Daniel O'Connor

From:	John Callaghan <joncallaghan@gmail.com>
Sent:	Monday 20 May 2024 16:47
To:	Bord
Cc:	Appeals2
Subject:	Submission at the invitation of An Bord Pleanála on ABP-315173-22
Attachments:	Submission on ABP-315173-22 John Callaghan.pdf

Submission at the invitation of An Bord Pleanála on ABP-315173-22

Planning Authority Reference Number: 22331

My Reference: Sustainability 2050

Re: Construction of a rockfill and earthen reinforcement buttress to sections of the extant embankment wall of the Tailings Storage Facility. An Environmental Report and a Natura Impact Statement (NIS) were received with this application.

Development Address: Randalstown, Simonstown and Sillogue, Navan, Co. Meath.

Appellant: Sustainability 2050,

Address: 10 The Cloisters, Oldcastle Road, Kells, Co Meath. A82 C9Y7

The Secretary,
An Bord Pleanála,
64 Marlborough Street,
Dublin 1, D01 V902

May 20th 2024

Dear Secretary,

Please see the attached submission.

Can you acknowledge by return email please?

Regards

John Callaghan

Submission at the invitation of An Bord Pleanála on ABP-315173-22

Planning Authority Reference Number: 22331

My Reference: Sustainability 2050

Re: Construction of a rockfill and earthen reinforcement buttress to sections of the extant embankment wall of the Tailings Storage Facility. An Environmental Report and a Natura Impact Statement (NIS) were received with this application.

Development Address: Randalstown, Simonstown and Sillogue, Navan, Co. Meath.

Appellant: Sustainability 2050,

Address: 10 The Cloisters, Oldcastle Road, Kells, Co Meath. A82 C9Y7

The Secretary,
An Bord Pleanála,
64 Marlborough Street,
Dublin 1, D01 V902

May 20th 2024

Dear Secretary,

I wish to thank An Bord Pleanála for the opportunity to make a submission. I refer the Board to the initial appeal material and to the content of this submission.

1.0 Introduction

The application describes the proposed works as a buttress with a view to increasing the stability of a dam structure that contains a slurry type material that was conveyed to the site by a pipeline. (hydraulic placement) The area enclosed by the earth dam structure containing the hydraulically placed slurry is some 140 hectares and is of the order of 28 metres deep.

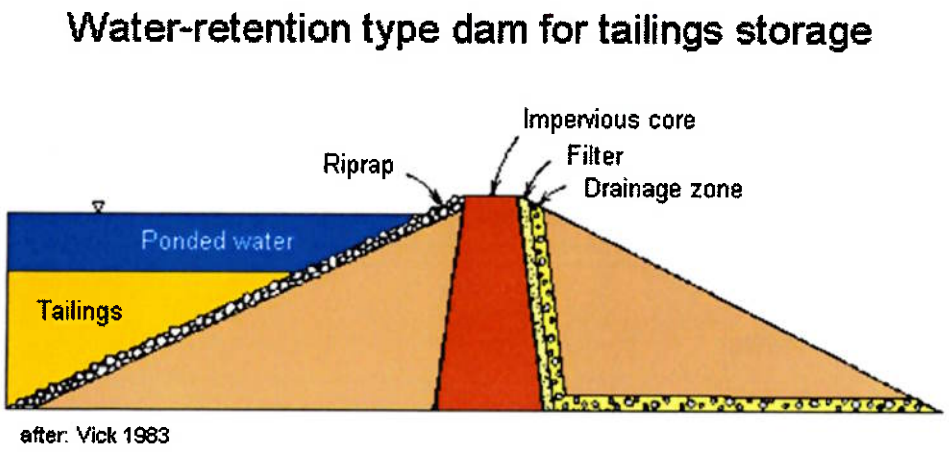
The applicant outlines how the tailings dam is to be used to store water at page 3-7 of the EIAR Report:

> *The tailings storage area is also used for temporary water storage and designed such that there is always an excess storage volume over and above that required for the storage of tailings, which can be used for the retention of water during low flow periods in the River Boyne. The excess water accumulates in the tailings pond during summer months when the flows in the River Boyne are low and discharge into the River Boyne is restricted (minimum dilution ratio of 100:1*

Obviously if the structure is to be used for water storage during droughts it cannot drain down to increase stability of the tailings sludge. Application 23341 Appealed ABP- 317390-23 (*the proposal involves the construction of a water treatment plant and ancillary infrastructure within the mine site complex. The water treatment plant will augment the extant water management/ treatment system at the mine site. The proposed development will extend to c. 550m2 and will not exceed 5.5m above ground level (53m AOD). The proposed development relates to an activity covered by the Company's Industrial Emissions Licence Ref. No. P0 516-04. A Natura Impact Statement (NIS) for the development has been prepared and will be submitted to the Planning Authority with the planning application*) involves treating a 400% increase in mine water discharge that has arisen since a flooding event which recently closed the mine.

The Upstream Tailings Dam Construction method

The Tailing Dam construction of sections 1 to 5 are of the upstream construction method. This involves building the next lift of the dam wall on the hydraulically placed material. The upstream methods uses least materials for the dam wall but is the least stable.



