



**ONTARIO
RIVERS
ALLIANCE**

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14 May 2014

Minister of the Environment
77 Wellesley Street West
11th Floor, Ferguson Block
Toronto, ON
M7A 2T5
Email: Minister.MOE@Ontario.ca

Dear Minister:

Re: The Chute & Third Falls Waterpower Projects - Ivanhoe River

Ontario Rivers Alliance (ORA) is a Not-for-Profit grassroots organization acting as a voice for the French River Delta Association, CPAWS-Ottawa Valley, Kiishik Community Association, Food & Water First, Whitewater Ontario, Vermilion River Stewardship, Friends of Grassy River, Mississippi Riverwatchers, French River Stewardship, as well as many other stewardships, associations, and private and First Nations citizens who have come together to protect, conserve and restore healthy river ecosystems all across Ontario.

First of all ORA would like to thank Xeneca staff for ensuring that the Environmental Report (ER) and supporting documentation were fully searchable, and user-friendly. This is always appreciated, and is especially important for meaningful public and First nation participation on such a large ER, and within such a short comment period.

Xeneca Power Development Inc. (Xeneca) is proposing to build two hydroelectric generating stations (the Project) at The Chute and Third Falls sites located 44.2 km apart along the Ivanhoe River. The proposed "Modified Run-of-River" Project would have a total Installed Capacity of 2.9 MW at The Chute and 3.8 MW at Third Falls. There is some uncertainty as to what the actual Installed Capacity of this Project will be, given our comments below - No 3.

ORA initially commented on the proposed Ivanhoe River – The Chute Generation Station ER in 2011, and on the 8th of August 2011, made a Part II Order request to the Minister of the Environment to elevate the ER to an Individual EA.

ORA would like to comment on the Ivanhoe River, The Chute and Third Falls Generation Stations Class Environmental Assessment for Waterpower Projects Environmental Report.

Summary of Recommendations

Recommendation 1:

After having carefully reviewed the Ivanhoe River Generating Stations for The Chute and Third Falls ER, and its supporting documentation, ORA is requesting that the Minister of Environment issue a Part II Order to elevate this EA to an Individual Environmental Assessment.



Recommendation 2:

1. Xeneca be required to produce all correspondence relating to First Nation communications, so the public can fully review the consultation process and any business arrangements that would involve government, public or taxpayer dollars.
2. Xeneca be required to hold Information Centres and meaningful consultation with all relevant First Nation communities.
3. Xeneca be required to integrate Traditional Knowledge as a key consideration and foundation for this Project.

Recommendation 3:

Xeneca be required to hold a PIC in Timmins to provide those citizens with an opportunity for input into this Project.

Recommendation 4:

Xeneca be required to confirm whether an amendment to the FIT Contract is required, and is available.

Recommendation 5:

Xeneca be required to provide the data that supports the claim of "minimal" alterations to temperature, water quality and sediment beyond the downstream ZOI.

Recommendation 6:

1. Xeneca be required to provide an effectiveness monitoring plan to demonstrate that the flow re-naturalization objective has been achieved.
2. Xeneca be required to provide a detailed plan of how operations will be tailored or adjusted if flow re-naturalization objectives are not achieved.
3. Xeneca be required to run the entire Project as a true run-of-river operation if re-naturalization cannot be achieved.
4. Xeneca be held financially responsible if the CR is damaged by this Project.

Recommendation 7:

Xeneca be required to refer to the Third Falls operation as a "modified run-of-river" operation.

Recommendation 8:

1. Xeneca be required to verify the accuracy of their projected power generation output with flow metrics by an independent third party.
2. Xeneca be required to verify the economic viability and sustainability of this Project with an independent third party.

Recommendation 9:

Xeneca be required to secure funds up front to be used in the event that damage occurs to the PPCRA as a result of their operation.

Recommendation 10:

1. Xeneca be required to complete geomorphic studies throughout the entire 50.4 km ZOI before this project proceeds.
2. Xeneca be required to provide a comprehensive monitoring and mitigation plan throughout the full 50.4 km ZOI.
3. Xeneca be required to consult with the public before any amendments are granted to change the Project operating regime.



Recommendation 11:

Xeneca be required to ensure dam design and operating strategy achieve reduced residence time in the headpond to ensure water temperature does not increase.

Recommendation 12:

Xeneca be required to prepare a long-term projection of the environmental, social and economic sustainability of the Project.

Recommendation 13:

Xeneca be required to accurately and clearly communicate the contribution this Project will make to the production of GHG emissions.

Recommendation 14:

Xeneca be required to take and analyze a sediment core sample to determine what heavy metals and nutrients are contained in the river sediment.

Recommendation 15:

Xeneca be required to complete a comprehensive methylmercury study that will examine all of the above identified factors existing within the proposed headpond area, including soil and sediment, to provide a quantitative analysis and a projected post-construction estimate of increased mercury levels in fish tissue.

Recommendation 16:

Xeneca be required to include the possibility of the Ivanhoe Lake Control Dam failing in their engineering and construction plan, as well as in their emergency response plan.

Recommendation 17:

Xeneca be required to complete a Socio-Economic Impact Assessment to determine the feasibility of this Project over the next 40 years, and how it will impact on the local economy, recreation and tourism, fisheries, water quality, risk to the CR, as well as the potential loss of fish as a food source.

Recommendation 18:

Xeneca be required to properly assess the potential cumulative effects of all past, present and future human impacts on the Ivanhoe River system?

Recommendation 19:

Xeneca be required to provide a monitoring, compensation and mitigation plan to ensure the Brook Trout population is protected.

Recommendation 20:

Xeneca be required to complete a Marine Archaeological Assessment.

Recommendation 21:

Xeneca must be required to secure funds up front for future dam decommissioning in the event this facility is no longer socially, environmentally or economically sustainable and needs to be removed.

Recommendation 22:

Xeneca be required to incorporate fish friendly turbines to reduce fish mortality for downstream passage.



Recommendation 23:

Xeneca be required to ensure all ER documentation is clear, complete, concise, informative and accurate.

ORA Comments:

Please note that all underlined text contained in this letter is ORA's emphasis, used strictly to draw the reader's attention.

1. First Nation Consultation

A Lack of Credibility and Trust in the Relationship:

At a 27 January 2011 meeting with Chapleau Cree First Nation, Chief Corston "*indicated that they would only support a "run-of-river" dam that captured the current waterflow and had as little impact as possible in terms of impacting the river system.*" In response, "*Dean and Arnold made it clear that we were only in the preliminary stages of the project and that no decisions had been made about any particular operational design. Arnold noted that the decisions about what kind of structures and the operational nature of the dam structures would require broad consultation with the Crown agencies, First Nation communities and the public at large."¹*

The Ivanhoe River ER was issued just 6 months after this meeting, so it is unlikely that the operating strategy was not already determined to be "modified run-of-river", especially since there were extensive headponds illustrated in Display Panels from earlier consultation sessions. The Project Description isn't dated, but it would have been generated early on in the development of the project, and it reported that the project was "*modified run-of-river*"². Therefore, it was very misleading to inform Chief Corston that the operational design and nature of the dam structures were not known at that time. Xeneca did not communicate this information in a transparent manner with Chief Corston, and this raises the concern of what other crucial elements of this development have not been made clear to First Nations.

