# ALBERTA
# ENVIRONMENTAL APPEALS BOARD

# Report and Recommendations

**Date of Report and Recommendations – May 30, 2019**

**IN THE MATTER OF** sections 91, 92, 94, 95, and 99 of the *Environmental Protection and Enhancement Act*, R.S.A. 2000, c. E-12, and section 115 of the *Water Act*, R.S.A. 2000, c. W-3;

**-and-**

**IN THE MATTER OF** an appeal filed by Lars Larsen with respect to the decision of the Director, Upper Athabasca Region, Operations Division, Alberta Environment and Parks, to issue Approval No. 00255428-00-00 under the *Water Act* to Lafarge Canada Inc.

Cite as: *Larsen* v. *Director, Upper Athabasca Region, Operations Division, Alberta Environment and Parks,* re: *Lafarge Canada Inc.* (30 May 2019), Appeal No. 15-021-R (A.E.A.B.), 2019 ABEAB 15.

**HEARING BEFORE:** Mr. Alex MacWilliam, Board Chair;
Ms. Meg Barker, Board Member; and
Mr. Timothy Goos, Board Member.

**Board Staff:** Mr. Gilbert Van Nes, General Counsel and Settlement Officer; Ms. Marian Fluker, Associate Counsel; Ms. Denise Black, Board Secretary; and Ms. Valerie Myrmo, Registrar of Appeals.

**PARTIES:**

**Appellant:** Mr. Lars Larsen, represented by Ms. Ifeoma M. Okoye, Ackroyd LLP.

**Approval Holder:** Lafarge Canada Inc., represented by Ms. Shauna Finlay and Ms. Lauren Chalaturnyk, Reynolds Mirth Richards & Farmer, LLP.

**Director:** Mr. Muhammad Aziz, Director, Operations Division, Upper Athabasca Region, Alberta Environment and Parks, represented by Ms. Nicole Hartman, and Ms. Jade Vo, Alberta Justice and Solicitor General.

**WITNESSES:**

**Appellant:** Mr. Lars Larsen, Mr. Ray Makowecki, Senior Scientist and Principal, EnviroMak Inc.; Dr. Jonathan Fennell, Hydrogeologist and Geochemist, External Advisor, Sustainable Energy Development Program, University of Calgary; and Mr. Duane Radford, Fisheries Biologist, American Fisheries Society.

**Approval Holder:** Mr. Bill Gowdy, Regional Geologist, Lafarge Canada, Inc.; Dr. Nathan Schmidt, Principal Senior Water Resources Engineer, Golder Associates Ltd.; Mr. Jerry Vandenberg, Principal Environmental Chemist, Golder Associates Ltd.; Mr. John Wozniewicz, Principal Senior Hydrogeologist, Golder Associates Ltd.; and Mr. Kasey Clipperton, Principal Senior Fisheries Biologist, Golder

Associates, Ltd.

**Director:** Mr. Muhammad Aziz, Director, Operations Division, Upper Athabasca Region, Alberta Environment and Parks; Mr. Derek Alexander, Water Act Approvals Team Lead, Regional Integrated Approvals, Upper Athabasca Region, Operations Division, Alberta Environment and Parks; Mr. Kevin Nipp, Ground Water Hydrogeologist, Regional Resource Management, Upper Athabasca Region, Operations Division, Alberta Environment and Parks; Ms. Patricia Stevenson, River Hazard Specialist, Operations Division, Alberta Environment and Parks.

## EXECUTIVE SUMMARY

Alberta Environment and Parks (AEP) issued an approval (the Approval) under the *Water Act* to Lafarge Canada Inc. (Lafarge) for the purposes of constructing flood protection works and constructing and maintaining an end pit lake. The Approval was in relation to the operation of a gravel mining pit by Lafarge near the Freeman River.

Mr. Lars Larsen (the Appellant), who owns land along the Freeman River, near the gravel pit, appealed the issuance of the Approval to the Environmental Appeals Board (the Board).

The Board requested and received written submissions and held an oral hearing on the following issues:

1. Will the construction and maintenance of the end pit lake and river flood protection works, as allowed under the Approval, impact surface water quality and quantity, including but not limited to the Freeman River and the end pit lake itself, and the aquatic resources in the Freeman River?
2. Will the construction and maintenance of the end pit lake and river flood protection works and the mining operations impact groundwater quantity and quality?
3. Are the terms and conditions of the Approval reasonable to protect the surface water and groundwater in the area and the aquatic environment in the Freeman River?

After reviewing the evidence and considering the arguments submitted by the Appellant, Lafarge and AEP, the Board determined the project can proceed, subject to the addition of certain terms and conditions to the Approval. These additional terms and conditions are necessary to further strengthen the Approval's protection of the surface water and groundwater quality and quantity in the area, and the aquatic environment in the Freeman River.

Therefore, the Board recommended the Minister vary the Approval accordingly.

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# I. INTRODUCTION

[1] This is the Environmental Appeals Board's (the "Board") report and recommendations regarding an appeal of the decision by the Director, Upper Athabasca Region, Operations Division, Alberta Environment and Parks, (the "Director") to issue Approval No. 00255428-00-00 (the "Approval") under the *Water Act*, R.S.A. 2000, c. W-3, to Lafarge Canada Inc. (the "Approval Holder") for the purposes of constructing and maintaining an end pit lake, and construction of flood protection works.

[2] The Approval is related to a sand and gravel operation (the "Project") located at NE 34-61-6-W5M and SE 3-62-6-W5M (the "Site"), on lands owned by the Approval Holder in Woodlands County, adjacent to the Freeman River. The Freeman River flows into the Athabasca River, in close proximity to the Project. The Project includes a gravel pit (the "Phelan Pit"), which is subject to a registration under the *Environmental Protection and Enhancement Act*, R.S.A. 2000, c. E-12 ("EPEA") and is not a part of this appeal. The Approval authorizes the Approval Holder to construct flood protection works to protect the Phelan Pit from a "pit capture" event, which occurs when a river floods a pit. Further, under the Approval, as part of the reclamation of the Phelan Pit, the Approval Holder is to construct and maintain an end pit lake as part of the pit's reclamation. Only the work under the Approval is the subject of this appeal.

[3] The Board received a Notice of Appeal from Mr. Lars Larsen (the "Appellant"), who owns land near the Site and uses the natural resources in the area, including the Freeman River, personally and for his hunting and fishing outfitting business.

[4] The Board held an oral hearing to consider the following issues:

1. Will the construction and maintenance of the end pit lake and river flood protection works, as allowed under the Approval, impact surface water quality and quantity, including but not limited to the Freeman River and the end pit lake itself, and the aquatic resources in the Freeman River?

2. Will the construction and maintenance of the end pit lake and river flood protection works and the mining operations impact groundwater quantity and quality?

3. Are the terms and conditions of the Approval reasonable to protect the surface water and groundwater in the area and the aquatic environment in the Freeman River?

## II. BACKGROUND

[5] On June 11, 2009, the Approval Holder applied to Alberta Environment and Parks ("AEP") for the Approval.

[6] On March 18, 2010, the Approval Holder submitted a consolidated report containing applications and supporting documents for the Approval, the Pit Registration, and the Development Permit to AEP.

[7] Public notice of the Approval application was published in May 2010.

[8] On May 31, 2010, the Approval application was referred to AEP's River Hazard Specialist, who raised concerns regarding the effectiveness of the proposed flood mitigation structures and potential bank erosion.

[9] Between May and August 2010, AEP received Statements of Concern from seven members of the public, three of whom were determined by the Director to be directly affected by the potential Approval (the "SOC filers").

[10] On June 20, 2011, AEP notified the Approval Holder it had the responsibility to respond to the SOC filers, and asked the Approval Holder to advise AEP how it planned to address the concerns that were raised.

[11] The concerns raised by the SOC filers included:

(a) the end pit lake and the flood protection works would be located in a floodplain where flood events could cause extensive damage;

(b) the Project could impact the surface water quality of the end pit lake;

(c) the end pit lake had the potential to have an adverse effect on other water users in the area;

(d) the end pit lake could have a negative impact on fish in the Freeman River;

(e) the end pit lake had the potential to have an adverse effect on groundwater quantity; and

(f) there was a potential for groundwater contamination arising from the Project.

[12] In October 2011, in response to the concerns expressed by AEP's River Hazard Specialist, the Approval Holder submitted a revised Project design that included the construction of a rock trenchfill structure in the areas that were most at-risk of channel migration.

[13] On November 7, 2011, AEP notified the Approval Holder of the following:

(a) the revised flood protection works design would be included as part of the application;

(b) notice would be given to SOC filers of the change to the application;

(c) the Approval Holder was to respond to concerns raised by the SOC filers and advise AEP of the responses; and

(d) there were outstanding items AEP was waiting to receive from the Approval Holder.

[14] On November 29, 2011, the Approval Holder responded to the SOC filers' concerns with:

(a) information on the revised flood protection works;

(b) data from groundwater modelling showing groundwater levels would remain static; and

(c) a groundwater analysis demonstrating sufficient groundwater will flow through the end pit lake and filter into the Freeman River with no impact on surface water, fish, or area water wells, and there would be no contamination of groundwater.

[15] On November 29, 2011, the Appellant requested further information from the Approval Holder, who responded on January 23, 2013, indicating:

"(1) the end pit lake will be sustained by groundwater naturally, and algae growth is not expected to be a concern,

(2) Mr. Larsen's well and dugout are located approximately 3 km away from the extreme northwest corner of the end pit lake, and unlikely to be affected,

(3) monitoring wells are installed to record the water levels of the Phelan Pit, and adjustments will be made if necessary, and

(4) in stream flow measures used by Lafarge for the Freeman River are based on flow data collected by Water Survey of Canada at the Highway 658 gauging station since 1965."[1]

[16] On November 27, 2014, the Approval Holder provided AEP the outstanding information requested on November 7, 2011. The Approval Holder stated it would monitor groundwater around the perimeter of the Project, and monitor the flood protection works annually.

[17] On August 12, 2015, the Director issued EPEA Registration No. 252845-00-00 to the Approval Holder for construction, operation, and reclamation of the gravel pit in relation to the Project.

[18] On August 14, 2015, the Director issued the Approval to the Approval Holder for the purposes of constructing and maintaining the end pit lake and construction to the flood protection works.

[19] On August 28, 2015, the Board received a Notice of Appeal from the Appellant appealing the Director's decision to issue the Approval.

[20] On August 28, 2015, the Board wrote to the Appellant, the Approval Holder, and the Director (collectively, the "Parties") notifying the Approval Holder and Director of the appeal and requesting the Appellant provide further information about the appeal. The Appellant provided the additional information on September 21, 2015.

[21] The Board held a mediation meeting with the Parties on December 14, 2015, in Edmonton. The mediation was conducted by a member of the Board trained in mediation.[2] An interim resolution was reached and discussions continued between the Parties.

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[1] Director's Record, at Tab 42.

[22] On September 17, 2016, the Approval Holder requested the matter proceed to a hearing. The Board granted the request, and asked the Parties to advise the Board of any preliminary motions they wished to raise prior to the hearing. The Approval Holder, submitted two preliminary motions:

(a) the Board dismiss the Appellant's appeal on the basis he was not directly affected by the Director's decision to issue the Approval; and

(b) the Board determine the issues to be heard at the hearing.

[23] The Board requested and received written submissions from the Parties on the preliminary motion between October 28, 2016, and December 9, 2016.

[24] On August 28, 2018, after reviewing the Notices of Appeal and the submissions provided by the Parties, the Board determined the Appellant was directly affected by the Director's decision to issue the Approval, and set the issues for the hearing as follows:

1. Will the construction and maintenance of the end pit lake and river flood protection works, as allowed under the Approval, impact surface water quality and quantity, including but not limited to the Freeman River and the end pit lake itself, and the aquatic resources in the Freeman River?
2. Will the construction and maintenance of the end pit lake and river flood protection works and the mining operations impact groundwater quantity and quality?
3. Are the terms and conditions of the Approval reasonable to protect the surface water and groundwater in the area and the aquatic environment in the Freeman River?[3]

[25] On January 14, 2019, the Appellant requested the Board award interim costs. On April 4, 2019, after hearing from the Parties, the Board issued a letter awarding interim costs of

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[2] In accordance with the Board's mediation policy, the member who conducted the mediation did not have any further involvement with this appeal.

[3] Preliminary Motions Decision: *Larsen* v. *Director, Red Deer-North Saskatchewan Region, Alberta Environment and Parks*, re: *Lafarge Canada Inc.* (28 August 2018), Appeal No. 15-021-ID1 (A.E.A.B.).

