



Environmental Appeal Board

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DECISION NO. 2015-WAT-005(a)

In the matter of an appeal under section 92 of the *Water Act*, R.S.B.C. 1996, c. 483.

BETWEEN:	Maureen Chapman and Charlie Chapman	APPELLANTS
AND:	Assistant Regional Water Manager	RESPONDENT
AND:	Zella Holdings Ltd.	THIRD PARTY
AND:	Judith Lynne White and Robert Martin Cunningham	PARTICIPANTS
BEFORE:	A Panel of the Environmental Appeal Board Robert Wickett, Q.C., Panel Chair James Mattison, Member Linda Michaluk, Member	
DATE:	April 4 to 7, 2016	
PLACE:	Chilliwack, BC	
APPEARING:	For the Appellants: For the Respondent: For the Third Party: For the Participants:	Maureen and Charlie Chapman Anthony Dalmyn, Counsel Sean Hern, Counsel Judith Lynne White and Robert Martin Cunningham

APPEAL

[1] The Appellants, Charlie and Maureen Chapman, appeal the April 13, 2015 decision of Remko Rosenboom, the Assistant Regional Water Manager (the "Regional Manager"), Ministry of Forests, Lands and Natural Resource Operations (the "Ministry"), to issue Conditional Water Licence C131919 (the "Licence") to Zella Holdings Ltd. ("Zella") for a run of the river hydro-electric plant on Lorenzetta Creek (the "Project").

[2] This appeal was filed with the Board on May 29, 2015. The Third Party, Zella, applied to dismiss the appeal, alleging that it was filed outside of the 30-day appeal period set out in section 92(4) of the *Water Act*. The Board sought written submissions on this application. In a letter dated July 16, 2015, the Board ruled

that the appeal was filed within the 30-day appeal period, and scheduled a four-day oral hearing of this matter.

[3] The Board notified a number of potentially affected persons of the appeal, and offered them an opportunity to participate in the appeal. Only Judith White and Robert Cunningham accepted this invitation.

[4] The Environmental Appeal Board has the authority to hear this appeal under section 93 of the *Environmental Management Act* and section 92 of the *Water Act*. Section 92(8) of the *Water Act* provides that, on an appeal, the Board may:

- (a) send the matter back to the comptroller, regional water manager or engineer, with directions,
- (b) confirm, reverse or vary the order being appealed, or
- (c) make any order that the person whose order is appealed could have made and that the board considers appropriate in the circumstances.

[5] The Appellants ask the Board to reverse the Regional Manager's decision and cancel the Licence. The Participants oppose the Project and support the Appellants' request.

[6] The Regional Manager and Third Party request that the appeal be dismissed.

[7] Following the conclusion of the appeal hearing on April 7, 2016, the Panel dismissed the appeal and advised that written reasons would be delivered at a later date in accordance with section 51 of the *Administrative Tribunals Act*, S.B.C. 2004, c. 45, and section 3 of the *Environmental Appeal Board Procedure Regulation*, B.C. Reg. 240/2015. These are the written reasons for the dismissal of this appeal.

BACKGROUND

[8] Lorenzetta Creek (the "Creek") is approximately eight kilometers long and runs generally north and west towards the Fraser River, in the upper Fraser Valley near Hope, British Columbia. The upper reaches are steep and non-fish bearing, while the lower reaches are not steep and provide habitat for pink, chum, coho and sockeye salmon, steelhead/rainbow trout and sculpins. The surrounding area provides habitat for blue-listed species, including: Coastal Tailed Frog, Red-legged Frog, Western Toad, and Pacific Sideband, as well as the American Dipper, which is a species of regional management concern.

[9] The lower reach of the Creek flows across land owned by the Appellants in Laidlaw, British Columbia. The Appellants have lived in the area for decades, and have held a conditional water licence on the Creek since 1975, authorizing water use for both irrigation and domestic (stock watering) purposes.

The Application for a Water Licence

[10] In or about 2011, Zella began investigating the feasibility of a micro-hydro project on the Creek. It consulted the "Clean Energy Production in B.C.; an Inter-Agency Guidebook for Project Development" (the "Guidebook"), which sets out the

general process for proponents of all types of clean energy projects. The most recent version states in its chapter titled "Stages in successful project development" at page 21:

Proponents of clean energy projects must meet technical, commercial, and permitting requirements to develop a project. The technical aspects include all engineering and scientific studies for the project.

[11] In accordance with the Guidebook, Zella started mapping the area, considering the Creek's hydrological capacity, performing geotechnical assessments, considering the economic viability of the Project, monitoring the Creek for fish, and retaining wildlife biologists to study vegetation, wildlife and wildlife habitat on the Creek and surrounding land.

[12] On February 27, 2012, Zella applied for a conditional water licence for power purposes. This started a series of other applications for licences, approvals and orders under the *Water Act* that were needed for the Project.

[13] Zella's water licence application was for a concrete dam for in-stream diversions, an intake weir, a reservoir pond, a 2700 metre penstock, a powerhouse with tailrace, a switchyard and a transmission line. The intake was proposed for the upper reaches of the Creek. Water taken from the Creek at the intake would flow through the penstock to the powerhouse. The water would then be returned to the Creek at the tailrace, located at the lower end of the upper reach before the Creek reached Laidlaw.

[14] Zella expects the hydro-electric plant to produce approximately 2.75 megawatts of power (an average of 900 kilowatts), which is below the threshold required to trigger inclusion under the provincial *Environmental Assessment Act*.

[15] Following the application, Zella commissioned, and paid for, additional technical reports, completed by engineering and environmental professionals, to investigate and address environmental, hydrological, and geological issues associated with the Project.

