Ministry of Natural Resources and Environment Responses to Relevant Comments in the Statement from Finland on the Espoo Report

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1 Introduction

The Espoo Convention defines a transboundary impact as "any impact, not exclusively of a global nature, within an area under the jurisdiction of a Party caused by a proposed activity the physical origin of which is situated wholly or in part within the area under the jurisdiction of another Party."

Nord Stream 2's Espoo Report addresses any potential transboundary impact on Finland that could be caused by a proposed activity taking place in Russian waters. In the framework of the Espoo consultation process for Nord Stream 2, Finland has provided a statement including comments to Nord Stream 2's Espoo Report.

The Russian Ministry of Natural Resources and Environment has also requested Developer to respond to those comments concerning potential transboundary impacts on Finland generated by activities within Russian waters.

2 Construction schedule (Ministry of Environment and Finnish Environment Institute)

Statement

Ministry of Environment and Finnish Environment Institute state, that scheduling of the construction work should be done in a way that seals and migratory birds, including those in the area of Kurgalsky peninsula, are not exposed to harmful effects. Concerning the protection of the eastern population of the endangered ringed seal in the Gulf of Finland, construction work during winter time should not be carried out. Ringed seals depend on the ice cover, especially during the pupping and moulting seasons. Pups are born in lairs on the pack ice in late February to early March and after that moulting takes place from mid-April to the beginning of May.

Answer

All offshore construction activities in Russian waters will be carried out during ice-free period, i.e. outside the sensitive period for seals. Ornithological baseline surveys in Russia (2015 and 2016) as well as analysis of publically available data confirmed that the central and northern parts of the western coast of the Kurgalsky peninsula provide important habitats for migrating and nesting birds.

This area is designated as Important Bird Area (IBA RU1048 Kurgalsky Peninsula), however it is located 7.3 km north of the proposed landfall.

Therefore, combination of construction schedule and characterisation of nearshore landfall area justifies the conclusion that there will be no adverse impact on seals and migrating birds in the area of the Kurgalsky peninsula.

3 Indirect impacts on seals (Ministry of Environment)

Statement

This preferred route crosses the southern section of the regional Kurgalsky nature reserve. The nature reserve is a wetland of international importance, i.e. a Ramsar site, and is included on the list of Baltic Sea areas protected under HELCOM (Marine Protected Area). The nearby Important Bird and Biodiversity Area (IBA) of the Kurgalsky Peninsula is one of the most important staging and feeding areas for waterfowl, including Arctic goose species, in the Gulf of Finland. A main migration route over the Baltic for migratory Arctic wetland bird species crosses this region. Furthermore, the Kurgalsky Peninsula forms an important resting area for the endangered Baltic ringed seal in the Gulf of Finland. Ministry of Environment has a concern that construction in the water near the Kurgalsky Peninsula also can have indirect effects on the seal population, for example, by affecting the spawning habitats of fish preyed on by the seals.

Answer

The Important Bird Area (IBA RU1048 Kurgalsky Peninsula) is located 7.3 km north of the proposed landfall and main haul-out areas for grey and ringed seals are located at the Kurgalsky reef which is the most northern part of Kurgalsky Peninsula more than 25 km north of the proposed landfall. Hence, it has been confirmed that due to large distances of such areas from the proposed landfall location no direct impact on seals and birds is expected.

In terms of indirect impact through the food chain, baseline environmental studies in 2016 and in spring 2017 (spawning areas survey) showed that the nearshore area has a very poor variety of benthic faunal communities due to

unfavourable sandy substrate and an active wave regime. The closest fish spawning habitats (providing food source for sea birds and seals) are located 3.7 km north of the proposed landfall. It has been assessed in the sections 10.6.3.2 and 10.6.3.4 of the Espoo Report that a minor, i.e. considered "not significant", impact is foreseen due to release of sediments to the water column and sedimentation on the seabed. The assessment is supported by the modelling of sediment spreading performed for the worst case scenario. Project implementation will thus not lead to significant adverse impacts on seals and migrating birds in the area of the Kurgalsky Peninsula.