$7,890.75 to the Appellant for legal and expert costs related to the preparation of expert reports, as well as for preparation and attendance at the hearing.[4]

[26] The Board requested and received expert reports and written submissions from the Parties on the issues for the hearing between February 1, 2019 and April 23, 2019.

[27] On April 25, 2019, the Approval Holder raised three preliminary motions to be determined at the hearing:

> "1. Whether certain portions of Mr. Makowecki's evidence will be admitted.
>
> 2. Whether the statements by the individual non expert parties will be admitted (submitted by L. Larsen and included in his written submissions), including the statement and proposed witness Duane Radford.
>
> 3. Whether the additional technical report, written in 2016 and updated subsequently, by David Mayhood will be admitted and Mr. Mayhood will be permitted as a witness. It would appear Mr. Mayhood is being put forward as a technical witness but his evidence is only brought up in rebuttal and, Lafarge's position, is that it is not proper rebuttal and could have been produced in the time frame for other expert witness reports."[5]

[28] On April 26, 2019, the Board notified the Parties there would be an opportunity to raise any preliminary motions, and respond to them, at the beginning of the hearing.

[29] The Board held an oral hearing on April 30, 2019, in Edmonton, Alberta.

## III. PRELIMINARY MOTIONS

[30] At the start of the hearing, the Approval Holder raised three preliminary motions related to the admissibility of evidence, as identified in the Approval Holder's April 25, 2019, letter. These preliminary motions were:

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[4] Interim Costs Decision: *Larsen* v. *Director, Red Deer-North Saskatchewan Region, Alberta Environment and Parks*, re: *Lafarge Canada Inc.* (4 April 2019), Appeal No. 15-021-DL1 (A E.A.B.), 2019 AEAB 8.

[5] Letter from the Approval Holder, April 25, 2019.

1. Whether certain portions of Mr. Makowecki's evidence will be admitted.
2. Whether the written statements by the individual non-expert parties, submitted by the Appellant and included in his written submissions, will be admitted, including the statement and testimony of Duane Radford.
3. Whether the additional technical report, written in 2016 and updated subsequently, by Mr. Mayhood will be admitted and Mr. Mayhood will be permitted as a witness.

[31] When determining the admissibility of evidence, the Board refers to Rule 25 of its Rules of Practice, which reads:

> "The Presiding Board Member shall admit any relevant oral or documentary evidence (such as hearing statement) that is not privileged. Relevant evidence means evidence having any tendency to make the existence of any fact that is of consequence to the determination of the appeal more probable or less probable than it would be without the evidence. The Presiding Board Member may, however, exclude evidence if its probative value (the matter that it is providing proof of) is substantially outweighed by: the danger of unfair prejudice; confusion of the issues; or considerations of undue delay, waste of time, or needless presentation of repetitious evidence.
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> The fact that evidence is deemed admissible does not mean that it will be determinative of the issue."[6]

[32] Further, as a general principle, the Board will assign greater weight to evidence that can be tested by cross-examination than to evidence that cannot be tested by cross-examination.

**Preliminary Motion 1**

[33] The Approval Holder submitted that Mr. Makowecki's January 21, 2019 report commented on matters outside of the scope of the hearing, and those comments should be struck from the report before the report is entered as evidence.

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[6] Environmental Appeals Board Rules of Practice, Rule 25. <http://www.eab.gov.ab.ca/rules.htm#Rule25>.

[34] The Director agreed with the Approval Holder that the portions of Mr. Makowecki's report that were not relevant to the issues set by the Board should be struck from the report or, alternatively, the Board should give them no weight in the appeal.

[35] The Appellant argued the portions of Mr. Makowecki's report objected to by the Approval Holder are relevant to the issues set by the Board and should remain as evidence.

[36] The Board denied the motion to strike portions of Mr. Makowecki's report. The Board notes it is capable of determining what evidence was relevant and assigning the appropriate weight. The Board gave no weight to comments in Mr. Makowecki's report that were not within the scope of the appeal.

**Preliminary Motion 2:**

[37] The Approval Holder stated the letters of support authored by the Appeal Supporters and included in the Appellant's written submissions should not be considered by the Board as evidence. The Approval Holder argued the Appeal Supporters were not appellants, the Appeal Supporters had not been put forward as expert witnesses, and only one Appeal Supporter was proposed to be a witness and would be available for cross-examination. The Approval Holder also argued the letters dealt with general observations and were irrelevant, unreliable, and addressed issues that were outside the scope of the hearing.

[38] The Appellant submitted the letters of support were relevant to the issues to be considered in the hearing and spoke to the facts that were of consequence in the determination of the appeal. The Appellant stated the letters were important for context and addressed matters of public interest. The Appellant argued the Board should consider the letters and determine the appropriate weight to assign them.

[39] The Board permitted the letters to remain as part of the appeal record, and said it would assign the appropriate weight. The Board notes that, with the exception of Mr. Radford, none of the other Appeal Supporters were present to give evidence, and accordingly gave no weight to the letters authored by these Appeal Supporters.

**Preliminary Motion 3**

[40] The Approval Holder objected to Mr. Mayhood's inclusion as a witness on the grounds he was not initially listed as a witness by the Appellant in its initial written submission and was not mentioned as a witness until the Appellant's rebuttal submission was provided to the Board and the other Parties seven days before the hearing. Therefore, the Approval Holder and the Director did not have an adequate opportunity to prepare a response to the Mr. Mayhood and his report.

[41] The Appellant argued the Approval Holder and the Director should not have been surprised by the inclusion of Mr. Mayhood as a witness at the hearing, as his report was included in the Appellant's written submissions, filed on April 23, 2019.

[42] The Board was concerned Mr. Mayhood's inclusion as a witness was a surprise to the Approval Holder and the Director, and there was not sufficient notice to prepare for his testimony, which put the Approval Holder and the Director at an unfair disadvantage. The Board decided Mr. Mayhood could not present evidence at the hearing due to the lack of notice to the Approval Holder and the Director, but his written report could remain as part of the appeal record as it was previously submitted to the Board as part of the Appellant's Rebuttal Submissions and, therefore, the Approval Holder and the Director had sufficient opportunity to review the report and respond to it at the hearing.[7]

## IV. SUBMISSIONS

### A. Appellant

[43] The Appellant stated he and his family live on land located along the Freeman River, close to the Site. The Appellant raises livestock, uses pasture, fishes in the river, and operates a hunting and fishing outfitting business, Freeman River Adventures, on the land and the river.

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[7] David W. Mayhood, "Overview of Alluvial River, Riparian, & Watershed Ecological Function with Comments on the Effects of Gravel Mining" 2016, Technical Note No. 2016/12-1, Freshwater Research Limited.

[44] The Appellant submitted the pristine condition of the Freeman River makes his business feasible as the river supports wildlife and fish habitat that are the source of his livelihood.

[45] The Appellant stated his family relies on a groundwater-fed water well and dugout for their water needs.

[46] The Appellant claimed several concerned citizens and organizations support his appeal of the Approval.[8]

[47] The Appellant stated he relied on the information provided in the letters of support from these citizens and organizations (collectively, the "Appeal Supporters") which made up part of his submission to the Board.

[48] The Appellant explained the Project is located on private land adjacent to the north bank of the Freeman River, with the end pit lake located partially on the Freeman River floodplain. The Appellant stated the floodplain is fed by groundwater from the river, and is crucial for the fish, wildlife, birds, and vegetation which rely on the river.

[49] The Appellant noted the Project is located in an area designated by AEP as a Key Wildlife Biodiversity Zone.[9]

[50] The Appellant stated constructing and operating an end pit lake in the Freeman River floodplain would create a risk to the river's aquatic organisms and riparian environment, and would impact the groundwater quality and quantity in the area.

[51] The Appellant submitted aggregate extraction in riparian areas or natural water bodies have long concerned government biologists, environmental organizations, and

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8 The Appellant submitted to the Board letters of support from the following: Mr. Carl Hunt (retired Fisheries Biologist); Mr. Duane Radford (American Fisheries Society, Certified Fisheries Scientist); Mr. Jim Stelfox (Fisheries Biologist); Ms. Donna Mendelsohn; Ms. Marilou Montemayor, P.Ag.; Mr. Bob Sandford, EPCOR Chair, Water and Climate Security at United Nations University for Water, Environment, and Health; Northern Lights Fly Fishers, a chapter of Trout Unlimited Canada; Butte Action Committee; and the Alberta Wilderness Association.

9 A Key Wildlife Biodiversity Zone is an area designated as "key winter ungulate habitat and a higher habitat potential for biodiversity." < https://open.alberta.ca/dataset/5c6e2826-50ab-4d2a-a673-9d703d6b5c52/resource/d8d1b2e9-3a72-471d-9479-56db5ee68210/download/keywildlifebiodiversityzones-apr08-2015.pdf >

individuals. The Appellant quoted from an e-mail dated August 22, 2009 from Mr. Richard Quinlan, a former Edson Habitat Biologist as follows:

> "During my 11 years there I had been quite involved, and whereas there were some existing approvals from AE [Alberta Environment] in the Macleod River, we had been advising AE against it (citing Can[adian] Fish[eries] Act) and they had not been approving instream during the late 1980s/early 1990s. But they sure took them close (a couple of steps away!). Even then people were unwilling to designate what was the active river channel, and some operations 'outside' the channel were subsequently flooded when high flows occurred. Sometimes these resulted in long-term alterations of the river channel - either diversions into side channels or establishment of wide shallow riffles in the main channel…
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> General Riparian Concerns: Regardless of the natural subregion, riparian floodplains always represent areas of relatively high biodiversity, and this is reflected in the wildlife associated with these areas... My main point here is that even where aggregate projects are OUTSIDE the channel, wildlife staff have concerns, and would need involvement."[10] [*emphasis added by the Appellant*]

[52] The Appellant stated evidence showed a river or water body during a flood can inundate adjacent gravel pits and end pit lakes located on floodplains. The Appellant quoted Mr. Carl Hunt, a retired fisheries biologist, as follows:

> "Over the past 50 years, I have observed gravel pits in the McLeod River floodplain that have flooded, scoured and changed the river channel, often leaving wide, shallow reaches with increased velocity with poor habitat for native salmonids...
>
> Gravel operations on the McLeod River have been flooded in the past, causing river channel degradation from pits near Cadomin, Steepler, Marlboro, Edson, Rosevear, Peers, Shiningbank and at Whitecourt but none of these past failures (or others in the watershed) have been monitored or the damage measured, prior to approving new gravel mining operation."[11]

[53] The Appellant noted the Approval requires flood protection works be in place during the mining process with no obligation for the Approval Holder to maintain the river

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[10] *Written Submission and Argument of the Appellant,* March 29, 2019, (the "Appellant's Submissions, March 29, 2010") at Tab I.

[11] Appellant's Submissions, March 29, 2019, at Tab A.

protection works after the Project is reclaimed by the construction of the end pit lake. The Appellant referred to letters of support from Mr. Duane Radford, Mr. Hunt, Mr. Jim Stelfox, and the Butte Action Committee, detailing flood events in other end pit lakes, the environmental damage that occurred, and the lack of provisions in approvals requiring the approval holder to be responsible for any aquatic organisms captured in the end pit lake during a flood event.

[54] The Appellant's witness, Mr. Radford, testified at the hearing about the pit capture that occurred at the Mixcor pit, along the North Saskatchewan River, near the Town of Devon. Mr. Radford said pit capture is a regular occurrence on Alberta's rivers that results in death for fish due to the sediment and hydrocarbons that are released from the pit and discharged into the river. Mr. Radford stated it was inevitable the buffer between the Project's end pit lake and the river will become saturated with water, and the Freeman River will cut a channel through it.

[55] The Appellant submitted his experts, Dr. Jonathan Fennell, a Hydrogeologist and Geochemist, and Mr. Ray Makowecki a Senior Scientist and Principal of EnviroMak Inc., have expressed concern regarding the Project, specifically regarding the end pit lake construction and operation, the flood protection, the gravel mining operation relating to groundwater impacts, and the ability of the Approval to address impacts the Project may have on the environment.

[56] The Appellant stated Dr. Fennell, in his January 31, 2019 submission to the Board (the "Fennell Report")[12] noted the following concerns with the 2010 groundwater modelling report by WNM Environmental Ltd. (the "WNM Report")[13] relied upon by the Director in granting the Approval:

> (a) geological layers shown are not an accurate representation of the actual geologic and hydrologic conditions of the Site;

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12 Dr. Jonathan Fennell, "Submission to the Environmental Appeal Board," January 31, 2019, (the "Fennell Report").

13 Director's Record at Tab 59.

(b) the values used in the modelling do not accurately represent the actual site tested values;

(c) WNM did not address where excess water from the end pit lake will go; and

(d) WNM did not consider the impact of future climate change.