[16] As part of the application process, public notice of the application and proposed Project was given, and the public was offered an opportunity to provide written comments to Zella and the Ministry. In addition, First Nations were consulted, and the Ministry referred the application and the reports to other agencies for comment.

[17] On January 29, 2014, Zella hosted a public information meeting regarding the application, and held a follow up meeting on July 8, 2014. The Appellants were given notice of the meetings.

[18] The Appellants also provided written concerns and questions in response to the public notices. As licensees on the Creek, they were entitled to notice and the opportunity to file an objection to the application under section 11 of the *Water Act*. The Appellants wrote to the Ministry on July 23, 2013, objecting to the water licence application on various grounds. They also wrote a letter directly to Zella on November 12, 2013. In addition, there were other communications between the parties.

[19] In February of 2015, the Appellants attended a meeting with Ministry representatives by conference call. Representatives of Zella also attended that meeting.

[20] Throughout this process, the Appellants raised concerns regarding the impact of the Project on salmon in the Creek, and that the requested diversion would ruin the Creek's ecosystem. They were also concerned that the quantity and quality of their water would be negatively impacted if the Ministry granted the water application and allowed the Project to proceed.

[21] Zella provided written responses to the Appellants' letters, including the letters written to the Ministry. Zella also provided written responses to the concerns raised by the Appellants during the February 2015 meeting as well as to subsequent questions arising in March 2015.

Issuance of the Licence

[22] On April 13, 2015, the Regional Manager issued the Licence to Zella. The Licence authorizes the following works:

1. Diversion structure and intake;
2. Penstock;
3. Access roads;
4. Powerhouse, tailrace and switchyard; and
5. Transmission line.

[23] The Licence authorizes a maximum diversion rate of 0.6 cubic metres per second from the Creek, provided that the specified instream flow requirement of 0.062 cubic metres per second, measured at a designated location, is maintained at all times. The period of time during which the water may be used is "the whole year". The Licence has a precedence date of February 27, 2012.

[24] Before commencing construction of the works, the Licence requires Zella to, among other things:

- submit design drawings, design criteria and specifications, signed and sealed by a professional engineer, to the Regional Manager for approval;
- retain an Independent Engineer and an Environmental Monitor, the selection of whom is subject to the approval of the Regional Manager;
- prepare a Construction Environmental Management Plan for the management and mitigation of construction impacts and submit it to the Regional Manager for approval; and
- obtain Leave to Commence Construction from the Regional Manager.

[25] Before commencing diversion and use of the water, the Licence requires Zella to:

- establish stream gauges at the intake, in the diversion reach, and downstream of the powerhouse in order to verify compliance with

maximum rate of headpond and penstock filling, release of instream flow requirements, and ramping rates¹;

- submit a functional Operating Plan for the diversion and use of water to the Regional Manager for approval, and
- obtain Leave to Commence Diversion and use of water from the Regional Manager.

[26] Regarding fish and wildlife, the Licence requires: continuous monitoring and recording of instream flows at certain locations, management of ramping rates when fish fry are present, and submission of an additional monitoring plan.

Specifically, Zella is required to:

- manage ramping rates according to default ramping rates “of maximum stage change of 2.5 cm/hour when fry are present; and 5.0 cm/hour otherwise, until different rates are established through Ramping Rate Study and approved by the Regional Water Manager”;
- submit a revised Operational Environmental Monitoring Plan suitable to determine the nature of any impacts on fish and fish habitat, which includes pre-diversion data that allows for statistically supportable quantification of impact to baseline conditions over time to the satisfaction of the Regional Manager;
- implement the monitoring program, including the pre-diversion period and a baseline monitoring report within six months of the diversion of water;
- continue the monitoring program for five years following commencement of operation of the works or to the satisfaction of the Regional Manager;
- submit annual reports summarizing the results of the monitoring program to the Regional Manager within certain time frames; and
- after completion of the monitoring program, submit a report that identifies the nature of any impacts on fish habitat and wildlife, and implement the appropriate mitigation and/or compensation to the satisfaction of the Regional Manager.

[27] The Licence requires Zella to operate the works in accordance with procedures ordered by the Regional Manager, including any amendment he requires for the preservation of aquatic habitat, fish, wildlife and navigation.

[28] Finally, the Licence also contemplates the potential for additional monitoring. It states that, based upon the results of a hydraulic connectivity study, the Regional Manager may require Zella to develop and execute a monitoring plan to evaluate the potential influence of connectivity changes on aquatic values, and implement pulse flows if the magnitude and frequency of connectivity changes exceed the previously predicted results.

¹ “ramping rate” refers to the rate of change of water flow in the stream

[29] The Licence is for a term of 40 years.

[30] In the decision letter accompanying the Licence, the Regional Manager notes that several residents in the neighbourhood of the proposed facility had expressed concerns about the Project. He states that any future concerns, would be considered in subsequent decisions for the Project. The Regional Manager encouraged Zella to continue to communicate with these neighbours regarding their concerns.

[31] On the same day that he issued the Licence, the Regional Manager wrote to the Appellants to advise that he had issued the Licence. He notes that the Licence is for non-consumptive use of water (i.e., all water will be returned back into the Creek upstream of the Appellants' point of diversion), and that Zella has retained the services of environmental and engineering professionals. The Regional Manager states that he considered the Appellants objections and concerns regarding the application but, based upon the conclusions of the professionals retained by Zella, he concluded that the proposed hydropower project should not adversely impact their water rights on the Creek. In this regard, he notes that:

- a. An environmental assessment of fish, wildlife and vegetation resources was completed in January 2014 by Scott Resources Inc., Equipoise Environmental Consulting and Ecofish Research Ltd., which indicates that the proposed diversion reach is non fish bearing and the Licence will not have significant adverse impacts on wildlife, vegetation and fish downstream of the point of discharge;
- b. A geotechnical and slope stability analysis by Thurber Engineering Ltd, anticipates that the Project will not cause or increase terrain and slope instability; and
- c. A review of the ramping assessment by Ecofish Research Ltd., dated September 25, 2014, indicates that the plant operational ramping will have negligible adverse effects on the downstream existing water rights.

