Aughinish Alumina Limited - P0035-08

Environmental Protection Agency,
Johnstown Castle Estate,
Co. Wexford,
Y35 W821

Submitted via LEAP online submission portal

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EPA Ref.: **P0035-08**
App: **Aughinish Alumina Limited**
For: **Industrial Emissions Licence**
Site: **Aughinish East, Aughinish West, Island Mac Teige, Glenbane West, and Fawnamore at or adjacent to Aughinish Island, Askeaton, Co. Limerick**

A Chara,

An Taisce wish to submit the following in relation to the current application for the renewal of the Industrial Emissions Licence of Aughinish Alumina.

Compliance with the conditions of the existing EPA license(s) for the site should be evaluated as a preliminary matter.

1. Environmental Impact Assessment

In the first instance, we would highlight an issue with the accessibility of the Environmental Impact Assessment. The consultation period in advance of the Proposed Determination is open, and yet not all of the EIA documentation was made available on the EPA website – only the main EIAR text is available, not the appendices upon which the main EIAR relies. When An Taisce queried this via email, the response was "the reason the appendices aren't uploaded here is that they are freely available on An Coimisiún Pleanála's website". The EIAR and its appendices are indeed available on An Coimisiún Pleanála's (ACP) website in conjunction with Ref. 312146. However, there is nothing on the EPA's website indicating that the EIAR and its appendices could be viewed on the ACP website. This seriously disadvantages members of the public who wish comment on the EIAR, as is their legal right. When this was put to the EPA, no response was received.

Secondly, we consider that the EIAR, which is the same as that submitted with the 2021 planning application (Ref. 312146), is now out of date and needs to be updated. The environmental circumstances in and around the site could have changed, potentially

significantly, in the intervening five years. Notwithstanding that, we make the following comments based on the old EIAR as it is the one on the file at the time of writing.

1.2 Human Health Assessment

We consider that the Human Health Assessment (HHA) has not fully considered the potential for **chronic arsenic (As) exposure** in the affected population. This assessment is based on several factors: (i) arsenic is commonly present in trace but variable concentrations in lateritic bauxites; (ii) under the highly alkaline conditions typical of Bayer-process residues, arsenic may be present as arsenate species with potential mobility in porewater; and (iii) as one of the principal exposure pathway described—airborne dusting of fine particulate material—provides a plausible route for repeated low-dose exposure via inhalation and subsequent ingestion of deposited material.

In addition, arsenic volatilization and subsequent atmospheric transport and re-absorption cannot be fully excluded as a complementary exposure mechanism contributing to chronic intoxication, particularly in the presence of alkaline industrial residues and variable redox conditions in fine particulate emissions.

We raise the issue that there has been no follow up biomonitoring study among the affected population since blood samples from the four-year animal and human health investigation went missing in the late 1990s.

It also appears that the human receptors in this current HHA is overly limited:

“The following human receptors were considered and evaluated in the HHA: — Young children and teen students in a primary school (Scoil Naisiunta Sheanain); — Adult workers (e.g., teachers) at the primary school; and, — Individuals who live in residential communities near the Project.”

Farmers who farm land near the project, yet do not necessarily live near the project, are not considered in this sample, for example.

2. Potential Impacts to Water Quality and the Shannon Estuary

The potential risks to water quality as a result of bauxite and salt cake disposal, particularly from a failure of containment in the Bauxite Residual Disposal Area (BRDA), stem from various pathways: by air (dusting); by seepage through the unlined areas or potential compromised lining of the BRDA; by flooding or other extreme climate events; or by BRDA breach or complete failure. Given the site’s location on the shore of the Lower Shannon Estuary, which includes the Lower River Shannon SAC (site code: 002165), River Shannon and River Fergus Estuaries SPA (site code: 004077) and the Inner Shannon Estuary - South Shore pNHA (site code: 000435), the potential impacts must be fully addressed by the EPA to ensure compliance with the Environmental Impact Assessment Directive, Habitats and Birds Directives, Water Framework Directive and Groundwater Directive.

The Water Framework Directive (2000/60/EC) (WFD) water quality status of the Lower Shannon Estuary in the area around the subject site is currently ‘good’. That status must be

maintained in order to achieve compliance with Ireland's legal obligations under the Directive for the current cycle to 2027.