[57] The Appellant submitted Dr. Fennell had other concerns regarding the Project and the Approval, including the following:

(a) uncertainty regarding the end pit lake's future interaction with the Freeman River;

(b) there is no requirement in the Approval for an assessment of future water quality in the end pit lake, and there is a possibility of seasonal thermal stratification[14] in the deeper portions of the lake;

(c) without a geochemical assessment to determine water quality, there is no evidence the water quality will be sufficient to prevent risk to fish and other aquatic organisms in the Freeman River;

(d) the river protection works are not sufficient to prevent future flooding of the pit by the Freeman River, and the impacts of such an event have not been adequately assessed by the Approval Holder;

(e) the historical geographical evidence shows the end pit lake area and floodplain is susceptible to channel migration risk, which will not be stopped by the Project's protection works;

(f) no assessment of how the Project's dewatering[15] works may impact the Freeman River;

(g) no field-verified survey on the impact of the Project on fish and fish habitat in the Freeman River; and

(h) a monitoring and assessment plan required by the Approval has not been submitted by the Approval Holder, leading to concerns Alberta taxpayers may end up with a financial burden due to inadequate planning, response, and reclamation efforts.

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[14] "Seasonal Thermal Stratification" occurs when a lake develops two layers of water of different temperatures: warm on top and cold below. < http://www.aquatic.uoguelph.ca/lakes/season/page1.htm>.

[15] "Dewatering is the process of draining an excavated area that is flooded with rain water or ground water before construction can start." <http:www.tenchlesspedia.com/definition/2495/dewatering>.

[58] The Appellant submitted, in Dr. Fennell's view, the Approval is based on information that is not representative of the actual conditions on the Site and, therefore, the Approval should not have been issued by the Director.

[59] That Appellant stated Mr. Makowecki reviewed the Approval Holder's assessment of the Project's environmental risks and noted his concerns with the Approval in his report dated January 30, 2019 (the "Makowecki Report"),[16] as follows:

> "(a) Site specific current information on fish, aquatic organisms and their habitats in the project area was not assessed. Normally, regulators require site specific information for construction in or near floodplains. Onsite, adjacent, downstream and upstream assessments of risk are necessary in order to understand environmental impacts from changes to surface water quality or quantity.
>
> (b) Several fish species, such as Arctic Grayling, Mountain whitefish, and all trout species, present in the Freeman River, are considered to be at high risk requiring protection of their habitat, rigorous assessments and protective conditions and regulations to minimize the risk to them and their habitat.
>
> (c) Development activities in floodplains could result in increased risk of sedimentation and contamination downstream, especially considering the changes in drainage patterns that are anticipated. Sediment is a deleterious substance that is toxic to fish.
>
> (d) Due to the connectivity between groundwater and water levels in the Freeman River, a reduction in winter flows as a result of dewatering and the connectivity of the river with the groundwater poses considerable risks downstream. The 2009 Golder report[17] confirms a risk to minimum flows in the Freeman River and suggests monitoring as a way to obtain more information on possible reduction in flows.
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> (e) The construction and operation of the end pit lake has the potential to introduce heavy metals into the groundwater and eventually the Freeman River. The connectivity of the groundwater and the Freeman River brings into question the possibility of interchange of heavy metals and other contaminants between the river and the groundwater

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16 Ray Makowecki, January 30, 2019.

17 "Freeman River Flood Risk Mitigation" (the "2009 Golder Report"), completed by Golder Associates Ltd. for the Approval Holder. See Director's Record at Tab 80.

which could have adverse consequences for aquatic organisms living in the river and the floodplain environment.

(f) Larger buffers and avoidance of floodplains would reduce the environmental risk.

(g) While dewatering measures and various groundwater barriers are useful mitigation measures, such measures are more appropriately employed outside of the floodplain environment.

(h) The environmental risks associated with water chemistry and invasive species should be addressed in the development plan at the outset as there may be economic implications attached to it.

(i) Monitoring as a means of addressing site stability is not sufficient due to failures of such monitoring measures in other developments in the floodplain areas of Alberta. There are recorded failures regarding extraction of gravel in floodplains in Alberta."[18]

[60] Mr. Makowecki concluded the end pit lake was too close to the river and the potential flood waters. Mr. Makowecki noted the risk of sedimentation, contamination, and minimization of critical flows from the construction and operation of the end pit lake in the flood plain, could be reduced by moving the Project outside of the floodplain area.

[61] The Appellant argued the Approval will impact water quality in the Freeman River, the end pit lake, and the Athabasca River, as well as the quality and quantity of groundwater which discharges into the Freeman River.

[62] The Appellant expressed concern the Project will increase the chances of channel migration, impacting the amount of arable land he has to farm and for his stock to graze on, and could impact his home, which is closer to the Freeman River after a recent channel migration during a flood in 2011.

[63] The Appellant submitted the Approval Holder did not assess or model the impacts the construction and operation of the end pit lake would have on water quality in the Freeman River and the end pit lake.

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[18] Appellant's Submissions, March 29, 2019, at paragraph 40.

[64] The Appellant stated the 2009 Golder Report, "Freeman River Flood Risk Mitigation", (the "2009 Golder Report")[19] completed by Golder Associates Ltd. ("Golder") for the Approval Holder, gave examples of other pit lakes to support its flood mitigation strategy for the Approval Holder's Approval application. However, the Appellant claimed the pit lakes described in the 2009 Golder Report were too different from the Project's end pit lake to be relevant comparisons.

[65] In his report, Dr. Fennell expressed concern regarding the risk of a potential discharge of anoxic[20] and contaminated water in the Freeman River. The Appellant submitted if the Approval Holder had undertaken a geochemical modelling of the end pit lake and its interaction with the Freeman River, the risk to water quality and potential migration from the end pit lake to the river would have been assessed.

[66] Dr. Fennell disagreed with the 2009 Golder Report's statement that risk to the Freeman River from dewatering during decreased flow periods is small due to the river having a long drainage path. Dr. Fennell pointed out the interception of water from the river during the low flow period will impact the surface water and groundwater discharging to the river, and affect the aquatic habitat and the temperature regulation and nutrient transfer of the river.

[67] The Appellant referenced the Makowecki Report, which identified the existence of high risk fish species in the Freeman River. The Appellant suggested it is unknown if there are other sensitive and endangered species in the Freeman River, as the Approval Holder did not conduct risk assessment studies for the Project. The Appellant stated a site-specific assessment would have provided a better understanding of the type, quantity, and habitat of aquatic organisms in the Freeman River and wildlife usage of the surrounding area, and it would have made available valuable information on the

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[19] Director's Record at Tab 80.

[20] "The term *anoxic* is used to describe a condition or an environment that lacks oxygen, as *anoxic water* which is devoid of oxygen…." <https://www.biology-online.org/dictionary/Anoxic>.

environmental risks from the Project, including changes in the drainage pattern from the end pit lake construction or a flood event.

[68] The Appellant stated Mr. Quinlan addressed the importance of conducting a site-specific survey as part of the application process for an approval under the *Water Act*. Mr. Quinlan is quoted as follows:

> "Gravel extraction, whether in active channel or not, could impact these species [non-fish Endangered or Threatened and Sensitive species with river or floodplain habitat associations]. In areas in or near their known distribution, our wildlife staff would generally require pre-development surveys for species presence and habitat availability, and if there is potential for impact they would either recommend against the project or else request an experienced consultant to be retained by the applicant to design mitigation measures. This would likely include monitoring during the life of the project. There would likely also be a request for special design at the reclamation stage to maintain or improve habitat."[21] [*emphasis added by the Appellant*]

[69] The Appellant stated the Approval Holder did not conduct a pre-development survey for the Project, and there is no baseline information to analyze and assess the impact of the Project on sensitive, at risk, endangered or threatened species that reside in the Freeman River habitat. The Appellant submitted the requirement of a site-specific assessment or pre-development survey is a significant omission from the Approval.

[70] The Appellant argued the omission of a site-specific assessment is inconsistent with AEP's Surface Water Body Aggregate Policy Implementation Guidance Document ("SWBAP"),[22] which was available at the time the Approval was issued, and should have been considered by the Director. The Appellant noted SWBAP requires project proponents to engage in baseline data collection and provide the results in the approval application. The Appellant submitted the Director failed to require the Approval Holder to comply with the baseline data collection requirements in SWBAP, and issued the Approval without the necessary survey of fisheries and

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[21] Appellant's Submissions, March 29, 2019, at paragraph 57.

[22] Director's Record at Tab 119.

other aquatic organisms in the Freeman River and in the end pit lake that will be adversely impacted by the Project.

[71] The Appellant questioned whether the Director considered or upheld the precautionary principle, as stated by the Supreme Court of Canada in *114957 Canada Ltee (Spraytech, Societe d'arrosage)* v. *Hudson (Town)*:

> "In order to achieve sustainable development, policies must be based on the precautionary principle. Environmental measures must anticipate, prevent and attack the causes of environmental degradation. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation."[23] [*Emphasis added by the Appellant.*]

[72] The Appellant submitted the Director relied on the WNM Report, which Dr. Fennell had expressed concerns regarding the inadequacy of the flood protection works. The Appellant stated the Fennell Report showed the dewatering activities and construction of the end pit lake are likely to contaminate the groundwater which interacts with the Freeman River and Athabasca River.

[73] The Appellant noted Mr. Makowecki had concerns the Project would introduce heavy metals from the gravel operations into the groundwater and surface water, and would generate sedimentation which can have a significant adverse impact on fish and fish habitat. Mr. Makowecki recommended the Board consider varying the Approval to include a larger buffer around the Project, and moving the Project off the flood plain to reduce environmental risks.

[74] The Appellant submitted the adverse impacts on groundwater quality and quantity will impact his livelihood, and he was concerned the river protection works will cause new channels to be created on his property. The Appellant stated Dr. Fennell and Mr. Makowecki shared his concerns.

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[23] *114957 Canada Ltee (Spraytech, Societe d'arrosage)* v. *Hudson (Town)*, [2001] 2 S.C.R. 241, 2001 SCC 40, at paragraph 31.

[75] The Appellant argued the adverse impacts to groundwater quality and quantity, to the aquatic ecosystem, and his family and livelihood, can only be mitigated by locating the Project outside of the floodplain and the alluvial aquifer. The Appellant acknowledged moving the Project would require the cancellation of the Approval.

[76] The Appellant submitted the terms and conditions of the Approval are insufficient to protect the surface water and groundwater and the environment. The Appellant noted the Approval requires the Approval Holder to construct bank protection works and an end pit lake, which Dr. Fennell reported should not be located in the erosion hazard area, the avulsion hazard zone, and the general river channel migration zone due to the lack of river protection in the Approval's terms and conditions.

[77] The Appellant quoted from the SWBAP at page 14, regarding river protection works:

> "Generally these works are expensive to construct, require a great deal of maintenance, are likely to fail or be abandoned when the water course moves, rendering them useless, or will cause impacts elsewhere. In general these artificial structures can have significant environmental impacts. Some examples of hard engineering are river bank armouring, dams or flood storage reservoirs, groynes, revetments, channel deepening and straightening, and dykes.
>
> Although most of the adverse impacts can be predicted and mitigated, the long term maintenance issue is difficult to address by non-governmental entities. If the structures are required after reclamation of the pit, there is no assurance that maintenance will continue. Therefore hard engineering should not be considered appropriate mitigation if the structure will still be required after reclamation." [*emphasis added by the Appellant*]

[78] The Appellant stated the Approval prohibits undertaking the end pit lake and river protection works construction in any way that may cause an adverse effect on the aquatic environment, human health, or public safety. The Appellant submitted this cannot be implemented without proper assessments that adequately measure the impact of the Project on the aquatic environment, which the Approval does not require.

[79] The Appellant stated the Approval prohibits the unauthorized discharge of water from the end pit lake to any off-site watercourses. The Appellant submitted that, despite the prohibition, there will be discharge from the end pit lake into the Freeman River without any prior authorization from the Director.

[80] The Appellant noted the Approval requires the Approval Holder to monitor the Project and repair any erosion that occurs until a Reclamation Certificate is issued by the Director. The Appellant stated Dr. Fennell's reports found the entire floodplain area showed evidence of erosional features, suggesting multiple erosion events will occur during the Project's operation and after the Reclamation Certificate is issued, and a flooding of the end pit lake is inevitable.

[81] The Appellant submitted that, after a Reclamation Certificate is issued, liability for any repairs of erosion transfers from the Approval Holder to the Alberta taxpayer. The Appellant argued if the Board allows the Approval in some form, the Approval Holder and its successors should be held liable for erosion after the Reclamation Certificate is issued, or should be required to post a post-reclamation bond.

