



Framtiden i  
våre hender



EFTA Surveillance Authority  
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Belgium

Oslo, 17 November 2020

## **Complaint: Norway violates WFD, article 4(7) by maintaining Nordic Mining ASA's old permit to dispose of mine waste in the Førdefjord**

We refer to Case No:77424, document No: 830452, decision No: 009/17/COL (18.01.2017), when EFTA Surveillance Agency (ESA) closed our complaint, dated 19 May 2015.

The Ministry of Climate and Environment granted a permit to Nordic Mining ASA (NM) to dispose of mine waste in the Førdefjord, by their decision 5 June 2015.

Since then, there has been a profound change in Nordic Mining ASA's (NM) mining plan. This means that the assessments done by Norwegian authorities, when they granted the permit to dispose of mine waste in the Førdefjord, are no longer valid.

**We claim that it is in breach of WFD article 4(7) to maintain the permit to dispose of mine waste in the Førdefjord, due to a profound change in the mining plan. NM's Definitive Feasibility Study (DFS) is their current plan, and the base of their application for a mining permit to the Directorate of Mining:**

1. The ore production is reduced to 1/3
2. The number of employees is reduced by 40%
3. All original chemicals are replaced by alternative chemicals, and one of these (SIBX) is highly toxic to aquatic life.
4. As a result of the reduced ore production, tailings are reduced from 4 million tonnes/year to less than 1 million tonnes, which opens for other methods of disposal/ alternative use.
5. An unknown amount of microplastic particles is going to be disposed in the fjord, along with the tailings. This was not assessed when NM got their original permit.

Article 4(7) opens for two different approaches to accept new activities.

1. A new activity that is classified as "*modifications to the physical characteristics of a surface water body*" (first part of article 4(7)). In this case, it is possible to allow "*deterioration in the status of a body of surface water*" if certain conditions are met.
2. If the new activity cannot be classified as "*modifications to the physical characteristics of a surface water body*", then it is only possible to allow a "*deterioration from high status to good status*". (second part of article 4(7)).

In both cases, four specific conditions are to be met (article 4(7)(a)-4(7)(d)).

## Complainants

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## Our claims

- A. It is in breach of article 4(7)** to allow a disposal of mine waste that will deteriorate the status of the water body from good to bad. The tailings are mixed with a chemical that is extremely toxic to aquatic life, and in addition there are tailings particles and microplastic particles that will be widely spread in the water body.

This cannot be accepted solely as *“modifications to the physical characteristics of a surface water body”*. Then it is only accepted to have a deterioration from high status to good status.

- B.** If it is accepted that the disposal can be accepted as solely *“modifications to the physical characteristics of a surface water body”*, we claim that the old assessments of the conditions 4(7)(c) and 4(7)(d) are no longer valid, and therefore no longer fulfilled.

- i. **It is in breach of article 4(7)(c)**, to maintain a permit based on the balancing of *“overriding public interest”* to environmental damage etc, when the economic benefits are significantly reduced, the number of employees are significantly reduced, and the environmental damage is increased (new toxic chemical).

The old assessment of article 4(7)(c) is no longer valid, because the mining plan is significantly changed.

Sunnfjord municipality adopted 11 September 2019 an important condition for accepting the Engebø mine: *“Full utilisation of the resources, in order to avoid submarine tailings disposal”*. This decision must be included in assessing *“overriding public interest”*.

- ii. **It is in breach of article 4(7)(d)**, to maintain a permit based on an outdated assessment of whether the disposing of tailings can *“be achieved by other means, which are a significantly better environmental option.”*

The tailings are reduced from 4 million tonnes/year to less than 1 million tonnes/year. This opens for other solutions, both for disposal and for alternative use. In addition, another mining company, Arctic Mineral Resources, has emerged, planning to produce garnet on the same resources as NM, based on underground mining from day 1, and backfilling of mine waste in the mine, without disposal of mine waste in the fjord.

## Previous actions in this case

October 2nd 2019, Naturvernforbundet, Natur og Ungdom, Norges Kystfiskarlag, Sogn og Fjordane Turlag, Norges Jeger- og Fiskerforbund, Sabima, Framtiden i våre hender, Norske Lakseelver og Forum for Natur og Friluftsliv, wrote a letter to former Minister Ola Elvestuen (Ministry of Climate and Environment). The organisations claimed that the permit for disposal of tailings in Førdefjorden was outdated and no longer valid, due to the significant change of mining plan, demanding that there should be new EIAs and a new application for permit.