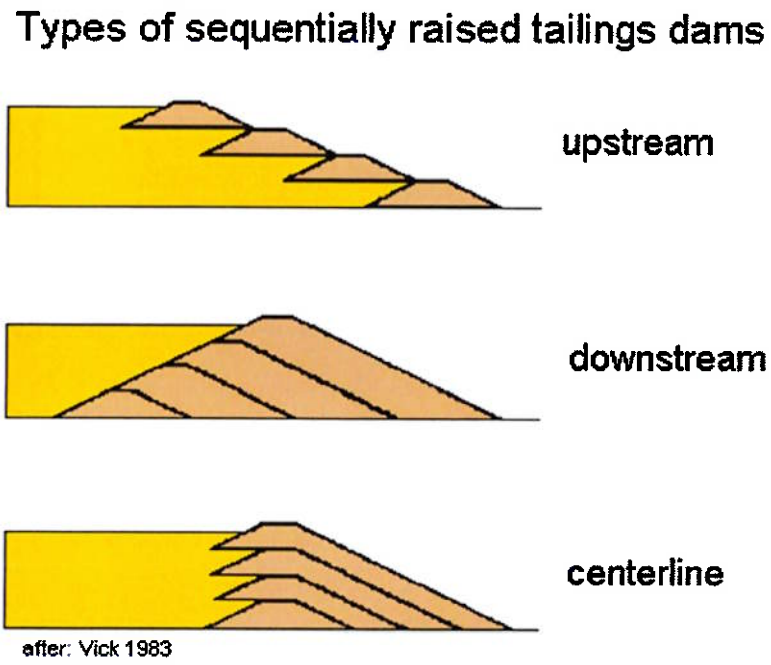


Figure 1 detailing various methods of building a Tailings Dam[1]

Figure 1 details four different approaches to tailings dam construction.

The proposal is to carry out remedial works to dam of upstream construction and to use it to impound water keeping the slurry deposited in a wet state indefinitely.

[1] https://www.wise-uranium.org/mdap.html#UPSTREAM downloaded 15.07 May 15th 2024

Why do failures occur?

Below are some typical examples[2]:

• *Liquefaction – when saturated tailings lose their strength (upstream and modified centerline dams only)*

• *Erosion – uncontrolled water*

• *Piping and internal erosion - incorrect design and/or construction*

• *Overtopping – insufficient freeboard/excess water. (One of the causes of overtopping can be slope instability further upstream and slope failure into the retained water can produce large waves that in turn overtop the dam)*

• *Seismic deformation*

• *Rotational sliding – construction materials/ geometry/pore pressures*

• *Seepage - incorrect design and/or construction*

• *Foundation failure - inadequate/incorrect geotechnical / geological / geophysical evaluations:*

(Foundation seepage as a cause of failure: one of the forms of failure - or at least of a need for significant remedial work - associated with foundations has been with limestone bedrock whereby

the limestone has actually been damaged by water dissolving the material).

• *A combination of the above*

The most common theme here is water and it is without question the one parameter that contributes to a

TMF failure. "Water is not our friend and less is best".

[2] RISK CONTROL PRACTICE: SPECIAL HAZARDS https://www.scor.com/sites/default/files/2022-01/Handbook_SpecialHazards_Tailing_Management_Facilities.pdf

1.1 Embankment structures.

Embankments and Cuttings are used extensively in Civil Engineering and are known as Earth Structures[3]. Embankments and cuttings were used in the construction of transport infrastructure Canals, Railways and Roads.

Traditionally water retaining structures such as canals and dams used a clay liner, but modern methods use modern materials to prevent seepage through a water retaining structure.

ABP should note that the newest section of the Tailings Dam Section 6 has a modern liner membrane in the dam wall construction, a method that is far superior than the method used in the tailings dam wall section 1 to 5.

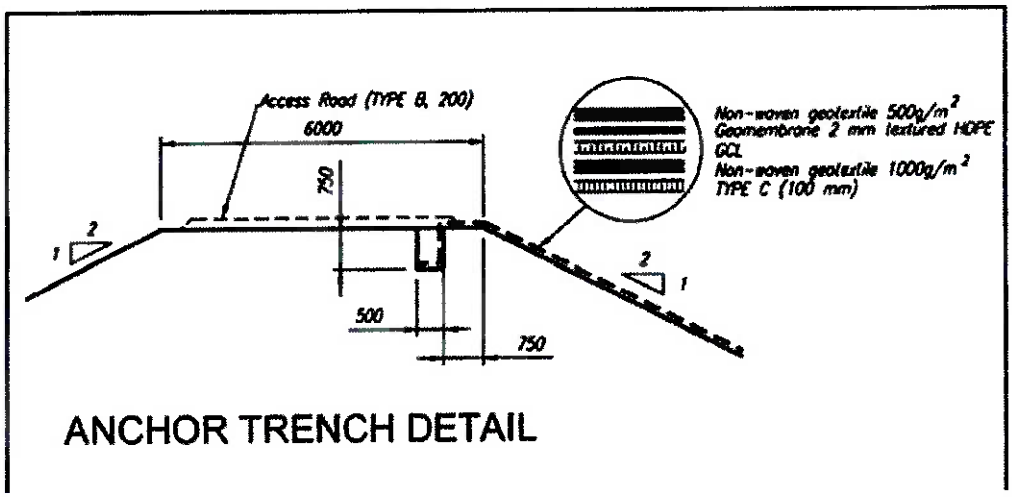


Figure 2 above shows the 2mm HDPE membrane detailed in the planning application for the stage 6 extension NA160408 Meath CoCo[4]