The Chief later made a comment to Bob Johnston that "*some responses he received for his questions were either evasive or Xeneca did not know what the full project vision was at that time*", and that "*this has caused a lack of credibility and trust in the relationship*".³ It was also mentioned in a message from Arnold Chan to Dean Assinewe, dated 12 November 2013, reporting on a recent meeting with Chief Corston of Chapleau Cree First Nation, that the Chief relayed his concern that there was still "*insufficient detail about what Xeneca was proposing to build*".⁴ It is unacceptable that only 6 months before the final ER was issued that the Chief still did not feel he had sufficient detail regarding the project.

In another message where Arnold Chan was relaying his conversation with Chief Joseph Buckell, Michipicoten First Nation, it was reported that the Chief said, "*going forward, the only sites that would be built were run-of-the-river. I indicated to him that this was not the proposed operation for all of Xeneca's sites but that we would be considering intermittent*

¹ Appendix M – Aboriginal Consultation, 27 January 2011, Meeting with Chapleau Cree First Nation, P-193

² Project Description, The Chute, (Ivanhoe River) Hydroelectric Generation Station – 2011 ER P-15

³ Appendix M – Aboriginal Consultation, 27 March 2012, Meeting with Chapleau Cree First Nation, P-198

⁴ Appendix M – Aboriginal Consultation, 12 November 2013, Meeting with Chapleau Cree First Nation, P-209



*operations, but that water would pass within 24 hours.*⁵ Instead of just answering directly that they proposed to build a "modified run-of-river" project, the term "intermittent operations" was used without explaining what that meant. Xeneca knows that if the type of operation was fully explained to the First Nation communities at that time that there would be little chance of gaining support or a signed MOU.

Insufficient Consultation Open to All Community Members:

At a 20 February 2014 "meeting" with Mattagami First Nation, Arnold Chan was just addressing the topic of *"how the community wishes to be consulted"*. This is rather late in the consultation process to be trying to determine methods of Aboriginal consultation. It appears as though it was a meeting between Xeneca and key First Nation members, and it was only by chance that *"members of the community mingled with the Xeneca team and reviewed the information panels"*, and when *"additional youth walked into the room during the presentation"* that any information about the project was explained to anyone other than those in attendance at the meeting.⁶ It is unclear from the documentation what type of community consultation took place, or if in fact any ever did take place. It appears as though the primary objective was to secure a business to business deal.

It is very backwards and irregular to address a business to business deal without first opening consultation to the entire community. Many First Nations place the spirit of water ahead of financial gain, and they may have wanted to have input into any decision to support the project, or at least have input into the planning and mitigation of these projects. This was evident when *"Jason went on to note that on the issue of consultation – it is impossible for the communities to move forward without a Memorandum of Understanding (MOU) in place. The communities indicated that they were not interested in Information Centres until a business to business MOU that sets up the principles of the partnership between the communities and Xeneca has been formalized."*⁷

There is no evidence that a full community presentation and consultation ever took place. It was up to Xeneca to refuse any business to business deal until all community members had an opportunity to be consulted. The other alternative was to wait until after all communities had been properly consulted before issuing the ER.

Taykwa Tagamou Nation (TTN) *"asserted the need for Xeneca to have a face to face meeting with the Chief and Community to ensure their concerns are heard and addressed."*⁸ There is no documentation stating that this ever happened. Also, Arnold Chan assured the TTN that *"the information communicated today will be communicated to all communities associated with the project and will make information available to all communities at the same time and keep them updated of the process and stage in the project."* We saw nothing in the ER that demonstrates that the TTN community was every consulted.

The ER asserts that, *"TTN indicated that they do not feel that the Ivanhoe project falls within the scope of their traditional territories."*⁹ However, there is no documentation in the ER that supports this assertion, and there is no evidence that the people living within the community were ever consulted.

⁵ Appendix M – Aboriginal Consultation, 9 May 2013, Email from Arnold Chan, Re: Michipicoten P-396

⁶ Appendix M - Aboriginal Consultation, 20 February 2014 Meeting with Mattagami First Nation & Xeneca P-335

⁷ Appendix M - Aboriginal Consultation, 17 February 2011 Meeting with Wabun Tribal Council & Xeneca P-547

⁸ Appendix M - Aboriginal Consultation, 10 May 2011 Teleconference Meeting with Taykwa Tagamou Nation & Xeneca P-529

⁹ Ivanhoe River GS ER – 17.4.11 Taykwa Tagamou Nation P-642



It is also noted that Chief Linda Job's term expired on 29 September 2013, and a new Chief and Council have been voted in. There is nothing within the ER to indicate the new Chief was ever contacted.

A presentation was made by Xeneca to the Wabun Tribal Council and the Chapleau Cree First Nation on 16 September 2013, at the Mnjikaning Arena Sports Ki on 6147 Rama Road; however, this was regarding the business to business arrangements. Xeneca lists no open consultation with all the residents living within each of the communities so that they could be fully aware of the proposed project, its impacts to the river ecosystem, or to voice any concerns.

The ER states, *"The objective of the Aboriginal Communities consultation process is to identify and address Community concerns and issues and to provide the Aboriginal Communities with an opportunity to receive information about and make meaningful input into the project review and development. Additionally, Xeneca wishes to foster and sustain a mutually respectful relationship with its neighbors outside of the need to provide voluntary support to the Crown."*¹⁰ This says absolutely nothing about the protection of cultural or heritage resources or values, or about any mitigation efforts. It simply states that the consultation process will identify and address concerns, and that is where it stops. This is a fundamental flaw. This statement also speaks of "meaningful input" when it appears as though their consultation excluded First Nation community members.

The ER also states, *"Xeneca is coordinating field visits with Aboriginal Communities during and after the EA Report and Archeological studies to seek Community input and address issues and concerns."*¹¹ The plan says it will consult with communities and coordinate field visits, but there is no evidence that this was ever done.

ORA is very concerned with the manner in which Xeneca consulted with First Nation communities. All the information contained in the ER demonstrates that the main focus was to have a signed deal, and that no Information Centres ever took place to inform or consult with the inhabitants of these communities, and they were never given the opportunity to contribute and inform decisions relating to the project.

Communities were not *provided with an opportunity to receive information about and have meaningful input to the project proposal in a meaningful way. Proponents should also be mindful of the need to communicate with both the formal leadership of an Aboriginal community as well as others who may represent the interests of that community. For example, in some communities, there may be both an elected Band Council as well as a traditional council. Sometimes it may also be appropriate to discuss the project with the whole community.*¹² This clearly indicates that Xeneca has not met the requirements of Section 7.1 of the Class EA for Waterpower.

First Nation Traditional Knowledge:

It is unacceptable that First Nation Traditional Knowledge is not a major part of this ER. Chief Corston was *"concerned with the approach of the proponent, paying consultants to gather information which can lead to misrepresentation of the river system/ecosystem and*

¹⁰ Appendix M – Aboriginal Consultation, Aboriginal Consultation Plan, May 2011, 1.5 Objectives of Aboriginal Cons., P-10

¹¹ Appendix M – Aboriginal Consultation, Aboriginal Consultation Plan, May 2011, 2.9 Field Visits, P-13

¹² 2012 Class EA for Waterpower Projects, 7.1, P-67



*the impacts/benefits of a water power facility (CC)*¹³. ORA is concerned that Traditional Knowledge has not been a major component of this consultation. Traditional Knowledge is essential to determine the extent of environmental and cultural impacts on affected First Nation communities, and is provided for under Section 7.2 of the Class EA for Waterpower

Documentation Lacking:

It is unacceptable that there are literally no First Nation letters that pertain to this Project contained within this ER. It is essential for the public to understand how important and crucial issues and concerns were handled. Xeneca claims that all First Nation correspondence concerned the business to business deal that was made and is proprietary; however, it is essential that Ontarians are able to see how key matters were addressed, and how their tax dollars in the way of grants and/or loans are being utilized in carrying out the Green Energy portfolio.