The groundwater status in the area of the subject site is classified as 'poor' and 'at risk', per the criteria set out in the WFD. The overall status of whole groundwater body is 'good'. Per the Directive, the status of the groundwater in area of the site must be improved to at least 'good' by 2027. Yet these statuses have remained unchanged since 2021. As noted by the applicant in Section 10.6.10.1 of the EIAR, two aquifers underlie the subject site, the eastern-most of which is karstified and an important source of water for Co. Limerick. The risk of groundwater pollution is particularly high in areas of karst, therefore any risk of siltation or the release of other contaminants to groundwater must be fully assessed and carefully guarded against if permission is granted.

2.1 Water Framework Directive Compliance

An Taisce submits that the EPA should ensure that a full assessment of the proposal against the requirements Article 4 of the Water Framework Directive (WFD) is carried out to ascertain whether the development could impact the attainment of the objectives therein and to determine whether this project may cause a deterioration of the status of a surface or ground water body or where it may jeopardise the attainment of good surface or ground water status or of good ecological potential and good surface or ground water chemical status.

We would highlight that the requirements in relation to an Article 4 assessment are without regard to mitigation. In Case C- 461/13 Weser the CJEU held:

> "*Article 4(1)(a)(i) to (iii) of Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy must be interpreted as meaning that the Member States are required — unless a derogation is granted — to refuse authorisation for an individual project where it may cause a deterioration of the status of a body of surface water or where it jeopardises the attainment of good surface water status or of good ecological potential and good surface water chemical status by the date laid down by the directive.*"

The Weser case created a jurisdictional requirement and established that authorisation for a project has to be refused where there may be an adverse impact on the objectives of Article 4. To assess the proposal against Article 4, the EPA monitoring data on the water quality status indicators and Environmental Quality Standards must be used, as emphasised in *Weser:*

> *"The concept of 'deterioration of the status' of a body of surface water in Article 4(1)(a)(i) of Directive 2000/60 must be interpreted as meaning that* ***there is deterioration as soon as the status of at least one of the quality elements,***

> ***within the meaning of Annex V to the directive, falls by one class, even if that fall does not result in a fall in classification of the body of surface water as a whole.*** *However, if the quality element concerned, within the meaning of that annex, is already in the lowest class, any deterioration of that element constitutes a 'deterioration of the status' of a body of surface water, within the meaning of Article 4(1)(a)(i).'* [An Taisce emphasis]

We would draw the decision makers' attention to new WFD guidance,[1] which provides the following:

> *'Therefore, prior to granting authorisation, the Member State competent authority has to establish with sufficient certainty that a project will not cause deterioration or compromise the achievement of good status / potential. This decision should be taken based on soundly documented evidence in advance of the start of the project.'*

While the concept of beyond reasonable scientific doubt has been well ventilated in the courts in regard to Article 6(3) of the Habitats Directive, a similar standard of certainty is required in relation to Article 4 of the WFD. The Weser judgement highlights the stringent obligation which applies to decision making in regard to potential deterioration, with even temporary deterioration requiring a derogation, as ventilated in case C-525/20.[2]

There is also provision for the protection of water-dependent Natura 2000 sites under Article 4(1)(c) of the WFD, such as the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA in the case of this application. The EPA should therefore evaluate if the proposal has the potential to affect the achievement of compliance with the conservation objectives of the water-dependent Natura 2000 sites listed as 'Protected areas' in the context of WFD Article 4(1).

Additionally, we would highlight that Article 5 of the Surface Water Regulations 2009 requires a public authority, in the performance of its functions, not to undertake those functions in a manner that knowingly causes or allows deterioration in the chemical or ecological status of a body of surface water.

3. Disaster Risks Exacerbated by Climate Change

The major bauxite containment failure that occurred in Hungary in October 2010[3] is illustrative of the need to ensure that the potential impacts of a breach are thoroughly assessed, even if the risk of a breach is deemed very low, as the applicant in this case claims. The Hungarian disaster caused major property damage, loss of agricultural land and

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[1] https://environment.ec.europa.eu/document/download/938dd856-abc1-438a-bd08-d225803f9d46_en?filename=C_2026_3216_1_EN_ACT_part1_v7.pdf

[2] infocuria.curia.europa.eu/tabs/document?source=document&text=&docid=258871&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=2896189

[3] https://www.reuters.com/article/us-hungary-spill-idUSTRE69415O20101005

livestock, health problems for the local population, and major water quality and ecological impacts to a river system feeding the Danube, the remediation of which took years.

