selection but no comparison of three sites on the degree of fatal influences on environment. The information about the possible impact of NPP on the environment in the 30-km zone around each of three potential sites: Krasnaya Polyana, Kukshinovsk and Ostrovets sites should be presented. The impact of sites on environment components should be compared.	As per TKP 098-2007 "Location of Nuclear Power Plants, basic Requirements to Composition and Volume of Survey and Investigation in the Course of Choice of the Nuclear Power Plant Site", pp. 10, 11, at the stage of the choice of the site the work on assessment of potential effect of the Nuclear Power Plant on environment has been executed at all three sites. The data have been represented in Section 4.1. "Alternative Sites for NPP Construction", Tables 3-5, pp. 47-58.
6.	The response is given only for the part of the question related with the collective dose. Regarding to the risk acceptance, risks from all three potential sites were not analyzed and their acceptances for Lithuania were not evaluated. According to nuclear safety principle (presented within IAEA publication SF-1) facilities and activities that give rise to radiation risks must yield an overall benefit. It is not clear how in the implementation of this principles risk and benefit for Lithuania will be taken into consideration.	In EIA there has been stated that the dose limits established for the power block of NPP-2006 and the target probability rates completely meet the requirements of the valid Russian Normative Documents (ND), the recommendations and the safety standards of IAEA, the International Advisory Group on Nuclear Safety (INSAG1 - INSAG12) and the requirements of the European exploiting organizations to the projects of the nuclear power plants of the new generation with the reactors of PWR type.
7.	The response is accepted.	
8.	We agree that comparison of various types of reactors is not the matter of EIA. But the description (fuel, coolant, operating pressure, core outlet temperature, specific volume power, efficiency, containment) of various types of reactors (PWR, BWR, CANDU) is presented in the Report and conclusions about	In Section 9.5. "Grounds of Radiation Safety of the NPP", pp. 164-165, in Table 43 the values of the collective and average individual doses of radiation of the personnel of the NPP and the personnel of the organizations being employed for the works on the NPP

	positive characteristics of PWR reactors are based on this description. Some of conclusions (statement that doses from PWR reactors are minimal) should be justified, otherwise such statements are only declaration without any substantiation and give doubt about the reliability of the given information.	in year 2005 are stated (Annual Report on Activity of the Federal Service on Ecological, Technological and Nuclear Supervision in 2005".
9.	In the Report the fact that the main equipment and security systems of this project are already tested on operating NPPs (2 power supply units in China) and possibility to return spend nuclear fuel for long-term storage and refinement on the territory of Russian Federation are indicated as the advantages of NPP-2009 project compare with other projects. It is also unclear if other features and criteria and which of them were analyzed in analysis of industrial reactors units. Also it is not clear the difference between data given in the Table 6 (heavy damage of core <5.8 x 10^{-7}, per reactor annually, and emergency limit radiation release from a reactor unit < 1.0 x 10^{-8} per reactor annually) and the Table 9 (calculated probability of heavy damage of core for all initiating events < 10^{-5}, per reactor annually, and calculated probability of limit radiation release in case of an accident beyond the design basis < 10^{-7} per reactor annually). The meaning of these data should be explained.	Probability of heavy damage of core **is <** 5,8 x 10^{-7} 1/year.reactor; Probability of frequency of the maximum accident discharge of radiation from the plant is < 1,0 x 10^{-8} 1/year.reactor; The calculated values of the probability of heavy damage of core for all initiating events is < 10-^{5} The calculated probability of achievement of the maximum accident discharge at out-of-design-basis accident is < 10^{-7} 1/year.reactor. The target probability rates established by the exploiting organization for the power block of the NPP-2006 (NPP-2006. Performance Specification on Development of the Basic Project. Year 2006): - Decrease of probability of the accidents on the power block with serious damage of core of the reactor up to the level of 10^{-6} 1/year.reactor and more serious discharges outside the territory of the site for which urgent countermeasures outside the site are necessary, by the level of 10^{-7} 1/year.reactor.
10.	The values specified in the response are characteristics of light airplane. It means that the Belarusian NPP of 2006 Project will be not protected against a wreck of heavy aircraft or military jet (military jets have the speed no less 1000 km/h i.e. about 3 times more than 100 m/s = 360 km/h). This fact is important taking into account the possibility of air terrorism.	Double containment shell of the Project of NPP-2006 provides for reliable protection of the NPP in case of aircraft falls and falls of great aircraft fragments, for example, engine.