Leave to Commence Construction

[32] After the completion of the plans and studies required by the Licence, as well as others, the Regional Manager granted Zella Leave to Commence Construction on July 14, 2015. One of the studies requested as part of the Leave to Commence Construction, was an additional year of fish sampling in the diversion reach. During this sampling program, nine trout fry of varying sizes were found in the reach. The Regional Manager required additional studies and took the diversion reach fish presence into account when structuring the Project compensation and mitigation requirements.

[33] The plant has been constructed, but is not in operation.

The Appeal

[34] The Appellants appeal the Regional Manager's decision to issue the Licence on the following nine grounds:

1. The Creek contains populations of rainbow and steelhead trout, is a salmon-bearing stream in its own right, and acts as a nursery area for Wahleach Creek. Impacts on fish, fish food and fish habitat is a concern.
2. When they wrote to the Regional Manager and staff with their questions and concerns, their written communications were passed directly to Zella for a response, without their knowledge. The Appellants were not aware that this would happen, and expected that their questions would be addressed in an impartial, independent manner by the government. The lack of transparency is a concern.
3. Ramping rates on start-up and shut-down of the plant can have detrimental effects on fish. Because of power outages in the area, the ramping rates may not be subject to control.
4. There are fish in the diversion reach.
5. The tailrace is in fish-bearing water.
6. Decreased water flow in the diversion reach will result in a decrease of spray, which may negatively impact invertebrate populations leading to less food for salmon.
7. The Creek is known as "flashy" and is subject to flooding after it rains, which impacts private property and fish habitat. The Appellants are concerned that the Project could contribute to flooding, or make the flooding worse.
8. The Appellants are concerned about water quality as they have an irrigation and domestic water licence on the Creek.

[35] The Appellants ask the Board to cancel the Licence. In the event that the Licence is upheld, they ask for all data, readouts, and studies undertaken during the monitoring of the Project to be forwarded to them by email.

[36] It should be noted that the Appellants also identified the use of settlement ponds and the impact of the Project on surface wells as grounds for appeal. However, as they did not present evidence or argument on these matters during the hearing, the Panel has not addressed them in the decision.

Positions on the appeal

[37] The Regional Manager states that he gave the Appellants an opportunity to be heard and that he listened to, and addressed, the Appellants' concerns. He submits that the Licence allows for the diversion of water from the Creek, with no loss of water or impoundment. He submits that the Licence respects environmental requirements, and that he made his decision after a proper and fair process.

[38] The Regional Manager submits that, while an applicant has no guarantee of receiving a conditional water licence, a regional manager does not have the unfettered ability to simply deny a licence to the applicant. The Regional Manager

submits that all run of the river projects entail some environmental risk. The fact that the legislation allows licences to be issued for these kinds of projects confirms that the standard is not one of "no risk". Further, the Province encourages electricity self-sufficiency, as is evident from its enactment of the *Clean Energy Act*, S.B.C. 2010, c. 22.

[39] On the facts of this case, the Regional Manager submits that:

- Zella hired appropriately qualified professionals who provided the appropriate reports;
- mitigation, compensation and monitoring measures were developed; and
- he was satisfied that the Appellants' water rights, and the environment, were adequately protected by the provisions contained in the Licence.

[40] The Regional Manager submits the Licence was properly granted, and asks the Board to uphold his decision and dismiss the appeal.

[41] Zella has been engaged in works and studies for the Project since 2011. All studies were provided to the Regional Manager, and all materials relevant to the Project have been available in the local library, and on-line, for some time.

[42] Zella submits that, in addition to the public consultation activities, including, and not limited to, information meetings, notices in newspapers, and a notice posted at a public access to the Creek, the Appellants received direct correspondence on several occasions. Zella submits that the Appellants were kept informed during the licence application phase. It also submits that the Board need not decide whether the information could have, or should have, come from the Regional Manager's office, as this appeal process was conducted as a new hearing, and has, therefore, cured any defect in the process below.

[43] Zella acknowledges that the Project is not without "any" impact, and that it does not meet an absolute standard of "no risk". However, Zella submits that a standard of "no risk" is not the applicable test. Zella maintains that the Regional Manager did not err when he considered the Province's interest in supporting run of the river projects, and independent power producers. Ultimately, Zella submits that the Regional Manager's decision protects the interests and rights of other water users, as well as the environment, human health and safety.

[44] Further, Zella submits that the regulatory authority protecting the environment does not cease with the issuance of the Licence. The protections extend over the life of the Project through the monitoring requirements. It notes that adjustments may be made to the Licence as a result of new issues that arise, or new information that becomes available.

[45] Zella submits that there is no evidence to show that the Regional Manager erred in granting the Licence. Zella asks for the Licence to be upheld, and for the appeal to be dismissed.

[46] For the Participants, Robert Cunningham attended a portion of the hearing and advised that he was interested in the Project and was a friend of the Appellants. He advised that he was impressed with what he had seen so far, and

advised that the Participants were not interested in participating any further in the hearing.

The Hearing

[47] The Panel received volumes of documentary evidence at the hearing, and heard from nine witnesses.