4 Kurgalsky (WWF Finland, City of Helsinki and Uusimaa District Organisation of the Finnish Association for Nature Conservation)

Statement

WWF Finland, City of Helsinki and Uusimaa District Organisation of the Finnish Association for Nature Conservation are concerned that the planned route of the pipelines passes through a valuable area of the Kurgalsky Peninsula. This area contains both a wetland conservation area under the Ramsar Convention and a marine protected area under the Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area. The Kurgalsky region is also relevant in terms of the Finland-Russia green belt. It is stated that the alternatives to the planned route and also mitigation and compensation measures should be further examined and considered.

Answer

Route alternatives have been considered and, based on the outcome of such an assessment of alternatives, the Narva Bay route has been selected as the preferred route because it would have fewer overall environmental and social impacts.

The Ramsar Convention and the Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area allow economic activities in a designated site under the conventions, provided that the biodiversity values of the site are not adversely affected and the economic activities are environmentally sustainable.
Ramsar Convention and Helsinki Convention will be informed by the Russian Federation as Party to the Conventions in due time and in timely fashion in accordance with conventional requirements and their rules of procedure.

Nord Stream 2 will carry out all works at a safe distance from important bird areas as well as the main haul-out and foraging sites of seals. The Important Bird Area (IBA RU1048 Kurgalsky Peninsula) is located 7.3 km north of the proposed landfall and main haul-out areas for grey and ringed seals are located at the Kurgalsky reef which is the most northern part of Kurgalsky Peninsula more than 25 km north of the proposed landfall location. Where the pipeline route crosses the Kader swamp onshore the alignment has been routed through its most northern peripheral section which is dry and has already been modified and degraded by fires and thus avoids its key biodiversity features. Further, Nord Stream 2 AG is assessing various technical solutions to reduce environmental impacts onshore, including an optimized width of the construction corridor.

As Nord Stream 2 AG is committed to complying with the Environmental and Social performance standards of the International Finance Corporation (IFC PS), in cases when impacts are unavoidable, Nord Stream 2 AG develops measures to minimize, or rectify (e.g. through restoration) and where this cannot provide the necessary mitigation, it implements compensation, notably through offsets.

Currently Nord Stream 2 AG is performing a biodiversity study in the Kurgalsky peninsula covering approximately 320 ha of diverse biotopes throughout the whole peninsula. Based on the outcomes of the biodiversity study and results of previous baseline surveys, Nord Stream 2 AG will develop a Biodiversity Action Plan, which will include offset measures to compensate for the limited measurable adverse impacts that cannot be addressed through avoidance, minimisation or restoration. It will also identify potential areas that could benefit from ecological improvement, beyond the immediate footprint of the project, thus ensuring that the project has an overall positive impact on the ecological characteristics and conservation objectives of the Kurgalsky reserve.

Nord Stream 2 AG commitment to the IFC Performance standards will therefore ensure that the proposed pipeline project will cause no significant adverse impacts and, where appropriate has a “net gain” (i.e. beneficial effect) on the biodiversity of the Kurgalsky Peninsula.

5 Alternatives (Ministry of Environment)

Statement

The EIA considered two options for the pipeline route in Russian waters along the southern coast of the Gulf of Finland. The Narva Bay alternative was found to be the preferred option by the developer. It is mentioned in the Espoo Report that detailed discussion and an assessment of alternatives are included in the Russian EIA and in an Assessment of Alternatives Report that will be available for public viewing as part of the national procedure. Ministry of Environment of Finland would appreciate receiving the detailed discussion and the assessment of alternatives mentioned for information.

Answer

The Assessment of Alternatives Report has been published in line with the requirements under Russian legislation. The Report is publicly available on Nord Stream 2's website under www.nord-stream2.com/en/pdf/document/85/ and will be provided by the Developer to the Finnish Ministry of Environment for information as requested.

6 EIA procedure (Ministry of Environment)

Statement

Ministry of Environment of Finland considers it important that, in accordance with Article 6 of the Espoo Convention, in the final decision on the proposed project and its route in the Russian waters, due account is taken of the outcome of the environmental impact assessment, including the Environmental Impact Assessment documentation, as well as the comments received and the outcome of the consultations.

Answer

Russian authorities will take the final decision on the proposed project and its route in the Russian Federation within the national permitting procedure including State Expert Environmental Review (SEER) and the Main State Expert Review of the project documentation. The national permitting procedure takes into consideration the comments received during public consultations and public hearings, consultations with interested Russian Federal Ministries and

local authorities performed by Ministry of Natural Resources and Environment, both under the Espoo EIA procedure and under the national EIA procedure.

