LIETUVOS RESPUBLIKOS APLINKOS MINISTERIJA
THE MINISTRY OF ENVIRONMENT OF THE REPUBLIC OF LITHUANIA

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To the points of contact for Espoo Convention as per the enclosed send list

No.

NOTIFICATION IN ACCORDANCE WITH ARTICLE 3 OF THE CONVENTION ON ENVIRONMENTAL IMPACT REGARDING RECONSTRUCTION AND TRANSFORMATION OF THE IGNALINA NPP STORAGE FACILITY OF BITUMINIZED RADIOACTIVE WASTE INTO A REPOSITORY

As a country of origin under whose jurisdiction a proposed activity is envisaged to take place, the Republic of Lithuania hereby notifies potentially affected countries about a proposed activity listed in Appendix I to the UN Convention on Environmental Impact Assessment in a Transboundary Context (hereinafter referred to as Espoo Convention) – Installations designed solely for the final disposal of radioactive waste (Appendix I clause 3(b)).

Developer of the proposed economic activity is the State Enterprise Ignalina Nuclear Power Plant. The activity consists of reconstruction and transformation of the Ignalina NPP storage facility of bituminized radioactive waste into a repository. The facility has been used for the storage of bituminized radioactive waste since 1987. The aim of the proposed economic activity is to transform this facility into a repository.

Bituminized radioactive waste storage area is located at north-west part of the Ignalina NPP industrial site: about 200 m west from the first reactor unit and about 600 m from the south shore of Lake Druksiai. Two neighbouring states – Belarus and Latvia – are relatively close to the site of the proposed economic activity. The border between Lithuania and Belarus is about 5 km east and south-east from Ignalina NPP industrial area. Lithuanian and Latvian state boarder is about 8 km north. Other states are at the distance of several hundred kilometres from Ignalina NPP.

The decision regarding the environmental impact of the proposed economic activity will be made by the competent authority – Environmental Protection Agency, taking into account potential environmental impacts, proposals of the public concerned, the results of consultations with national entities of environmental impact assessment (other state institutions and the executive institution of relevant municipalities), and the results of transboundary consultations.

Further information on the proposed activity and its possible transboundary impacts is provided in the Information on the planned economic activity and its possible transboundary impact, attached to this notification (in English).

Referring to Article 3.3 of the Espoo Convention and other relevant provisions of international and national legislation we kindly ask you to respond by **June 21, 2023** at the latest by:

- acknowledging the receipt of the notification;
- providing comments concerning the environmental impact assessment;
- submitting any comments, you might receive from the public and relevant authorities in your country;
- indicating whether you intend to participate in the environmental impact assessment procedures as a potentially affected country.

Please address your response to this notification to Mr. Vitalijus Auglys, Point of Contact regarding Notification in accordance with Article 3 of the Convention on Environmental Impact Assessment in a Transboundary Context:

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Vice-minister Raminta Radavičienė

Enclosed: Information on the planned economic activity and its possible transboundary impact (in English), 6 pages.

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INFORMATION ON THE PLANNED ECONOMIC ACTIVITY AND ITS POSSIBLE TRANSBOUNDARY IMPACT

1. The developer of the proposed economic activity is the **State Enterprise Ignalina Nuclear Power Plant**:

Address:	Ignalina NPP site, Druksiniu v., Visaginas mun., LT-31500 Visaginas, Lithuania
Contact person:	Maksim Koliada
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2. Information on the nature of the proposed activity

2.1. *Title of the proposed economic activity*.
Reconstruction and transformation of the Ignalina NPP storage facility of bituminized radioactive waste into a repository

2.2. The facility has been used for the storage of bituminized radioactive waste since 1987. The aim of the proposed economic activity is to transform this facility into a repository. Such an activity can be referred to as "*Installations designed solely for the final disposal of radioactive waste*" that is listed in Appendix I clause 3(b) of the UN Convention on Environmental Impact Assessment (EIA) in a Transboundary Context (Espoo Convention).