The Tailings pond at Navan is one of the biggest man made structures in Europe and it is built in an urban area quite distinct from similar structures all over the works constructed far from centres of population. Land use planning urges that either such structures are build far from people or that urban settlements are not developed beside tailings ponds. Tailings Pond is a much nicer name than toxic sludge dump.

---

[3] Ciria C592 Infrastructure Embankments condition appraisal and remedial treatment.
[4] https://www.eplanning.ie/MeathCC/AppFileRefDetails/NA160408/0

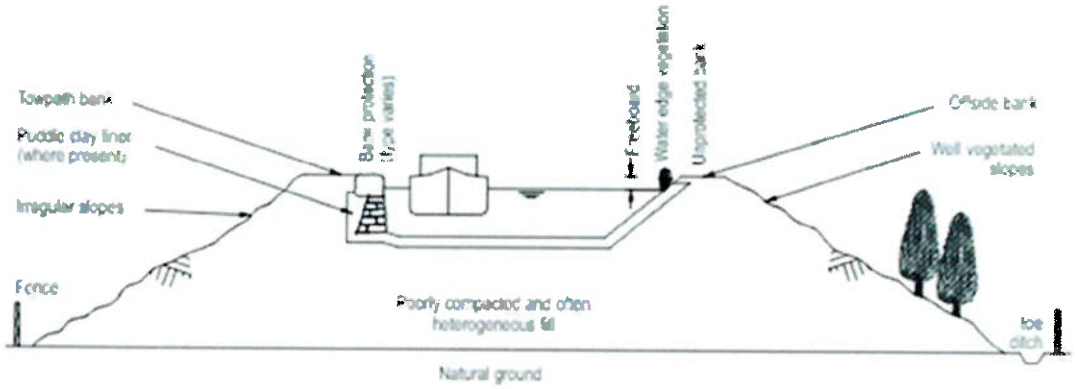


Figure 1 3 *Canal embankment. Typically, water is retained by a lining. Although traditionally puddle clay was used for this purpose, replacement often utilises modern materials (courtesy British Waterways Technical Services)*

Figure 3 above from page 22 Ciria 592 Infrastructure Embankments condition appraisal and remedial treatment.

A Special hazard applies where embankment structures are used to retain water or sludge. In the normal course tailings would be drained down to stabilise them but at Navan the tailings pond is being used to retain water at times when it cannot be discharged to the River Boyne.

1.2 The History of Tailings Dam Failures at Boliden owned mines.

In April 1998, the dam at Apirsa's mine, Los Frailes, breached, resulting in the release of large quantities of metal-bearing water and tailings sand along the river Guadimar. The accident impacted large areas of agricultural land and affected areas 40 km downstream from the mining area, although the Donana National Park was not affected.

Figure 4 Los Frailes Tailings Dam Burst

Between 5.5 & 6 million cubic metres of water and sludge were lost in the spillage

On September 8, 2000, the tailings dam of Boliden's Aitik copper mine near Gällivare in northern Sweden failed over a length of 120 meters. This resulted in the spill of 2.5 million cubic meters of liquid into an adjacent settling pond. Boliden subsequently released 1.5 million cubic meters of water from the settling pond into the environment to secure the stability of the settling pond.