The Ministry has still not answered.

## Confidentiality

We authorise the EFTA Surveillance Authority to disclose our identities in its contacts with the Norwegian authorities.

## Detailed discussion

### Significant changed mining plan 2019/2020

1 February 2019:

NM sent an application for mining permit to the Directorate of Mining, where they included a “Definitive Feasibility Study” (DFS), describing the mining plan in detail. There are three significant changes in the new mining plan, compared to the original plan from June 2009:

1. Significantly reduced ore production
  - New plan: 1.5 million tonnes/year fed to process plant<sup>1</sup>
  - Original plan: ca 4 million tonnes/year during the open cast period and 6 million tonnes/year during underground period.
2. Production of garnet is a significant part of the new mining plan.

In the original plan, production of garnet was only mentioned as a possibility.
3. New process chemicals.

None of the original chemicals are going to be used.  
One of the new chemicals, Sodium Isobutyl Xanthate (SIBX), is especially problematic, as SIBX is highly toxic to aquatic life<sup>2</sup>.

#### How much of the tailings is expected to be used for alternative purposes?

*“Nordic Mining thinks that about 5 – 10% of the total tailings can be used for alternative purposes<sup>3</sup>”* Our translation.

As the total tailings were planned to be 4 million tonnes during the open cast period, 5 – 10% amounts to 200,000 – 400,000 tpa. This can be used for alternative purposes, according to NM’s original application. This estimation should still be valid, even if the total amount of tailings is reduced.

#### Summing up of NM’s current mining plan (DFS):

1,500,000 tpa ore is going to be fed to the process plant, producing a total of 312,000 tpa garnet and TiO<sub>2</sub><sup>4</sup>, resulting in 1,118,000 tpa tailings.

According to NM, 200,000 – 400,000 tpa tailings can be used for other purposes, leaving 788,000 - 988,000 tpa tailings for disposal.

This should be compared to 4,000,000 tpa disposed of in Førdefjorden, according to the original permit. This is a significant reduction, and opens for alternative assessments of how to handle the tailings.

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<sup>1</sup> Definitive Feasibility Study-executive summary (figure 2-21). 1.5 million tonnes fed to process plant each year.

<sup>2</sup> <https://dce2.au.dk/pub/SR203.pdf>

<sup>3</sup> Miljødirektoratet (2015). Nordic Mining – søknad om gruvevirksomhet i Engebøfjellet, (page 17). URL: [https://tema.miljodirektoratet.no/Documents/Nyhetsdokumenter/nordicmining\\_engebofjellet\\_anbefaling130\\_215.pdf](https://tema.miljodirektoratet.no/Documents/Nyhetsdokumenter/nordicmining_engebofjellet_anbefaling130_215.pdf)

<sup>4</sup> Definitive Feasibility Study-executive summary (2.14.1. Production profiles):

*“The average annual production of Rutile and Garnet in the first 15 years is approximately 34,000 tpa and 278,000 tpa”.*

## Implementation of article 4(7)

“Member States will not be in breach of this Directive when:

- *failure to achieve good groundwater status, good ecological status or, where relevant, good ecological potential or to prevent deterioration in the status of a body of surface water or groundwater is the result of new modifications to the physical characteristics of a surface water body or alterations to the level of bodies of groundwater*

or

- *failure to prevent deterioration from high status to good status of a body of surface water is the result of new sustainable human development activities”*

Should the first or second part of article 4(7) be used?

ESA writes:

*“The Ministry found that the benthic fauna in the disposal area would disappear while the disposal took place and determined that the project would therefore cause the ecological status of the water body to deteriorate to poor. The Ministry further found that the water body’s status would be presumed to remain very poor as long as the disposal took place and for a very long period of time thereafter. As such, an exemption pursuant to Section 12 of the Water Regulation was considered necessary<sup>5</sup>”*

The new chemical, SIBX, must be included in this assessment.