2.3. *Description of the proposed activity.*
During the implementation of the proposed activity, transformation of the bituminized radioactive waste storage facility (Building 158) into a repository will be performed by constructing engineered barriers that protect the repository from ingress of water (rain, melting snow, etc.), possible external impacts caused by accidental or deliberate human activities, and limit ionising radiation exposure and releases of radionuclides into the environment.
Bituminized radioactive waste is derived from bitumen and salt concentrate, which is generated by vaporizing Ignalina NPP operational and decommissioning liquid radioactive waste. The construction of Building 158 had started in 1981, and its loading with bituminized waste took place between 1987 and 2015. The storage facility is a two-stored rectangular surface construction (~74×75 m) with bearing walls and concrete blocks for biologic protection. On the 1st floor, 12 canyons (vaults) are located, the capacity of each is 2500 m^3 except one canyon (No. 12) that has 1000 m^3 capacity (see Figure 1).

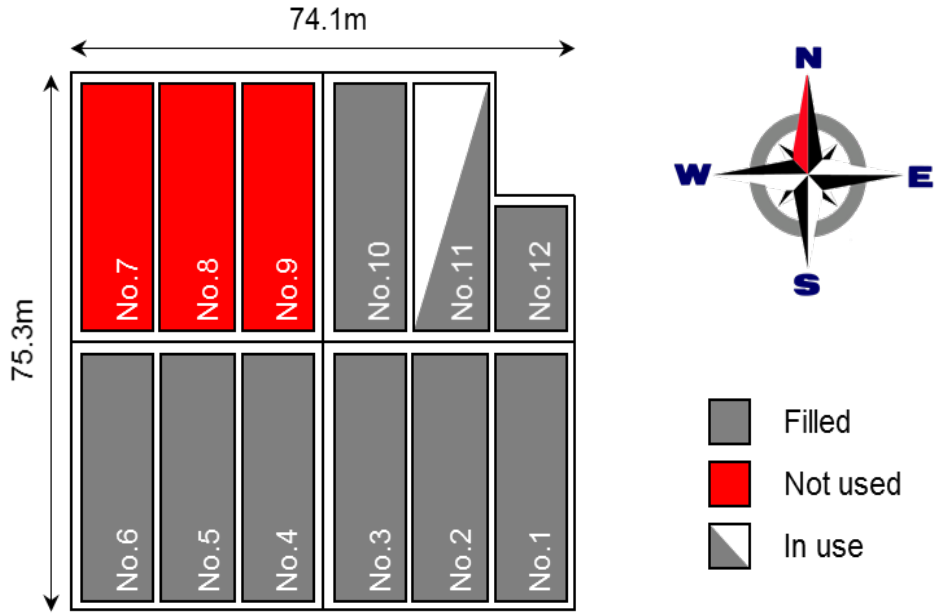

Figure 1. Layout of canyons of bld. 158

During the period of 1987 – 2015, approximately 14 422 m^3 of bituminised RAW were loaded in the storage facility (see Table 1). Presently, three canyons (No. 7–9) are empty. However, during the implementation of the proposed economic activity these canyons will be filled with inert materials (for example, sand, gravel). On the 2nd floor, there are tubular communication ducts with pipelines, technological equipment rooms, and also auxiliary service rooms.

Table 1. Canyons (vaults) filling periods and loaded amount of bituminized radioactive waste

Nr. of Vault	Time of Loading	Volume*, m^3
1 (UF44B01)	1987 – 1989	1963
2 (UF44B2)	1989 – 1990	2054
12 (UF59B01)	1990 – 1991	844
3 (UF44B03)	1992 – 1994	1964
4 (UF44B04)	1994 – 1996	1745
5 (UF45B01)	1996 – 2001	2002
6 (UF45B02)	2001 – 2006	1862
10 (UF59B03)	2007 – 2014	1950
11 (UF59B02)	2015.	38
Total volume of bituminized waste – bitumen compound and pure bitumen used for: - as a protective bottom and top insulating layer; - for testing the commissioning modes of the bituminization plant * $5м^3$ – pure bitumen, as a canyon protective bottom insulating layer		14422