11.	The response is accepted.	
12.	The Report states that the spent nuclear fuel is to be removed to processing plants or to the supplier-country of the nuclear fuel. What legal measures will warrant that it will be implemented and spent nuclear fuel will not be stored and disposed in Belarus? If spent nuclear fuel will be returned to Russia, measures for safety of spent nuclear fuel transportation should be discussed, because this action is determined by operation of NPP and impact of this activity should be also evaluated.	Conclusion of the agreements between the Republic of Belarus and the Russian Federation on construction of the Nuclear Power Plant in the Republic of Belarus in conformity of which the spent nuclear fuel (SNF) will be transported to the Russian Federation. The SNF will be temporarily stored in the cooling pond situated inside of the containment. The technological radioactive waste of the NPP will be stored in the territory of the Republic of Belarus. The volume of this waste is up to 50 m^3/year per one power block. The technology of transportation of the SNF is well-tested. There is no case of impact of this procedure on environment registered in the world for all time.
13.	Only fact that radioactive waste management concept exists and now is being reviewed is mentioned but details on plans for radioactive waste storage and disposal in Belarus are not presented. The plans for management of decommissioning waste as well as operational waste in this concept should be considered. Also it should be taken into account that the financial resources for decommissioning and management of decommissioning waste should be envisaged before the operation of NPP starts.	The Project of NPP-2006 provides for storage of technological radioactive waste at the Nuclear Power Plant for 50-60 years. Construction of the local waste burial place is not connected with the Project of the NPP. Accumulation of the resources for decommissioning of the NPP is provided for.
14.	The response is accepted.	
15.	The Question No. 15 was based on English version of the EIA Report, During the ... (???)	
16.	The report does not provide a detailed description of the impact of the used water returned to Neris on the river's chemical regime. As there are water intake sites (water extracting sites) located on the banks of the river Neris, and their resources are partly formed by the river water, the possible chemical changes of the river water will affect the quality of drinking water.	The given question has been considered in Section 7.3.3. "Liquid Waste Discharge to Environment", pp. 141-143.
17.	The questions are not fully answered. According to the answer,	As **per p. 5.10** of SP AS-03: "As the lower level of the

	sanitary standards SP AS-03 of the Russian Federation stipulate that population exposure to radiation as a result of discharges from a nuclear power plant under design or construction must not exceed 100 m3v/year, divided between airborne and liquid discharges (50 m3v/year each). However, according to page 177 of the environmental impact assessment (EIA) report on the Baltic Nuclear Power Plant (Kaliningrad Region), SP AS-03 indicate 10 m3v/year per each route of exposure. The 100 m3v/year dose limit in the event of disturbances in normal operation is mentioned in pages 178-179. Therefore, it is not clear what requirements are actually established in regulatory acts and which of the values are correct.	dose of radiation from separate radiation factor at optimization of radiation protection of the population in the mode of normal exploitation of the NPP the minimum significant dose equal to 10 mSv/year has been accepted". Point 5.11. SP AS-03: "With regard to the achieved level of safety of the NPP in the mode of normal exploitation (when the actual discharges of the NPP generate on each factor of impact the population radiation dose of less than 10 mSv/year) the radiation risk for the population at exploitation of the NPP is unconditionally acceptable (<10^{-6} $year^{-1}$). In this respect the values of acceptable discharge levels (further – AD) being established by the present Rules are being calculated with regard to the dose of radiation of the population equal to 10 mSv /year".
18.	Since there is no possibility to study the indicated regulatory acts, it is not possible to get information on the effective requirements. According to the answer, the levels set out in the regulatory act of the Russian Federation conform to international standards. However, no substantiation for this assertion has been presented and the international standards that the levels conform to have not been indicated.	The reply is given in point 17.
19.	The presented answer to question 19 does not answer the question as it indicates the composition of low-activity waste and four radionuclides (Fe-59, Co-60, Cr-51 and Mn-54) in the first circuit. However, Table 24 of the EIA report provides data on radionuclide release into water bodies. The presented information on the nuclide composition of discharges into water should include data on predicted quantities of radionuclide (such as Cs-137, Cs-137, Sr-90, H-3, etc.) discharges into water typical of a nuclear power plant as well as information on limit	The Project of NPP-2006 does not provide for liquid radioactive waste discharge to the environment.