Any B2B arrangement must be open for public scrutiny so we know how much our fresh water and fishery is worth to all parties involved, what portion of funding taxpayers will be contributing, and what has transpired in the process of agreeing to any arrangement or accommodation.

Comments:

1. ORA is concerned that Xeneca's dealings with First Nations has not been a transparent and open process, and has placed business deals ahead of opening up meaningful consultation with all members of each community.
2. There is nothing in this ER that indicates the new Chief and Council of TTN were consulted.
3. Xeneca appears to have done whatever was necessary to get the B2B arrangement signed; however, this must not be at the cost of proper consultation.

Recommendation 2:

1. Xeneca be required to produce all correspondence relating to First Nation communications, so the public can fully review the consultation process and any business arrangements that would involve government, public or taxpayer dollars.
2. Xeneca be required to hold Information Centres and meaningful consultation with all relevant First Nation communities.
3. Xeneca be required to integrate Traditional Knowledge as a key consideration and foundation for this Project.

2. Public Consultation

No public consultation ever took place in Timmins, even though meetings were advertised in the Timmins Daily Press, and several requests for Public Information Centres (PICs) to be held in Timmins were made by Larry Robichaud, Brian Daly, Mark Clement, Tony Godin, Hugh Currie, and George Simmonds. Even the MNR recommended a PIC be held in Timmins, where several users of the Ivanhoe River reside. However, the ER reported there was very little interest among Timmins residents. Yet, in the same paragraph it is admitted that there was an interest group there.¹⁴

¹³ Appendix M – Aboriginal Consultation, Summary of SIPs, TTK, P-32

¹⁴ Ivanhoe ER, 17.3.4 Public Information Centres and Focus Groups Meetings, P-595



Even though several engaged citizens clearly petitioned for a Public Information Centre (PIC) to be held in Timmins, it was pointed out at one of the PICS in Chapleau that "*there were only 2 people that showed up*".¹⁵ The proponent offered to meet the requesters individually; however, this is not the same as opening consultation up to everyone in the Timmins area.

Recommendation 3:

Xeneca be required to hold a PIC in Timmins to provide those citizens with an opportunity for input into this Project.

3. Operating Strategy

The Introduction explains that "*the FIT contract capacity for this Project is 3.6 MW (The Chute) and 5.1 MW (Third Falls), but the actual installed capacity of this Project will be closer to 2.9 MW and 3.8 MW, respectively*".¹⁶ Yet, the ER Executive Summary suggests, "*the proposed Project will have total nameplate capacities of 3.6 MW at The Chute and 3.9 MW at Third Falls*".¹⁷ ORA is unsure of what the actual Installed Capacity of this Project will be, in that at least one of the above figures is incorrect.

Comments:

1. Xeneca must inform the public of the correct proposed Installed Capacity for The Chute and Third Falls.
2. Xeneca cannot meet the requirements of their FIT Contract. It is imperative that Xeneca clarify whether an amendment is required, and whether if it is available. If their FIT Contract cannot be amended their project could be in jeopardy.

Recommendation 4:

Xeneca be required to confirm whether an amendment to the FIT Contract is required, and is available.

4. Zone of Influence

Any simple and straight forward description of the Zone of Influence (ZOI) is not to be found anywhere in the ER; however, the ER states that "*The Chute and the Third Falls headpond reaches make up the entire upstream ZOI*".¹⁸ This makes absolutely no sense; however, by pulling bits and pieces together from several areas in the ER, it appears that the upstream headpond extends 6.5 km, there is a 44.2 km headpond section downstream, between The Chute and Third Falls, and below Third Falls the downstream ZOI is defined as the very short section of river from the Third Falls dam to the boundary of the Northern Claybelt Forest Conservation Reserve (CR) which is less than 100 meters downstream.¹⁹ The proponent appears to want to refer to the entire 44.2 km section and the 6.5 km sections as one upstream headpond.

¹⁵ Appendix L – Public Consultation – P16

¹⁶ Ivanhoe Class ER, 1.0 Introduction and Purpose of Project, P-47

¹⁷ Ivanhoe Class ER, Executive Summary, P-7

¹⁸ Ivanhoe River Project Class EA – ER, 3.4.3 Upstream ZOI, P-59

¹⁹ Ivanhoe River Project Class EA – ER, 3.4.4 Downstream ZOI, P-60



The Geomorphic Study reports that, *"the two facilities are proposed to be operated together and are hydrologically linked – the headpond for the Third Falls site will extend upstream into the downstream zone of influence of the Chute facility. The ZOI includes the full extent of the Ivanhoe River and its tributaries extending from 6.4 km upstream of The Chute facility to the tailrace of the Third Falls facility. The Third Falls project is proposed as a run-of-river facility, operating to moderate and re-naturalize the effects of The Chute facility (e.g. incoming flows to the headpond of The Chute and outflows from the Third Falls tailrace will be monitored to ensure natural flows continue to pass downstream of Third Falls into the Conservation Reserve."*²⁰

The proponent claims there will be no flow alteration beyond the identified downstream ZOI (100m), *"any alteration of temperature, water quality and sediment is expected to be minimal. The result is that there will be no significant temperature, water quality or sediment alteration beyond the downstream ZOI in the Northern Claybelt Forest Conservation Reserve. Based on these conclusions no physical, chemical or biological alteration is expected beyond the downstream ZOI."*²¹ The proponent provides no clear and traceable references or basis for making these statements.

The proponent downplays and minimizes the potential impacts; however, ORA has great concern that the ecological objective for the CR has not been adequately addressed. It is inconceivable that a major hydroelectric development which involves over 50 km of headponds, two generating stations and associated infrastructure, would have no influence beyond 100 m below the lower dam. Any realistic ZOI should realistically include a substantial section of the river below Third Falls (i.e. within the CR).

Comments:

1. It is crucial that the ER language be simple, straight forward and clear, so the facts of the Project are up-front, and can be easily read and understood.
2. In all but for a very few exceptions, the ER reports impacts as minimal or insignificant. This constant downplaying and glossing over of impacts does not instill confidence in the proponent, the ER, or the Project.
3. ORA is not convinced that there will be no flow alteration beyond 100 m of the Third Falls dam.

Recommendation 5:

Xeneca be required to provide the data that supports the claim of "minimal" alterations to temperature, water quality and sediment beyond the downstream ZOI.

5. Re-Naturalization at Third Falls

PGL reports that the Chute facility would operate as a "modified run-of-river" during low and moderate inflows, where it would modify natural flow in the river by storing part of the flow during the nighttime and increasing flow during the daytime. In order to minimize the environmental impacts, the daily flow fluctuations will be constrained such that the variability in flows and the fluctuation in levels are limited. There will be a maximum 1m level fluctuation in the headpond and peaking facility.