NM’s consultant, DNV-GL, used data-modelling to show that there would be almost no spreading of particles from the disposal of tailings in the fjord. We challenge this:

- The Norwegian Institute of Marine Research has done an independent modelling of how tailings particles are spread. This modelling shows that particles will spread far out in the fjord<sup>6</sup>.
- In a recent published criticism of DNV-GL’s modelling, we learn that DNV-GL excluded particles below 15 µm when performing the modelling. These particles, that comprises 10% of the total weight, were treated as larger particles, assuming that all of them would be flocculated. Associate Professor Agnar Kvellestad at the Norwegian University of Life Sciences (NMBU), criticises this choice, and writes that even particles below 15 µm should have been included in the modelling<sup>7</sup>. Excluding small particles is especially problematic, as small particles tend to spread farther out.

Extensively spreading of particles in the fjord cannot be classified solely as “*modifications to the physical characteristics*” of the fjord.

Blasting in the mine produces plastic waste. The “non-el” detonator is widely used in mines for security reasons, and results in a lot of plastic waste. When the rock is fed to the crushers and mills,

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<sup>5</sup> ESA, Case No:77424, Document No: 830452, Decision No: 009/17/COL

<sup>6</sup> MODELLERING AV PARTIKKELSPREDNING I FJORDER - FØRDEFJORDEN OG REPPARFJORDEN, Havforskningsinstituttet, 05.08.2014

<sup>7</sup> Høyringsuttale vedrørende Nordic Mining ASA/Nordic Rutile AS sin søknad om driftskonsepjon etter minerallova § 43, Agnar Kvellestad, Førsteamanuensis Veterinærhøgskolen – NMBU, 14 September 2019

the plastic waste is transformed to microplastic particles, and follows the tailings to be fed to the Fjørdefjord. As plastic has low density, these particles will probably be widely spread in the fjord.

This situation was never assessed in the EIAs of the original permit.

**Our conclusion** is that the disposal of tailings in Fjørdefjorden cannot be classified solely as “*modifications to the physical characteristics*”, due to:

- Spreading of a new chemical, SIBX, highly toxic to aquatic life, mixed with the tailings
- Wider spreading of tailings particles in the fjord than originally assessed
- Spreading of microplastic particles in the fjord (this has never been assessed).

### Description of the new chemical SIBX

NM has discarded the old process chemicals and has concluded that it is necessary to use Sodium Isobutyl Xanthate (SIBX) in the reverse pyrite flotation process, to extract TiO<sub>2</sub>. SIBX and other Xanthates are widely used in mining, but this case is special, as the tailings are planned disposed of in the sea. SIBX and other Xanthates are highly toxic to aquatic life. We quote from a material safety data sheet for SIBX: “*Highly toxic to aquatic life. May form complexes with heavy metals, increasing their uptake, ie fish may accumulate heavy metals more readily.*”<sup>8</sup>

The Directorate of the Environment has so far not accepted the use of SIBX. We register that NM is forced to switch from the old chemicals to an highly toxic Xanthate in order to get a functioning process.

One of the conditions of the original permit is therefore no longer valid. It should be assessed, whether spreading a toxic Xanthate in the water body, along with the tailings, can be described as solely “*modifications to the physical characteristics*”

### Conditions for using article 4(7), first part

We refer to two of the conditions, articles 4(7)(c) and 4(7)(d):

*“(c) the reasons for those modifications or alterations are of overriding public interest and/or the benefits to the environment and to society of achieving the objectives set out in paragraph 1 are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development*

*and*

*“(d) the beneficial objectives served by those modifications or alterations of the water body cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are a significantly better environmental option.”*

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<sup>8</sup> Cogee Chemicals. Material Safety Data Sheet, Sodium Iso-Butyl Xanthate Solution, 13 July 2009.

## Our comments

### **Article 4(7)(c): The old assessment of “*overriding public interest*” is not valid for the current mining plan.**

Comparison of the original application and the current mining plan (DFS):

	Original application	Current plan (DFS)
Number of employees	170 <sup>9</sup>	105 <sup>10</sup>
Length of mining (years)	59	36 <sup>11</sup>
Million tons of mining/year	4 - 6	1,5

63% to 75% reduced production and 40% reduced number of employees is significant.