Given the site's location on Aughinish Island in the Lower Shannon Estuary, it is already vulnerable to the following, the frequency and magnitude of which will be intensified by climate change:

- Downstream fluvial flooding in the Shannon;
- High seasonal tides;
- Storm surge and coastal flooding;
- Extreme weather events, notably intense rainfall;
- South-westerly gales.

EIAR Section 16.5.4.2 identifies the following hazards as potential 'failure mechanisms' for containment on site:

- *Earthquake Event - leading to slope failure or dynamic liquefaction.*
- *Tidal Surge or Wave Event (River Shannon) - leading to erosion induced slope failure.*
- *Storm Event - leading to erosion induced slope failure.*
- *Blast Event (Borrow Pit) - leading to static liquefaction induced slope failure or dynamic liquefaction.*
- *Slope Instability – as a result of either strength failure through the bauxite residue or erosion of the side-slopes.*
- *Static Liquefaction - of the unfarmed bauxite residue (leading to lower or overall slope failure) or farmed bauxite residue (leading to upper slope failure). Trigger events such as rate of rise, excessive strain / creep within the bauxite residue, foundation creep or a storm event leading to erosion induced slope failure are potential mechanisms that could result in static liquefaction.*
- *Foundation Failure – as a result of strength failure through the foundation soils leading to overall slope failure via static liquefaction.*
- *Overtopping Event (Discharged Bauxite Residue) - leading to erosion induced slope failure.*

Similarly, we note the following from Appendix E, Summary of Risk Assessment and Break Out Study:

> "*The main failure modes or events identified leading to the loss of red mud and/or water into the environment:*
>
> - *Loss of containment, through slope or foundation failure, or erosion;*
> - *Overtopping of the SWP* [storm water pond], *LWP* [liquid waste pond] *and PIC* [perimeter interceptor channel]; *and*
> - *Failure through storm surge."*

We would highlight that these main modes of containment failure are exacerbated by the aforementioned increased risks associated with climate change. The discussion of climate-

related risks to the proposal in EIAR Chapter 17 is acknowledged. However, An Taisce submits that it is crucial that the potential impacts of these climate-exacerbated disasters on containment in the BRDA and the associated risks to the environment and human health from a containment breach be fully assessed across all EIAR headings. Furthermore, the risks posed by the occurrence of two or more hazards simultaneously (e.g. high downstream flooding in the Shannon *and* storm surge), which is a distinct possibility during a storm event, require assessment.

An Taisce also has concerns regarding flood risk assessment for the site given that, to An Taisce's knowledge,CFRAM Flood Risk Assessment mapping was not available for Aughinish Island at the time the EIAR was produced. There is now some mapping indicating a risk of coastal flooding in and around the existing BRDA. See Figure 1 below. The EPA should therefore ensure that the information provided in the application, notably in EIAR Chapter 10 on hydrology, is sufficient to determine the flood risk for the site and assess any implications thereof for containment in the BRDA.