	discharges established in regulatory documents.	
20.	We agree that the average annual dose for population determined by NPP operation may be negligible compare with the dose from the natural radiation. However for purpose to show the impact of radiation determined by NPP, the dose for population should be evaluated. If this dose is forecasted in "The Report on Studying the Possibility of Placing of the Nuclear Power Plant in the republic of Belarus. A Complex of Works on Studying of Hydrology, Radiology, Ecology, Land Tenure Conditions at Nuclear Power Plant Placing on the Ostrovetsky and Verhnedvinsky Points", the summary of the evaluation and results of calculation should be presented in the Report. Unfortunately we have not access to the document mentioned in the answer and there is no possibility to find above mentioned results.	The works carried out at the stage of the choice of the site are represented in the previous reports. As per the calculations the maximum total value of the collective doses within 30-km zone at normal exploitation amounts to $2,87x10^{-4}$ mSv. We think it is unreasonable to consider in the Report on EIA the effects which are not subject to quantitative assessment and in no way effect on the state of environment.
21.	The necessity to model the processes of transfer of radioactive pollution in the course of normal operation mode of NPP is the decision of the authors of the EIA, but such modeling and its result ca serve as a tool to demonstrate the value of radioactive impact not only for Belarus but also for neighboring countries. The dose for critical group associated with NPP taking into account characteristics of the proposed site (dispersion of radioactive material discharged into air, surface water and groundwater) and design of nuclear installation should be present in the Report. In accordance with IAEA Safety Guide "Dispersion of Radioactive Material in Air and Water and Consideration of Population Distribution in Site Evaluation for Nuclear Power Plants", NS-G-3.2, to evaluate the potential radiological impacts of normal radioactive discharges and accidental releases to neighboring countries the persons in the critical group may be located beyond national borders.	In Section 14.5 "Radiation Impact", pp. 406-461 the answer to this question is presented in the volume sufficient for EIA stage.

22.	The question is not fully answered. There is no explained why maximum design-basis accidents (MDA) is not analyzed during the winter season.	The most dangerous is the summer scenario of discharge (the period of vegetation and use of greens). Out of the conditions of conservative assessment the summer scenario has been analyzed.
23.	The question is not fully answered. Only information about analyzed accidents scenarios and computer code that was used for simulation of radionuclides dispersion and deposition is presented. It is not clear why two different source terms were evaluated (^{131}I 1E+14 Bq, ^{137}Cs 1E+13 Bq for the 1st scenario and ^{131}I 3,1 E+15 Bq, ^{137}Cs 3,5E+14 Bq for the 2nd scenario). The explanation why such source terms and summer season, such meteorological conditions (wind speed 1 m/s) and modeling conditions (boundaries of emssion 21-25 m) for the evaluation were chosen should be given.	For the assessment of impact on biota, soil pollution discharge ^{131}I 3,1E+15 Bq, ^{137}Cs 3,5E+14 Bq has been used which corresponds to INES 6 (NNPP_EIAR_D2_Combined_Ru_200808_FINAL). The release height of 21-25 m had been taken with regard that transport lock is situated at this height. The expected radiation doses for population have been calculated at the maximum design-basis accident and out-of-design-basis accident on the power block. The discharge of radionuclides being taken into consideration for calculation at out-of-design-basis accident has been presented in Table 157, p. 449.
24.	More background information on the beyond design-basis accident scenarios and the graphic information on the fields of density of pollution of ^{131}I and ^{137}Cs radionuclides is given in the answer. But the graphic information on contamination levels of radionuclides is given only for the 1st scenario. The Report should be supplemented with the graphic information on contamination levels of radionuclides for the 2nd scenario also.	In EIA 2 most conservative scenarios have been presented: - the scenario of pollution of small area, Table 139, Figure 96, p. 417; The scenario of pollution of a great area, Table 140, Figure 97, pp. 418, 419.
25.	The question is not fully answered. In the answer there is no information about the results of calculation of pollution in the Republic of Lithuania under condition of BDB A with South-West emission trace and the worse meteorological conditions. It is necessary to have clear answer to assess a risk for population and to prepare emergency preparedness plans.	The scenario of pollution of a great area, Table 140, Figure 97, pp. 418, 419, has been presented for pollution of the territory of the Republic of Lithuania at the worst meteorological conditions.
26.	The question is not fully answered. If source term of Belarusian NPP in case of DBA is compared with maximum emergency emission of radionuclides from Novovoronezh NPP-2 and some	In the Project of the NPP-2006 the DBA is established on the basis of the achieved level of safety for the class of serious accidents on the block:

	conclusions based on this comparison are made, it should be explained what does the term "maximum emergency emission" mean and when, for what purposes and by whom it is determined? Is it the same as the maximum permissible values of accident emissions (for project NPP-2006 these values are 1E+14 Bq for ^{131}I and 1E+13 Bq for ^{137}Cs)?	- for earlier phase of the accident connected with leakages of FP (fission products) through leakinesses of double containment shell and bypass of the containment, at lack of power supply on the block : xenon-133-10^4 TBq; iodine-131 -50 TBq; cesium-137 – 5 TBq. - For intermediate phase of the accident after restoration of power supply on the block connected with discharge through the ventilation pipe: xenon-133-10^5 TBq; iodine-131 -50 TBq; cesium-137 – 5 TBq.
27.	The response is accepted.	
28.	The response is accepted.	
29.	Answering question 29, in which they were asked to assess the effects of tritium and other radionuclides on the River Neris in the territory of Lithuania, the EIA authors used data on the volumetric activity of radionuclides in Lake Druksiai and immediately rejected tritium due to its negligible effect. There is a table containing predicted maximum values for three radionuclides (Sr-90, Cs-137,1-131), with the obtained values compared with Russian Standard 2000. We consider the rejection and failure to assess H-3 to be incorrect for a few reasons: different type reactors, different type water bodies. It is also not clear why other radionuclides, such as Co-60, Mn-54 and other, have not been assessed. The table presents the maximum volumetric activity value of hundreds of thousands of times higher than the same volumetric radionuclide activity concentrations determined in Druksiai Lake, where radionuclide volumetric activity is becquerel or ten Becquerel per cubic meter of row. Neither the EIA report nor the answers to the questions provide information on potential radionuclide accumulation in bottom sediments and sites where	As per the Norms of Radiation Safety NRS-2000 the level of interference for H-3 is equal to 7700 Bq/l, for cesium-137 = 5,0 Bq/l, thus their ratio is equal to 7700:5=1540. The ratio of cosmogenious and anthropogenic H-3 is equal to 10^4. The long-term observations of Youzhny Bug River (years 1988-2009), South Ukrainian NPP, have shown that concentration of H-3 is being varied within the limits 15-30 Bq/kg which is significantly lower than the level of interference . The water-moderated water-cooled power reactors-1000 are installed at the South Ukrainian NPP (small series =- 2 pcs.) and RP-320 (one block). The liquid radioactive waste is being generated as per the technology. There has not been established overshoot of concentration of Co-60, Mn-54 and other radionuclides in the Youzhny Bug River. The Project of NPP-2006 does not provide for the liquid radioactive waste discharge to the environment.

	such accumulation may occur, which may also be in the territory of Lithuania.	
30.	The response is accepted.	
31.	The response is accepted, the corrected value should appear in the Report.	The given value (25 km) is being used in the Report.
32.	The response is accepted. In Chapter 5.4.1 of the EIA Report, it would be useful to refer the "Technical Report of the Ministry of Natural Resources and Environmental Protection of the Republic of Belarus and the Ministry of Environment of the Lithuanian Republic on cooperation in the field of monitoring and information interchange about a condition of transboundary surface water" dated April 10, 2008 and to provide some key information from this report.	
33.	Information about accident system and action programs of competent and rescue ... (???) ... .*	The plans of accident system and action programs of competent bodies are being worked out.
34.	Additional information is presented, but the complete answer is not given. If the procedure and the system of urgent notification of the neighbouring countries in case of an accident have been developed by the competent organizations as part of the project of the Belarusian Nuclear Power Plant, this procedure and system should be described. Also information about laws, conventions, civil liability, compensation for nuclear damage should be added. Agreements on Urgent Notification about	The issue on conclusion of the Agreement on Urgent Warning of the Nuclear Accidents and Cooperation in the Field of Radiation safety is not the subject of EIA. The draft of this Agreement is at the stage of consideration of the Parties.

