Analysis of Lithuania, Latvia, Ukraine, Poland and Austria remarks by the Republican Unitary Enterprise «Belarusian NPP»

No.	Remarks to the Program	Comments
I.Lithuania remarks:		
1.	The Post-Project Analysis should include not only designed cases but also the cases that are not covered by the project. Including: - anthropogenic events (including the events arising from nearby industrial facilities and transport routes, as well as the aircraft crash); - indirect effect events, which may affect the responsiveness of the staff in a case of emergency.	The remark is not taken into account. The Post-Project Analysis is carried out for normal and abnormal operation cases. If the risk of a beyond design basis accident exists or if such an accident occurs, the Post-Project Analysis is carried out by the Republic of Belarus and affected Parties within the scope of bilateral agreements.
2.	How the program will work in the event of an accident and how the access will be provided to data in a real time mode.	The remark is taken into account in section 10 of the Post-Project Analysis. The environmental radiation monitoring system, operating also for the purposes of the post-project analysis, is designed for work during NPP normal and abnormal operation. The mechanism for informing the Republic of Lithuania by the Republic of Belarus is based on our country commitments in the framework of international conventions, including the Espoo Convention, the Aarhus Convention and the Convention on Nuclear Safety, as well as in terms of cooperation with the IAEA. The results of environmental monitoring of the Republic of Belarus are available in the mass media and at the web sites of the Ministry of Natural Resources and Environmental Protection (www.rad.org.by), the Ministry for Emergency Situations and RUE "Belarusian NPP": http://www.minpriroda.gov.by, http://www.gosatomnadzor.gov.by, http://www.dsae.by/. In addition, the informing of the Republic of Lithuania about radiation monitoring results is possible under the bilateral agreement between the Republic of Belarus and Lithuania in accordance with the Article 8 of the Espoo Convention.
3.	According to environment and sources monitoring for radiation protection, frequent and detailed measurements of environmental parameters are necessary at the early stages of facility operation in order to predict the behavior and transfer of radionuclides in the environment.	The proposals are accepted and taken into account in table 9 of the Post-Project Analysis Program.

No.	Remarks to the Program	Comments
4.	Radiological monitoring should include not only the environment monitoring, but also the emissions monitoring.	The remark is not taken into account. Emissions monitoring is carried out by NPP automated radiation monitoring system. The emissions monitoring results are taken into account when assessing the NPP impact on the environment in the framework of the Post-Project Analysis Program implementation.
5.	The radiological monitoring program doesn't include monitoring of iodine, tritium, trans-uranium elements and alpha-emitters; monitoring of radiological impacts on agriculture and forest ecosystems does not include daily food (milk, meat, fish, vegetables, grains, game meat).	The remark is not justified. Radiological monitoring of iodine, tritium, trans-uranium elements and alpha-emitters is presented in section 7.2 of the Post-Project Analysis Program. At the same time tables 8 and 9 were amended by taking into account expressed wishes.
6.	South-West, West, North-West, North directions from NPP are not covered with observation stations for atmospheric air radiation monitoring.	The proposed list of observation stations, parameters under control and observation procedures, including atmospheric air is presented in table 9. Currently, the automated radiation situation monitoring system in the area of Belarusian NPP location consists of 3 automatic measurement sites (AMS) of radiation dose rate in Trokeniki, Gervyaty and Mikhalishki settlements. In addition, the automated radiation situation monitoring system (ARSMS) operates in a 30-km zone near the Ignalina NPP on the territory of the Republic of Belarus. Your proposals are accepted and taken into account in paragraph 8.5.1 of the Post-Project Analysis Program.
7.	Southwest, West directions are not covered with observation stations for surface water radiation monitoring and for soil radiation monitoring.	The proposed list of observation stations, parameters under control and observation procedures, including soils and surface waters is presented in tables 8 and 9, as well as in figure 4. Currently observation stations for different types of soils and significant watercourses are organized throughout the surveillance zone. In addition, Viliya (Bystritsa) observation station with sampling is organized to control the transboundary transfer on the river Viliya. In addition, mobile laboratories of radiation and environmental monitoring can be used during monitoring. Your proposals are accepted and taken into account in the