7 Munitions clearance (Finnish Environment Institute)

Statement

Munitions clearance operations in Russia have been estimated to cause negligible impacts on water quality and bathymetry in the Finnish marine areas. This estimation is based partly on the assumption that it is unlikely that munitions will be encountered close to the Finnish-Russian border. According to the Finnish Environment Institute, the estimation seems realistic, as long as the background assumptions are correct and the munitions clearance operations are carried out as planned.

Answer

Munitions surveys have been performed in Finland and survey results confirmed very low munitions density close to the Finnish-Russian border supporting the current knowledge of munitions density in the Gulf of Finland (see map MU-01-ESPOO in the Espoo Atlas).

Therefore, the background assumptions are correct and the munitions clearance operations will be carried out as described in the Report.

8 Munitions (Ministry of Environment, Metsähallitus, Finnish Environment Institute)

Statement

Ministry of Environment believes that detonation of underwater munitions should be avoided due to the harmful effects on ringed seals' hearing, foraging behaviour and stress levels and consequently on their fitness and overall survival in the Gulf of Finland. Underwater explosions are one of the strongest sources of anthropogenic noise and the sound can travel great distances. Possible detonations of wartime munitions will also cause dispersion of seabed sediments and thus increase the environmental load in the Baltic Sea.

Metsähallitus has expressed its concern that underwater noise caused by construction work and munitions clearance remains a major risk, especially for the ringed seal population of the Gulf of Finland. Metsahallitus considers that the project, if carried out as planned, puts the seal population of the Gulf of Finland at risk of decline.

Ministry of Environment believes that the developer should demonstrate its commitment to alternatives to detonation and other mitigation measures and must confirm before any clearance activities that there are no marine mammals, large shoals of fish or diving birds within reach of the impact. If there is a need to use explosives, none should be used during the time periods mentioned above, and none should be used in important foraging areas for ringed seals. To mitigate the effects of explosions, the most effective mitigation measures for protecting marine mammals seems to be the presence of marine mammal observers and use of acoustic deterrent devices to establish safety zones. Bubble curtains can also significantly reduce the risk of injury to the fish that seals feed on. Further mitigation measures to consider include reducing blasting activities to an absolute minimum, and in those situations where blasting cannot be avoided, to use small focused charges. The suitability of different mitigation measures must be investigated. Furthermore, both Ministry of Environment and Finnish Environment Institute state that technical solutions to reduce noise levels should be found to minimise the impacts of underwater noise during the construction work (rock placement, munition clearance) and also during the operational phases of the pipeline because of similar harmful effects.

Information on munitions found in Russian waters is not included in the material provided. Finland requests that information be provided on mitigation measures to be used in munitions clearance and that data be provided on the locations where the proposed detonations of munitions in Russian waters will be carried out in the vicinity of the order.

Answer

Nord Stream 2 AG is observing the mitigation hierarchy with respect to munitions whereby local rerouting is undertaken to avoid munitions where feasible. Where rerouting is not possible, Nord Stream 2 considers various technical alternatives to conventional munitions clearance methods as well as additional mitigation measures for in situ clearance.

Mitigation measures

Standard munitions clearance methods utilised by the navies in the Baltic Sea including the annual international NATO manoeuvre "Open Spirit", comprise in-situ clearance by detonation. The Nord Stream project implemented a number of mitigation measures for such in situ clearance work in the Gulf of Finland, including the use of marine mammal observers, passive acoustic monitoring and acoustic deterrents (seal scrammers). Nord Stream 2 AG has already committed to these for the Nord Stream 2 project to ensure there are no marine mammals, large shoals of fish or diving birds in the area prior to detonation. Further, munitions clearance operations as well as all offshore construction activities for the Nord Stream 2 project will be carried during the ice-free period, i.e. outside the sensitive period for the grey and ringed seals.

In addition to these standard mitigation measures, Nord Stream 2 AG has evaluated a range of technical alternatives to conventional munitions clearance methods such as:

- Deflagration (low order burn as opposed to a high order detonation)
- Water jet cutting
- Salvage operations using freezing techniques
- Salvage operations using robotics
- Detonation just below the surface
- Use of lifting bags to move munitions away from the route
- Lift and move munitions with a subsequent utilisation onshore
- A novel technique involving the adaption of a barge to incorporate a munitions bunker where salvaged munitions would be safely detonated.