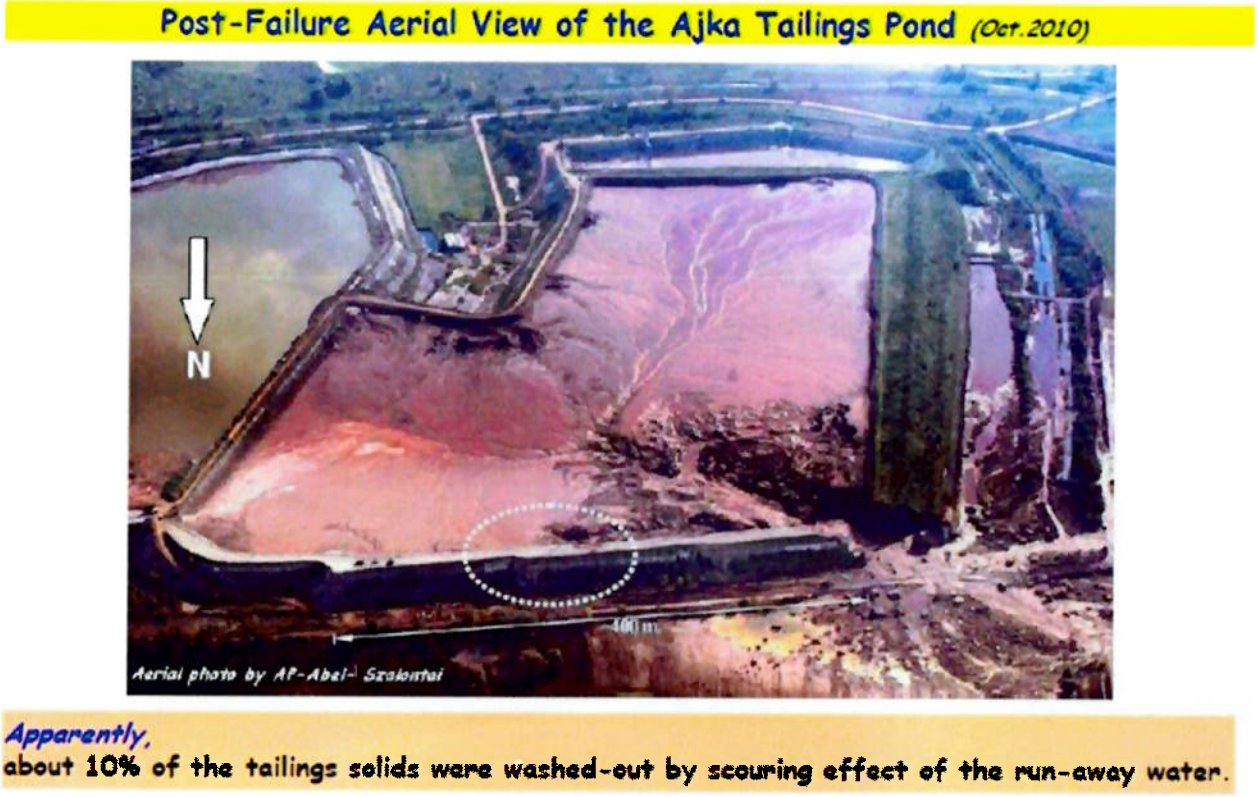


Figure 5 Above Aitik Tailing Dam failure[5]

It is reasonable for people to be sceptical about the safety of tailings ponds.

2.0 Specific grounds of appeal arising from the submission of the EIAR Report.

2.1 The application contains insufficient information to describe the characteristics of the tailings pond contents and the retaining structure.

2.2 Upstream construction tailings structures are prohibited in a number of South American Countries including Chile, Peru and Brazil. Such structures cannot be classed as the best available technique consistent with the best approach standard per ***Kelly V An Bord Pleanála IEHC 400.***

Please refer to page 509 of *Best available techniques (BAT) reference document for the management of waste from extractive industries In accordance with Directive 2006/21/EC*[6]

---

5 https://unece.org/fileadmin/DAM/env/documents/2016/TEIA/Inception/Presentations/Session2/1_ENG___Tailing_Dams_Astana_2018_Pavel_Danihelka_ENG.pdf

6 https://publications.jrc.ec.europa.eu/repository/handle/JRC109657

		residual risks and hazards.	
b	Upstream raising method	*Relevant for slurried extractive waste retention dams* *Planning and design phase* To design the raising of the dam in stages by building embankments on the beach of the previous stage. The centreline of the embankment crest moves upstream with each stage. The dam is rigorously designed using modern engineering principles to ensure that the embankments are adequately drained, that an appropriate beach length is guaranteed at all times, including a minimum beach length during extreme flood events (see BAT 20), and that the phreatic surface is controlled. The design usually includes filters and drainage zones to permit the safe drainage of the dam, along with the EWIW collection and management systems. *Operational (construction, management and maintenance) phase* To raise the dam with an upstream method and to monitor and maintain it, while applying management systems and design for closure (see BAT 1, BAT 11 and BAT 12). *Closure and after-closure phase* In the closure phase, to monitor and maintain the final dam structure comprised of the starter dam and raised embankments built with an upstream method, while applying management systems the design for closure (see BAT 1, BAT 11 and BAT 12). In the after-closure phase, to monitor and maintain the final dam structure comprised of the starter dam and raised embankments built with an upstream method, for as long as may be necessary, taking into account the nature and duration of the residual risks and hazards.	Based on the results of a proper Environmental Risk and Impact Evaluation (see BAT 5). Applicable in combination with BAT 11, BAT 13, BAT 14, BAT 19, BAT 20, BAT 21 and BAT 22. Not applicable when: • the slightest risk of liquefaction has been identified after seismic evaluation of (small and large[11]) dams according to ICOLD Bulletin 139 and to ICOLD Bulletin 148 (referred to in BAT 22.a), applied equally to all kinds of upstream dams; or • permanent free water storage is necessary; or • the dam is not rigorously designed using modern engineering principles to ensure that the embankments are adequately drained and the phreatic surface is controlled.
c	Downstream	*Relevant for slurried extractive waste*	Based on the results of a

Figure 6 above from page 509 Best available techniques (BAT) reference document for the management of waste from extractive industries In accordance with Directive 2006/21/EC.

2.3 The Seismic Risk impact on an Embankment Retaining Structure in Ireland over an 80 year period is significant.

The EU BAT Document sets down a return period of 10,000 years for the calculation of Maximum Credible Earthquake[7]. The Board are referred to Eurocode 8: Design of structures for earthquake resistance Part 5: Foundations, retaining structures and geotechnical aspects[8]

At the very least all calculations and all geotechnical test data should be put before the interested public and An Bord Pleanála.