[48] Maureen Chapman testified for the Appellants. The Appellants tendered photographs and portions of reports by Zella, as well as two reports that spoke in general terms about river-oriented hydro projects. The two reports were not entered as exhibits; they were received by the Panel as information items only. As these reports were not entered as exhibits, were not specific to the Project or the Creek, and were extremely general in nature, they were given no weight by the Panel.

[49] The Regional Manager testified at the hearing. He gave evidence regarding his decision-making process, and tendered two large binders of documents containing, among other things, the reports and assessments provided to the Ministry before the Licence was issued, and afterwards.

[50] Zella tendered seven large binders of documents and called seven witnesses. Six of those witnesses were qualified as experts, in so much as they could provide professional opinions on matters contained in their respective technical reports. Some of the witnesses testified in panels. Zella's witnesses were as follows:

Hannah Holden, is a communications manager employed by Zella. She testified regarding Zella's consultations with the public and First Nations.

Ryan Mowatt, P.Eng., is a mechanical engineer employed by Zella, his families' business.² He was the project manager and chief engineer for the Project, and gave evidence regarding the Project, the application process, and the reports that he authored and co-authored with Mr. Sohy.

Michael Sohy, P.Eng., is a mechanical engineer employed by Zella. He was qualified to give opinion evidence on mechanical engineering, hydrologic measurement calculation and prediction of water flows. He testified as a panel with Mr. Mowatt and gave evidence regarding the contents of his/their reports regarding the gauging and discharge assessment, and hydrological assessment of the Creek.

Sean Faulkner, R.P.Bio., and Dr. Andrew Harwood, Ph.D., R.P.Bio., are fisheries biologists with Ecofish Research Ltd. They provided a total of 12 reports on fish habitat, ramping, instream flow, hydraulic connectivity, among other things. They testified as a panel regarding their reports.

² Although this is a family business, the evidence before the Panel is that he has no specific ownership in Zella.

Claudio Bianchini, R.P.Bio., is with Bianchini Biological Services. He gave evidence on the terrestrial and wildlife biology (including the Coastal Tailed Frog salvage), vegetation, and his three reports prepared in 2014 and 2015 regarding these matters.

Drew Brayshaw, P.Geol., is a senior hydrologist and geomorphologist with Statlu Environmental Consulting Ltd. He testified regarding hydrology and fluvial geomorphology and his 2013 report on these matters.

ISSUES

[51] The issue to be determined in this hearing is whether the Licence is reasonable in the circumstances.

RELEVANT LEGISLATION

[52] The following sections of the *Water Act* are relevant to this appeal.

[53] Section 1 of the *Water Act* defines "power purpose" as "the use of water in the production of electricity".

[54] Section 12 of that *Act* provides the Regional Manager's authority to grant Zella's application for a water licence. It states:

Powers of comptroller or regional water manager respecting applications

12(1) With respect to an application, whether objections to it are filed or not, the comptroller or the regional water manager may

- (a) refuse the application,
- (b) amend the application in any respect,
- (c) grant all or part of the application,
- (d) require additional plans or other information,
- (e) require the applicant to give security for the purposes and in the amount and form the comptroller or the regional water manager considers in the public interest, and
- (f) issue to the applicant one or more conditional or final licences on the terms the comptroller or the regional water manager considers proper.

...

DISCUSSION AND ANALYSIS

Whether the Licence is reasonable in the circumstances.

[55] To decide this issue, the Panel has grouped the evidence and submissions into four broad subject areas:

- a) Administrative process issues
- b) Project operational issues
- c) Variable water flows in the Creek
- d) Fish and environmental impact issues

a) Administrative process issues

Zella's involvement in responding to questions and concerns

[56] One significant overriding process concern raised by the Appellants is the lack of direct communication between the Appellants and the Regional Manager/Ministry staff.

[57] When the Appellants sought information from the Regional Manager or his staff, the request was forwarded to Zella, who generally replied to the Appellants in a prompt manner. The Appellants were surprised at this procedure, as they were never told that their concerns would be forwarded to the Project proponent. The Appellants expected, and preferred, that the Ministry answer their questions as they believed that the Ministry would provide an impartial assessment and response.

[58] The Regional Manager states that it was necessary for him to refer the Appellants' information requests and concerns to Zella, so that the Regional Manager could remain in a neutral decision-making role. Further, the Guidebook states that the proponent is responsible for addressing the concerns and questions of interested parties.

[59] The Regional Manager also states that, while Zella responded to the information requests prior to the Licence being issued, a meeting was held in February 2015 with interested parties, including the Appellants and Zella. During that meeting, the Appellants were able to express their concerns directly to him.

[60] Zella advises that it responded to all information requests and questions from the Appellants, and others. Further, all documents pertaining to the Project were available on-line and in the public library.

The Panel's findings

[61] There was no evidence before the Panel establishing that the Appellants did not have access to, or receive, the information they requested. Further, based upon the evidence before the Panel, the procedure adopted by the Regional Manager is consistent with general Ministry practice and the Guidebook. In the Panel's view, this practice makes sense in the context of technically complex

projects. During the application phase, the Ministry is in the best position to answer questions about its process, the legislation, or its regulatory authority generally. It is not in the best position to answer technical questions about a project, the proponent is. The proponent is in the best position to respond to information requests and concerns regarding its project, as it has access to the technical advisers and consultants that are investigating, assessing and designing the various aspects of the project.

[62] In addition, the proponent is in the best position to make changes to its plans or application in order to address issues arising from the comments or objections.

