"Current results for the second half of 2024"
IRN AP22783154 "Comprehensive radioecological study of the Shagan River basin and the development of recommendations to minimize its negative impact on the environment and population.".

Section of the Schedule with Description	Implementation Timeline	Brief Description of Work Performed/Results Obtained	Information on Potential Applications
№1 Identification and Refinement of the Areas of River Shagan Water Pollution Spread, and Analysis of the Impact of This Pollution on the Natural Environment	September 1 - November 1, 2024	Information on the degree and nature of radioactive contamination by tritium in the surface waters of the Shagan River has been collected and analyzed. Tritium activities have been measured in the vegetation of the study area. An analysis of tritium activity in samples taken from the air space and from the fauna of the study area has been conducted. Field trips were carried out during which 150 samples of surface water from the Shagan River were collected and analyzed. Approximately 150 water samples from the Shagan River basin were selected and prepared for analysis. The samples were collected during these trips. All planned experimental results within the scope of these works were successfully achieved.	The results obtained can be used to assess and minimize the impact of radioactive contamination on the environment and the population. These data will also be useful for developing recommendations to improve the environmental situation, optimize agricultural practices, monitor water and air quality, and take measures to ensure the safety of residents near the Shagan River basin.
№2. Preparation of infrastructure for field research; procurement of materials.	September 1 - November 1, 2024	Technical specifications for the conducted work within the project were prepared, a work execution plan was organized, and the necessary materials and equipment were purchased. Three field trips were carried out by a team of three specialists (the first trip from September 2 to September 13; the second from September 23 to October 6; the third from October 21 to November 1). Each expedition was conducted in accordance with the technical specifications. Spectrometric measurements were carried out in plant and livestock products. A Scientz-10N lyophilizer was purchased (sublimation drying, 2XZ vacuum pump, material tray, and vacuum pump oil), along with plastic vials (pack of 1500) and glass vials (pack of 1000) of 20 ml with caps. Commercial proposals have been received for the other items (PTFE rod 110 *1000 mm, Ultima-Gold LLT – cocktail for low-background measurements), and contracts have been concluded for the supply of materials.	
№3. Laboratory	October -	Laboratory studies were	

Research (preparation of air, water, plant, and animal origin samples)	November 2024	conducted. Samples were prepared for beta spectrometric measurements, including 12 samples of atmospheric air vapors, 150 water samples, 24 plant samples, and 10 samples of meat from agricultural animals. A general chemical analysis of water was conducted on 12 samples. Sixty water samples from the Shagan River were prepared and analyzed for elemental composition. Spectrometric measurements were conducted on samples of water, plants, and atmospheric air vapors.	
№4. Analysis of the Quality Characteristics of Crop and Livestock Products	September 1 - November 1, 2024	A survey was conducted of winter quarters located along the Shagan River. Spectrometric measurements were taken, and data were obtained on the tritium content in crop and livestock products produced by farms located along the river. The survey included a door-to-door visit of the winter quarters near the Shagan River basin, with particular attention given to those close to the water body. During the survey, winter quarters such as Atomkol, Yubileynaya, Zovet Ilicha, Berezka, Sarapan, Kuigengudyk, Toraygyr, Eginshi, Argymbay, Baigazy, Zhanan 2, Chinji, Kyzyl Atan, Karsengir, Alimbay, Besen, Karabas, Tley, Baikonyt, and Karasykyp were inspected. A total of 12 samples were collected (3 milk samples and 9 meat samples from agricultural animals). It was established that the specific activity of tritium in milk samples could reach up to 10 kBq/L (Yubileynaya winter quarters), while the tritium content in meat samples was below detectable levels.	
№6. Laboratory Research (preparation of crop and livestock product samples)	October - November 2024	Spectrometric measurements were conducted in crop and livestock products. Laboratory measurements and sample preparation included the following prepared for beta-spectrometric measurements: • 3 samples of cow's milk • 9 samples of meat from agricultural animals • 5 samples of agricultural plants for organically bound tritium analysis	