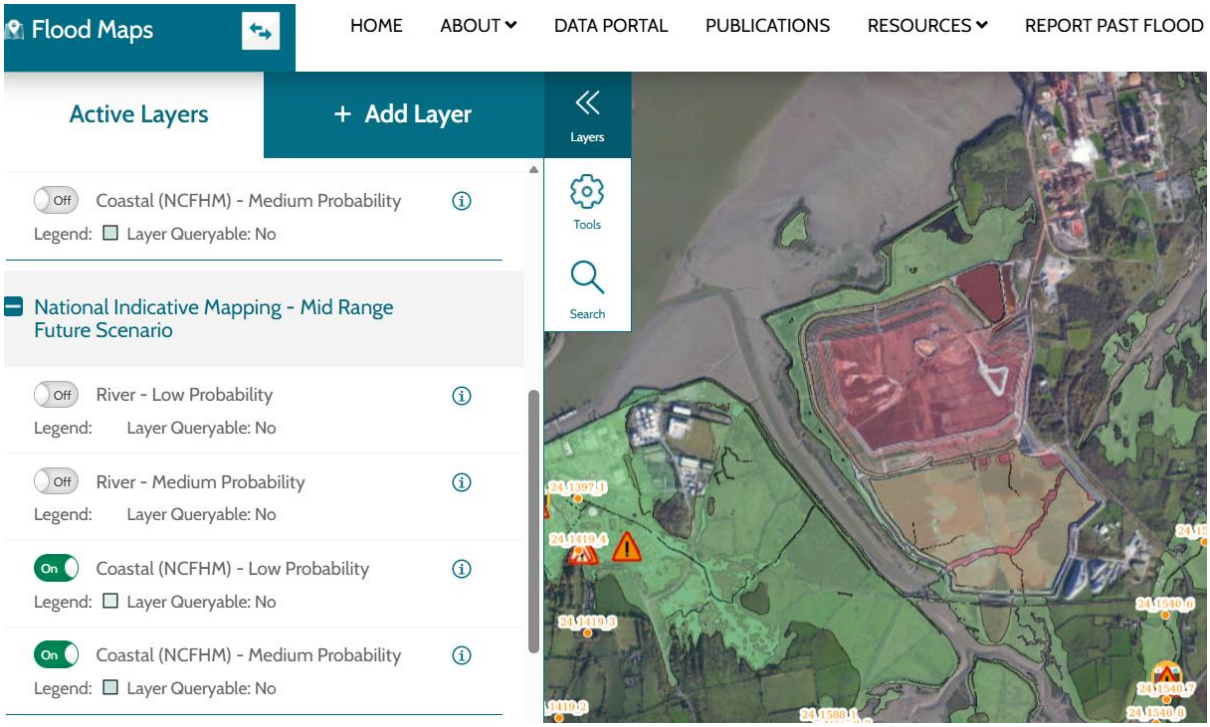


Figure 1: Flood risk mapping in the Aughinish area showing risk in and around the BRDA. Source: OPW flood mapping - https://www.floodinfo.ie/map/floodmaps/

Additionally, in their submission of 19th January 2024, the applicant discusses updates to climate policy since the original application was lodged in 2021 (Ref. 312146), including the Climate Action and Low Carbon Development (Amendment) Act 2021 (the Climate Act) and provisions therein regarding carbon budgeting, sectoral emissions ceilings, etc.

In relation to emissions from the alumina facility, the applicant states:

> *"[Aughinish Alumina Limited]'s greenhouse gas emissions are increasingly stringently regulated through AAL's mandatory participation in the EU Emissions Trading System, with the national aggregated total of the ETS sector intended to make an important contribution to delivering the required greenhouse gas emissions abatement to meet Ireland's 2030 and 2050 climate targets."*

We would highlight that the required participation of the development in the EU Emissions Trading Scheme and the purchase of the associated emissions permits relates to mitigation obligations under EU climate law. This does not negate, prevent or act in place of the obligations under the national carbon budgets and sectoral emissions ceilings in accordance with the Climate Act, which covers both the ETS and non-ETS sectors. Therefore, it is submitted that the EPA still must evaluate the subject proposal for alignment with national level emissions reduction obligations per the Climate Act.

4. Appropriate Assessment and Habitats Directive Legal Requirements

An Taisce submits that the aforementioned concerns in Sections 1 and 2 of this submission regarding water quality and the risks posed by climate change exacerbated disasters should be fully addressed in the NIS and the EPA's assessment thereof in order to comply with Habitats Directive Article 6(3).

It is now well established in law that approval can only be granted for plans and projects when it has been established beyond all reasonable scientific doubt that the subject proposal will not adversely impact any Natura 2000 sites.

In Case C-258/11, Sweetman & Others v An Bord Pleanála & Others, it was held that the provisions of Articles 6(2)–(4) of the Habitats Directive must be interpreted together "*as a coherent whole in the light of the conservation objectives pursued by the directive*" and that they impose a series of specific obligations necessary to achieve and maintain favourable conservation status. A plan or project will negatively impact upon a site if it prevented the "*lasting preservation of the constitutive characteristics*" of the site for which it was designated, with reference to the site's conservation objectives. Significantly it was determined that "*authorisation for a plan or project ....may therefore be given only on condition that the competent authorities ....are certain that the plan or project will not have lasting adverse effects on the integrity of the site. That is so where* ***no reasonable scientific doubt remains*** *as to the absence of such effects*" [emphasis added].