[63] As the public's comments and the proponents responses are reviewed by the Ministry as part of its decision-making process, it has the ability to ensure that any credible or reasonable concerns are addressed prior to, or as part of, the decision. That is what occurred in this case.

[64] While the process used is reasonable, it clearly came as a surprise to the Appellants. When the Regional Manager was asked whether he or, to his knowledge, his staff, had ever advised the Appellants that all requests for information would be forwarded to Zella, he stated that he did not believe so. The Regional Manager did state that, in hindsight, it would have been a good idea to ensure that the Appellants were aware of the practice and the policy of forwarding the questions and information requests to the proponent. The Panel agrees. The Panel recommends that, in the future, this be made clear to objectors in advance.

[65] Having considered all of the evidence, the Panel finds that the Ministry's reliance on Zella to respond to questions and concerns about its application, and the Project, was neither unreasonable or improper in the circumstances.

Concerns with self-monitoring and reliance on the proponent's contractors

[66] The Appellants are also concerned with the self-monitoring and professional reliance aspects of the Project. The Appellants understand that, as the Ministry does not have sufficient qualified professionals, it relies on the independent qualified professionals retained by a project proponent. These professionals are in place during the construction and commissioning phases of a project, and undertake monitoring for one to five years once a project is operational.

[67] The Appellants are concerned that Zella, having invested \$14 million in the Project, will push the limits of the Licence and operate during low flow events. The Appellants are concerned that these types of events may not be reported or prevented under a self-monitoring regime. Further, if government cutbacks continue, the Appellants are concerned there will be no one to monitor the independent monitors as the Project goes forward.

[68] The Regional Manager confirmed that the Ministry has shifted to a professional reliance model for projects, such as the one at issue in this appeal. This approach is used as the government does not have the in-house professional resources necessary to undertake the various assessments required.

[69] In light of this reality, the government has developed the Guidebook, which sets out the basic requirements for clean energy projects. It also explains the kinds

of qualified professionals needed to provide the necessary studies and documentation. The Regional Manager testified that, in cases where government in-house technical advisors have previously found the work of the qualified professional to be deficient, additional work from other qualified professionals has been requested, and complaints have been filed with the appropriate professional regulatory body. That did not occur with this Project.

[70] The Regional Manager also testified that Zella is required by the Licence to retain an independent engineer and an independent environmental monitor who must be approved by the Regional Manager. He testified that these individuals, although hired and paid for by Zella, sign a contract with government and provide information and reports, as directed by the Regional Manager, during the design and construction of the works authorized in the Licence. In terms of the operational phase of the Project, the Regional Manager states that the Licence contains provisions requiring on-going monitoring and reporting to government.

The Panel's findings

[71] The Appellants did not challenge any of the evidence presented by the Regional Manager or Zella concerning the actions and/or conclusions of the professionals involved with the Project. These professionals must conform to the professional standards required by their profession's governing body, and there is no evidence that they have acted in an unprofessional or incompetent manner. Importantly, there was no evidence before the Panel that the reports and conclusions of these professionals, that were considered by the Regional Manager and now by this Panel, were deficient or defective.

[72] Further, the Panel finds that there are sufficient checks and balances in the Licence, and sufficient consequences for failure to comply with the Licence set out in the legislation, to ensure that water is not diverted if the minimum flow requirements are not met, and to ensure that proper monitoring and reporting is conducted.

b) Project operational issues

Ramping

[73] The Appellants are concerned that Project start-up and shut-down events could negatively impact water flow in the Creek. The Appellants submit that the area experiences numerous power outages, of varying duration, that could lead to an interruption of plant operations. In turn, this could result in "ramping events" as the Project cycles through shut-down and start-up. These ramping events can result in fish being displaced downstream, or stranded in the diversion reach.

[74] The Appellants referred to evidence from Zella (Exhibit 27, Aquatic Environmental Affects Assessment, Harwood et al.) that, although there are controls in place to prevent ramping rate exceedances, mechanical, operational or operator errors can, and do, occur, and could result in fish mortality. The

Appellants submit that, as more high flow events occur in the Creek, there is more chance of something going wrong.

[75] Zella submits that ramping risks have been specifically studied by the fisheries biologists retained by Zella. They are satisfied that the Project design and operation protocols have appropriately reduced the associated risks. Further, in the unlikely event that adjustments are required, any ramping risk can be addressed by the ongoing regulatory oversight under the Licence.

[76] The Regional Manager submits that, when considering whether to grant a licence, the question for a regional manager is not whether there are risks or impacts, but whether the associated risks or impacts are acceptable. The Regional Manager submits that the information provided by the professionals on this file answer the Appellants' concern. Further, the ongoing regulatory oversight under the Licence provide additional protections.

The Panel's findings

[77] There is no evidence before the Panel to establish that the risks associated with ramping are not adequately addressed by the Project design, operation protocols, and the ongoing regulatory oversight provided under the Licence.

[78] Mr. Mowatt testified regarding some of the design and operation protocols in place to address ramping. He also explained the safeguards and protocols in place to address power outages so they will not result in ramping issues.

[79] In addition, the fisheries biologists, Dr. Harwood and Mr. Faulkner, who studied the ramping risks, testified that the risks have been properly addressed by the design and by the operation protocols. These witnesses were subject to cross-examination by the Appellants. Their evidence was not challenged.

[80] Further, the Panel notes that paragraph 3 of the Licence states that "Ramping rate must be managed as per default ramping rates of maximum stage change of 2.5 cm/hour when fry are present; and 5.0 cm/hour otherwise, until different rates are established through Ramping Rate Study and approved by the Regional Water Manager." This indicates that ramping has been considered by the Regional Manager and will be monitored.