Three types of barriers are used during the construction of repositories: 1) surface (hill type), segregating and isolating waste from surface processes, 2) vertical (cut-off walls that are installed at proper depth around the site), limiting horizontal waste dispersion and potential access to waste zone from the side, and 3) underground horizontal barriers installed below waste in order to limit radionuclide dispersion down to ground water or on the contrary, in order to prevent the waste zone from groundwater water percolation. Underground barriers are generally constructed in line with vertical barriers. The second and the third barrier types are used when waste is immobilized and disposed of below the ground surface. It is planned to transform the Ignalina NPP bituminized waste storage facility, which is constructed above the surface, into a repository by the construction of surface engineered barriers (see Figure 2). Construction of surface engineered barriers is a well-analysed and widely used method in global practice of isolating radioactive waste from the environment.

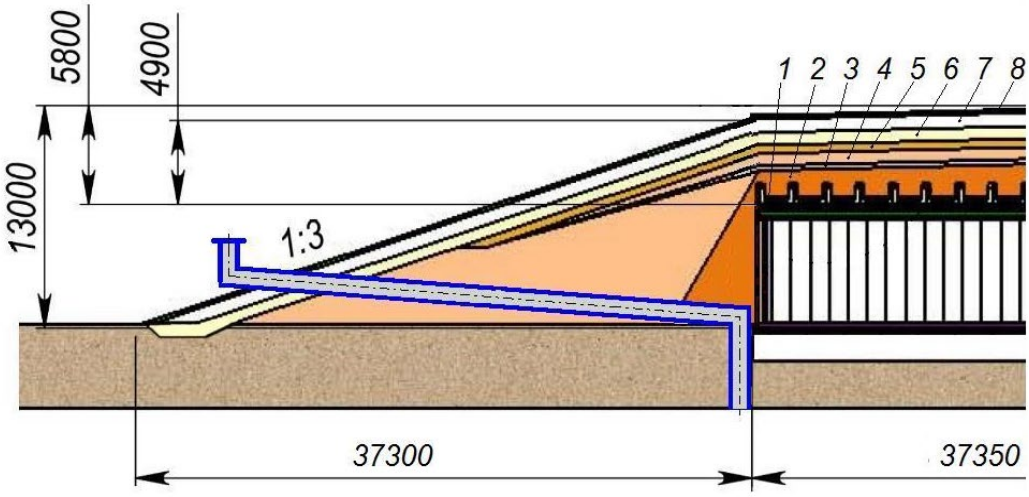

Figure 2. Composition (cross-section) of the 5.8 m thick engineered barrier after transformation of the storage facility (bld. 158) into a repository: (1) drainage layer; (2) insulating clay layer; (3) drainage layer; (4) protective clay layer; (5–7) drainage layers; (8) vegetation layer)

2.4. Scale of the proposed activity

The bituminized radioactive waste storage facility is located within the industrial controlled area that belongs to the State Enterprise Ignalina NPP. All necessary reconstructions and transformations will be implemented locally in this controlled area (see Figure 3). Preliminary quantities of materials, required for installation of surface engineered barriers will be presented in the EIA Report. Environmentally inert materials (reinforced concrete, concrete, clay, sand, gravel, turf, etc.) will be used during the installation of those barriers. During reconstruction and transformation of the storage facility into a repository, generation of only non-radioactive waste is expected. This waste will be transferred to the waste handling companies in accordance with the requirements of waste management national regulations. Long-term radiological impacts caused by potential radionuclide migration during the institutional control phase (100 years of the active control and 200 years of the passive control of the repository) on a member of the reference group of the population, as well as impacts foreseen in hypothetical accident scenarios will be assessed and presented in the EIA report.