Nord Stream 2 AG has also assessed a range of additional mitigation options for addressing the propagation of underwater noise associated with in situ clearance and considered the following measures in more detail, including their suitability for application in the Gulf of Finland:

- Minimum donor charges including the use of shaped charges
- Use of bubble curtains to reduce pressure waves during blasting.

Having analysed above mentioned mitigation measures for in-situ clearance, Nord Stream 2 AG has committed to use bubble curtains for in situ clearance of munitions, in the vicinity of the most sensitive receptors. The location where such measures will be adopted are thus those in proximity to Natura 2000 sites (with seals listed as a conservation objective) and to those areas known to be used by

the Gulf of Finland ringed seal population in the Finnish EEZ. Bubble curtains will be used for a detonation of approximately 20 munitions, the final information is included in the Finnish permit application.

The combination of munitions clearance methods that Nord Stream 2 selects must be technically feasible, safe for personnel and equipment and it has to satisfy the objective of reducing the potential impact to marine mammals. Considering that countries have national requirements and standards, the proposed method(s) will have to be accepted by the various authorities, including defence agencies.

Environmental Impact Assessment

Detonation of underwater munitions can potentially have a harmful impact on the marine life and this has been assessed in the Espoo Report, supported by underwater noise modelling.

The assessment documented in the Espoo Report was based on the use of array seal scarers (to which Nord Stream 2 AG has committed). This has been demonstrated to be effective in greatly reducing the risk that marine mammals are very close when the detonation occurs and thus also that they suffer significant blast injury or death due to exposure to the shock wave from the explosion. It is important to note that munitions clearance operations will be carried during the ice-free period, i.e. outside the sensitive period for marine mammals

The methodology adopted in the assessment however also recognises the vulnerability of the ringed seal, in particular the Gulf of Finland population and the importance of individuals within that population. Thus, even though the likelihood of blast injuries occurring is small, a precautionary moderate impact ranking (i.e. potentially significant ranking) was allocated at both population and individual level to this population of ringed seals in the assessment documented in the Espoo Report.

However, subsequent to the submission of the Espoo Report and as stated above, Nord Stream 2 AG has committed to use bubble curtains for *in situ* clearance of munitions in the vicinity of the most sensitive receptors in the Finnish EEZ. The reduction of 6-8dB in underwater noise levels resulting from their application will thus ensure that any impacts on these sites and population are not significant.

An updated assessment based on the use of bubble curtains as an additional mitigation measures is submitted to the competent Finnish authorities as part of the Water Permit application.

In Russian Federation, munitions clearance is performed under the responsibility of the Russian Navy, the Baltic Fleet. However, Nord Stream 2 AG is working closely with the Russian authorities to allow implementation of mitigation measures for munitions clearance. Nord Stream 2 AG has committed that no munitions clearance will be performed during the ice period which is critical to marine mammals. Further Nord Stream 2 will strive to ensure that mitigation measures such as use of acoustic deterrent devices and presence of marine mammal observers on board of the vessel will be implemented during munitions clearance.

It is also correct that detonation of underwater munitions causes a small and localised dispersion of seabed sediments and hence also potentially of sediment-associated contaminants. These have therefore also been assessed in the Espoo Report, supported by numerical modelling of the dispersion of sediments and sediment-associated contaminants and shown not to be significant.

Data on munitions

Data on the locations where clearance of munitions in Russian waters will be carried out in the vicinity of the border can be submitted to the Finnish authorities once this data has undergone the required clearance by the Russian Ministry of Defence.

Underwater noise generated by other activities

In respect to underwater noise generated by other construction activities, including rock placement and pipeline operation, they will have much less potential (in comparison with munitions clearance) for adverse impact on marine biota. Details of underwater noise modelling performed for rock placement are given in the Appendix 3 (sections 2.2.4) of the Espoo Report and state that there is no permanent impact on fish and marine mammals due to underwater noise and onset of temporary hearing loss in marine mammals will be very localised, i.e. within 50-80 m from the source of the noise.