The application fails to exhibit calculations, test data, return periods for peak events and calculations, along with a compliance statement with various Eurocodes.

[7] See page 524 European Commission, Joint Research Centre, Barthe, P., Eder, P., Saveyn, H. et al., Best available techniques (BAT) reference document for the management of waste from extractive industries – In accordance with Directive 2006/21/EC, Publications Office, 2018, https://data.europa.eu/doi/10.2760/35297

[8] https://www.phd.eng.br/wp-content/uploads/2014/11/en.1998.5.2004.pdf

Chapter 5: Best Available Techniques Conclusions

		The selection of seismic parameters in this analysis is based on site-specific analysis of the seismic risk[2]. According to the ICOLD guidelines, the Safety Evaluation Earthquake (SEE) used for the long-term geotechnical analysis of large dams and spillways is characterised by a level of motion equal to that expected from the occurrence of a deterministically evaluated Maximum Credible Earthquake (MCE) or equal to the probabilistically evaluated earthquake ground motion with a return period of 10 000 years. Shorter return periods may be specified for dams with lower failure risk potential. By applying Eurocode 7–1, the design values are determined by using appropriate partial factors as defined in Annex A to this standard. The overall stability of slopes is analysed in the ultimate geotechnical (GEO) or structural (STR) limit states by applying: • an over-design factor (ODF) of at least 1, where the ODF is the ratio between the design resistance (Rd) and the design effect of the loads (Ed). Assessment of liquefaction potential is extended beyond the recommendations given in EN 1998 Eurocode 8 and in particular Part 5. By using equivalent national standards that do not apply partial factors and evaluate global safety factors, the overall stability is analysed by applying: • a safety factor of at least 1.3 for extreme conditions with flooding associated with dimensioning flow or sudden falls of water level; • a safety factor of at least 1.5 in the operational phase (short term) and after-closure phase (long term). *Operational (construction, management and maintenance) phase* To review the geotechnical analysis, while applying management systems (see BAT 1, BAT 11 and BAT 12).	

Figure 7 above from BAT

2.4 The Flood Risk assessment is inappropriate. The ESB have used a 1 in 10,000 year flood event for its design at the dams at Limerick following a scare in 2009. EPA Maps

indicate an alluvium layer in the vicinity of the tailings dam. In a lifetime of 80 years a person has an 8% chance of experiencing a 1 in 1000 event and a 0.8% chance of experiencing a 1 in 10,000 event.

The assessment of flood risk is a vital element in the safe design, maintenance and operation of impounding reservoirs. Earth dams are inherently erodible and uncontrolled overtopping can lead to catastrophic failure. Overtopping of a rockfill, masonry or concrete dam needs to be avoided except where the design specifically provides for this. It is therefore necessary to specify a design flood, in combination with wave action, which the dam must be capable of withstanding. Greater security is required against dam failure where there is a major risk of loss of life and extensive damage and a lower security where the threat is less severe.

The Tailings Dam at Navan is categorised as Class A Risk

Dam Classification CDA (2013)

CONSEQUENCE CATEGORY	POP'N AT RISK	INCREMENTAL LOSSES		
		LOSS OF LIFE	ENVIRONMENTAL & CULTURAL VALUES	INFRASTR. & ECONOMICS
EXTREME	Permanent	More than 100	Major loss... Restoration impossible...	Extreme losses...
VERY HIGH	Permanent	100 or fewer	Significant loss... Restoration impractical...	Very high economic losses...
HIGH	Permanent	10 or fewer	Significant loss... Restoration probable...	High economic losses ...
SIGNIFICANT	Temporary Only	Unspecified	No significant loss...	Loss to recreational facilities...
LOW	None	0	No long term loss ...	Low economic loss...

Figure 7 above[9]

Ireland has relatively little experience of mining and building tailings dams compared to Canada, Australia, and South America. There is no Irish Dam Association. It is sensible to look to Administrations which regulate such dams with a developed regulatory framework.

Two critical definitions arise:

[9] Tailings Dam Classification and Breach Analyses,Perspectives from the Canadian Dam Association https://www.mtech.edu/mwtp/presentations/docs/marc-orman.pdf

- PMF stands for Probable Maximum Flood and it has a return frequency between I in 100,000 year and I in 1,000,000 years depending on different experts.
- MCE Maximum Considered Earthquake

ICOLD recommend using flood return periods based on the risk to human life in terms of potential numbers of people killed.