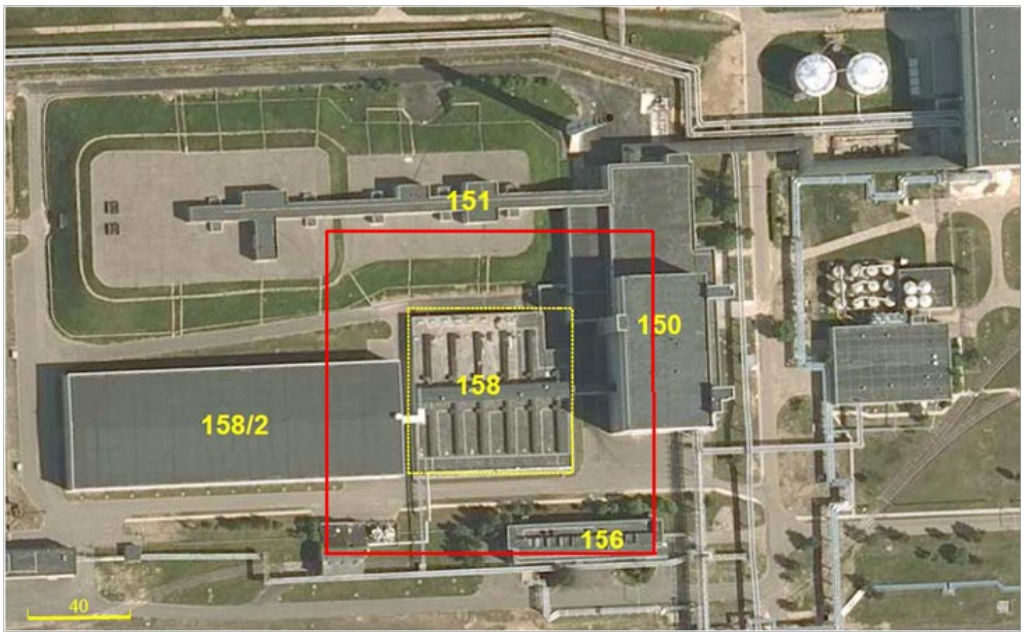

Figure 3. Reconstruction of bituminized radioactive waste storage facility (Building 158) into a repository. The red line marks the 36 m wide area around the building that will be used for the engineered barrier

2.5. Time-frame for the proposed activity

Implementation of the proposed economic activity will be carried out in stages, during which the preparational works, the installation of supporting structures, the formation of engineered barriers, and institutional control will be performed. The following activity stages and their implementation periods are identified:

1. Filling all the unfilled canyons of the storage facility with the inert materials (preliminary 2028–2029).
2. Dismantling of the 2nd floor of the storage facility (preliminary 2028–2029).
3. Covering of all flooring and exterior walls of the storage facility with waterproofing material (preliminary 2028–2029).
4. Conservation and maintenance of the storage facility (preliminary 2029–2039)
5. Installation of engineered barrier supports for the future repository on the flooring of Building 158 (preliminary 2039–2040).
6. Installation of the engineered barriers of the repository (preliminary 2039–2040).
7. The period after repository closure, i.e. the institutional control period (100 years – active control and 200 years – passive).

3. Information on the location of the proposed activity

Bituminized radioactive waste storage area (building 158) is located at north-west part of the Ignalina NPP industrial site: about 200 m west from the first reactor unit and about 600 m from the south shore of Lake Druksiai (see Figure 4). Two neighbouring states – Belarus and Latvia – are relatively close to the site of the proposed economic activity. The border between Lithuania and Belarus is about 5 km east and south-east from Ignalina NPP industrial area. Lithuanian and Latvian state boarder is about 8 km north. Other states are at the distance of several hundred kilometres from Ignalina NPP. Visaginas town (Lithuania) with approximately 20 thousand of inhabitants is the nearest town to Ignalina NPP being about 8 km away from the facility. Daugavpils city (Latvia) with about 75 thousand of inhabitants is 27–30 km from Ignalina NPP.