The competent authority must therefore refuse authorisation for any plans or projects where there is uncertainty as to whether the plan or project will have adverse effects on the integrity of the site. It was also held in paragraph 44 that:

> "*So far as concerns the assessment carried out under Article 6(3) of the Habitats Directive, it should be pointed out that it* ***cannot have lacunae*** *and* ***must contain complete, precise and definitive findings*** *and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the*

protected site concerned (see, to this effect, Case C 404/09 Commission v Spain, paragraph 100 and the case-law cited)..." [emphasis added].

The ECJ ruling for C-404/09 [Commission v Spain] held that:

> "*[a]n assessment made under Article 6(3) of the Habitats Directive cannot be regarded as appropriate if it contains gaps and lacks complete, precise and definitive findings and conclusions* ***capable of removing all reasonable scientific doubt*** *as to the effects of the works proposed on the SPA concerned*." [An Taisce emphasis]

Similarly, the court held in the case of the Commission v Italy that:

> "*assessment must be organised in such a manner that the competent national authorities can be certain that a plan or project will not have adverse effects on the integrity of the site concerned, given that,* ***where doubt remains as to the absence of such effects, the competent authority will have to refuse permission***." (C304/05. Para 58) [An Taisce emphasis]

In Kelly v An Bord Pleanála & Others, [2013 No 802 J.R.] with reference to Commission v Spain c-404/09, the High Court held in paragraph 36 that the competent authority must carry out an Appropriate Assessment (AA) for a plan or project in light of the best scientific knowledge in the field. It was also held that the competent authority must lay out the rationale and reasoning which was used to arrive at the determination.

The case repeated the conclusion of the CJEU at paragraph 44 in the aforementioned Case C-258/11, namely that an AA "*cannot have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt*." Consequently, it was held that an AA must include "*examination, analysis, evaluation, findings, conclusions and a final determination*."

The Kelly Judgement has provided a clarification of the requirements of an AA and in particular in paragraph 40, a summary of what must be delivered by the process in order to be lawfully conducted:

> *"(i) Must identify, in the light of the best scientific knowledge in the field, all aspects of the development project which can, by itself or in combination with other plans or projects, affect the European site in the light of its conservation objectives. This clearly requires both examination and analysis.*
>
> *(ii) Must contain complete, precise and definitive findings and conclusions and may not have lacunae or gaps. The requirement for precise and definitive findings and conclusions appears to require analysis, evaluation and decisions. Further, the reference to findings and conclusions in a scientific context requires both findings following analysis and conclusions following an evaluation each in the light of the best scientific knowledge in the field.*

(iii) May only include a determination that the proposed development will not adversely affect the integrity of any relevant European site where upon the basis of complete, precise and definitive findings and conclusions made the Board decides that no reasonable scientific doubt remains as to the absence of the identified potential effects."

If uncertainty exists regarding the potential impact of any proposed development full account should be taken of the precautionary principle and the development should be refused.

5. Assessment of Long Term Plan

The long-term plan for the site, beyond the approximately nine-year production capacity gain facilitated by the proposal, should be fully established and assessed against Ireland's environmental legal obligations, particularly with regard to Natura 2000 sites and water quality. We note the proposed minimum five year after-care period post-closure of the BRDA, followed then by passive monitoring for at least 30 years. The actions to be taken if any breach is found post-closure should be detailed and evaluated. All post-closure plans must take account of and be assessed against the risks posed by climate change-exacerbated flooding and storm events.

Additionally, the risk of BRDA breach or failure, either during the operational phase or in the post-closure phase, has not been adequately addressed. Tailings never become benign, and the tailings facilities that hold them require perpetual upkeep. The Society for Mining, Metallurgy, and Exploration Tailings Management Handbook states:

"*Unfortunately, humans have no experience in designing facilities to last forever, so responsible tailings management is required for as long as the TSF exists*".

It appears that this perpetual upkeep will be the responsibility of the state post closure and passive monitoring period, and the proposed 30 million euros (approximately) would fall very short in covering this cost.

Please acknowledge our submission and advise us of any decision made.

Yours sincerely,

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