No.	Remarks to the Program	Comments
		course of further development of figure 4.
8.	Observations should be performed alongside the Lithuanian border: otherwise, possible transboundary impact due to radionuclides transfer could not be identified while performing actual measurements.	The remark is not justified. The observation station with soil and surface waters sampling is organized in Bystritsa village in order to control the transboundary transfer. In addition, a gamma survey using mobile laboratories of radiation and environmental monitoring will be held on border areas. In addition, the organization of joint observation stations is possible within the framework of bilateral agreement according to the article 8 of the Espoo Convention.
9.	Meteorological monitoring system for basic atmospheric variables, water level gauge system should be considered.	The remark is not justified. Currently, the automated radiation situation monitoring system in the area of Belarusian NPP location consists of 3 automatic measurement sites (AMS) of radiation dose rate in Trokeniki, Gervyaty and Mikhalishki settlements, equipped with automatic meteorological stations for main meteorological parameters registration. The hydrological automatic gauging station is installed in Mikhalishki settlement.
10.	The proposed monitoring program lacks the geophysical (presumably seismological) monitoring	The remark is not justified. Seismological monitoring is not subject to the Post-Project Analysis Program review, but it is held under a separate program of the Belarusian NPP seismological monitoring. Seismostations network including seven monitoring stations for seismological monitoring is established and operates since 2012.
11.	Measures for prevention of radioactive substances decay and potential contamination of the river Neris	The remark is not justified. Due to the fact that the legislation of the Republic of Belarus does not provide the concept of "minimum allowed discharge", we assume that the question is a possible NPP contamination at the entrance to the hydrographic network. However, the selected design solutions eliminate the possibility of uncontrolled discharge of radioactive substances into the environment. Closed-cycle cooling system is used in the Belarusian NPP project. Viliya river water is used for filling the cooling circuit and production

No.	Remarks to the Program	Comments
		losses replenishment. The description of biological monitoring, including the ecological state of the river Neris, as well as migratory fish species is presented in section 7.3.
12.	Measures for prevention of radioactive substances decay and potential contamination of the Neris river.	The remark is not taken into account. Design solutions provide necessary measures (technical, technological and organizational measures) for prevention of surface waters radioactive contamination, including the river Viliya (Neris).
II. Latvia remarks:		
1.	With respect to control parameters, we would like to ask for radiation monitoring (default settings) of the river Western Dvina (* Daugava on the territory of Latvia) in the suburbs of the Latvian border, as well as for the use of information obtained during monitoring to assess the potential Daugava contamination in Latvia near the place where Daugava flows into the Baltic Sea.	Currently, radiation monitoring within the National Environment Monitoring System in the Republic of Belarus in the transboundary cross-section of the river Daugava (Western Dvina) is not carried out due to absence of radioactive facilities in close proximity. Additional arrangements for the environmental radiation monitoring in a transboundary context (Latvia, Lithuania, Poland, and Ukraine) are planned for the next period during preparing the draft program of the National Environment Monitoring System of the Republic of Belarus, where Latvian side proposals will be taken into account.
2.	We ask for mechanism implementation in the post-project analysis with the help of which the inhabitants of Latvia can obtain information directly about Belarusian NPP impact on the radiation safety state.	The remark is taken into account in section 10 of the Post-Project Analysis. The mechanism for informing the population of Latvia by the Republic of Belarus is based on our country commitments in the framework of international conventions, including the Espoo Convention, the Aarhus Convention and the Convention on Nuclear Safety, as well as in terms of cooperation with the IAEA. The results of environmental monitoring of the Republic of Belarus are available in the media and at the web sites of the Ministry of Natural Resources and Environmental Protection (www.rad.org.by), the Ministry for Emergency Situations and RUE "Belarusian NPP": http://www.minpriroda.gov.by, http://www.gosatomnadzor.gov.by, http://www.dsae.by/.