[82] The Appellant argued the Approval requires the Approval Holder to minimize siltation and erosion of the water body as a result of the Project. The Appellant submitted no level of siltation as a result of the Project is acceptable.

[83] The Appellant noted the Approval requires the Approval Holder to annually monitor the river banks for signs of erosion along the Project's boundary, monitor groundwater levels, and submit and implement a Monitoring Program Proposal to the Director by May 1, 2017. The Appellant submitted the Approval Holder has not complied with the Approval's requirement for submission of a Monitoring Program Proposal and, therefore, the Approval should be cancelled.

[84] The Appellant stated evidence provided by Mr. Makowecki and Ms. Mendelsohn shows the monitoring does not effectively mitigate the risks to the environment that arise from gravel mining and constructing an end pit lake and flood protection works in

a floodplain close to a sensitive water course. The Appellant maintained the most effective mitigation would be to move the Project out of the floodplain.

[85] The Appellant submitted he was not against industry, but he believed plans for industrial development needed to be thorough, and the Approval Holder's Project and the Approval were poorly planned.

[86] The Appellant stated the magnitude of the risk, and the lack of baseline information and assessments, demonstrate the terms and conditions of the Approval are insufficient to address the impacts of the Project.

[87] The Appellant submitted the Director, in making the decision to issue the Approval, used flawed information that did not accurately represent the existing site conditions. The Appellant submitted the Board should recommend to the Minister the decision to issue the Approval be reversed.

**B. Director**

[88] The Director submitted he considered the following in making the decision to issue the Approval:

(a) The Approval Holder's application, technical reports, plans and updated information;

(b) statements of concern and the Approval Holder's responses to those concerns;

(c) referral comments from AEP's River Hazard Specialist;

(d) internal memo;

(e) confirmation the development permit was issued by Woodlands County on July 8, 2015; and

(f) relevant AEP policy documents.

[89] The Director explained the *Water Act* requires him to consider any applicable water management plan when making the decision to issue an Approval, however, there is no approved water management plan for the area where the Project is located.

[90] The Director quoted sections 38(2)(b) and (c), from the *Water Act*, which provide the Director:

> "(b) may consider any existing, potential or cumulative
>
> (i) effects on the aquatic environment,
>
> (ii) hydraulic, hydrological and hydrogeological effects, and
>
> (iii) effects on household users, licensees and traditional agriculture users, that result or may result from the activity, and
>
> (c) may consider
>
> (i) effects on public safety, and
>
> (ii) any other matters applicable to the approval that, in the opinion of the Director, are relevant."

[91] The Director stated when reviewing an application for an approval under the *Water Act*, the following general process is applied:

> "(1) Review the application for administrative completeness
>
> (2) Review the application for completeness of information
>
> - If insufficient information, the Director or Approvals Coordinator sends a supplemental information request (SIR) to the applicant
>
> (3) Require public notice if applicable
>
> - If Statements of Concern (SOCs) are received
>
> a. determine whether they are valid
>
> b. if valid, require the applicant to deal with those concerns
>
> (4) Assess the type and significance of potential and real impacts and determine whether and what internal referrals are needed
>
> - If needed, make referrals to Department subject matter experts and wait for the response

(5) Director reviews application, supporting documents, valid SOCs, Department referrals and recommendations, and applicable legislation, policies and standards

(6) Director decides whether to issue an approval or not

- If approval is issued, include the terms and conditions the Director considers appropriate

(7) Director notifies applicant and SOC filers of Director's decision."[24]

[92] The Director noted there is no legislative requirement to refer an application to an AEP subject matter expert, nor requirements as to which reports, surveys, or assessment an approval applicant must submit. The Director stated he has the discretion to require an applicant to submit further information or reports if needed.

[93] The Director argued the Appellant's submissions regarding dewatering of the pit, the SWBAP, AEP policy, posting a post-reclamation bond, and statements from other individuals and organizations, are all outside the Board's jurisdiction and the scope of the appeal.

[94] The Director stated the onus of proof is on the Appellant to establish the Director's decision should be reversed or varied. The Director argued the Appellant must provide evidence that is related to the issues set by the Board for the appeal, and demonstrate:

(a) the Project will impact surface water quality or quantity (Issue 1);

(b) the Project will impact groundwater quantity and quality (Issue 2);

(c) the terms and conditions of the Approval are not sufficient to protect the surface water and groundwater in the area and the aquatic environment in the Freeman River (Issue 3).

[95] The Director submitted not liking a decision and proposing additional and unnecessary studies is not evidence, and the Appellant's concerns are speculative.

[96] The Director stated the Appellant's experts, Dr. Fennell and Mr. Makowecki, have requested the Approval Holder provide additional reports and studies, including:

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[24] *Director's Written Submissions*, April 12, 2019, (the "Director's Submissions, April 12, 2019") at paragraph 52.

(a) geochemical assessment and modelling;

(b) site-specific assessments/pre-development surveys on aquatic organisms and wildlife usage, including onsite, adjacent, downstream and upstream risk assessments;

(c) likelihood of seasonal thermal stratification assessment;

(d) pre-development surveys;

(e) hydrological, geological, hydrogeological, and climate assessments; and

(f) erosion repair activity risk assessment.

The Director noted the additional studies and assessments proposed by the Appellant are beyond what he generally requires for applications for construction of an end pit lake or flood protection works, and the Appellant has not provided evidence to justify holding the Approval Holder to a higher standard than other approval applicants for similar activities.

[97] The Director submitted the Appellant's reports do not provide any evidence to support their claims. The Director argued the Appellant has not met the onus of proof for the three issues set by the Board.

[98] With respect to Issue 1, the Director stated there is no evidence in the Approval Holder's application or supporting documents to suggest any significant impact on surface water quality or water quality in the area as a result of the flood protection works or the end pit lake.

[99] The Director explained he reviewed the following documents in making his decision to issue the Approval:

(a) the Approval Holder's application, technical reports, and updates;

(b) valid statements of concern and the responses from the Approval Holder;

(c) AEP's subject matter experts' internal review and comments on the application; and

(d) relevant legislation and AEP guidelines and policy documents.

[100] The Director argued the end pit lake and flood protection works will not adversely impact the surface water quality in the Freeman River for three reasons:

(a) there will be no discharge of water overland from the end pit land to the Freeman River without the Director's authorization;

(b) a discharge of groundwater from the end pit lake to the Freeman River must travel 60 metres through gravel substrate, which acts as a natural filter, removing sedimentation; and

(c) flood protection works will prevent or mitigate flooding of the end pit lake during flood events.

[101] The Director said the Approval Holder's reports state fish and fish habitat in the Freeman River are expected to be unaffected by the flood protection works as there will be no in-stream work or bed and shore disturbance during construction.

[102] The Director noted the Approval Holder's reports identified a risk of lateral channel migration towards the gravel pit and end pit lake, but indicated the flood protection works would mitigate the risk of erosion and flooding.

[103] The Director explained the Approval Holder's Approval was referred application to the Department's River Hazard Specialist for assessment of the proposed flood protection works. The Director advised that after responding to the River Hazard Specialist's questions, the Approval Holder submitted a revised proposal to enhance the flood protection works. The Director submitted the flood protection works are designed to meet the 100-year flood design standard for development near Alberta water bodies. The Director noted the River Hazard Specialist had no concerns regarding the revised proposal.

[104] The Director argued he reasonably relied on the River Hazard Specialist's assessment and the reports from the Approval Holder.

[105] The Director stated he was satisfied the construction and maintenance of the end pit lake and the flood protection works would not have a significant adverse impact on surface water. The Director submitted the Appellant did not present evidence to suggest the Approval would adversely impact surface water or that mitigation measures would not adequately mitigate any potential impacts. The Director argued without such evidence it would be unreasonable to require the Approval Holder to conduct additional studies beyond what it has been required to do already.

[106] With respect to Issue 2, the Director submitted there was no evidence to suggest the Project will have any significant adverse impacts on the groundwater quantity or quality in the surrounding area.

[107] The Director stated the Approval Holder's reports concluded the aquifer contains sufficient groundwater to sustain water levels in the end pit lake with no impacts from the gravel mining on local water wells or the Freeman River from the gravel mining.

[108] The Director noted AEP's Guide to Groundwater Authorization[25] require a field-verified survey with a minimum radius of 1.6 kilometres for groundwater. The Director submitted that the Approval Holder's hydrogeology study went beyond the 1.6 kilometre radius of the Site and found 12 wells within the radius. The Director stated the report concluded the Project and end pit lake were unlikely to impact the groundwater quality and quantity in any of the wells, as they were all located in a lower gradient from the Site, and the wells were far enough away from the Site.

[109] The Director submitted the Approval Holder has implemented, or has plans to implement, recommendations from its consultant to monitor and address any potential adverse groundwater impact. These recommendations include:

(a) groundwater monitoring to assess groundwater conditions during the life of the pit;

(b) installation of piezometers around the periphery of the Project;

(c) the gravel between the end pit lake and the Freeman River to act as a natural filtration system for the discharged groundwater; and

(d) The Approval Holder is open to amending its reclamation plans to ensure the water levels are maintained, once more information is available.

[110] The Director noted the Approval Holder must have the Director's written authorization before any discharge of excess groundwater flow can occur.

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[25] Director's Record at Tab 121.

[111] The Director stated the Appellant raised concerns regarding the risk of groundwater contamination from sulfur exposed during the mining process and hydrocarbons spilling from the mining equipment. The Director noted the Approval Holder explained to the Appellant the likelihood of groundwater contamination was low because aggregate testing at the pit showed the aggregate deposit is mostly quartzite and quartz arenites, which are not acid-generating, and testing has not found any sulfur compounds in the rock.

[112] The Director submitted the Approval Holder outlined specific actions it would take to reduce the risk of hydrocarbon contamination of groundwater, including:

(a) designating a fueling/maintenance area with bermed edges for containment;

(b) removing any fuel spillage to an appropriate landfill for proper disposal;

(c) storing used oil in leak-proof containers and disposing the used oil at the proper recycling facility; and

(d) preparing an Environmental Site Manual outlining safety procedures if a spill occurs.[26]

[113] The Director stated, based on his review of the Approval Holder's application and the supporting documents, he was satisfied there would be no adverse impacts from the Project on groundwater quality and quantity, and any potential impacts would be adequately addressed by the Approval Holder's mitigation and monitoring actions.

[114] The Director said the Appellant's arguments regarding the Approval's adverse impact on groundwater quality or quantity were speculative and the Appellant did not provide evidence of the impacts alleged.

[115] The Director noted the Appellant claimed the Project would contaminate groundwater, but did not provide evidence that contaminants are present in the Site, any assessment of how they might be introduced to the groundwater, or how such contaminants could impact groundwater or the aquatic environment.

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[26] Director's Record at Tabs 37 and 42.

[116] The Director argued the Appellant offered no evidence on how sediment from the end pit lake could migrate in groundwater through the 60 metre gravel buffer to the Freeman River.

[117] The Director stated the Appellant proposed an increased buffer or removal of the end pit lake from the floodplain as a solution to the unsubstantiated allegations of impact to the groundwater. However, the Director submitted if the Board were to make such a recommendation to the Minister, it would be akin to a policy decision. The Director argued it would be unreasonable to hold the Approval Holder to a higher standard without evidence the Project is more likely to impact groundwater than what is considered acceptable by AEP policy.

[118] With respect to Issue 3, the Director submitted the surface water and groundwater in the area and the aquatic environment in the Freeman River are reasonably protected by the terms and conditions of the Approval.

[119] The Director stated the Project has been assessed and the Approval Holder may only engage in activities that have been approved by the Director.

[120] The Director argued the Approval contained several conditions that protect the surface water in the area, including:

(a) The Approval Holder must construct the flood protection works in accordance with the plans approved by AEP's River Hazard Specialist;

(b) The Approval Holder may not act in the construction of the Project in any manner, or use any material, that may cause an adverse effect on the aquatic environment, human health or public safety;

(c) The Approval Holder must monitor for and repair any erosion that occurs due to the Project until a Reclamation Certificate under EPEA is issued;

(d) The Approval Holder must have authorization from the Director to discharge surface water from the end pit lake into any watercourses off site;

(e) The Approval Holder must minimize siltation and erosion of the water body as a result of the Project; and

(f) The Approval Holder must monitor the banks of the Freeman River for signs of erosion, in accordance with the approved technical reports.

[121] The Director submitted the Approval Holder has an obligation under the Approval to actively protect the surface water in the end pit lake and the Freeman River from potential adverse impacts of the Project.