We quote ESA:

*“In its decision to issue a permit, the Ministry carried out an exercise balancing on the one hand the environmental damage and negative impacts of the project against the benefits to society. The Ministry identified the future income from mining operations as the main benefit to Norwegian society. In addition, it noted that the construction and operation of the mine would create employment, both directly and indirectly<sup>12</sup>.”*

As the current mining plan gives significantly reduced income and employment (1/3 extraction of ore and 40% reduced employment), the old balancing of the environmental damage and benefits to society is no longer valid. The reduced production also reduces the indirect employment.

The planned use of a Xanthate, highly toxic to aquatic life, and the disposal of microplastic particles should also affect this balancing.

Sunnfjord municipality adopted 11 September 2019 an important condition for accepting the Engebø mine: “*Full utilisation of the resources, in order to avoid submarine tailings disposal*”.

When the municipality has decided that they do not accept submarine tailings disposal from Engebø mine, and the old mining plan is completely abandoned, we claim that the old permit is no longer valid. The question of “*overriding public interest*” must be subject to a new assessment, based on the new situation.

### **Article 4(7)(d): The old assessment of a possible “*significantly better environmental option*” is no longer valid.**

As we have shown earlier in this letter, the tailings for disposal are reduced from 4 million tonnes/year to less than 1 million tonnes/year. This is a totally new situation.

- It is far easier to find alternative uses for a large part of the tailings when the yearly amount is reduced to ¼.

<sup>9</sup> Nærings- og fiskeridepartementet (30.01.2015). Brev til Kommunal- og Moderniseringsdepartementet om reguleringsplanen.

<sup>10</sup> DFS, chapter 2.11.2

<sup>11</sup> DFS, figure 2-21

<sup>12</sup> ESA: Case No:77424, Document No: 830452, Decision No: 009/17/COL

- It is easier to backfill a large part of the tailings in void parts of the mine, both in the open cast period and the underground period.
- A competing company has emerged, planning a production of garnet, based on underground mine in the whole mining period, backfilling of tailings in the mine, and no disposal in the Førdefjord.<sup>13</sup>

We claim that the existing permit is no longer valid, as the old assessment of article 4(7)(d) is based on a mining plan that is completely abandoned today.

In addition, a new mining company has launched an alternative mining method, with no need for disposal in the Førdefjord.

We should also mention EU's recently announced a plan for circular economy. "A new Circular Economy Action Plan, For a cleaner and more competitive Europe". For the time being, Norway is not committed to this plan, but in a new assessment, this Circular Economy Action Plan should be a part of the assessment when assessing article 4(7)(d). Alternative use of the tailings should be emphasized.

EU is also developing new guidance documents on best practices in the Extractive Waste Management Plans, that must be seen in connection with the EU plan for circular economy:

*«One issue that became apparent during the evaluation of the EWMPs<sup>14</sup> was (potential) conflicts between the objectives for the safe disposal of extractive waste and the circular economy policies. Decisions to declare some extracted materials as waste and to proceed to disposal are made, when no beneficial use for the waste can be found, which in turn often depends on the economic context at the time. In consequence, such wastes may still contain components that could become valuable at some later point in time.*

*Whether these materials can be recovered later depends on the chosen disposal method.<sup>15</sup>»*

NM was never asked to present a waste management plan as part of their application for a permit to dispose of tailings in the Førdefjord. This is a direct violation of the Mining Waste Directive, but should also be considered in connection with WFD, as a proper mining waste plan could show the existence of a "significantly better environmental option" to the disposal in the Førdefjord. (WFD, article 4(7)(d)).

### Closing comments

Based on these assessments of the current situation, we claim that Norway violates WFD, article 4(7) by maintaining Nordic Mining ASA's old permit to dispose of mine waste in the Førdefjord. Due to the new, and changed situation, the Norwegian Government should have demanded a new application from Nordic Mining ASA.

<sup>13</sup> Arctic Mineral Resources. Owned by landowners in Engebø.

<sup>14</sup> EWMP = Extractive Waste Management Plan.

<sup>15</sup> Study supporting the elaboration of guidance on best practices in the Extractive Waste Management Plans, Eco Efficiency Consulting and Engineering Ltd & al. Report to European Commission, September 2019, <https://op.europa.eu/en/publication-detail/-/publication/5a29b5e3-df3e-11e9-9c4e-01aa75ed71a1>