Flood Design

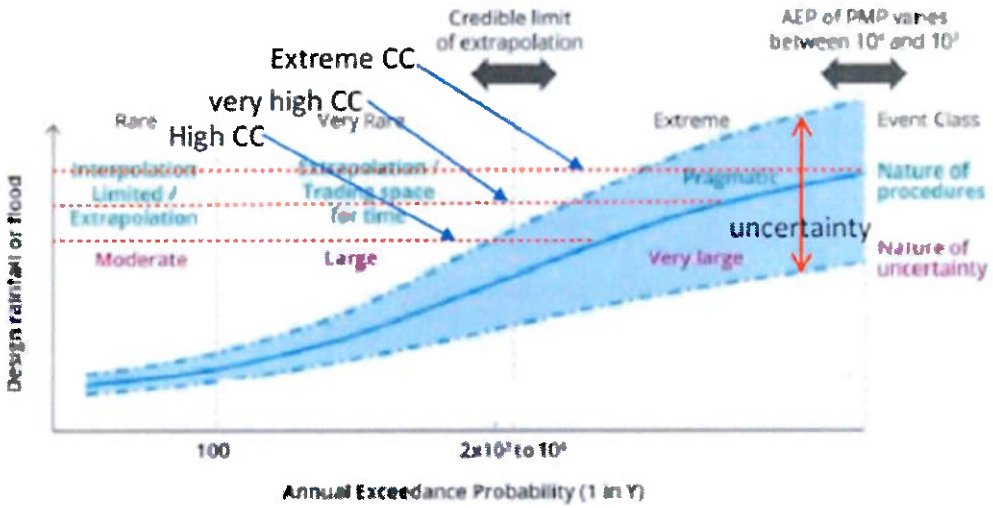


Table 7.2 Suggested **minimum** flood design criteria for operating & active care phases

Consequence Classification	Flood Criteria – Annual Exceedance Probability (AEP)[1]
	Operations and Active Care Closure
Low	1/200
Significant	1/1,000
High	1/3rd between the magnitude of the 1/1,000 flood and the PMF
Very High	2/3rd between the magnitude of the 1/1,000 flood and the PMF
Extreme	PMF

Note: 1) The criteria presented is guidance for suggested minimum criteria.

Figure 8 ICOLD Bulletin 194 Committee L – Tailings Dams and Waste Lagoons 2023[10]

Obviously the I in 1000 year risk assessment is grossly inadequate

[10] https://unece.org/sites/default/files/2023-04/S4-1Andy%20Small_ENG.pdf

On Seismic Design ICOLD are recommending (from the same reference)

Seismic Design

Consequence Classification	Seismic Criteria[1] Annual Exceedance Probability[2] or Maximum Credible Ground Motion[3]
	Operations and Active Care Closure
Low	1:200
Significant	1:1,000
High	1/2,475[4]
Very High	1/5,000 or 50th percentile MCE[1,3]
Extreme	1/10,000 or 84th Percentile MCE[1,3]

Notes:
1) The selection of the probabilistic or deterministic (scenario-based) design earthquake ground motions should consider the seismic setting and the reliability and applicability of each method.
2) The criteria associated with annual exceedance probabilities (AEP's) presented are guidance for suggested minimum criteria. Each facility should be assessed for the potential to increase the design criteria to further reduce risk.
3) MCE is based upon a deterministic seismic hazard assessment that considers a range of scenarios.
4) The selection of an AEP of 1/2475 as a minimum design earthquake for High Hazard is based on the typical design earthquake for buildings in certain building codes, the application of this value for dam safety in multiple countries, and its inclusion in the GISTM.

2.5 Silica dust exposure is a significant hazard leading to cancer. There is a limit to protect workers but not to protect the public. The Navan Tailing Site covers a large area and potentially exposes the local population to silica dust.

> *Routes of Exposure Inhalation is the primary route of exposure to crystalline silica dust. For any kind of dust, there are different particle sizes. When dust is inhaled, its point of deposition within the respiratory system is very much dependent upon the range of particle sizes present in the dust. It is the respirable (smallest particle size) fraction of crystalline silica dust which is of critical concern for its health effects, since these can penetrate deep into the lung.*
>
> *Health Effects Inhalation of fine dust containing crystalline silica can cause lung damage (silicosis), which in severe cases can be disabling, or even fatal. Silicosis is irreversible and treatment options are limited. Workers may develop any of three types of silicosis, depending on the concentration of airborne silica:*

• Chronic silicosis, which usually occurs after ten or more years of exposure to crystalline silica at relatively low concentrations. Information Sheet Crystalline silica is widely found in nature. Occupational exposure to crystalline silica dust occurs in many industries including: quarrying, mining, mineral processing (e.g. drying, grinding, bagging and handling) slate working, stone crushing and dressing, foundry work, brick and tile making, some refractory processes, construction and demolition work, including work with stone, concrete, brick and some insulation boards, tunneling, building restoration, pottery and ceramic industries.

The respirable fraction of the dust is invisibly fine and the OELV for Respirable Crystalline Silica (RCS) is 0.1mg/m3 averaged over 8 hours, as set down in the HSA Chemical Agents Code of Practice under the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. A risk assessment under these regulations is required where exposures to RCS can occur. The Safety, Health And Welfare At Work (General Application) (Amendment) Regulations 2016 S.I. No. 36 of 2016 contains a Prohibition on silica – Regulation 128 "An employer shall ensure that no sand or other substance containing free silica is introduced as an abrasive into any blasting apparatus.