[122] The Director stated although there are no adverse impacts anticipated to neighbouring wells, the Approval requires the Approval Holder to cease gravel mining operations if there is a disturbance to neighbouring wells until testing proves the wells are no longer impacted.

[123] The Director noted the Approval Holder will monitor groundwater levels using groundwater monitoring wells located around the periphery of the Project, and a detailed Monitoring Program Proposal must be submitted to the Director.

[124] The Director submitted the Appellant has not provided any evidence the Project poses a risk to surface water, groundwater, or the aquatic environment, and has not demonstrated the Approval's terms and conditions are insufficient to address any of the concerns he alleged would occur.

[125] The Director stated the Appellant alleged the Approval did not protect the aquatic environment in the Freeman River and the Athabasca River, stating no level of siltation is acceptable. The Director submitted the end pit lake and the flood protection works will be constructed at least six metres back from the bank of the Freeman River, and the Director expected no siltation resulting from the construction. The Director argued the Approval provides additional protection to the surface water by requiring the Approval Holder to minimize any siltation and erosion that may occur as a result of the Project.

[126] The Director stated the Appellant misinterpreted section 3.0 of the Approval by claiming this condition imposes a requirement to construct bank protection works and an end pit lake, and claims it is insufficient because the Approval Holder will not be required to maintain these protective works. The Director explained section 3.0 is not related to construction or

maintenance, but is a statement ensuring certainty as to the location of the undertakings, which is a requirement under the *Water Act*.

[127] The Director acknowledged the Appellant is correct that there will be a discharge of groundwater from the end pit lake to the Freeman River, but the Director stated this was not inconsistent with other sections of the Approval. The Director explained groundwater is currently flowing through the Project area, and will continue along the same path after construction of the end pit lake, but this is not an action by the Approval Holder. The Director stated section 3.7 refers to surface water and prohibits the Approval Holder from discharging water overland to offsite watercourses unless the Director authorizes such action.

[128] The Director said the Appellant's evidence regarding pit capture events in other pits is not relevant as those events occurred on a different river, with a different pit, and with a different operator. The Director argued such anecdotal evidence is not proof that a similar event is inevitable for the Phelan Pit.

[129] The Director acknowledged every development will have some impact on the environment, and to demand a zero impact is to set an impossible standard. The Director stated he must balance the Legislature's decision to allow development that may impact the environment, while ensuring the activity is conducted and mitigated in such a manner that will minimize the impact. The Director submitted the mitigation conditions in the Approval reduce the risk of harm to the environment to an acceptable low level in keeping with the legislation and policies of AEP.

[130] The Director submitted the Appellant has provided no evidence to show more stringent conditions are required in the Approval, nor provided any reasonable suggestions for making the Approval more protective of the environment.

[131] The Director stated the balance of expert evidence demonstrates the decision to issue the Approval, and its terms and conditions, is reasonable.

[132] The Director requested the Board recommend to the Minister the Approval be confirmed.

## C. Approval Holder

[133] The Approval Holder submitted the Approval is protective of surface water and groundwater quality and quantity, and of the aquatic resources in the Freeman River. The Approval Holder stated the technical reports it provided as part of its application show the end pit lake and the flood protection works will not have a discernable impact on surface water or groundwater quality or quantity, or on the aquatic resources in the Freeman River. The Approval Holder said the reports reflect a conservative and protective approach to the construction of an end pit lake.

[134] The Approval Holder stated that on April 1, 2009, it provided the following documents and reports to AEP in its registration application for the Project:

(a) an email from AEP to the Approval Holder advising a Sand and Gravel Registration would not be issued until the applicant has a valid development permit and has begun the *Water Act* approval process;

(b) a groundwater assessment prepared by Westwater Environmental Ltd. in May, 2009 (the "Groundwater Assessment");

(c) a letter from the Approval Holder to AEP attaching the *Water Act* application;

(d) the *Water Act* application;

(e) the Land Title Certificate for SE 3-62-6-W5;

(f) the Corporate Search for Lafarge Canada Inc; and

(g) a technical memorandum from Dr. Nathan Schmidt, Principal, Senior Water Resources Engineer, Golder, regarding design considerations for the Freeman River bank protection plan at the Phelan Pit.

[135] The Approval Holder provided the *Water Act* approval application to AEP on June 3, 2009. The application stated:

(a) the primary purpose of the water body created in the end pit lake would be for recreational use with a beach for day use;

(b) the water body's size would be 79.00 hectares, with a full supply level at 609 meters above sea level with a maximum depth of 12 meters;

(c) the mining would occur within the groundwater aquifer and the Approval Holder would dewater the pit in order to expose gravel below the water table;

(d) The Approval Holder would not discharge the pit water offsite;

(e) the overburden from the groundwater recharge ponds would be used to create a five meter high berm around the ponds;

(f) as the gravel mining progressed, the water would be pumped into the previous cut or groundwater recharge ponds;

(g) the groundwater would not disturb groundwater levels as it would remain onsite; and

(h) the proposed water body would be fully sustainable.

[136] The Approval Holder stated the Groundwater Assessment considered topography and surface water, geology and hydrogeology, water well drilling, groundwater chemistry, potential effects on water wells and on the Athabasca and Freeman Rivers, and the sustainability of the end pit lake.

[137] The Approval Holder submitted the Groundwater Assessment concluded there would be no impact on the Freeman River or the Athabasca River from the groundwater transfer during the gravel operations because the Project would use a closed-loop system which would maintain the volume of water in the aquifer and the volume discharging to the rivers.

[138] The Approval Holder noted the Groundwater Assessment found the water levels in the end pit lake would be sustained by the flow of groundwater which would balance water lost to evaporation.

[139] The Approval Holder stated the 2009 Golder Report used a 1:100 flow[27] for its analysis. The Approval Holder noted the 2009 Golder Report recommended the Approval Holder construct a perimeter berm to prevent a pit capture event and establish a self-sustaining fishery in the end pit lake with species native to the Freeman and Athabasca Rivers.

[140] Golder responded on May 23, 2011, to Supplemental Information Requests ("SIRs") issued by AEP on June 9, 2010. In its response, Golder noted even without the Project,

all properties located adjacent to the Freeman River were at risk of channel migration, and the proposed construction of the river protection works would help stabilize the channel. The Approval Holder stated AEP's River Hazard Specialist reviewed the responses to the SIRs and determined they were acceptable.

[141] The Approval Holder noted it had Golder provide a more "robust and conservative"[28] erosion protection plan, which AEP accepted on November 15, 2011, and included:

(a) construction of a continuous rock trenchfill structure to protect areas most vulnerable to channel migration;

(b) rock riprap groynes buried in areas less vulnerable to channel migration; and

(c) a stockpile of rock riprap to support future maintenance by Woodlands County.

[142] The Approval Holder stated the Board's decision must be based on whether the Approval is reasonable. The Approval Holder submitted the question the Board must determine is whether the evidence provided by the Appellant is sufficient, reliable, and relevant, and establishes the Approval requires improvement. The Approval Holder stated the Appellant's evidence is speculative, unreliable, or irrelevant, and has not shown the Approval requires improvement.

[143] With respect to the adequacy of the river protection works, the Approval Holder argued the proposed river protection works would have prevented the overland flow of water in the 2011 flood, which surpassed the 1:100 year flood. The Approval Holder stated the river protection works will be extended into the upstream erosion hazard area with an advanced design to be determined in the future. The Approval Holder submitted the end pit lake and flood protection works are based on conservative hydraulic modeling that used the inundation level close to the 2011 flood levels.

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[27] 1:100 flow refers to a flood event that has a 1 in 100 chance of occurring.

[144] On the issue of whether adequate consideration was given to the impact of climate change on the river channel when designing the flood protection works, the Approval Holder said historical data and recent studies show there is no trend towards an increase in flood magnitude due to climate change, and a decrease in the magnitude of flood events on the Freeman River may be more likely.

[145] Regarding the risk of contaminants in surface water from the activities allowed by the Approval, the Approval Holder noted the Approval does not contemplate or authorize any instream work, and sediment control measures will be implemented during construction of the flood protection works and continue until the end pit lake is created. The Approval Holder submitted it has extensive experience with sediment control. The Approval Holder said the Appellant's expert, Mr. Makowecki, stated there is minimal or no direct impacts on aquatic resources where there is no alteration of fish habitat or where operations do not result in erosion that increase sedimentation. The Approval Holder submitted buffers, such as the 30 metre buffer from the top of the Freeman River to the edge of the revetment berm, will provide further protection from sediment reaching the Freeman River. The Approval Holder stated the evidence does not suggest the potential for the development of anoxic conditions or mobilization of trace metals.

[146] The Approval Holder noted the risk of spills and releases of hydrocarbons or other contaminants is minor given the low volume of any contaminants on the Site.

[147] With respect to dewatering activities, the Approval Holder stated it would be using the "cut-to-cut" method, where water is pumped from one cut to an adjacent mined-out cut or groundwater recharge pond, creating a closed-loop system that would result in no net change in the volume of water and have no impact on area water wells.

[148] The Approval Holder noted the Appellant's assertion that, by not requiring a site-specific assessment that included upstream and downstream impacts, and by not conducting a

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[28] *Written Submission on Behalf of the Respondent, Lafarge Canada Inc.*, April 12, 2019 (the "Approval Holder's Submissions") at paragraph 25.

baseline fishery survey, the Director was acting inconsistently with the SWBAP. In response to this, the Approval Holder stated Documents 1 and 2 of the SWBAP are currently in draft form and are not official policy, and they were released after the Approval Holder had submitted its initial application.

[149] In response to the Appellant's allegation the groundwater modeling report is inadequate, the Approval Holder submitted the model was based on climate, topography, geology, groundwater elevations, groundwater flow directions, and hydraulic properties, which support the sustainability of the end pit lake.

[150] The Approval Holder acknowledged it has yet to provide the monitoring and assessment plan required under the Approval. The Approval Holder submitted it has no intention of starting the monitoring project until after the conclusion of the appeal and, therefore, there was no need yet to finalize the plan.

[151] The Approval Holder noted the concerns of the Appellant regarding how the Approval Holder will address repairs following an erosion event. The Approval Holder stated it will make necessary adjustments to the flood protection works and end pit lake design based on the results of erosion monitoring of the riverbank. The Approval Holder submitted the flood protection works will reduce the risk of erosion and the risk of sediment entering the Freeman River.

[152] The Approval Holder stated the additional assessments and studies requested by the Appellant were not required for the following reasons:

(a) any threats to water quality in the end pit lake will be eliminated due to the lake's design;

(b) thermal stratification is unlikely to be a concern and will not impact water quality;

(c) river protection works will mitigate the risk of a pit capture event by implementing a conservative design that will include hydrological assumptions, an elevated perimeter road, and a monitoring program; and

(d) a field-verified study and site-specific information is not needed as there will be no changes to fish habitat.

[153] With regard to the question of evidence, the Approval Holder noted Rule 25 of the Board's Rules of Practice states:

> "The Presiding Board Member shall admit any relevant oral or documentary evidence (such as hearing statement) that is not privileged. Relevant evidence means evidence having any tendency to make the existence of any fact that is of consequence to the determination of the appeal more probable or less probable than it would be without the evidence. The Presiding Board Member may, however, exclude evidence if its probative value (the matter that it is providing proof of) is substantially outweighed by: the danger of unfair prejudice; confusion of the issues; or considerations of undue delay, waste of time, or needless presentation of repetitious evidence…"

[154] The Approval Holder referenced Macaulay and Sprague in *Hearings Before Administrative Tribunals*[29] at pages 17-21 and 17-28, stating fairness requires evidence be evaluated to determine its relevance and weight, even if the tribunal is not bound by the rules of evidence. As a test for determining relevance, the Approval Holder quoted from page 17-22 of *Hearings Before Administrative Tribunals*:

> "Relevance: The reformation which is offered must be capable, assuming it were true, of logically establishing some fact which an agency needs in order to accomplish its mandate."

[155] The Approval Holder noted *Hearings Before Administrative Tribunals*, page 17-24, provides the following definition of weight:

> "Weight: In addition to determining its relevance, a decision-maker will have also to be concerned with how much weight the tendered evidence has. In other words, how much can the agency rely on it to establish the matter it is submitted to establish."

[156] The Approval Holder stated where an agency is required to base its decision on established facts, non-expert opinions and speculation might have little weight.

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[29] Macauley and Sprague, *Hearings before Administrative Tribunals*, (Thomson Reuters Canada Limited: Toronto, Ontario, 2016).