No.	Remarks to the Program	Comments
		In addition, the informing of the population of Latvia about radiation monitoring results is possible under the bilateral agreement between the Republic of Belarus and Latvia in accordance with the Article 8 of the Espoo Convention.
3.	We ask for correction or clarification of possible ambiguities in section 6.6. The transboundary impact forecast, table 5 of the Belarusian NPP, the post-project analysis programs of the Belarusian NPP: Potential impacts where two columns with identical names "Surface water" but with different details are given.	The remark is taken into account. There are two graphs in table 5 of the Post-Project Analysis: "Surface water" and "Ground water". Inaccurate errors in translation are eliminated.
4.	The Program should be supplemented by a comprehensive assessment of potential radiological impacts (primarily - an annual radiation dose for the population in the case of NPP accident) and information about safety measures to be taken in the Latvian territory, in particular - Daugavpils region - in accordance with standard international documents, defining the area of planned emergency measures for the population protection and their scope - namely, for the zone with a *food consumption ban* (300 km) in order to evaluate the necessary measures (if there are any) in respect of food restrictions on the relevant territory of Latvia.	The remark is not taken into account. In the framework of EIA and PSAR preparation by the Belarusian NPP, possible annual radiation doses for the population of the Republic of Belarus and adjacent territories of neighboring countries in the case of accidents at the Belarusian NPP, were evaluated. Questions of radiation safety organization assurance of the population and the environment are based on the IAEA, WHO and national legislation recommendations.
5.	It is desirable to accurately determine in table 9 the distance of automatic radiation monitoring and monitoring stations locations from the Latvian border.	The proposed list of observation stations, parameters under control and observation procedures is presented in table 9. Currently, the automated radiation situation monitoring system in the area of Belarusian NPP location consists of 3 automatic measurement sites (AMS) of radiation dose rate in Trokeniki (116 km from the Latvia border), Gervyaty (117.5 km from the Latvia border),and Mikhalishki (104 km from the Latvia border) settlements, equipped with automatic meteorological stations for main meteorological parameters registration In addition, the automated radiation situation monitoring system (ARSMS) operates in a 30-km zone near the Ignalina NPP on the territory of the Republic of Belarus. The closest observation station is located at a distance of 2.7 km (Urbany), 3.1 km (Mezhany) and 4.5 km (Karasino) from the border with Latvia. Your proposals are accepted and taken into account in paragraph 8.5.1 of the Post-Project Analysis Program.

No.	Remarks to the Program	Comments
6.	An additional column with geographical coordinates of monitoring points (longitude and latitude) is necessary to add in table 9.	The remark is taken into account. Geographical coordinates of monitoring points are included in table 9 of the Post-Project Analysis Program.
III. Ukraine Remarks:		
1.	It is necessary to include the transboundary impact analysis on the territory of Ukraine in consequence of beyond design basis (severe) accidents, accompanied by high emissions.	The remark is not justified. According to paragraph a) of Appendix V to the Espoo Convention, the purpose of the post-project analysis is "to monitor compliance with the conditions as set out in the authorization or approval of the activity". The analysis of radiological consequences of severe beyond design basis accidents is presented in the preliminary safety analysis report of the Belarusian NPP and in conclusion No. 98 of the state ecological expertise by the Ministry of Natural Resources and Environmental Protection dated 24.10.2013, presented to the Ukrainian side in the prescribed manner. In accordance with project documents, a level 6-7 accident according to the INES scale on WWER-1200 reactor units of NPP-2006 project is not possible.
2.	Possibilities of early identification of transboundary transfer directions of accidental emissions, including toward Ukraine, with the help of emergency control systems of the Republic of Belarus.	The remark is taken into account in section 10 of the Post-Project Analysis. The mechanism for Ukraine informing about possible transboundary transfer by the Republic of Belarus is based on regulations in the framework of international conventions, including the Espoo Convention, the Aarhus Convention and the Convention on Nuclear Safety, as well as in terms of cooperation with the IAEA. The results of environmental monitoring of the Republic of Belarus are available in the media and at the web sites of the Ministry of Natural Resources and Environmental Protection (www.rad.org.by), the Ministry for Emergency Situations and RUE "Belarusian NPP": http://www.minpriroda.gov.by, http://www.gosatomnadzor.gov.by, http://www.dsae.by/. In addition, the informing of Ukraine population about radiation monitoring results is possible under the bilateral agreement

No.	Remarks to the Program	Comments
		between the Republic of Belarus and Ukraine in accordance with the Article 8 of the Espoo Convention.
IV. Poland remarks		
General remarks:		
1.	Specify the research start date for the post-project analysis needs and the results submission date to the Polish side.	The remark is taken into account in section 10 of the Post-Project Analysis. Preliminary studies on the environment state and pollution assessment in the area of the Belarusian NPP construction are started in 2008 and are used in the EIA report. The present information is transferred to the Polish side. Currently, after the Post-Project Analysis Program approval in the prescribed manner, the information about the state of environment pollution will be presented within the framework of international conventions, including the Espoo Convention, the Aarhus Convention and the Convention on Nuclear Safety, as well as in terms of cooperation with the IAEA. The results of environmental monitoring of the Republic of Belarus are available in the media and at the web sites of the Ministry of Natural Resources and Environmental Protection (www.rad.org.by), the Ministry for Emergency Situations and RUE "Belarusian NPP": http://www.minpriroda.gov.by, http://www.gosatomnadzor.gov.by, http://www.dsae.by/. In addition, the informing of the population of the Republic of Poland about radiation monitoring results is possible under the bilateral agreement between the Republic of Belarus and the Republic of Poland in accordance with the Article 8 of the Espoo Convention.
2.	Whether radionuclides emissions and their presence in the environment are also presented in the Belarusian NPP Ecological Safety Reports.	The remark is taken into account. According to the IAEA recommendations, the information about radionuclides emissions into the environment will be presented in the Belarusian NPP Ecological Safety Reports.
Remarks concerning characteristics of the nuclear facility:		
1.	Some natural incidents, incidents characterizing parameters, as well as the frequency of incident occurrence and the threat level are described in table 2.	The remark is not taken into account. The information presented in table 2 was taken into