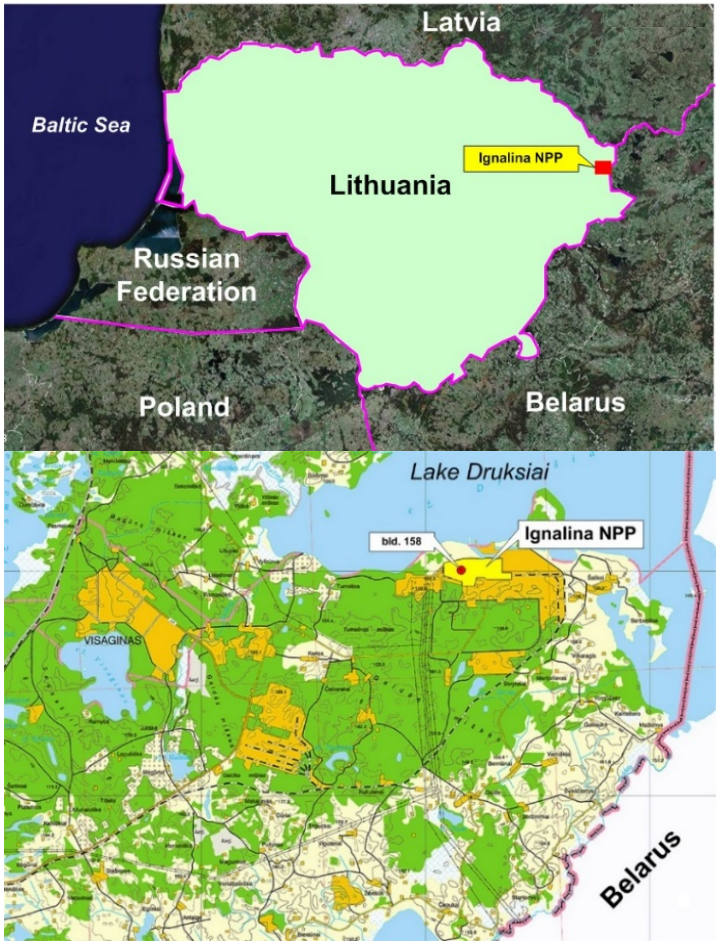

Figure 4. Location of the bituminized radioactive waste storage facility (Building 158)

Lake Druksiai and several other areas in the region are included in the European Union network of protected areas named “Natura 2000”. It is not expected that the planned activities performed locally at the Ignalina NPP industrial site can significantly affect these areas. It shall be also emphasized that the bituminized radioactive waste storage facility has been in operation for more than 30 years and radiological impacts on environmental components are well known via periodical safety assessments and radiological monitoring data. Transformation of the storage facility into a repository by installing additional engineered barriers will only decrease radiological impacts for short-term periods. Preliminary long-term (100 years of the active control and 200 years of the passive control of the repository) radiological impact assessments show that these impacts are also insignificant. More detailed information will be provided in the EIA Report.

The rationale for location and transformation approach of the proposed activity is based on previous safety studies that concluded that the bituminized radioactive waste storage facility in a long-term perspective, under the influence of external climatic conditions, will start to degrade. And after termination of the maintenance of the drainage system, the risen groundwater would make contact with the reinforced concrete bottom slab of the storage area and would leach out bituminized radioactive waste. It shall be noted that this approach of retrieval of bituminized waste, its transfer, and disposal at another location is not currently a well-known and applied practice in the world. From the current point of view, the retrieval of bituminized radioactive waste from a storage facility is a complex process involving several stages. In this case, as opposed to the case of the transformation into a repository (i.e. disposal

of in situ), the opening of waste and its reloading to a new specific package, appropriate for waste storage, transfer and disposal would be unavoidable. Waste should be transferred to, temporary stored in an interim storage facility and then disposed of by loading packages to a new repository. After unloading bituminized waste from the storage area, there would remain contaminated building structures that need to be decontaminated, dismantled (by demolishing), and the generated waste should be treated in a proper way. Therefore, transformation of a storage facility of bituminized radioactive waste into a repository is a more favourable alternative.