[157] The Approval Holder noted the Appellant's Appeal Supporters are not parties to the appeal, have not been put forward as expert witnesses, and only one was proposed to be a witness at the hearing. The Approval Holder submitted the Appeal Supporters' evidence is entirely based on the public interest, and the Board does not have the jurisdiction to consider submissions solely on that basis. The Approval Holder argued the Appeal Supporters were using the evidence they provided to access the appeal without any finding of standing having been made by the Board. The Approval Holder submitted all the written statements from the Appeal Supporters should be rejected by the Board as either irrelevant, unreliable, or both.

[158] The Approval Holder acknowledged its responsibility to monitor erosion and maintain the works on the Site. The Approval Holder submitted that if the Site was transferred to Woodlands County after reclamation is completed, it can be assumed Woodlands County would have legal counsel to advise of the County's liability and responsibility to maintain the flood protection works and erosion monitoring.

[159] The Approval Holder explained when it began the Project, its experts, along with AEP's experts, assessed the risks created by the Project, not the risks that already existed. The Approval Holder submitted that once the risks created by the Project were assessed, it developed conservative plans to mitigate those risks.

[160] The Approval Holder submitted the Approval and the protective measures in relation to the construction and maintenance of the end pit lake will protect the quality and quantity of surface water and groundwater in and around the Freeman and Athabasca Rivers, and will protect the aquatic resources in the area.

[161] The Approval Holder requested the Board confirm the Approval as issued.

**D. Appellant's Rebuttal**

[162] The Appellant submitted the onus of proof it faces does not require it to conduct site-specific assessments or any tests to prove that the Approval Holder's gravel mining operation will adversely impact the aquatic environment, or groundwater quality and quantity. The Appellant argued he met his onus of proof by establishing the Approval should never have been

issued based on the limited information presented by the Approval Holder, and by showing the Director relied upon information which was unrepresentative of the actual conditions at the Site.

[163] The Appellant stated that having met the onus of proof, the evidentiary burden shifts to the Approval Holder to prove the Appellant's issues and concerns were invalid, which the Appellant argued the Approval Holder had not done. The Appellant submitted the Director did not claim the issues raised by the Appellant were invalid.

[164] The Appellant noted Rule 25 of the Board's Rules of Practice defined relevant evidence as:

> "…evidence having any tendency to make the existence of any fact that is of consequence to the determination of the appeal more probable or less probable than it would be without the evidence."

The Appellant argued the letters of support included in the Appellant's written submission are relevant to the issues of the appeal and speak to facts that are of consequence in the determination of the appeal.

[165] The Appellant stated Mr. Stelfox's letter of support reported his first-hand observation of a pit capture during a flood event.

[166] The Appellant noted Mr. Radford provided evidence of a pit capture at the Mixcor pit, which has similarities to the Phelan Pit, making a pit capture occurrence at the Project during a flood more probable. The Appellant stated the Approval Holder objected to the letters of support being submitted as evidence as the authors of the letters were not available as witnesses at the hearing, yet the Approval Holder also objected to Mr. Radford participating as a witness at the hearing. The Appellant argued the Board should hear Mr. Radford's evidence before deciding the weight to attach to it.

[167] Regarding the letters of support from Mr. Hunt, Ms. Mendelsohn, Mr. Sandford, and Ms. Montemayor, the Appellant submitted the evidence in those letters is useful for context

in the Board's decision. The Appellant referenced the Board's decision in *Cherokee*,[30] where the Board stated it is prudent to hear all relevant information in order to present a thorough and balanced report to the Minister.

[168] The Appellant stated the letters of support from Trout Unlimited and the Committee address the environmental risk posed by the Project, which is relevant to the appeal. The Appellant disagreed with the Approval Holder's claim the Committee's mandate is to oppose gravel operations, arguing that the Committee advocates for projects that are environmentally sustainable.

[169] The Appellant submitted the AWA's letter of support spoke to the ecological function of any floodplain. The Appellant stated AWA's letter did not have to mention the Phelan Pit to be relevant, and the AWA letter provided historical context on gravel mining in flood plains.

[170] The Appellant argued the letters of support address environmental risks which are issues of public interest that are within the Board's role and mandate as outlined in EPEA, and the Board should consider the letters and determine the appropriate weight to assign to them.

[171] The Appellant noted the Appeal Supporters were not seeking standing in the appeal, and the Appellant was entitled to raise relevant evidence that speaks to the issues of the appeal, whether or not the evidence is from public interest groups.

[172] The Appellant questioned why the Director consulted with a flood hazard specialist and other AEP staff, but did not consult with AEP fish and wildlife staff.

[173] The Appellant stated the Director's argument that dewatering activity is not related to the Approval and is outside the scope of the hearing was unfounded. The Appellant argued the Board was clear the impacts of the gravel mining and operations of the Project on groundwater quality and quantity would be an issue at the hearing. The Appellant noted Dr.

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30 *Cherokee Canada Inc. et al*. v. Dir*ector, Regional Compliance, Red Deer-North Saskatchewan Region, Operations Division, Alberta Environment and Parks*, (26 February 2019), Appeal Nos. 16-055-056, 17-073-084, and 18-005-010-R (A.E.A.B.), 2019 AEAB 1.

Fennell's evidence on dewatering impacts related to water quantity and groundwater discharge to the Freeman River. The Appellant submitted the hearing issues included dewatering activities.

[174] The Appellant stated the changes in 2018 to the *Water (Ministerial) Regulation*, AR 202/1998, exempted dewatering activities from requiring an approval if:

> (a) the water diverted due to dewatering is diverted to a water body;
>
> (b) the diverted water is equal to or of the same quality as the original water prior to diversion; and
>
> (c) if the activity conducted for the purpose of dewatering causes no adverse impact on the aquatic environment, a household user, licensee or traditional agriculture user, or any parcel of land.

The Appellant submitted Dr. Fennell and Mr. Makowecki presented evidence to show the Approval Holder's Project would not meet the *Water (Ministerial Regulation)* requirements for dewatering without needing an approval.

[175] The Appellant argued the Director is not enforcing AEP policy when he allowed the construction of flood protection works, the flow channel, and the perimeter road within a 60 metre "undisturbed" buffer zone between the end pit lake and the river, which is required in the Guide to the Code of Practice for Pits.

[176] The Appellant submitted requiring the Approval Holder to submit a post-reclamation bond is necessary to prevent taxpayers being left with the aftermath of the Project once the Approval Holder has received a reclamation certificate from the Director. The Appellant argued the Director did not provide any valid reasons why a post-reclamation bond was a remedy the Board could not implement and, therefore, the Board should disregard the Director's submissions on this matter.

[177] The Appellant submitted the Director is incorrect when he stated the end pit lake and flood protection works would not adversely impact surface water quality because groundwater discharged from the end pit lake into the Freeman River must pass through 60 metres of gravel that filters out any sediment. The Appellant noted 30 metres of the substrate is

not gravel, but overburden, and its filtration capability was not assessed by the Approval Holder. The Appellant stated he was concerned harmful metals and trace elements may contaminate the end pit lake as a result of stratification.

[178] The Appellant argued a site-specific assessment would provide a baseline report on the existing environmental conditions, and the same information would have been requested by the Director had the Director analyzed the Approval Holder's application from a risk assessment perspective, as the SWBAP advocates.

[179] The Appellant noted the Approval Holder will construct a perimeter access road 30 metres away from the Freeman River and river protection works six metres away from the river. The Appellant submitted 30 metres and six metres is not sufficient to protect the aquatic environment, and a larger buffer between the Project and the Freeman River is necessary to minimize the environmental risk.

[180] The Appellant disputed the Approval Holder's claim the groundwater transfer during the gravel mining would be a closed-loop system with no net change in water volume in the gravel aquifer or on aquifer water levels. The Appellant stated Dr. Fennell's report demonstrated the quantity of water flowing from the end pit lake to the Freeman River would be significantly less than the flow of groundwater to the end pit lake. The Appellant noted the Approval Holder alleged 200 cubic metres of surface water per day would evaporate from the end pit lake and would manifest as outflow to the Freeman River. The Appellant argued this was physically impossible. The Appellant submitted the Approval Holder's assertion of no net change in water volume and levels from the closed-loop system is not supported by the evidence.

[181] With regard to the adequacy of river protection works, the Appellant stated the Approval Holder's proposal to construct river protection works in the erosion hazard area was an admission of a deficiency in the design of the river protection works.

[182] With regard to the Approval Holder's claim that climate change will not cause an increase in magnitude of flooding of the Freeman River, the Appellant submitted Dr. Fennell's

report demonstrated climate change will result in the Freeman River flooding more frequently and with greater volume of floodwater.

[183] With regard to the Approval Holder's proposed use of sediment control measures, and the potential for contaminants in sediment to impact the aquatic environment, the Appellant noted the Approval Holder had not provided information on the sediment control measures, so the effectiveness of the measures cannot be assessed.

[184] The Appellant stated the Approval Holder had not established the conditions in the Approval would prevent alteration of fish habitat in the Freeman River. The Appellant argued the Approval Holder had not conducted a site-specific study to determine if any fish, particularly the Athabasca Rainbow Trout, require protection under the *Species at Risk Act*, SC 2002, c. 29. The Appellant submitted the Board should recognize the Freeman River would likely be protected under the *Species at Risk Act*.

[185] With regard to the risk related to dewatering and the Approval Holder's claim the pumping of groundwater should have no effect on water wells in the area, the Appellant submitted no evidence has been provided to support such a claim.

[186] The Appellant stated the Approval Holder had not assessed how the exchange of groundwater between the end pit lake and the Freeman River would be impacted by the replacement of overburden and bedrock at the bottom of the lake.

[187] The Appellant noted the Approval requires erosion of the riverbank be monitored and the Approval Holder is required to make necessary adjustments to the design of the end pit lake and flood protection works if erosion is detected. The Appellant stated the potential change to the end pit lake design and flood protection works raises questions of whether the adjustments will change erosion patterns, be subject to public review, and what type of adjustments will be made.

[188] The Appellant questioned whether Woodlands County, after receiving transfer of the end pit lake from the Approval Holder, will be responsible for monitoring and conducting repairs if erosion concerns arise after the issuance of the reclamation certificate.

[189] The Appellant requested the Board recommend a reversal and cancellation of the Approval.

[190] If the Board were to consider recommending the Approval be varied, the Appellant submitted the Board should consider terms and conditions to sufficiently address the concerns raised by the Appellant in his submissions, including the following:

(a) increase the buffer and setbacks to at least 100 metres from the Freeman River;

(b) extend flood protection works to the northwest and the northeast to cover the entire northern portion of the upstream erosion hazard area which is vulnerable to erosion;

(c) require sediment testing to determine if any sediments could mobilize and impact water quality;

(d) conduct a fishery study to assess site-specific conditions so adverse impacts can be adequately assessed;

(e) consider and assess base groundwater/surface water interaction dynamics;

(f) implement a contingency plan to handle worse case scenarios and pit capture;

(g) require the Approval Holder to post a bond to address restorative cost in the event of a pit capture; and

(h) implement a robust monitoring and management plan that includes consideration of seepage into the end pit lake during periods of low flow. The monitoring and management plan should be made public and available to the Appellant.

## V. STANDARD OF REVIEW

[191] With regard to the standard of review to apply to the Director's decision to issue the Approval, the Appellant noted the Alberta Court of Appeal in *Newton* v. *Criminal Trial* said the primary factor in determining the standard of review is to examine the role of the tribunal of first instance and the appellate administrative tribunal, and determine what the Legislature intended their respective roles to be.

[192] The Appellant submitted an application of *Newton* to the facts of this appeal would have the Director as the tribunal of first instance and the Board as the appellate administrative tribunal, with EPEA as the governing legislation. The Appellant stated the first consideration is to determine the roles of the Director and the Board.

[193] The Appellant noted the Board had considered the appropriate standard of review in its recent decision in *Cherokee Canada Inc. et al*. v. Dir*ector, Regional Compliance, Red Deer-North Saskatchewan Region, Operations Division, Alberta Environment and Parks* ("*Cherokee*").[31]

[194] The Appellant stated the Board in *Cherokee* determined the proper standard of review to apply to the director's decision is correctness, with no deference to the director. The Appellant submitted the Board's role and the EPEA legislative structure in this appeal is similar to that in *Cherokee*. The Appellant submitted the same standard of review, correctness, with no deference to the Director, should be applied in this appeal.

[195] The Appellant noted the correctness standard requires the Board to conduct an independent review and analysis of the evidence and determine whether the Director's decision should be upheld, varied, or rescinded, and make a recommendation to the Minister on what decision should be made.

[196] The Appellant argued, as the Director is not the final decision maker in this instance, the appropriate standard of review is correctness.