²⁰ Appendix E- Erosion and Sedimentation – Third Falls HGS Geomorphic Assessment, May 2013, P-127

²¹ Ivanhoe Rover Project Class EA – ER, 3.4.5 Beyond Downstream ZOI, P-62



The Third Falls facility is proposed to be a run-of-river project and would be operated so that flows are "re-naturalized". The Third Falls headpond would buffer inflows that are either above or below natural inflow rates, and would provide a flow regime downstream that is consistent with the current hydrological record. The upstream operating parameters at the Third Falls headpond involve a maximum 0.3 m fluctuation in water level. Operation of Third Falls as a run-of-river facility to re-naturalize river flows will restrict the downstream zone-of-influence to an area in the vicinity of the tailrace and prevent it from extending into the boundaries of the downstream Northern Claybelt Forest Complex Conservation Reserve (CR).²²

MNR also expressed concerns about the feasibility of the re-naturalization operations when referring to an example where "*Flows at the Ivanhoe River in Foleyet (04LC003) decreased from 9.4 m³ s⁻¹ to 6.3 m³ s⁻¹ non-linearly, with a negative exponential decay type function. Taking into account the difference in drainage basin areas, flows released from Third Falls would have to decline from about 18.5 m³ s⁻¹ to 12.4 m³ s⁻¹ to re-naturalize the river discharge. Would this necessarily mean a run-of-river operation at Third Falls? This is unknown and not discussed in any detail in this report.*"²³ Further, "MNR believes that flows could be re-naturalized at Third Falls but it would take some complex modelling that would have to take into account i) natural flows into The Chutes headpond, ii) regulated flows released by The Chutes, iii) Third Falls headpond / reservoir travel time, and iv) tributary inputs and drainage basin differences, among potential other factors."²⁴

Comments:

There is still much uncertainty around how the re-naturalization will work, or if it will work.

Recommendation 6:

1. Xeneca be required to provide an effectiveness monitoring plan to demonstrate that the flow re-naturalization objective has been achieved.
2. Xeneca be required to provide a detailed plan of how operations will be tailored or adjusted if flow re-naturalization objectives are not achieved.
3. Xeneca be required to run the entire Project as a true run-of-river operation if re-naturalization cannot be achieved.
4. Xeneca be held financially responsible if the CR is damaged by this Project.

6. Third Falls - Run-of-River or Modified Run-of-River

The ER reports that "*minor flow alteration can occur during powerhouse start up or shut down*".²⁵ Also, "*Third Falls, the downstream site, provides a constant generation rate corresponding to natural upstream inflow rates. To accomplish this task the portion of the inflow which is above the natural rate is stored within the Third Falls headpond and released from the headpond (within 24hrs) at a rate corresponding to the quantity of inflow which is less than the natural rate. This mode of operation results in fluctuating headpond water levels of less than 0.25 m.*"²⁶ This describes a modified run-of-river facility – not a run-of-river as claimed.

²² Appendix E- Erosion and Sedimentation – Third Falls HGS Geomorphic Assessment, May 2013 P-65

²³ Appendix N – Agency Consultation – 6 May 2013, P-95

²⁴ Appendix N – Agency Consultation – 6 May 2013, P-96

²⁵ Ivanhoe River Project Class EA – ER, Effects with Downstream ZOI, P-61

²⁶ Ivanhoe River Project Class EA – ER, 5.3.1 Operation, P-90



Natural Resources Canada's RETScreen textbook states, "*Run-of-river*" refers to a mode of operation in which the hydro plant uses only the water that is available in the natural flow of the river, as depicted in Figure 6. "*Run-of-river*" implies that there is no water storage and that power fluctuates with the stream flow."²⁷

Figure 6



Comments:

If the proponent wishes for the public and First Nations to have confidence in this Project, then it is very important that all communications and reports have been accurately defined and the ER has integrity.

Recommendation 7:

Xeneca be required to refer to the Third Falls operation as a "modified run-of-river" operation.

7. Power Generation

Xeneca suggests that power production for both sites combined would be approximately 30,000 MWh annually.²⁸ Due to the extreme daily, weekly and monthly variations in flow at these sites, it is more likely that actual power generated would be approximately 20,000 MWh or less if the promised goals of environmental protection are to be kept. The ER provides no analysis to show how the annual output was arrived at.

In comparing the HEC-RAS Unsteady at The Chutes²⁹ where a typical operating curve in August would entail a ramp up from 4.8 cms to 11.8 cms, and then another ramp to 25 cms, followed by a down ramp to 11.8 cms; and compare that to the unsteady flow data presented by Hatch's Natural Flow Metrics Data Sheets, where the natural rising rate in August at the Chute is 1.4 cms and the falling rate is .9 cms³⁰; and Third Falls natural rising

²⁷ RETScreen International – Clean Energy Project Analysis: RETScreen Engineering & Cases Textbook, Small Hydro Project Analysis – Natural Resources Canada, P-11

²⁸ Ivanhoe River Project Class EA – ER, 1.0 Introduction and Purpose of Project, P-47

²⁹ Appendix F – HEC-RAS Unsteady Flow Modelling, 3.0 Modelling, 3.1 August Daily Average Flow, P-289 Hydrology Review for Ivanhoe River Hydropower Sites, Appendix A – Table 8 & Figure 8, P-33

³⁰ Appendix F – Hydrology Review for Ivanhoe River Hydropower Sites, Appendix A – The Chute - Table 8 & Figure 8, P-33



rate is 1.69 cms and the falling rate is -1.08^{31} - this operation does not seem possible. The flow metrics do not seem to be in line with the operating curve.

MNR was also concerned that "*the 36 graphs provided in Appendix 1 are helpful, however they show very generalized expected conditions at Third Falls. These graphs have lost all the regulated signature and they are all flat-lined for the 24 hour period of record. For much of the 365 days of any given year, natural flows typically are rising or falling, sometimes rapidly but often very gradually. Consider January and February of 2012: Flows at the Ivanhoe River in Foleyet (04LC003) decreased from $9.4 \text{ m}^3\text{s}^{-1}$ to $6.3 \text{ m}^3\text{s}^{-1}$ non-linearly, with a negative exponential decay type function. Taking into account the difference in drainage basin areas, flows released from Third Falls would have to decline from about $18.5 \text{ m}^3\text{s}^{-1}$ to $12.4 \text{ m}^3\text{s}^{-1}$ to re-naturalize the river discharge. Would this necessarily mean a run-of-river operation at Third Falls?*"³² It doesn't sound like MNR has any confidence in their figures either.

Comments:

It is vital this this operation be economically viable and sustainable. The public needs to be assured that if this Project does not work out as planned, because of poor planning, climate change, erosion issues, economic issues, or for any other reason, that we will not be left with an abandoned pair of facilities that taxpayers will have to pay to remove.

Recommendation 8:

1. Xeneca be required to verify the accuracy of their projected power generation output with flow metrics by an independent third party.
2. Xeneca be required to verify the economic viability and sustainability of this Project with an independent third party.

8. Clay Belt Conservation Reserve (CR)

The Provincial Parks and Conservation Reserves Act (PPCRA) mandates that maintenance of ecological integrity shall be the first priority in protected areas, a condition in which the abundance of native species and communities and ecosystems processes are unimpeded.³³ Ecological integrity is defined as, "*a condition in which biotic and abiotic components of ecosystems and the composition and abundance of native species and biological communities are characteristic of their natural regions and rates of change and ecosystem processes are unimpeded.*"³⁴ "*One of the most significant potential effects of waterpower projects is alteration of natural flow regimes that maintain the composition, structure and function of aquatic ecosystems. Proposals located upstream from a protected area should be planned to maintain natural daily flow regimes to avoid negative impacts to ecological integrity*"³⁵." MNR has gone to great lengths to protect the PPCRA from this operation; however, it would only take one breach of compliance to result in serious damage. Funds up front would discourage any such mishaps.

³¹ Appendix F – Hydrology Review for Ivanhoe River Hydropower Sites, Appendix A – Third Falls - Table 8 & Figure 8, P-37

³² Appendix N – Agency Consultation, MNR Comments - P-95

³³ Appendix N – Agency Consultation - 1 March 2013, P-84

³⁴ Appendix N – Agency Consultation - 1 March 2013, P-85

³⁵ Appendix N – Agency Consultation - 1 March 2013, P-85



Recommendation 9:

Xeneca be required to secure funds up front to be used in the event that damage occurs to the PPCRA as a result of their operation.