Basically where concrete, stone or sand based materials are used, there is a potential for exposure to crystalline silica dust. Crystalline Silica Dust June 2017

• Accelerated silicosis, which results from exposure to high concentrations of crystalline silica and develops five to ten years after the initial exposure.

• Acute silicosis, which occurs where exposure concentrations are the highest and can cause symptoms to develop within a few weeks to four or five years after the initial exposure.[11]

2.6 The EIAR fails to take account of recent events in the mine such as its closure due to flooding, reduced water table levels, and increased out put of mine water see 23341 Meath Coco. Any major change in the water table can lead to internal erosion under an earth dam structure. The EIAR needs to deal with all aspects of the mine life while operating and its time table for restoration.

2.7 The EIAR failed to consider all Reasonable Alternatives per C-461/17 .

The tailings dam design for section 6 has a 2mm liner which offers stability advantages over the upstream design build on mine tailings of unknown particle size and with unknown geotechnical characteristics.

The requirements on the developer are set out in Case C-461/17 Holohan and others v. An Bord Pleanála

[11] Crystalline Silica Dust Information Sheet HAS 2017
https://www.hsa.ie/eng/publications_and_forms/publications/chemical_and_hazardous_substances/silica_dust_information_sheet.pdf

Reasonable Alternative No 1 Build a new Dam outside the existing Dam around sections 1 to 5 which included a liner. This would allow all best practice and design to be embraced and to comply fully with all parts of Eurocode 7 & 8 as well as the ICOLD Bulletin.
Reasonable Alternative No 2 Pipe all mine water to discharge to the Irish Sea after treatment . Assuming 3000M³ pumped at a velocity of 2 metres per second a relatively small pipe could suffice. An 800mm diameter pipe will carry 1M³ at a velocity of 2MS/s. This would avoid the need to store large volumes of water in a tailings dam of upstream construction. It would avoid discharging mine water to the SAC from which drinking water is abstracted.

Reasonable Alternative No 3 Approximately 50% of the mined material is returned underground and mixed with cement. That amount should be increased to reduce tailing waste.

The EIAR Failed to consider the potential flow paths arising from a breach in the Tailing Dam on a scale of the breach of its tailings Dam in 1998 & 2000.

2.8 The Natura Impact Assessment is inadequate.

- It does not consider the use of the tailings pond for storing mine water during drought flow in the Boyne.
- It does not consider modes of failure such as internal erosion, over topping.
- ISO 21795-1:2021 Mine closure and reclamation planning.
- It refers to Cone Penetration Tests but provides no data on the test locations or test data, no data on geophysics. Cone Penetration Tests have limitations and need to be compared to Non-disturbed samples for correlation.
- A Factor of Safety of 1.1 is very low particularly if test data was derived from CPT methods only.
- It does not consider flow paths in the event of various breech scenarios.
- The High Court has determined the Public are entitled to see consultants workings. The Board would need to see such workings in order to have jurisdiction to make a determination.
- The NIA does not contain any details of an Emergency Response Plan in the event of a breach of the tailings dam. Such Infrastructure comes within the scope of the Aarhus Convention.

Note that Meath County Council refused to confirm it had an Emergency Response Plan in relation to the Tailings Facility and Failed to release a copy under AIE Request.

Comhairle Chontae na Mí
Teach Buvinda, Bóthar Átha Cliath, An Uaimh,
Contae na Mí, C15 Y291
Fón: 046 – 9097000/Fax: 046 – 9097001
R-phost: customerservice@meathcoco.ie
Web: www.meath.ie
Uimhir Chláraithe: 0017277O

Meath County Council
Buvinda House, Dublin Road, Navan,
Co. Meath, C15 Y291
Tel: 046 – 9097000/Fax: 046 – 9097001
E-mail: customerservice@meathcoco.ie
Web: www.meath.ie
Registration No.: 0017277O

27th April 2022

Re: AIE request AIE 09-2022

Mr John Callaghan
10 The Cloisters
Oldcastle Road
Kells, Co. Meath.

Dear Mr Callaghan,

I refer to your request for information under the European Communities (Access to Information on the Environment) Regulations 2007 to 2018. You requested the following:

- ***"Could you advise if Meath County Council holds any information in relation to the assessment of the stability of the Tara Mines Tailings Pond, or of any factors that determine the current stability of the Tailings pond and can you make this Environmental Information available by return.***
- ***Do you hold a copy of an Emergency Response Plan in relation to the Tailings Pond?***
- ***Can you advise if any Irish regulated Engineer has prepared a recent report assessing the safety of the Tailings Dam?***

Summary of Decision:

A final decision on your request was made today by the undersigned. I can be contacted by telephone on 046 9097512 and will endeavour to answer any questions you may have regarding your request.

Having considered your request, my decision is to refuse you access to the information sought.

Access to information is refused in accordance with:

Article(s) 7(3)(a) (i) of the AIE Regulations:

Where a request has been made to a public authority for access to environmental information In a particular form or manner, access shall be given in that form or manner unless—

(i) the information is already available to the public in another form or manner that is easily accessible.

Article 8 (a) (ii)

A public authority shall not make environmental information in accordance with Article 7 where disclosure of the information would adversely affect:

(ii) In the interests of a person who voluntarily and without being under, or capable of being put under, a legal obligation to do so, supplied the information requested, unless that person has consented to the release of that information.