[197] The Director submitted the standard of review for this appeal is reasonableness. The Director referred to the Alberta Court of Queen's Bench's decision in *Lum* v. *Alberta Dental Association and College (Review Panel),*[32] which the Director stated found a statutorily created appeal board must apply the same standard of review to an initial administrative decision-maker as a court would apply on judicial review.

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[31] *Cherokee Canada Inc. et al*. v. Dir*ector, Regional Compliance, Red Deer-North Saskatchewan Region, Operations Division, Alberta Environment and Parks*, (26 February 2019), Appeal Nos. 16-055-056, 17-073-084, and 18-005-010-R (A.E.A.B.), 2019 AEAB 1.

[198] The Director quoted the Supreme Court of Canada in *Edmonton (City)* v. *Edmonton East (Capilano) Shopping Centres Ltd.*, as follows:

> "Unless the jurisprudence has already settled the applicable standard of review, the reviewing court should begin by considering whether the issue involves the interpretation by an administrative body of its own statute or statutes closely connected to its function. If so, the standard of review is presumed to be reasonableness."[33] [*emphasis added by the Director*]

[199] The Director argued the standard of correctness is only applicable if the decision to be reviewed is one of the following:

> "(a) a constitutional issue;
>
> (b) a question of general law that is both of central importance to the legal system as a whole and outside the decision maker's specialized area of expertise;
>
> (c) the drawing of jurisdictional lines between two or more competing specialized tribunals; and
>
> (d) a 'true question of jurisdiction or vires'."[34]

[200] The Director stated reasonableness will apply where the question to be determined raises issues of fact, discretion, or policy, or involves inextricably intertwined legal and factual issues.

[201] The Director noted the Court found in *Lum* the standard of review of reasonableness was applicable to the review by the appeal body of the decision of an initial administrative decision-maker, and the appeal body owed deference to the initial decision-maker, even when the appeal body had broad powers to make any decision the initial decision-maker could make.

[202] The Director referenced the Board's decision in *Cherokee*[35] where the Board found the standard of review to be correctness. The Director argued the standard of review must

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32 *Lum* v. *Alberta Dental Association and College (Review Panel)*, 2015 ABQB 12 at paragraph 20.

33 *Edmonton (City)* v. *Edmonton East (Capilano) Shopping Centres Ltd.*, 2016 SCC 47, at paragraph 22.

34 Director's Submissions, April 12, 2019, at paragraph 88.

be assessed on a case-by-case basis and applied to the specific facts of the matter under appeal before the Board.

[203] The Director submitted there are no constitutional issues, questions of general law or true jurisdiction, and no drawing of jurisdictional lines in this appeal. The Director stated the Appellant has appealed a discretionary decision by the Director to issue the Approval under the *Water Act*, which is distinguishable from *Cherokee*, which was an appeal of an enforcement order under EPEA. The Director noted the issuance of the Approval involved the interpretation of AEP's own statute, issues of fact, discretion, and policy, and inextricably intertwined legal and factual issues.

[204] The Director argued the issuance of a *Water Act* approval involves balancing competing interests and considerations, and there is no one "correct" answer of whether an approval should be issued or what terms and conditions should be included.

[205] The Director submitted the appropriate standard of review is reasonableness, which is supported by the fact the Board's determination of the issues for the appeal included whether the terms and condition of the Approval were reasonable to protect the surface water and groundwater in the area and the aquatic environment in the Freeman River.

[206] The Approval Holder noted the Board has stated that appeals from decisions of the Director are subject to a standard of correctness, but that the standard of review must be determined on a case-by-case basis. The Approval Holder said the Board set as issues for the appeal, whether the terms and conditions of the Approval are reasonable. The Approval Holder stated the Board must base its decision on whether the Approval is reasonable.

[207] The Board is required to address the issue of the standard of review it should apply to the Director's decision. The Director and the Approval Holder argued the standard of review is "reasonableness," which would require the Board to give deference to the Director's

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[35] *Cherokee Canada Inc. et al.* v. *Director, Regional Compliance, Red Deer-North Saskatchewan Region, Operations Division, Alberta Environment and Parks*, (26 February 2019), Appeal Nos. 16-055-056, 17-073-084 and 18-005-010-R (A.E.A.B.), 2019 AEAB 1.

decision. The Appellant argued the appropriate standard of review to apply to the Director's decision is "correctness." This would enable the Board, or more correctly, the Minister, to make decisions in place of the Director's decision where the Board determines the Director made the wrong decision. As discussed below, the Board has determined the appropriate standard of review is correctness.

[208] The leading authority on standard of review in Alberta is the Court of Appeal's decision in *Newton*.[36] Applying this decision to the current appeal means the standard of review the Board applies to the Director's decision is different from the standard of review the Court of Queen's Bench applies in a judicial review of the Board's decision. It is also different from the standard of review the Court of Appeal applies in an appeal from a decision of the Court of Queen's Bench. As the Board noted in *Cherokee*, it is a mistake to conclude the standard of review the Court of Queen's Bench applies to the Board is the same standard of review the Board is to apply to the Director.

[209] In *Newton*, the Court of Appeal stated the primary factor in determining the standard of review is to review the role of the tribunal of first instance (in this appeal, the Director), and the appellate administrative tribunal (the Board), which is a question of statutory interpretation.[37] The Saskatchewan Court of Appeal, in *City Centre Equities Inc.* v. *Regina (City)* ("City Centre"), summarized the question to ask in determining the appropriate standard as: "What role did the Legislature intend the appellate tribunal to play?"[38]

[210] The Alberta Court of Appeal in *Pelech* v. *Alberta (Law Enforcement Review Board),*[39] clarified that the respective roles of the decision-makers, as determined through statutory interpretation, will always be the ultimate determinant of the standard of review an appellate tribunal should apply. In an appeal before the Board, the structure of EPEA is an essential consideration in identifying the appropriate standard of review.

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36 *Newton* v. *Criminal Trial Lawyers' Association*, 2010 ABCA 399 ("*Newton*").

37 *Newton* v. *Criminal Trial Lawyers' Association*, 2010 ABCA 399, at paragraph 57.

38 *City Centre Equities Inc.* v. *Regina (City)*, 2018 SKCA 43, at paragraph 43.

39 *Pelech* v. *Alberta (Law Enforcement Review Board)*, 2010 ABCA 400, at paragraph 22.

[211] The Director is an official within AEP. If not for the appeal process created in EPEA, the Minister would be the Minister accountable for the activities of his officials, including the Director. When it enacted EPEA in 1993, the Legislature created the Board and introduced "due process" enhancements into the legislation. EPEA allows for appeals that are eventually presented to the Minister for his final decision, but EPEA enhances the fairness and openness of the system in certain important ways.

[212] First, appellants in an appeal before the Board are afforded fuller and more open participation than that afforded during consideration of the initial application by the Director. Second, the evidence presented in an appeal hearing is assessed by an independent and expert tribunal (the Board). The Board's appeal panels are presumed to be, and are in fact, comprised of experts in fields involved in environmental protection. The appeal panel provides the Minister with advice based on its review and assessment of the submissions and evidence provided by the hearing participants.

[213] Of significance is the fact the Board is not the final decision maker. As the Alberta Court of Queen's Bench has described, after acknowledging the scientific expertise applied by the Board in reviewing decisions of the Director, EPEA allows the Minister to apply his expertise by bringing knowledge of the political pressures to bear on the final decision. Balancing the wide and often conflicting interests arising from the purpose section of EPEA is a decision for which a Minister has qualifications and expertise by virtue of his or her position.[40]

[214] In *Cherokee*, the Board stated:

> "The structure of the legislation, with a report and recommendations, is not the type of judicial review where the statute, read as a whole, indicates a legislative intent for the director to be the final decision maker, which is the justification for deference on judicial review. That justification is not present here. Rather, when a party files an appeal, the heavily administrative process of the director gives way to an appeal to the Minister, but it is an appeal where the Minister is acting on the advice of an expert tribunal. This suggests to the Board that no deference to the director is intended where the Minister is

[40] *Imperial Oil Limited and Devon Estates Limited* v. *HMQ and the City of Calgary*, 2003 ABQB 388, at paragraph 37.

> convinced after considering the Board's process and analysis, of the need to reverse or vary the orders made within AEP."[41]

[215] There is no presumption the AEP staff, although experts in their specific fields, have sufficient legal expertise to make final rulings on statutory interpretation. The Board, however, has been recognized repeatedly by the courts as having expertise in interpreting environmental legislation in the context of scientific and technical issues. The Board's expertise removes any basis for deference to the Director's decision, which distinguishes this process from judicial review.

[216] The legislation gives the Minister broad authority when he receives and reviews the Board's Report and Recommendations. After receiving the Board's advice, the Minister may replace the Director's decision with whatever he believes the Director ought to have done. There is nothing in EPEA to suggest the Minister should, as a matter of law, give deference to his officials within AEP. He may choose to do so, but that does not affect the manner in which the Board reviews the Director's decision and provides its report and recommendations.

[217] In reviewing the legislated roles of the Director and the Board, the appropriate standard of review to apply to the circumstances of this appeal is correctness, with no deference to the Director. The Board's role is to provide the Minister with the best possible advice. The Minister takes this advice into account in making his decision, which may reflect a broader range of factors than those considered by the Director.

## VI. ANALYSIS

[218] In its August 28, 2016, Preliminary Decision, the Board set the issues to be addressed at the hearing as follows:

> 1. Will the construction and maintenance of the end pit lake and river flood protection works, as allowed under the Approval, impact surface water quality and quantity, including but not limited to the Freeman

[41] *Cherokee Canada Inc. et al*. v. Dir*ector, Regional Compliance, Red Deer-North Saskatchewan Region, Operations Division, Alberta Environment and Parks*, (26 February 2019), Appeal Nos. 16-055-056, 17-073-084, and 18-005-010-R (A.E.A.B), at paragraph 23.

River and the end pit lake itself, and the aquatic resources in the Freeman River?

2. Will the construction and maintenance of the end pit lake and river flood protection works and the mining operations impact groundwater quantity and quality?

3. Are the terms and conditions of the Approval reasonable to protect the surface water and groundwater in the area and the aquatic environment in the Freeman River?[42]

[219] The Board notes the scope of these issues was frequently discussed during the hearing. The Project the Approval Holder has undertaken requires two regulatory authorizations from AEP, an Approval and a Registration. The Approval regulates the potential impacts on water quality and quantity arising from the construction of an end pit lake and flood protection works. It does not include dewatering activities and other mining operations, which are regulated under EPEA, pursuant to a Registration. In hearing this appeal, the Board can only consider the Approval; the Board cannot consider the Registration as Registrations cannot be appealed to the Board. The Board finds that much of the Appellant's submissions were beyond the scope of the issues set for the hearing as they were related to the activities governed by the Registration. The Board could not consider the Appellant's arguments related solely to the Registration.

[220] The Board understands the Appellant's concerns regarding the potential impacts of the Approval. The Appellant is concerned his livelihood and his family's lifestyle may be threatened by the Project. The Appellant also has concerns about potential harm to the aquatic environment and the quality and quantity of water. The Board appreciates the Appellant's efforts, and the efforts of the Director and the Approval Holder, to provide the Board with sufficient information to allow it to make the best possible recommendations to the Minister on the issues set in this appeal.

[221] The Board considered all the evidence provided by the Parties, and based on its

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[42] Preliminary Motions Decision: *Larsen* v. *Director, Red Deer-North Saskatchewan Region, Alberta Environment and Parks*, re: *Lafarge Canada Inc.* (28 August 2018), Appeal No. 15-021-ID1 (A.E.A.B.).

review of this evidence, has considered the measures proposed by the Appellant, as outlined below.

[222] The Appellant requested the Board recommend increasing the buffer between the Project and the Freeman River to at least 100 metres. The Appellant based the increase on the report from Mr. Makowecki, which stated a larger buffer would improve environmental protection. The Appellant also argued that the increased buffer zone would be consistent with the buffer zone commonly required on public lands. The Director explained increasing the buffer would mean a higher standard being applied to the Approval Holder than other aggregate pits located along rivers, without evidence the Project is more likely to impact groundwater than what is considered acceptable by AEP policy. The Approval Holder submitted a larger buffer was not needed as the current buffer and erosion control measures would be sufficient to prevent sediment from entering the river.

[223] The Board finds the size of the buffer, required in the Approval in accordance with AEP policy, will provide sufficient protection to surface water, groundwater, and the aquatic environment. No evidence was provided to demonstrate that a larger buffer zone is required in the circumstances of this case. The Appellant's argument is simply that it would provide added protection.