9. Erosion

Parish Geomorphic Limited (PGL) was retained by the proponent to conduct a reach-based Rapid Geomorphic Assessment to collect detailed cross section and sediment data and assess potential sediment transport and bank erosion issues for the hydroelectric corridor. PGL reports "*It is recognized that the zone of influence for this project is extensive - the headpond upstream of The Chute will inundate new area 6.5 km upstream of the facility, while there will be a variable flow reach between The Chute and the Third Falls facility. The zone of influence downstream of the Third Falls site will be restricted to an area near the tailrace.*"³⁶

PGL admits that "*The geomorphic study would most certainly benefit from further field investigations in which additional data could be collected throughout the zone of influence to compile a more complete collection of river characteristics.*"³⁷

Xeneca has had several years to complete thorough studies and reporting so there is no excuse for not completing field investigations throughout the entire ZOI.

"*BC says in clay belt areas such as Third Fall, wetting and drying of riverbanks can cause erosion as well as changes in Co loading in peat areas.*"³⁸ Subsequent to the March 1, 2013 meeting between Xeneca, MNR, MOE and DFO, Xeneca committed to running Third Falls GS under a run-of-river regime. However, should study results indicate operation effects were within acceptable ranges, that they would take steps to amend permits to allow for an operating regime at the Third Falls site.³⁹ This is very concerning – will the Proponent decide to amend their permits when public consultation is not required?

The study area for The Chute site involved approximately 3.8 km of the Ivanhoe River, from a point 2 km upstream of the Chute site (Reach 2, IC-2) to 1.8 km downstream of the site (Reach 6, IC-6). The Third Falls site included approximately 3.9 km of the Ivanhoe River, from 2.6 km upstream of the proposed Third Falls dam site (Reach 2, ITF-2) to 1.3 km downstream of the site (Reach 7, ITF-7).

Also, the map in Figure 3.4 shows an ITF-8 as well, however, the Report gives no further information on this.

Third Falls is 44 km downstream of The Chute, and the entire Zone of Influence (ZOI) includes the full extent of the Ivanhoe River and its tributaries extending from 6.4 km upstream of The Chute facility to the tailrace of the Third Falls facility – a total of 50.4 km. Of this 50.4 km, only 7.7 km was included in the Geomorphic Erosion study.

³⁶ Appendix E – Erosion and Sedimentation – Third Falls HGS Geomorphic Assessment, May 2013, P-75

³⁷ Appendix E- Erosion and Sedimentation – Third Falls HGS Geomorphic Assessment, May 2013 P-75

³⁸ Appendix N – Agency Consultation, Ivanhoe Projects Agency Meeting, 1 March 2013, P-441

³⁹ Appendix N – Agency Consultation, 1 March 2013, P-83



The PGL report indicated that Reach 1 (IC-1) and Reach 1 (ITF-1) were not investigated during the October 2012 field outing.⁴⁰ Tables 4.2 and 4.3 make it obvious that these two Reaches were not studied, as IC-1 and ITF-1 were not included in the Study Reach results. It appears that IC-1 and ITF-1 were not included in the field assessment at all – nor was the stretch of river between the bottom most extent of the Chute field assessment area to the upper portion of Third Falls field assessment area – a 40 km stretch.

This MNR comment expresses ORA's concerns very well, "*Section 4 - Field Assessment states that PGL evaluated the river from 2 km upstream of the proposed Chute site to 1.8 km downstream. And, from 2.6 km upstream of the proposed 3rd Falls site to 1.3 km downstream. Yet, we have been told that the Chute headpond will inundate new area 6.5 km upstream, and previous reports from CPL that looked at level fluctuations downstream of Third Falls showed significant fluctuations at 3, 5, 10+ km downstream based on peaking operations. It seems clear that the scope of work for the Geomorphic Assessment does not coincide with the approximate zone of influence for the project. In the headpond area for the Chute there will be extensive clearing of trees in the area to be flooded. There is no discussion about the new inundation area (above the current river channel) and how erosion processes may affect existing upland forest soil structure.*"⁴¹

"13 Section 4.4 - Sediment Characteristics: This section explains that detailed geomorphological data collection (cross sections) was undertaken in IC6 and ITF2/6. Why were detailed cross sections only done in those "reaches"? What methodology was used to determine where detailed transects should be located? Does Xeneca/Parish feel that these limited cross sections accurately represent the sediment characteristics in approx. 70km of river or more (headpond of chute to confluence of Groundhog+)?"⁴²

It is unacceptable that the entire ZOI was not studied. How can we know what the potential for erosion is, or whether after the fact damage was caused as a result of the Project. There is no information on how the operating strategy will impact on 42.7 km, or over 2/3^{rds} of the ZOI.

MNR cautioned, "*Consider that the shorelines above and below a G.S. facility might undergo a wet/dry cycling 5-10 or 10-20 times a year naturally, but with headpond fluctuations some shoreline levels would have to endure this cycling perhaps 200 times per year.*"⁴³

MNR expressed concerns that "*continual wetting and drying of the clay banks, as well as an elevated water table upstream of the proposed dams, could break down some of the soil structure, allowing for more bank erosion, and further possible destabilization of slopes.*"⁴⁴

If adverse erosion issues do arise, and it becomes necessary to reduce flow velocity, ORA is concerned that project viability issues may severely limit Xeneca's ability to alter operations once the facility is built.

⁴⁰ Appendix E- Erosion and Sedimentation – Third Falls HGS Geomorphic Assessment, May 2013, P-76 & P-79

⁴¹ Appendix N – Agency Consultation, 8 March 2013, P-88

⁴² Appendix N – Agency Consultation, 8 March 2013, P-89

⁴³ Appendix N – Agency Consultation – 6 May 2013, P-101

⁴⁴ Appendix N – Agency Consultation, 8 March 2013, P-90



Comments:

1. There is no baseline information for 42.7 km of headpond area – so how can we know the current condition of the river, and what damage occurred as a result of the operation.
2. This Project may not be economically feasible if operations are required to be ramped down due to erosion issues.
3. If erosion issues caused by peaking are identified and operational changes are not possible, there must be a plan to show how the erosion issues would be mitigated.
4. Xeneca may try to change the Project operating strategy post-construction.

Recommendation 10:

1. Xeneca be required to complete geomorphic studies throughout the entire 50.4 km ZOI before this project proceeds.
2. Xeneca be required to provide a comprehensive monitoring and mitigation plan throughout the full 50.4 km ZOI.
3. Xeneca be required to consult with the public before any amendments are granted to change the Project operating regime.

10. Headponds

The proposed facilities will be hydraulically linked: the impoundment of Third Falls will extend 44 km upstream to the Chute at its maximum extent, and the impoundment of the Chute will extend an additional 6.4 km upstream at its maximum. The headponds will extend for approximately 50 km. According to the ER, the upstream headpond will cover approximately 59 ha; and the headpond associated with Third Falls will have an overall surface area of 265 ha, with the upstream limit of inundation to extend approximately 44 km upstream of the tailrace area of The Chute GS. It is unclear if the 265 ha includes the entire 44 km stretch of headpond between the two GSs – it is doubtful.

The ER claims that "*during operations a water temperature study for the Ivanhoe River was conducted to assess the potential water temperature effect in the river*",⁴⁵ as well as its tributaries, and deemed to be insignificant. It is unclear what this study entailed, and where it was located in the ER; however, ORA consider water temperature increase to be a significant concern.