4. Information on possible significant adverse transboundary impacts of the proposed activity

Previous safety studies performed for the bituminized radioactive waste storage facility show that even in the case of the beyond design basis accident (airplane crash), the accident-caused radiological impact on the population due to the release of airborne activity would be insignificant. After transformation of the storage facility into a repository, the consequences of such a beyond design basis accident would be even less negative. Also, it is not expected that long-term (100 years of the active control and 200 years of the passive control of the repository) radiological impacts from the bituminized radioactive waste repository can significantly adverse transboundary environmental components. More detailed impact assessments will be provided in the EIA Report.

DETALŪS METADUOMENYS	
Dokumento sudarytojas (-ai)	Lietuvos Respublikos aplinkos ministerija 188602370, A. Jakšto g. 4, LT-01105 Vilnius
Dokumento pavadinimas (antraštė)	NOTIFICATION IN ACCORDANCE WITH ARTICLE 3 OF THE CONVENTION ON ENVIRONMENTAL IMPACT REGARDING RECONSTRUCTION AND TRANSFORMATION OF THE IGNALINA NPP STORAGE FACILITY OF BITUMINIZED RADIOACTIVE WASTE INTO A REPOSITORY
Dokumento registracijos data ir numeris	2023-05-10 Nr. D8(E)-2821
Dokumento gavimo data ir dokumento gavimo registracijos numeris	–
Dokumento specifikacijos identifikavimo žymuo	ADOC-V1.0
Parašo paskirtis	Pasirašymas
Parašą sukūrusio asmens vardas, pavardė ir pareigos	Raminta Radavičienė, Viceministras
Sertifikatas išduotas	RAMINTA RADAVIČIENĖ, Lietuvos Respublikos aplinkos ministerija LT
Parašo sukūrimo data ir laikas	2023-05-10 17:30:03 (GMT+03:00)
Parašo formatas	XAdES-T
Laiko žymoje nurodytas laikas	2023-05-10 17:30:20 (GMT+03:00)
Informacija apie sertifikavimo paslaugų teikėją	ADIC CA-A, Asmens dokumentu israsymo centras prie LR VRM LT
Sertifikato galiojimo laikas	2021-01-28 09:06:18 – 2024-01-28 09:06:18
Informacija apie būdus, naudotus metaduomenų vientisumui užtikrinti	"Registravimas" paskirties metaduomenų vientisumas užtikrintas naudojant "RCSC IssuingCA, VI Registru centras - i.k. 124110246 LT" išduotą sertifikatą "DBSIS, Informatikos ir ryšių departamentas prie Lietuvos Respublikos vidaus reikalų ministerijos, į.k.188774822 LT", sertifikatas galioja nuo 2022-05-19 16:48:06 iki 2025-05-18 16:48:06
Pagrindinio dokumento priedų skaičius	1
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Pridedamo dokumento sudarytojas (-ai)	–
Pridedamo dokumento pavadinimas (antraštė)	–
Pridedamo dokumento registracijos data ir numeris	–
Programinės įrangos, kuria naudojantis sudarytas elektroninis dokumentas, pavadinimas	DBSIS, versija 3.5.72.2
Informacija apie elektroninio dokumento ir elektroninio (-ių) parašo (-ų) tikrinimą (tikrinimo data)	Atitinka specifikacijos keliamus reikalavimus. Visi dokumente esantys elektroniniai parašai galioja (2023-05-11 01:17:03)
Paieškos nuoroda	–
Papildomi metaduomenys	Nuorašą suformavo 2023-05-11 01:17:04 DBSIS