No.	Remarks to the Program	Comments
	But it is not indicated whether these parameters are used in the course of the facility design process as maximum values or they are given only as the information about the environment current state, while more secure high values will be used for design calculations (problem development in the post of the Polish Atomic Energy Agency, which is the annex to the mentioned post). Clarify and formulate more precisely this question.	consideration in the project during the Belarusian NPP site selection and design as well as during emergency planning.
2.	There are certain inconsistencies and incomplete description of considering incidents, for example, in regard to flood level or river stage (problem development in the post of the Polish Atomic Energy Agency, which is the annex to the mentioned post) in table 2. Clarify and formulate more precisely this question.	The remark is not justified. Flooding at the Belarusian NPP site is impossible, since it is located more than 40 meters above the maximum design level of the river Viliya. The information about major natural events in the NPP area and site, observed for a long period of time is presented in table 2. We believe that the presented information provides a sufficient description of natural phenomena in the area of Belarusian NPP location.
Remarks concerning the permit conditions:		
1.	The isotopic composition of permissible leakages into the atmosphere is presented in table 3: ^{131}I - 18 GBq, ^{60}Co – 7.4 GBq, ^{134}Cs – 0.9 GBq, ^{137}Cs – 2.0 GBq, while inert gases annual leakage must not exceed 690 TBq.	The remark is not justified. The normative document of the Russian Federation "Sanitary rules for nuclear power plant design and operation (SP AS-03)" and a similar document of the Republic of Belarus "Sanitary requirements for design and operation of nuclear power plants (SP AES-2010)" are used during the NPP design. A population exposure quota of 100 mSv / year is established in this document. According to the document, this quota during normal NPP operation is divided into two equal parts of 50 mSv / year due to NPP releases and discharges. According to SP AES-2010 inert radioactive gases (argon, krypton, xenon), ^{131}I, ^{60}Co, ^{134}Cs, ^{137}Cs made main contribution (over 98%) to population exposure dose during NPP normal operation. Therefore, the isotopic composition of annual permissible emissions corresponding to the population exposure dose of 50 mSv / year is presented in table 3 of the Post-Project Analysis.
2.	Leakage limits for ^{90}Sr and ^{3}H should also be defined in table 3.	Maximum permissible emissions for ^{90}Sr and ^{3}H are not specified in table 3 of the Post-Project Analysis, because they are not standardized by SP AES-2010.

No.	Remarks to the Program	Comments
3.	The limits for radioactive substances, which are released into the environment by cooling water channels, e.g., tritium or other beta- and gamma- radionuclides, are not specified in table 3. Supplement these data.	According to above clarifications the normative document SP AS-3 (SP AES-2010) is used during the NPP design. Quantitative and qualitative parameters values characterizing the impact of artificial or natural radiation on an individual in different radiation situations and used to ensure radiation safety, are set by hygienic standard "Criteria of an assessment of radiation influence" (approved by the Resolution No. 213 of the Ministry of Public Health of the Republic of Belarus dated 28.12.2012). The present document is used during NPP operation for radiation exposure assessment. Reference levels in drinking water for 191 radionuclides are set in Annex 9. The reference level for tritium is 10^4 Bq/l. The control over the radionuclides activity in the NPP releases and discharges will be carried out by the operating organization in accordance with the requirements of the present document.
Remarks concerning the transboundary impact:		
1.	It is necessary to identify in presented document the radiological consequences of representative severe accidents of 6 and 7 levels according to the International Nuclear Event Scale (INES) classification, as well as the population exposure dose, including in a transboundary context, for 3 different periods of time, as well as the whole life cycle.	The remark is not justified. According to paragraph a) of Appendix V to the Espoo Convention, the purpose of post-project analysis is "to monitor compliance with the conditions as set out in the authorization or approval of the activity." The analysis of radiological consequences of severe beyond design basis accidents is presented in the preliminary safety analysis report of the Belarusian NPP and in conclusion No. 98 of the state ecological expertise by the Ministry of Natural Resources and Environmental Protection of October 24, 2013, presented to the Polish side in the prescribed manner. In accordance with project documents, a level 6-7 accident according to the INES scale on WWER-1200 reactor units of NPP-2006 project is not possible.
2.	Possible NPP impacts on surface water from the Polish side are presented in table 5. It is necessary to describe the nature and extent of this impact.	The remark is not justified. According to table 5, the impact on surface waters of the Polish side is only possible through the atmospheric precipitations. The specific activity of radioactive elements in such precipitation will not affect the surface water state of the Polish side.