MNR also expressed concern: "*the main issue that is identified by the report is residence time. Under normal flow conditions, residence time in the head pond ranges from 7 to 17 hours. Once the facility is constructed, this residence time is going to increase by five hours to five days dependant on the inflows. The longer that water sits exposed to solar and environmental radiation (i.e. midsummer heating), the more heat it can absorb and the warmer that it is going to get.*"⁴⁶ The ER confirms that "*the changes of open water area, residence time and stratification arising from the new headpond areas could generate potential water temperature effect to the river, and could affect the water temperature of cold-water tributaries within the Zone of Influence.*"⁴⁷ This in turn could negatively impact on the cold-water aquatic species.

For example, "*the conversion of rivers to lake-like ecosystems upstream of dams can alter the thermal regime upwards of 930 km downstream* (Olden and Naiman 2010). Depending

⁴⁵ Ivanhoe Class EA Final ER, Water Temperature, P-12

⁴⁶ Appendix N – Agency Consultation, MNR, 17 May 2013 – P-106

⁴⁷ Ivanhoe Class EA Final ER, Table 12: Potential Effects Identification Matrix, P-112



on the design of the dam, downstream water temperatures may decrease if water is drawn from the cold hypolimnion or increase if water is drawn from the warm epilimnion. Such fundamental changes to the thermal regime and their potential consequence on aquatic ecosystems, are frequently overlooked, yet are some of the more easily mitigated issues when considering new and, in some cases, existing development. Residence time in the headponds will impact on water quality and methylmercury increase in fish tissue."⁴⁸

Comments:

From all other indicators, ORA consider residence time and increased water temperature to be a significant concern.

Recommendation 11:

Xeneca be required to ensure dam design and operating strategy achieves reduced residence time in the headpond to ensure water temperature does not increase.

11. Climate Change

To Xeneca's credit, it was a pleasant surprise to see there was an improved level of information in this ER about the potential impacts of climate change effects for Ontario, and its potential impact on the waterpower industry. The ER even suggested that the operation of the facilities has the potential to exacerbate the impacts of climate change, and that the Operating Plan addresses the operations under different water levels and flows, covering operations for high flood, low flood, extreme flood and drought conditions. However, in bold the ER reported, "**the operation of the facilities is not anticipated to worsen any of these potential effects of climate change.**" In fact, this Project has a great potential to worsen the effects of climate change on the 50.4 km stretch of river within the ZOI – and beyond. The question Xeneca should be asking is what is the long-term sustainability of this Project?

There is much uncertainty in hydrological forecasts, and predictions by scientists have already proven to be short-sighted and inaccurate on many occasions; however, one thing is certain, that it is the wrong climate for damming rivers. Healthy rivers are key to successful climate adaptation, especially for many First Nation and remote communities who rely on fresh water resources for their drinking water and food supply.

Changing river flows, inundating wetlands, and destroying fisheries is absolutely the wrong direction for our civilization during these uncertain times of climate change. River flows are becoming increasingly unpredictable. Developers are counting on future stream flows to repeat the past, when our changing climate is proving this to be wrong thinking.

Recommend 12:

Xeneca be required to prepare a long-term projection of the environmental, social and economic sustainability of the Project.

12. Greenhouse Gas Emissions

The ER claims positive environmental effects associated with the Project are "the creation of

⁴⁸ Aquatic Ecosystems for Rivers, Robert Metcalfe, P-15



reliable and secure green energy for the province and reduced Greenhouse Gas Emissions. It also claims the production of 30,000 NWWh of renewable energy represents the equivalent of "the displacement of 20,170 metric tons of carbon dioxide equivalent, or the annual greenhouse gas emissions from 4,410 passenger vehicles, or the sequestering of carbon from nearly 17,350 hectares of pine or fir forests."⁴⁹ However, flooding land for water reservoir creation has many environmental impacts, including the production of greenhouse gases (GHG), carbon dioxide (CO₂) and methane (CH₄). Recent studies have further shown that, during the first several years after reservoir creation, hydro GHG emissions may be higher than annual emissions for some fossil fuel sources.

In listing the sources of GHG, Xeneca failed to list "headponds" as a source. In fact, flooding can convert a wetland from a small greenhouse gas sink to a relatively large source of GHG to the atmosphere. The Experimental Lakes Area has studied the impacts of flooding on the production of GHG emissions in the ELA Reservoir Project (ELARP)⁵⁰, and the study demonstrated dramatic increases of 10 to 20 times in methylmercury and GHG (carbon dioxide and methane) production in response to flooding of wetland vegetation. Also, the Flooded Upland Dynamics Experiment (FLUDEX)⁵¹ study on flooded upland soils reported a similar increase in CO₂, with CH₄ production increasing year after; however, overall GHG emissions dissipated more quickly than in wetland systems.

The ER reports that "Over an extended period of time GHG emissions (CO₂ equivalent) for one Canadian reservoir was estimated to be 16% of that produced by a combined cycle natural gas fired generating station.(Tremblay, 2010) This reduced GHG generation factor is supportive of Canada's objectives of reducing GHG emissions."⁵² Assessment of newly inundated land, and its related GHG emissions is very site specific. Comparing "one Canadian reservoir" with another, especially without any details of its size, soils, sediments, other nutrient and sediment loading, is irrelevant to this Project.

Comments:

This ER provides very few details of what wetlands, uplands, boreal forest, or soils would be newly inundated in the making of this Project. The ER doesn't even provide the size of the newly inundated area.

Recommendation 13:

Xeneca be required to accurately and clearly communicate the contribution this Project will make to the production of GHG emissions.

13. Water Quality

The parameters that exceeded their respective PWQOs for samples collected during the summer sampling event (July 23, 2010) include copper (33.6 ug/L) and lead (1.9 ug/L) for SW1 and zinc (62.6 ug/L) for SW3. The source of the elevated metal concentrations is unknown. For reference, the PWQOs for copper, lead and zinc are 5 ug/L, 1 ug/L, and 30 ug/L respectively.⁵³ These are all heavy metals that can impact on public health and safety.

⁴⁹ Ivanhoe Class EA Final – 1.0 Introduction – P-48

⁵⁰ Experimental Lakes Area Reservoir Project (ELARP) [Kelly et al., 1997; St.Louis et al., 2004]

⁵¹ Flooded Upland Dynamics Experiment (FLUDEX) [Bodaly et al., 2004]

⁵² Ivanhoe Class EA Final – 12.5.2.1 Potential Effect, P-495

⁵³ Surface Water Quality & Temperature, P-44



Dissolved oxygen, total suspended solids (TSS), turbidity, dissolved organic carbon (DOC), total phosphorus, aluminum, iron and mercury were all elevated during the spring freshet, decreased during the summer low flow, and increased again in the fall.⁵⁴ This is the perfect recipe for toxic blue-green algae, especially if water remains in the headponds for several hours at a time and is exposed to solar absorption.

The ER also cautions that water quality parameters could be affected by the development "*if appreciable sediment accumulates in the inundated areas, turbidity and TSS could increase during peak flows as sediment flushes. The concentrations of metals and nutrients absorbed to sediment would also increase, possibly resulting in reduced water quality.*" Also, "discharge from the facility should not induce additional erosion or sedimentation in the river channel as the increased sediment may increase the concentration of metals and nutrients in the water above PWQOs during periods of the year when they are not naturally elevated."⁵⁵

Comments:

1. ORA suggests that a modified run-of-river and a re-naturalization operating strategy would increase turbidity in the 44 km headpond stretch, and has great potential to stir up sediments that could be contaminated with heavy metals, phosphorus and other nutrients. This could have implications for increased levels of methylmercury production, and toxic blue-green algae.
2. Water quality samples show heavy metal PWQO exceedances of copper, lead and zinc. This causes concern for what heavy metals may have accumulated in the river sediment, and could be stirred up and released into the water column as a result of the planned operating strategy.