Comment:
All of the records Meath County Council hold on the matter are available on our website www.meath.ie/planning Planning Reference: 22/331 or can be viewed at our Planning Counter at Buvinda House, Dublin Road Navan, Co. Meath C15 Y291 during the hours 9-1pm & 2-4pm Monday to Friday (excluding Bank Holidays).

In line with Article 10(3), my deliberations have included weighing the public interest served by disclosure against the interest served by refusal.

- The factors in favour of release of this information are; openness and transparency of the Planning system.
- Factors in favour of withholding this information are; the release of the details of the Emergency Plan could reasonably be used inappropriately to activate a hoax emergency call to emergency services. Such an event would seriously undermine the purpose and integrity of the Emergency Plan. The Plan contains sensitive data and protocol for internal & range of emergency staff on how to trigger the emergency, the triggering of a hoax call would seriously undermine the established protocol and response. Such a hoax event cause undue worry and concern to facility staff, local residents and cause nuisance to all emergency personnel who mobilised to attend the scene. The deployment of emergency services to any hoax call would have a knock-on effect to others requiring the services. I have decided that, on balance, the public interest in this case is best served by withholding this information.

If for any reason you wish to appeal this decision you may do so by writing to the Internal Reviewer, A request for an internal review must be submitted within 4 weeks of the initial decision and requests should be posted or emailed to: Ms Elaine Daly, Senior Executive Officer, Corporate Services, Meath County Council, Buvinda House, Dublin Road, Navan, Co. Meath, or email foi@meathcoco.ie .
You must make your appeal within one month of this notification and this appeal is free of charge.

If you are unhappy with our internal review decision, you have a right to submit a further appeal to the Office of the Commissioner for Environmental Information (OCEI).

You must make this appeal within a month of receiving our internal review response and the fee for such an appeal is €50.
Contact details for OCEI are as follows: - 6 Earlsfort Terrace, Dublin 2, D02 W773.
Phone: +353-1-639 5689
Email: info@ocei.ie

Yours Sincerely,

Alison J Condra
Administrative Officer.

Yours sincerely

John Callaghan behalf of Sustainability 2050.

ENDS

Bibliography

Application of Eurocode 7 to the design of flood embankments (C749F)
Ciria C592 Infrastructure Embankments condition appraisal and remedial treatment.
Alonso, E.E. The Failure of the Aznalcóllar Tailings Dam in SW Spain. Mine Water Environ 40, 209–224 (2021). https://doi.org/10.1007/s10230-021-00751-9
Guangzhi, Yin., Guangzhi, Li., Zuoan, Wei., Ling, Wan., Guohong, Shui and Xiaofei, Jing. (2011). Stability analysis of a copper tailings dam via laboratory model tests: A Chinese
case of study. Mineral Engineering, vol.24, pp. 122-130.
Ormann, L., Zardari, M., Mattsson, H. & Knutsson, S., (2013). Numerical Analysis of strengthening by rockfill embankments on an upstream tailings dam. Canadian Geotechnical
Journal, vol. 50, pp. 391-399.
Liu, Hai-ming., Yang, Chun-he., Zhang, Chao and Mao, Hai-jun. (2012) Study of static and dynamic strength characteristics of tailings silty sand and its engineering application. Safety Science, vol. 50, pp. 828-834.
Modelling the Brumadinho tailings dam failure, the subsequent loss of life and how it could have been reduced Darren Lumbroso1 , Mark Davison1 , Richard Body1 , Gregor Petkovšek1 1HR Wallingford, Howbery Park, Wallingford, Oxfordshire OX10 8BA, UK 5 Correspondence to: Darren Lumbroso (d.lumbroso@hrwallingford.com)
https://nhess.copernicus.org/preprints/nhess-2020-159/nhess-2020-159.pdf
YouTube Brumadinho dam collapse footage Brazil, 2019 available at: https://www.youtube.com/watch?v=Adk0AwcISHo last
access: May 20th 2024
BS 1377 (1990). "Methods of Test for Soils for Civil Engineering Purposes." British Standards Institution, London.
European Commission, Joint Research Centre, Barthe, P., Eder, P., Saveyn, H. et al., Best available techniques (BAT) reference document for the management of waste from extractive industries – In accordance with Directive 2006/21/EC, Publications Office, 2018, https://data.europa.eu/doi/10.2760/35297
Eurocode 7: Geotechnical design - Part 1: General rules
https://www.nqm2016.com/uploads/2/1/7/9/21790806/eurocode_7_-_geotechnical_designen.1997.1.2004.pdf

ICOLD Bulletin No. 194 TAILINGS DAM SAFETY

COMMISSION INTERNATIONALE DES GRANDS BARRAGES INTERNATIONAL COMMISSION ON LARGE DAMS Committee L – Tailings Dams and Waste Lagoons 2022
https://unece.org/sites/default/files/2023-04/S4-1Andy%20Small_ENG.pdf

ICOLD guidance for slope stability analyses of dams https://www.youtube.com/watch?v=QEdulBYY6Xw