[224] Further, the Board agrees with the Director that the larger buffer zone required when a pit is located on public lands does not provide a basis for requiring a larger buffer zone in this case. The buffer zone required on public lands is intended to support a wider variety of interests than exist on privately held land and, therefore, the public land buffer zone cannot simply be carried forward to apply on private land. As a result, the Board does not recommend that the size of the buffer between the pit and the river be increased.

[225] The Appellant requested the Board recommend the development and implementation of a contingency plan to respond to worst-case scenarios and potential pit capture during a flood event. The Director submitted the design of the berm, which would be one metre higher than the 1:100 year flood event, would be sufficient to minimize the likelihood

of pit capture. The Approval Holder stated its designs were developed with a conservative hydrological and hydraulic basis. The Approval Holder said it already considered and incorporated data from the 2011 flood of the Freeman River into its modelling and design of the flood protection works. The modelling showed when the Freeman River floods it spreads out to cover more land rather than increasing in height, and the construction of flood protection works, such as a perimeter berm, groynes, and a rock trenchfill structure, would prevent pit capture during a flood of the Freeman River. The Approval Holder submitted the planned flood protection works would have been adequate protection against the 2011 flood.

[226] The Board accepted the modelling evidence of the Approval Holder. In the Board's view the proposed flood protection works should provide adequate protection. Therefore, the Board finds the development and implementation of a contingency plan in the event of a worst-case scenario or pit capture to be unnecessary, given the measures already contained in the Approval and other measures the Approval Holder will implement as required by the Director. In the event of a pit capture or other incident, the Director has the ability to issue orders to the Approval Holder to respond and mitigate any damage.

[227] The Appellant requested the Board recommend the Approval Holder be required to post a bond to address restoration costs in the event of a pit capture. The Appellant expressed concern that after a reclamation certificate is issued, liability for erosion repair would be transferred from the Approval Holder to the Alberta taxpayer. The Director submitted the requirement of a post-reclamation bond is beyond the scope of the hearing.

[228] The Board agrees with the Director that the issue of posting of a bond is not within the issues set by the Board. Given that there are regulations that prescribe the circumstances where security is required, the Board questions whether the Director can require, or whether the Board can recommend, that security be given in this case.

[229] The Appellant requested the Board recommend the Approval Holder implement a robust monitoring and management plan that includes consideration of seepage from the end pit lake during periods of low flow on the Freeman River. The Appellant requested

the monitoring and management plan be made public and available to the Appellant. The Director submitted the Approval Holder has implemented, or has plans to implement, groundwater monitoring to assess current groundwater conditions during the life of the pit, and install piezometers around the periphery of the Project. The Director noted the Approval Holder must submit a detailed Monitoring Program Proposal to the Director. The Approval Holder acknowledged it has yet to provide a monitoring and assessment plan as required under the Approval, but said it will do so after the appeal has concluded.

[230] The Board finds the monitoring conditions already included in the Approval are adequate. However, the Board finds the Approval Holder was not in compliance with section 5.2 of the Approval by failing to provide a detailed Monitoring Program Proposal to the Director by the deadline of May 1, 2017. The Board recommends the Approval Holder be required to submit the Monitoring Program Proposal to the Director in accordance with the Approval, within six months of the Minister's Order. The Board encourages the Approval Holder to share the plan with the Appellant and other interested parties.

[231] The Appellant's expert witness, Dr. Fennell, stated there was a likelihood seasonal thermal stratification would occur within deeper portions of the end pit lake, which could lead to anoxic conditions. He stated the anoxic conditions could result in the mobilization of trace elements, particularly metals, contaminating the water. The Approval Holder disagreed, and stated thermal stratification is unlikely to be a concern and will not impact water quality. Dr. Fennell also noted there is no requirement in the Approval for assessment of future water quality in the end pit lake.

[232] The Board notes the Approval Holder planned to line portions of the end pit lake with overburden from the Project. The Approval Holder's expert witnesses explained that the overburden material has a very low permeability. Lining portions of the lake with the overburden material, in particular around the south end of the lake, is necessary in order to maintain the lake level at a higher elevation than that of the Freeman River.

[233] Dr. Fennell was concerned the overburden had not been tested for potential mobility of trace metals and there would be an increased risk that such contaminants present in the overburden would contaminate the end pit lake and the local groundwater.

[234] One of the Approval Holder's expert witnesses, Mr. Vandenberg, explained the necessary factors that must be present in a lake in order to create the conditions that would lead to trace elements, such as metals, leaching from soils or rock. Mr. Vandenberg explained that design and characteristics of the proposed end pit lake, such as depth, rock type and predominant minerals present in the substrate, and with negligible organic matter, are such that there is limited potential for anoxic conditions in the lake, and as a result, mobility of contaminants and metals from the overburden used in the construction of the lake is unlikely.

[235] The Board finds that, although unlikely, the potential for seasonal thermal stratification in the end pit lake is a possibility. Thermal stratification is a concern because it could result in anoxic conditions that could mobilize trace elements or metals from the overburden used to line the bottom of the lake. The Board acknowledges that, in this particular case, the mobilization of trace metals, if present in the overburden, is unlikely. However, if present and mobilized, trace metals could have an adverse impact on the quality of the water in the end pit lake and the Freeman River. Therefore, the Board recommends the Approval Holder be required to monitor the end pit lake to check for indications of seasonal thermal stratification, and address any thermal stratification to the satisfaction of the Director.

[236] The Appellant requested the Board require the Approval Holder to conduct testing of the overburden used to line the lake to ascertain the presence and mobility of metals or other potential contaminants.

[237] The Approval Holder agreed at the hearing to conduct geochemical testing of the overburden material that would be used to line the end pit lake.

[238] The Board therefore recommends the Approval Holder be required to conduct geochemical testing of overburden material to be used in construction of the end pit lake. If any

contaminants or trace elements are found that are likely to be mobile, the Approval Holder must address the problem to the satisfaction of the Director.

[239] The Appellant requested the Board recommend the Approval Holder be required to extend flood protection works to the northwest and the northeast of the Project, to cover the entire northern portion which is vulnerable to erosion. The Approval Holder agreed, based on expert advice it has received, to extend flood protection works into the upstream erosion hazard area. The Approval Holder stated details of that design would be determined in the future.

[240] The Board recommends the Approval Holder be required to conduct a study regarding extending flood control measures to the northwest portion of the upstream erosion hazard area, taking into account historical evidence of water incursions. The Approval Holder must submit the study to the Director, who will determine to what extent the flood control measures need to be extended. The Board notes the Appellant requested additional extension to the northeast as well, however, the Board finds the extension to the northwest is sufficient to protect the end pit lake from flood events.

[241] The Appellant expressed concern the Approval Holder would have no obligation to continue the maintenance and monitoring of the end pit lake and flood protection works after the Approval Holder is issued a reclamation certificate for the Project. The Director noted the Approval Holder must monitor for and repair any erosion that occurs due to the Project until a reclamation certificate under EPEA is issued, and the Approval Holder was open to amending its reclamation plans to ensure the water levels are maintained, once more information is available.

[242] The Board recommends the Approval require monitoring to ensure appropriate functioning of the flow through the lake to continue for a minimum period of five years after the Phelan Pit is closed, before the Director issues a reclamation certificate. The Board finds that within five years any anoxic conditions or adverse impact on groundwater or surface water that may develop should be discoverable by monitoring over that period of time.

[243] In conclusion, the Board finds, in respect of Issues 1 and 2, that the activities allowed under the Approval have the potential to impact the quantity and quality of surface water and groundwater and the aquatic resources in the Freeman River. In respect of Issue 3, the Board recommends additional terms and conditions be included in the Approval to ensure adequate protection of the surface water and groundwater quality and quantity, and the aquatic environment in the Freeman River.

## VII. RECOMMENDATIONS

[244] In accordance with section 99(1) of EPEA, the Board recommends the Minister of Environment and Parks order that the Director's decision to issue the Approval be varied by adding terms and conditions to the Approval that address the following requirements:

(a) the Approval Holder be required to monitor the end pit lake for seasonal thermal stratification, for five years after the closure of the Phelan Pit and prior to the issuance of a reclamation certificate, and address any indication of seasonal thermal stratification to the satisfaction of the Director;

(b) the Approval Holder be required to conduct geochemical testing of overburden material to be used in construction of the end pit lake, and address any contaminants or trace elements that are likely to be mobile, to the satisfaction of the Director;

(c) the Approval Holder be ordered to submit the Monitoring Program Proposal to the Director as required by the Approval, within six months of the Minister's Order; and

(d) the Approval Holder be required to conduct a study regarding extending flood control measures to the northwest of the Project with the upstream erosion hazard area, taking into account historical evidence of water incursions, and submit the study to the Director who will determine to what extent the flood control measures need to be extended.

## VIII. CLOSING

[245] Pursuant to sections 100(2) and 103 of EPEA, a copy of this Report and Recommendations, and any decision by the Minister, shall be sent to the following:

(a) Ms. Ifeoma M. Okoye, Ackroyd LLP, representing the Appellant, Mr. Lars Larsen;

(b) Ms. Shauna Finlay and Ms. Lauren Chalaturnyk, Reynolds Mirth Richards & Farmer, LLP, representing the Approval Holder, Lafarge Canada Inc.; and

(c) Ms. Nicole Hartman, and Ms. Jade Vo, Alberta Justice and Solicitor General, representing Mr. Muhammad Aziz, Director, Operations Division, Upper Athabasca Region, Alberta Environment and Parks.

[246] The Board notes the Appellant and the Approval Holder have reserved their rights to ask for costs. A process for costs applications will be established by the Board after the Minister makes his decision in this appeal. The Board notes that the award of interim costs is subject to redetermination as part of any award of final costs.

Dated on May 30, 2019, at Edmonton, Alberta.

"*original signed by*"
Alex MacWilliam
Board Chair

"*original signed by*"
Meg Barker
Board Member

"*original signed by*"
Tim Goos
Board Member

ALBERTA
ENVIRONMENT AND PARKS

*Office of the Minister*
*Government House Leader*
*MLA, Rimbey-Rocky Mountain House-Sundre*

# Ministerial Order
# 32/2019

*Environmental Protection and Enhancement Act*, R.S.A. 2000, c. E-12

*Water Act*, R.S.A. 2000, c. W-3

**Order Respecting Environmental Appeals Board Appeal No. 15-021**

I, Jason Nixon, Minister of Environment and Parks, pursuant to section 100 of the *Environmental Protection and Enhancement Act*, make the order in the attached Appendix, being an Order Respecting Environmental Appeals Board Appeal No. 15-021.

Dated at the City of Edmonton, in the Province of Alberta, this 3 day of July, 2019.

-original signed by-
Jason Nixon
Minister

## Appendix

### Order Respecting Environmental Appeals Board Appeal No. 15-021

With respect to the decision of the Director, Upper Athabasca Region, Operations Division, Alberta Environment and Parks (the "Director"), to issue Approval No. 00255428-00-00 (the "Approval") under the *Water Act*, R.S.A. 2000, c. W-3, to Lafarge Canada Inc., I, Jason Nixon, Minister of Environment and Parks, order that the Director's decision to issue the Approval is varied as follows:

1. The following is added immediately after condition 3.9:

   "3.10 The Approval Holder shall conduct geochemical testing for contaminants, including metals, of any material used to construct the end pit lake, to the satisfaction of the Director.

   3.11 If any contaminants that could negatively impact the surface water or groundwater associated with the end pit lake are detected as part of the geochemical testing, the Approval Holder shall develop and implement a plan to address the contaminants to the satisfaction of the Director."

2. Condition 5.2 is repealed and replaced as follows:

   "5.2 The Approval Holder shall submit a Monitoring Program Proposal to the Director, within 6 months of the date of the Minister's Order issued in EAB Appeal No. 15-021."

3. The following is added immediately after condition 5.9:

   "5.10 The Approval Holder shall monitor the end pit lake for seasonal thermal stratification and anoxic conditions for five years after the closure of the pit.

   5.11 If any seasonal thermal stratification or anoxic conditions are detected during this five-year period, the Approval Holder shall develop and implement a plan to address the seasonal thermal stratification and anoxic conditions to the satisfaction of the Director.

   5.12 The Approval Holder shall not apply for a reclamation certificate for the end pit lake until the five-year period has expired and the Director provides written confirmation that he is satisfied that any concerns regarding seasonal thermal stratification and anoxic conditions have been addressed to his satisfaction.

   5.13 The Approval Holder shall conduct a study regarding extending flood control measures to the northwest of the current flood control measures

described in this Approval and within the upstream erosion hazard area, taking into account historical evidence of water incursions, and submit the study to the Director.

5.14 The Approval Holder shall undertake any further actions to extend flood control measures to the northwest of the current flood control measures describe in this Approval, which are required by the Director in writing."