No.	Remarks to the Program	Comments
Remarks concerning the monitoring:		
1.	Threshold values of parameters for water at transboundary cross-sections of rivers, on which, the prompt information exchange is carried out in accordance with the international cooperation obligations in case of excess, were presented in table 7. By analyzing the adopted threshold values of Polish side informing it should be stated that they are significantly overstated in comparison with current Polish standards and the values of informing described in the technical protocol on cooperation in the field of monitoring and information exchange on surface waters level in the transboundary section signed by Brest regional committee for natural resources and environmental protection (the Republic of Belarus) and the Provincial inspectorate of environmental protection in Lublin. It must be emphasized that threshold values of priority substances such as nickel, lead, cadmium and mercury, are derived directly from Directive 2013/39/EC, and Poland is obliged to observe them. Clarify the mentioned question.	Surface water pollution levels under hydrochemical indicators presented in the technical protocol on transboundary water cooperation signed by Brest regional committee for natural resources and environmental protection (the Republic of Belarus) and the Provincial inspectorate of environmental protection in Lublin, are designed for impact assessment of Brest region industrial facilities on the river Bug and cannot be used for Belarusian NPP impact assessment on the Polish side surface waters. The criteria listed in table 7 are used as criteria for initiating the information exchange with the Republic of Lithuania and are not regulated by Directive 2013/39/EC. Within the framework of the bilateral agreement between the Republic of Belarus and the Republic of Poland according to the Article 8 of the Espoo Convention, other notification criteria are possible to establish. The remark is taken into account. The table 7 name is supplemented by the indication on the Lithuanian side.
2.	According to table 9 the area of radioactive substances monitoring in waters and sediments, is generalized, the threshold values are not defined in it. Monitoring of radioactive elements content in waters is essential because these rivers are tributaries of the river Neman, flowing into the Baltic Sea. In this regard, there is a possibility of chemical and radiological contaminants transfer with sea currents and fauna (fish) migration. Identify and formulate more precisely this question.	The remark is not justified. The information about the list of observation stations, parameters and observation procedures is presented in table 9. It is not intended to include information about the criteria for radiation impact assessment in the present table. Reference levels in drinking water for 191 radionuclides are set in the hygienic standard "Criteria of an assessment of radiation influence" (approved by the Resolution No. 213 of the Ministry of Public Health of the Republic of Belarus dated 28.12.2012) and Annex 9.
3.	The data described in table 9, clarify whether the proposed measurements are also conducted a year before the commencement of works (exposure data), and whether the data obtained from measurements during operation, are compared with the provisions accepted as the basis for the Decision No. 98 of the State ecological expertise and other documents required to obtain the consent for the project realization.	The explanation is given. It is planned to organize full-scale observations a year before the Belarusian NPP commissioning in accordance with table 9. The results, obtained during EIA and PSAR preparation and implementation of the post-project analysis Program, will be used for environmental assessment in accordance with the conclusion

No.	Remarks to the Program	Comments
		of the state ecological expertise No. 98 dated 24.10.2013.
4.	The exact number of observation stations and the sampling frequency were not determined. There are no any references of the monitoring data transfer to the neighboring countries (including Poland). Fill this gap.	The remark is taken into account; the information is presented in table 9, which was modified with an indication of the observation stations number and the sampling frequency. Within the framework of the bilateral agreement between the Republic of Belarus and the Republic of Poland according to the Article 8 of the Espoo Convention the description of the monitoring data transfer to the Polish side is possible. The results of environmental monitoring of the Republic of Belarus are available in the media and at the web sites of the Ministry of Natural Resources and Environmental Protection (www.rad.org.by), the Ministry for Emergency Situations and RUE "Belarusian NPP": http://www.minpriroda.gov.by, http://www.gosatomnadzor.gov.by, http://www.dsae.by/.
V. Austria Remarks:		
We agreed with the Austrian side opinion that the Post-Project Analysis is of interest for the Republic of Belarus and affected Parties.		