ANNEX F. Description of uncertainties, which took place during the preparation of the document
"Khmelnytsky nuclear power plant. Feasibility study for construction of power plants Number 3 and 4. VOLUME 13. Impact Assessment (EIA). PART 14. Assessment the effects of cross-border transport in normal and emergency modes. 43-814.203.004.OE.13.14. "And the decisions to incorporate these uncertainties.

1 For a calculation of transboundary transport were chosen following accident scenarios on one of the KhNPP units - the maximum design accident (MPA) with two-way rupture of the main circulation circuit (HCC) and beyond design basis accident (PAD) caused by guillotine rupture of the main circulation circuit (HCC) with failure of active emergency core cooling systems zone (ECCS) and operable sprinkler system.

In reviewing the IPA adopted the following conservative assumptions:

- when calculating the emission of radioactive isotopes conservatively assumed to be instantaneous bilateral rupture of HCC, which led to the formation of a leak equivalent diameter 2x850 mm (such an accident is postulated as the IPA in the regulations);
- because the actual amount of damage shells of fuel elements for the accident is not uniquely defined, conservatively assumed to be 100% of all fuel element shells depressurization of the core;
- conservatively assumed to be the work of only one (of three), thread the sprinkler system;
- since the height of the emission at a given accident is not uniquely defined, and in view of the vicinity of the ejection of high buildings, conservatively assumed that the emission occurs with zero height and shielding of the nearby buildings are not taken into account;
- release time for any accidents conservatively assumed to be equal to one hour.With longer duration of emission of the impurity scattering and the time to reach the point of detection will be large, and therefore contamination of the territory and the dose rates will be lower.

When considering the PAD has taken the following conservative assumptions:

- when calculating the emission of radioactive isotopes conservatively assumed to be instantaneous bilateral rupture of HCC, which led to the formation of a leak equivalent diameter 2x850 mm;
- conservatively assumed 100% of all fuel element melting of the core;
- conservatively assumed to be the refusal of active ECCS;
- since the height of the emission at a given accident is not defined, and in view of the vicinity of the ejection of high buildings, conservatively assumed that the emission occurs with zero height and shielding of the nearby buildings are not taken into account;
- release time for any accidents conservatively assumed to be equal to one hour.With longer duration of emission of the impurity scattering and the time to reach the point of detection will be large, and therefore contamination of the territory and the dose rates will be lower.

2 as a criterion for public safety in neighboring states the accident in question adopted the annual individual effective doses. At the same time limit of individual effective dose, according to the document [1] was adopted equal to 1 mSv per year, "1. Not considered acceptable levels of annual revenue radionuclides in the body of an individual in various ways (air, water, food supply), because they are derived from the dose limit.

3 When calculating the annual individual effective doses of residents of Poland and Belarus used the available documents at the time of calculation. The calculations take into account consumption of only those products that give the maximum contribution to the dose.

Intake of radionuclides into the human body was estimated using an average diet of the inhabitants of Poland in accordance with the document [2] and Belarus, in accordance with the document [3]. The diet of children was obtained, using the guidelines outlined in the manual [4].

4 For both accidents (MPA and PAD) to perform the calculations carried out with using a mesoscale Lagrangian - Eulerian diffusion model of transfer impurities in the atmosphere LEDI. The model is developed for calculations of impurity transport in the
distances up to 1000 km from the gas-aerosol "point" source with an effective height emissions from 0 to 1500 m Calculations were made using the application package programs RadEnvir3.1, which is jointly developed by the IAEA and the Institute of Radiation ATN security of Ukraine.

As an approach to the selection of meteorological disaster scenarios spread of radioactive emissions into the atmosphere, it was decided to use real data measurements of the atmosphere.

When calculating the cross-border transfer of the radioactive release emergency used data radiosonde the atmosphere, conducted Hydrometeorological Service of Ukraine. The selected three typical meteorological scenarios in which can take place intense cross-border activity in the removal of the direction of Poland and Belarus.In each scenario, conservatively assumed lack of precipitation during the passage of radioactive cloud across Ukraine, which provides the greatest value of the density of fallout on the territory of neighboring states. At the same time, to select the most conservative results, in each scenario examined the presence and absence of rainfall during the period when the radioactive release reaches the territory of neighboring States immediately after the border of Ukraine.

5 In calculating the dose due to radionuclides received by the body with food power, the conservative assumed that the contamination occurs at the beginning harvesting, and products are consumed immediately.

When calculating the dose due to inhalation exposure from the radioactive cloud and the ground surface was not considered conservative members of the residence time of the reference group in the room and it was believed that they are round the clock in the open space.

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