Underwater noise from the pipeline during operation has been monitored during 2016 inside the Finnish exclusive economic zone (EEZ) for the eastern part of the existing Nord stream pipeline one meter from the pipeline. The monitoring results showed no differences in noise level between the stations close to the pipeline and the reference stations. Furthermore, modelling of underwater noise close to

the Russian landfall from KP 0 to KP 20 has been undertaken for Nord Stream 2 project. The results showed that there will be no exceedance of thresholds for marine mammals and fish along the Nord Stream 2 pipeline during operation.

9 Monitoring (Ministry of the Environment)

Statement

The Ministry of the Environment considers that if the project is implemented the monitoring of the impacts related to construction and operation is important and should be done according to the same principles as with the existing Nord Stream pipeline. Transboundary impacts must also be monitored. In addition, monitoring should include verification of the environmental impact assessment. The results of monitoring should be shared with all Baltic Sea countries.

Answer

Extensive environmental monitoring will take place, both during construction and subsequently during the operational phase. The programs will be developed in collaboration with, and approved by, the competent national authorities prior to the start of the construction, and will benefit from experience obtained during the construction and operation of the existing Nord Stream pipeline. All results of environmental monitoring will be made publicly available.

10 Oil spills (Finnish Meteorological Institute)

Statement

The Finnish Meteorological Institute draws attention to the risk of oil spills during the construction phase and littering of the sea. The Institute notes that the Baltic Sea is a small but complex sea area; therefore, during the construction phase, particular attention must be paid to ensuring that no harmful substances end up in the Baltic Sea.

Answer

Offshore Pipeline Construction of the Nord Stream 2 pipeline system will be undertaken in compliance with the International Convention for the Prevention of Pollution from Ships (MARPOL); International Maritime Organisation (IMO) Standards; statutory Permit conditions for the scope of the Project construction and offshore pipe laying activities; and the Project's (Nord Stream 2 AG) own dedicated requirements and Corporate Policy commitments for Environmental and Social Management, which are applicable to all Offshore Pipeline Construction related activities.

Where not already part of the offshore construction Contractors' own corporate policies and commitments, all further requirements will be directly transferred to each Contractor in the form of "Environmental and Social Commitments". These commitments will be recorded in a dedicated register (Environmental and Social Commitments Register – ESCR) which will allow verification checks to be undertaken and ensure the Contractors compliance. Compliance with the commitments by each Contractor will be verified via preparation of "Contractor Implementation Plans", which will reference each Environmental and Social Commitment to be complied with. Verification of compliance shall be via dedicated compliance audits undertaken by Nord Stream 2 AG and / or by Independent Third Parties.

To avoid that harmful substances enter into the Baltic Sea, specific measures to prevent pollution shall apply during the period of the construction activities, consistently with the aforementioned Environmental and Social Commitments. Every vessel will be equipped with spill response equipment and contracts will be in place to call upon the services of specialist providers of oil spill response support.

11 Climate and energy (Municipality of Lemland)

Statement

Municipality of Lemland points out that the project means that fossil fuel consumption increases at the expense of renewable energy sources and that the project involves a greater dependence on energy from Russia. We are concerned about a greater military presence in the neighbouring region of the project. Furthermore, the municipality notes that the project does not overall support sustainable social development.

Answer

As shown in the Espoo Report, section 2 (project justification), the import requirement for natural gas in the EU is expected to grow significantly over the next years and decades. Based on these forecasts, the Nord Steam 2 pipeline will provide additional required capacity to bring natural gas to the EU and thus contribute to securing energy supply.

Diversification is a valid strategy to hedge against risks and ensure competition on the EU's internal market. Nord Stream 2, as an additional supply route, contributes to this objective. The Northern Corridor with Nord Stream 2 and the Bovanenkovo field will deliver diversification of supply routes – Nord Stream 2 will be completely independent of the existing Nord Stream pipeline, both in terms of routing and operations/systems – and access to a new vast, low-cost and already-developed gas reserve. When calling for diversification, the European Commission's approach also has to account for the realities of where the gas can realistically come from and how affordable it is to be shipped to the EU.

Nord Stream 2 is not aiming at replacing any other gas transport route. It is part of an additional new route corridor that will provide access for European consumers to the largest Russian gas reserves in North-Western Siberia. It is the most direct, competitive and environmentally friendly transport route to European markets.