Recommendation 14:

Xeneca be required to take and analyze a sediment core sample to determine what heavy metals and nutrients are contained in the river sediment.

14. Methylmercury

Mercury Consumption Restrictions are already in effect for Ivanhoe Lake, and in the Surface Water Quality report, mercury concentrations in many large fish exceeded the MOE guidelines for women of child bearing age and children under 15, and all large fish contained mercury concentrations above the CCME guidelines for protection of wildlife that consumes aquatic biota.

Xeneca's water quality consultant reported that "*Methyl mercury concentrations were slightly higher in the summer than in the spring and fall, which is inverse to the total mercury trend and not expected given that methyl mercury sorbs to DOC and suspended solids which are less abundant in the summer. The methyl mercury trend may be a result of increased methylating bacteria activity, which are stimulated when dissolved oxygen is low, a condition that may exist at night in the summers when aquatic plants are respiring. The effects of diurnal oxygen fluctuations on methylating bacteria may be more pronounced in quiescent back eddies and ponds adjoining the river where the river's turbulent flow does not physically introduce oxygen.*"⁵⁶

⁵⁴ Surface Water Quality & Temperature, P-87

⁵⁵ Surface Water Quality & Temperature, P-87

⁵⁶ Appendix G – Surface Water, Ivanhoe River Pre-development Water Quality and Fish Report, P-87



ORA submit that the modified run-of-river and re-naturalization operating strategies would increase turbidity, as well as increasing retention time in the Third Falls headpond. This could create the quiescent back eddy and pond affect, where oxygen is reduced, making the methylating bacteria more pronounced.

The ER reports an expected increase in methylmercury concentrations in fish tissue; however dismisses this as "insignificant" because "*fish consumption appears to be largely recreational and supplemental, reducing the potential effect directly related to human health.*" This may not be "insignificant" for those businesses and local residences/camps that rely on healthy fish for their recreation and tourism businesses, or for sustenance. Again, this ER downplays impacts as being "insignificant" but provides no reasonable basis for this determination.

ORA suggest that the ultimate concentration of mercury in aquatic organisms within these environments depend on a number of factors, including depth, flow, biological and chemical characteristics of the water body and sediment-water interface, including pH, dissolved oxygen, oxidation redox potential, sulphate concentrations, etc., which affect the potential for and rate of bacterial decomposition and methylmercury generation and transfer from sediments to the overlying water.

With approximately 50.4 km of new headponds introduced into this project area, ORA suggest that all of the above factors within the project area must be taken into consideration – not just a quick desktop calculation.

The ER suggests that "*the run-of-river operations during certain times were proposed to reduce the residence time, and decrease the possibility of conversion of inorganic mercury. With the implementation of proposed mitigation measures, the predicted effect on surface water quality from mercury is deemed Insignificant.*"⁵⁷ It is unclear how this operation as planned would reduce residence time, or decrease the possibility of conversion of inorganic mercury, especially since this operation is not a run-of-river when water is being held back and manipulated to re-naturalize flows.

Xeneca's response to methylmercury concerns is "monitoring"; however, once mercury accumulates in fish tissue it is too late, especially when these affects can persist for 30 or more years. There are already consumption restrictions in place in the Ivanhoe Lake area, and this extensive inundation has a great potential to reduce, and quite possibly eliminate access to a main source of food for many communities.

Recommendation 15:

Xeneca be required to complete a comprehensive methylmercury study that will examine all of the above identified factors existing within the proposed headpond area, including soil and sediment, to provide a quantitative analysis and a projected post-construction estimate of increased mercury levels in fish tissue.

⁵⁷ Ivanhoe Class EA – Surface Water Quality – Mercury, P-13



15. Flow Rates

The Hatch report states, "Daily Flows at each site have been prorated from the synthesized 24-year 04LC003 flow series by ratios of LTAF values, i.e. 30.2 cubic metres/sec and 36.4 cubic metres/s at The Chute and Third Falls respectively."

These desk top synthetic flows exceed actual readings at Foleyet substantially. Hatch reports 17.8 cubic metres/s over a six year period. The Ortech Report (charts 2a, 2b, 3a and 3b) reduce the LTAF slightly.

Comments: ORA is unclear whether:

1. The flow rates recorded at 04LC002 (Ivanhoe Lake Dam) reflects approximately 50% of the watershed, and were not considered and reported.
2. The adjusted LTAF numbers reflected the installed transducers at The Chute and Third Falls.

16. Public Safety

At the Ontario Waterpower Association's 13th Annual Power Of Water Conference, October 20-22, 2013, Hatch presented a Risk Assessment Tool for Dams. The Risk Assessment Example chosen was the Ivanhoe Lake Dam. Hatch reported the following deficiencies for this dam:

- spill capacity did not meet standard
- concrete dam stability did not meet standard

There was no mention or planning for the possibility of upstream dam failure anywhere within the construction or operating plan and design, or an emergency response plan that acknowledged this problem to protect the public's safety in the event of dam failure.

Recommendation 16:

Xeneca be required to include the possibility of the Ivanhoe Lake Control Dam failing in their engineering and construction plan, as well as in their emergency response plan.

17. Socio-Economic Impacts

The ER states that "*the majority of the identified residual effects were determined to be "Insignificant", meaning that they are not likely to cause unacceptable harm to environmental quality, productive capacity of the effected environment, or the socio-economic and cultural attributes of the area.*"⁵⁸ Although the ER contains broad statements about positive economic impacts to the area due to employment and material sourcing during construction, this would all be very temporary – but there is little attention given to the costs. The dams would be operated remotely so it is unclear and doubtful whether there would actually be any long-term benefits due to employment. However, this project could have a severe impact on the local economy if fisheries are compromised, water quality degraded, if fish cannot be eaten, or if the River cannot be safely navigated.

⁵⁸ Ivanhoe Class EA Final – 18.3 Conclusion, P-544



There was no mention in the ER that Ivanhoe Lake already has fish consumption restrictions, and as noted above, this operation has a great potential to reduce, and quite possibly eliminate access to this vital source of food for many communities.

The ER states that the power is required by Ontario, particularly in times of hot and or cold weather. However, ORA submits that it is during these high demand times that the ability of these two projects to supply power will be restricted due to low flows. Power generation will be greatly restricted 80% of the time, when during the months of January, February, March, July, August and September flow is reduced significantly, and the power is needed the most.

Comment:

There is no financial data or analysis to evaluate the economic impacts of this project to local recreation and tourism. A quantitative financial impact analysis is required in order to evaluate the effects of the Project on the local economy.

Recommendation 17:

Xeneca be required to complete a Socio-Economic Impact Assessment to determine the feasibility of this Project over the next 40 years, and how it will impact on the local economy, recreation and tourism, fisheries, water quality, risk to the CR, as well as the potential loss of fish as a food source.