[81] The Panel concludes that there is unlikely to be any adverse impacts to the Appellants, or to the environment, from ramping. Further, in the event that adjustments are required, the Panel agrees that there are regulatory mechanisms in place to address ramping, as required.

Tailrace screening

[82] The Appellants are concerned that the present configuration plan calling for an unscreened tailrace outlet means that there is no barrier stopping the fish from entering the diversion reach, and possibly becoming stranded. The Appellants refer to the Regional Manager's evidence that Zella's decision to leave the outlet unscreened was due to engineering and cost concerns regarding ongoing

maintenance. In the Appellants' view, this approach is one of cost taking precedence over fish safety.

[83] Dr. Harwood testified that, while it used to be standard practice to screen the tailrace outlet, the Independent Engineer advised that the current "best practice" is to provide an unscreened outlet. However, Zella also submits that monitoring of the unscreened outlet will be undertaken. If a risk of fish stranding in the energy dissipation chamber is indicated, screens to exclude adult fish from the tailrace will be installed.

The Panel's findings

[84] The Panel heard substantial evidence on the tailrace design and screening vs not screening. Based upon the uncontradicted evidence of the qualified professionals, the Panel concludes that it is reasonable to have an unscreened tailrace outlet. The Panel also notes that ongoing monitoring will be beneficial in determining whether changes are required.

Project economics and power production

[85] The Appellants are concerned that the Project will not be able to generate sufficient power to remain economically viable, and that this may lead Zella to abandon the hydro-electric plant. The Appellants are concerned that, in the event of abandonment, there is no provision for plant decommissioning, site cleanup and environmental cleanup.

[86] In support, the Appellants refer to Zella's evidence that the plant will operate at full 2750 kilowatts output 26.9% of the time, and at less than 275 kilowatts approximately 12% of the time. At less than 275 kilowatts, the plant may have difficulty operating. The Appellants are concerned that, with climate change, this situation could worsen, and power production will drop farther making the Project economically unviable.

[87] Zella submits that it has undertaken financial forecasts and has concluded that the Project is viable, based on the internal rate of return. Zella recognizes that this is a very small plant, and is estimated to have a "break even" commercial value. It provided evidence showing that, based on simulated hydrology, the average annual energy output is estimated at approximately 13 million kilowatt hours per year.

[88] The Regional Manager testified that bonds for plant decommissioning are not requested under the *Water Act*, because banks will not issue letters of credit for the time required to cover the life of a plant. The Regional Manager also testified that decisions of this nature are not within the purview of a regional manager, but of government as a whole: a regional manager cannot make guarantees, commitments, or provide assurances for issues such as project abandonment and associated cleanup actions.

The Panel's findings

[89] The Panel finds that there is no evidence that the Project will be, or is reasonably likely to be, economically unsustainable, and that the hydro-electric plant could be abandoned; rather, the submission was based entirely upon speculation. The Panel will not overturn a licence based only on speculation.

c) Variable water flows in the Creek

[90] Mrs. Chapman testified that, in the 43 years that the Appellants have resided on their property, they have witnessed several high flow events associated with the Creek. Further, they have observed that these events are occurring more frequently over the last decade. The Appellants are concerned that these flood events will happen more frequently with climate change.

[91] Mrs. Chapman also testified that the Appellants have experienced times when the flow in the Creek is so low that they are unable to obtain water under their licence. The Appellants are concerned that, as the Licence authorizes Zella to use the Creek on a year-round basis, the Project will draw water when the Creek does not have sufficient water to meet environmental needs as well as the existing licensed demand.

[92] Mr. Mowatt testified that due to the nature of the Project (i.e., the diversion of a portion of Creek water to a penstock to facilitate a stable and controlled drop before reintroduction to the Creek), the Project will neither impact, nor mitigate, the natural flood events of this Creek. Mr. Mowatt further testified that Zella is aware of the Licence requirements regarding the minimum instream flows.

[93] The Regional Manager relied upon the studies and opinions by Zella's professionals to conclude that the Licence will not increase the risk of flooding, nor be impacted by flooding. Regarding low flows, the Regional Manager points out that minimum instream flows are required by the Licence to meet environmental needs and existing demands.

The Panel's findings

[94] The uncontradicted evidence tendered by Zella is that the Creek is "flashy", and is subject to high flow events, and that the Project will neither contribute to flooding, nor mitigate the naturally occurring flood events. Nor will the Project contribute to or mitigate the naturally occurring low flow events. Further, in terms of sediment accumulation, Zella's evidence is that no residual adverse effects are anticipated from sediment being flushed occasionally from the headpond during high flow times.

[95] Regarding low flows, the Licence contains a provision setting out the minimum flow that must be maintained at all times, and the evidence demonstrates that this flow is sufficient to support the environmental and existing licence demands on the Creek.

[96] The Appellants' have raised concerns about the impact of variable water flows, without providing anything more than speculation and supposition. The Appellants provided no evidence to demonstrate that the Project will be negatively impacted by flooding, or that the Licence itself will contribute to flooding or low water flows that could negatively impact the Appellants' property or water licence. The Panel cannot cancel the Licence, or even vary its terms, without credible evidence.

[97] The Panel finds that the weight of the evidence is that variable water flows have been considered and have been addressed by the Project design and the requirements in the Licence.

d) Fish and environmental impacts

Fish presence in the diversion reach

[98] The Appellants are concerned that the Licence will result in negative impacts to fish and fish habitat. The presence of fish in the diversion area is of concern to the Appellants because the evidence from Zella (Exhibit 27, Tab 4, Aquatic Environmental Effects Assessment, Harwood, Faulkner et al.) shows that macroinvertebrate habitat stands to be decreased by 51% in the diversion area. The Appellants consider this loss of macroinvertebrate habitat to be significant, and fear that it will lead to a significant decrease in food available to fish.