	Nuclear Accidents and Cooperation in the Field of Radiation Safety with Poland and Ukraine are mentioned. We would like to notice that it is very important that such agreement with Lithuania will be established also.	
35.	Specific IAEA nuclear safety and radiation protection guides that were used as references during the preparation of EIA report are not provided. Chapters 1.3 *Basic normative documents* and Chapter 9. *References* don't include any IAEA nuclear and radiation protection guides.	Section 20 "List of Reference Normative Documents and Literature", pp. 501-511.
36.	The report lacks geological, seismological, and seismo-tectonic data. A reference is provided to the document "Report on a Feasibility Study of the Construction of a Nuclear Power Plant in the Republic of Belarus (1588-PZ-PIZ. Principal Explanatory Note, Part I)", but this document has not been made available for familiarisation and evaluation. The statements presented in Tables 1 and 3 of the report concerning the tectonic structure and stability of potential sites, the seismic and tectonic activity, the amplitudes of horizontal and vertical movements of Earth's surface and the magnitudes of the projected and maximum earthquakes, the distances of the sites from seismic hazard zones and the seismic qualities of soil are not based on factual data and/or documents.	The given materials have been considered at the stage of the choice of the site, the resulting materials in the form of Tables 3-5, Section 4.1. "The Alternative Sites of the Nuclear Power Plant Construction", pp. 47-58, have been included in the EIA .

37. 38. 39.	The questions are not fully answered. The impact of thermal pollution on the flora and fauna (in particular salmon), benthos and other hydrobionts of the river Neris must be assessed. There is no information on the envisaged measures mitigating an adverse effect on the sensitive ecosystem of the river caused by heat pollution, hydrological regime, and polluted waste. Based on the information supplied in respect of the quantities of water required for the cooling process, it is not possible to evaluate the reliability of the data and the validity of the conclusions claiming that no adverse impact will be exerted on the river Neris and the qualitative and quantitative indicators of the water will not deteriorate. We would also like to point out that River Neris monitoring must be planned. Particular attention should be given to the monitoring of the temperature of cooling water discharged into the river. Therefore, there must be a monitoring program to facilitate regular monitoring of temperature changes, quantitative and qualitative water parameters of the River Neris. The presented information on the quantities of water used for cooling does not suffice for us to evaluate data reliability and validity of the conclusions that there will be no negative effect on the River Neris and qualitative and quantitative water parameters will not be affected. The question is not fully answered. The EIA report does not describe in detail the manner in which water will be taken from Neris river. It needs to indicate whether dam-construction measures will be employed, whether a water reservoir will be constructed. It should be noted that fish protection measures must be envisaged at the sites of collection and discharge of the water intended for cooling. There must be an automatic monitoring system in the River Neris to provide early warning of emergency cases and increased levels of prohibited discharges to our country. Information on ways to ensure that no radioactive substances are	The given questions (37-39) have been considered in detail in the Report on EIA, Section 14.4 "Nuclear Power Plant Impact on Environment", pp. 379-406, and Section 18 "Proposals on Organization of the Program on Ecological Monitoring", pp. 486-497.

	discharged from the cooling system into the natural environment, ground and surface water (particularly into the River Neris) must be provided. It is necessary to plan means and preventive measures to ensure that cooling water contaminated with radioactive substances does not pass into surface water bodies and no damage is done to the natural environment of Lithuania in the event of various accidents.	

EIA* - the Report on EIA of the Belarusian NPP which was placed at www.dsae.by 04.03.2010 is in chapter «NPP Ecology».

I hereby certify **the authenticity of the translation with the original document. Translator V.P.Komarova**