14. Cumulative Effects

The ER reports that, "*As a result of substantial concern on the part of public and agencies regarding impacts to the upstream Ivanhoe Lake Dam and the downstream Northern Claybelt Forest Complex Conservation Reserve, the Project has been re-designed to eliminate upstream and downstream impacts. As well, the Project's Environmental Assessment is itself a Cumulative Effects Assessment of the previously-separate The Chute and Third Falls projects. Therefore, the vast majority of potential cumulative impacts have already been addressed through the process to date."⁵⁹*

Informing the public that redesigning this Project would eliminate upstream and downstream impacts; and to suggest that the vast majority of cumulative impacts have already been addressed in this ER is extremely misleading.

In fact, Xeneca has completed no cumulative effects assessment, nor has any valid consideration been made for them anywhere within this ER.

Xeneca only mentions potential forestry impacts; however, this ER must address the other impacts within the watershed as well, such as all the roads, forestry and mining operations, transmission lines, upstream sewage lagoons, CNR rail yard where creosoted railway ties are stored next to the river, or any other development that has taken place within the watershed.

Recommendation 18:

Xeneca be required to properly assess the potential cumulative effects of all past, present and future human impacts on the Ivanhoe River system?

⁵⁹ Ivanhoe Class EA Final – 13.0 Cumulative Effects Assessment, P-674



18. Brook Trout

It was noted that brook trout were found between the Chute and Third Falls, but because the main river stem was not suitable habitat, that it was not known where they were coming from. It was believed there was suitable habitat in the tributaries and the trout were moving from tributaries into the Ivanhoe. MNR felt there was a need to assess inundation areas within these tributaries to identify any suitable brook trout habitat that may be affected. MNR *"was concerned that, if more of water is in the tributaries, it may affect the ability to sustain brook trout. Also expressed strong concern that the proposed inundation extends far beyond the area studied (by circa 20x). This presents a large data gap that cannot be filled by a desktop study."*⁶⁰

Concerns for brook trout are for the summer low flows with potential change from cold water habitat to cool or warm water habitat.

*"With respect to the Chutes site, MNR's main concern is loss of fast water features flooded out by Third Fall head pond and through construction of the facility. This has the potential for strong negative effects on values. Want to see fast water habitat remaining in The Chute tailrace perpetuated by maintaining wetted width in the bypass channel that is conducive to spawning activity and other ecological function. Within the Third Falls headpond, MNR stated strong concern of fast water riffle habitat being lost in the stretch being inundated. Namely, those features close to the Third Falls facility that are likely heavily contributing to the walleye population by the provision of spawning habitat. MNR is concerned that the functionality of these features will be negatively impacted by inundation."*⁶¹

Recommendation 19:

Xeneca be required to provide a monitoring, compensation and mitigation plan to ensure the Brook Trout population is protected.

19. Archaeology

Ministry of Tourism recommended that a Marine Archaeological Assessment be completed in comments from September 12, 2011, and again in their 4 November 2013 comments asked for the rationale for why this assessment had not undertaken.⁶² It is common knowledge that areas where there are falls and rapids are prime candidates for archaeological exploration. It is inexcusable that Xeneca did not follow Transport Canada's recommendation.

Recommendation 20:

Xeneca be required to complete a Marine Archaeological Assessment.

20. Dam Decommissioning

With climate change scientists predicting a future with the possibility of extreme drought conditions, there is a very good possibility that this hydro project may no longer be economically feasible. Ontario is littered with old and derelict dams that are no longer in use, along with access roads, and in the case of hydro dams, transmission lines and poles that

⁶⁰ Appendix N – Agency Consultation, MNR, 1 March 2013 P-82

⁶¹ Appendix N – Agency Consultation, MNR, 1 March 2013 P-82

⁶² Appendix N – Agency Consultation, Transport Canada – 4 November 2013 – P-162



must be monitored and maintained (at a cost, usually to the taxpayer), and ultimately removed for safety and/or ecological reasons. This all takes dollars that taxpayers should not have to pay. Developers reap the rewards for at least the 40 year life cycle of their contract, and a portion of these funds must be secured for dam decommissioning.

If the FIT contract were to be terminated, profits reduced, or costly repairs were needed due to damage caused by ice or flooding, or if climate change reduced the amount of water available for energy production, the payback from these small rivers could make this facility unprofitable. This could result in bankruptcy and/or abandonment. There is no commitment in this ER for setting provisions aside to decommission the facility and its infrastructure if events such as the foregoing should occur. Provisions for dam decommissioning are essential.

Recommendation 21:

Xeneca must be required to secure funds up front for future dam decommissioning in the event this facility is no longer socially, environmentally or economically sustainable and needs to be removed.

21. Fish Friendly Turbines

Fish friendly turbines have not been included in this project design. Section 22(2) of the Fisheries Act states, "*The design of the dam and/or other barriers must allow for the safe passage of both ascending and descending migratory fish.*"⁶³

Recommendation 22:

Xeneca be required to incorporate fish friendly turbines to reduce fish mortality for downstream passage.

22. Clear, Accurate and Complete Documentation

As pointed out in many instances throughout this letter, descriptions that should be clear, concise, informative and helpful, were instead cryptic, confusing and in error. It has often been necessary to search throughout the ER to find the complete or correct information. This is very time consuming, and a major problem in such a short time-line for comment.

For the average person that has no background in waterpower, it is very challenging to read and understand what is being proposed anyway, but when information is confusing or incomplete it becomes almost impossible to find that understanding. The ER language frequently minimizes and downplays with terms like insignificant, minimal, no impact, run-of-river, etc... These are frequent labels used to describe potentially serious impacts and issues, and seem to be at best a guess or the whim of the proponent.

It was also necessary to write to Xeneca to request missing documentation that was mentioned in the ER yet not included. That information was not received until noon today – far too late to be of much use. All this information should have been included in Appendix N in a manner that was straight forward, whole, and in context.

⁶³ Class EA for Waterpower, Table 1 Key Legislative Considerations for a Waterpower Project, P-14



These issues and concerns breed mistrust and undermine confidence in the Project, the Proponent, and the process.

Chief Corston expressed it beautifully when he said, "*some responses he received for his questions were either evasive or Xeneca did not know what the full project vision was at that time*", and "*this has caused a lack of credibility and trust in the relationship.*"

Recommendation 23:

Xeneca be required to ensure all ER documentation is clear, complete, concise, whole, informative and accurate.

Conclusion

Healthy rivers are vital to our survival on this planet. Damming rivers to provide income for this generation is short-sighted and ill-advised, and will diminish a life-giving resource that is essential to the survival of our future generations.

The decision-making and reporting process used by Xeneca in reaching its conclusions in this ER are neither transparent nor traceable. First Nation and public consultation were inadequate, many kilometers of riverine ecosystem have not been adequately assessed, and there are many other concerns and uncertainties detailed above. As a result, ORA submits that Xeneca has not met the requirements of the Class EA for Waterpower.

After having carefully reviewed the Ivanhoe River Generating Stations for The Chute and Third Falls ER, and its supporting documentation, ORA is requesting that the Minister of Environment issue a Part II Order to elevate this EA to an Individual Environmental Assessment.

Elevating this Project to a more rigorous and thorough Individual EA would improve the project by allowing time for further key studies to be completed, and for many of our recommendations noted above to be incorporated into the Project. Thus allowing for a more sustainable and responsible contribution to the Province of Ontario. As PGL said, "*The geomorphic study would most certainly benefit from further field investigations in which additional data could be collected throughout the zone of influence to compile a more complete collection of river characteristics.*"⁶⁴ So would many other aspects of the Project.

ORA thanks you for this opportunity to comment and looks forward to your response.

Respectfully,

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⁶⁴ Appendix E- Erosion and Sedimentation – Third Falls HGS Geomorphic Assessment, May 2013 P-75



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