[99] Zella presented evidence (exhibit 27 tabs 10 and 11, reports by Harwood et al.) that fish in the diversion reach may be a relatively recent occurrence. It may have occurred as a result of a high water event that allowed fish, possibly one pair of adults, to pass over an instream barrier previously considered impassible to fish. Once the fish presence was confirmed, work was undertaken to ensure that Fisheries and Oceans Canada requirements (Cathcart Protocols) were met.

[100] In terms of the 51% macroinvertebrate habitat decrease, Dr. Harwood testified that a 50% loss of swift water macroinvertebrates' habitat does not necessarily correlate to a 50% loss of macroinvertebrates overall. This is because the swift water habitat is replaced with suitable habitat for slow water macroinvertebrates, which are also a source of fish food. Further, Dr. Harwood testified that a conservative approach to estimating the habitat loss was taken, so it is likely that the actual habitat loss is less than was initially estimated.

[101] The Regional Manager testified that as part of the Leave to Commence Construction, he ordered additional sampling for fish in the diversion reach of the Creek using the sampling methodology followed in 2013. When the results of this additional sampling found, unlike previous studies, that there were trout in the diversion reach, the Regional Manager required an assessment of the quality of the habitat, considered whether it could be protected, and considered whether mitigation or compensation measures were appropriate. After considering provincial policies and the input of the qualified professionals on the file, the Regional Manager decided to enhance the compensation plan and increase Project-related monitoring. He also made changes to the ramping rates to address fish.

[102] The Regional Manager testified that, even if fish had been found in the diversion reach before the Licence was issued, this does not mean that he would have denied the Licence. He testified that it is normal for fish to be in a diversion reach. Had he been aware of fish presence in the diversion reach before issuing the Licence, his actions would have been the same as they were once the fish presence was known; that is, he would have assessed the habitat and considered compensation or mitigation measures.

[103] The Regional Manager submits that, the fact that additional work was requested as part of the Leave to Commence Construction, demonstrates that regulatory oversight does not end with a licence being issued. The fact that this additional work led to changes in the allowed ramping rates, and in the Project monitoring requirements, demonstrates that adaptive management is in play. Moreover, it is evidence of the environmental protections contained in the Licence.

The Panel's findings

[104] The Appellants did not challenge the evidence or testimony presented by Zella or the Regional Manager. Further, the Panel found Zella's fisheries witnesses to be credible and knowledgeable on this subject, and accepts their evidence that changes in the macroinvertebrate habitat will not result in a loss of food available to fish.

[105] There is no evidence before the Panel to demonstrate that the Licence ought to be cancelled, or varied, due to the presence of fish in the diversion area, or due to changes to the macroinvertebrate habitat.

Blue-listed species impacts and management

[106] The Appellants are concerned that there are a number of blue-listed species in the Project area. They understand that, prior to certain construction activities, a number of Coastal Tailed Frogs (the "Frogs"), a blue-listed species, were relocated. The Appellants are concerned that there is no information on the survival rate of these relocated Frogs.

[107] Zella tendered evidence from Mr. Bianchini that, of the blue-listed species identified in the Project area, attention was focused on the Frogs because the Licence-related impacts on the Frogs were estimated to be "moderate". As a result, a Frog salvage program was conducted prior to construction of the intake. A total of 627 Frogs and eggs were relocated to a suitable site, approximately 100 metres upstream of the work area.

[108] Zella submits that, in terms of ongoing monitoring, the Operational Environmental Monitoring Program calls for three years of Frog and stream habitat monitoring post construction. In the event that negative effects are suspected, an additional two years will be added to the monitoring program.

The Panel's findings

[109] The uncontradicted evidence demonstrated that effects on blue-listed species is not significant. The Panel finds that the Regional Manager considered the impacts of the Licence on the blue-listed species, including the Frogs.

[110] Regarding the Appellants' question about the survival of the relocated Frogs, it appears that this information may become available in the future as a result of the monitoring done under the Operational Environmental Monitoring Program referred to by Zella (above).

[111] Based upon all of the evidence before the Panel, the Panel finds that there is no basis to cancel or vary the Licence because of impacts to blue listed species, including the Frogs.

Climate change and cumulative impacts

[112] Zella's evidence is that Licence-related environmental impacts have a low likelihood of occurring. The Appellants are aware of this evidence, but submit that no one can predict what kinds of impacts may arise with climate change. Further, the Appellants are concerned with the cumulative effects of this Project, in concert with other activities in the larger area (e.g., logging).

[113] Zella refers to the evidence of the fisheries professionals. The fisheries professionals testified that they considered the cumulative effects of the Project within the watershed, and the adjacent Wahleach Creek watershed, in association with residual effects: they considered activities such as forestry, other hydro-electric facilities, agriculture and fishing. Based on their analysis and professional judgment, Zella submits that the Licence is not expected to cause significant residual cumulative adverse effects on the fish in the Lorenzetta Creek and the Wahleach Creek watersheds.

[114] The Regional Manager and Zella submit that issues related to climate change are speculative and are not properly before the Panel. However, they note that, in the event of changes resulting from climate change or other factors, the Licence contemplates additional monitoring, the terms of which can be adapted and changed as required. Consequently, any changes resulting from climate change or other factors can be addressed.

The Panel's findings

[115] Based upon the evidence presented, the Panel finds that the environmental impacts of the Project, specifically the Licence, have been adequately addressed.

[116] With respect to the Appellants' concerns with climate change and cumulative impacts, the Panel is satisfied that, to the extent that cumulative impacts can and should be studied and addressed in the context of an application for a water licence, they have been in this case.

[117] Having said that, it is clear that some impacts, including those resulting from climate change, may not be known until later. For those unexpected or unknown

impacts, the Panel is satisfied that the Licence, and the legislation, provide sufficient authority for the Ministry to deal with new impacts as they arise. The Appellants concerns with these issues are not sufficient to cancel, or vary, the Licence.

Habitat loss and compensation/mitigation

[118] The Appellants submit that, as the habitat loss associated with this Project exceeds the 20% threshold established by the Ministry, the Project should not be allowed to proceed.

[119] Zella tendered evidence and expert testimony of the fisheries biologists, Dr. Harwood and Mr. Faulkner, on this issue. It submits that this evidence demonstrates that, although the habitat loss is predicted to exceed 20%, the loss percentage applies only to the 63 metre fish-bearing section of the diversion reach, resulting in absolute habitat loss of less than 35 square metres. Further, Zella submits that the evidence demonstrates that these habitat losses are likely overestimates due to the manner of calculation.

[120] It was noted by the fisheries biologists that the habitat losses occur in areas that are marginal habitat - areas used only intermittently, or recently, by fish. In contrast, the lower reaches of the Creek, used by salmon and trout, are of higher quality. The habitat in the lower reaches of the Creek, however, has been degraded over the past several years due to the impacts of agriculture, development, and stream channelization. Zella recommends that the habitat loss be offset by stabilizing banks and enhancing 80 square metres of aquatic habitat, and restoring 630 square metres of riparian habitat in the lower, more productive, reaches of the Creek.

[121] Zella tendered evidence from the fisheries biologists that, with offsetting of the predicted habitat losses, the Project is not expected to cause significant residual adverse effects to fish in the Creek, and no serious harm to fish is expected. These opinions were not challenged by the Appellants.

[122] The Regional Manager testified that the 20% threshold referenced by the Appellants is a general guideline used within the region to help determine where attention should be paid. He testified that, in his experience with other projects, habitat loss predictions are not always realized, as a conservative approach is used when estimating the loss. He accepted the recommendation from the fisheries professionals that compensation activity be undertaken in the downstream reach of the Creek, which had higher value fish habitat, had been degraded over the years by agriculture, stream channelization and development, and provided a high quality opportunity for habitat restoration.

The Panel's findings

[123] The Appellants did not challenge the evidence tendered by Zella and the Regional Manager on this issue. The Panel found the witnesses to be credible and highly knowledgeable in this area. It accepts the conclusions of these witnesses

regarding the impacts to fish and fish habitat, and the habitat compensation/mitigation measures, and agrees with those findings.

Conclusions

[124] The Panel finds that the Licence issued to Zella by the Regional Manager does not result in water loss or impoundment, and provides that a minimum flow be maintained in the diversion reach. There was no evidence tendered that the water use authorized under the Licence will impact the Appellants' use of water authorized by their licence.

[125] The evidence before the Panel demonstrates that ramping rates have been developed in accordance with protocols that are based on fish presence and provide for minimal impact on those fish.

[126] The Appellants did not challenge the qualifications of Zella's expert witnesses nor, frankly, any of the evidence proffered by Zella or the Regional Manager.

[127] As noted earlier, the evidence tendered by the Appellants consisted of photographs and portions of reports by Zella. The two reports that spoke in general terms about river-oriented hydro projects were received by the Panel as information items. The Panel finds that the Appellants did not provide any evidence to establish that the Licence should be cancelled, or that any of its terms ought to be varied.

[128] Zella tendered evidence to demonstrate that when fish were found in the diversion reach, the ramping rates were revised, and compensation and mitigation measures were adjusted. The Panel accepts that, as asserted by Zella, this demonstrates that monitoring and oversight programs required by the Licence are prudent. This also demonstrates the effectiveness of the continuing regulatory oversight by the Regional Manager in order to address unforeseen changes that might have an effect on the environment.

[129] The Panel also accepts that the Appellants have concerns about the Project, and that some of this concern arises from the concept of risk, and the use of the term "risk" by the various professionals on the file. The Panel notes that the identification of risk, as an evaluation of the consequences of unknowns, is an important part of any assessment done by a professional. Characterization of impacts in terms of risk does not in and of itself indicate that the Project is unsafe, or that the Licence ought not to have been issued. The evidence before the Panel demonstrates that the risk is manageable, and that, overall, the impacts to fish and fish habitat can be addressed by way of mitigation/compensation.

[130] Based upon the evidence, the Panel finds that the Licence is reasonable in the circumstances. The Licence is confirmed. If the Panel were to make such a finding, the Appellants have asked the Panel to require Zella to email them all of the data, readouts, and studies undertaken during the monitoring of the Project. The Panel will not make such an order.

[131] According to Zella, it has made all materials relevant to the Project available in the local library, and on-line. In the Panel's view, Zella should continue to make information available to the public to ensure it can be accessed by the Appellants, and any other interested member of the public. This is consistent with the

recommendation in the Regional Manager's decision letter that Zella communicate with the neighbours.

DECISION

[132] In making this decision, the Panel has considered all of the evidence and arguments provided, whether or not they have been specifically reiterated herein.

[133] For the reasons set out above, the appeal is dismissed.

"Robert Wickett"

Robert Wickett, Q.C., Panel Chair
Environmental Appeal Board

"James S. Mattison"

James S. Mattison, Member
Environmental Appeal Board

"Linda Michaluk"

Linda Michaluk, Member
Environmental Appeal Board

August 24, 2016