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December 20, 2013

Linda Heron
Ontario Rivers Alliance
379 Ronka Road
Worthington, ON
P0M 3H0

Re: ORA/VRS Part II Order Request, Proposed Wabagishik Rapids Project

Dear Linda,

Responding to your Part II Order (PTO) request dated November 1, 2013 regarding the Wabagishik Rapids GS proposed for the Vermilion River, the following letter responds to the specific concerns you have outlined and offers the opportunity to meet directly on the matters you have raised. This also serves as a response to your comment letter dated October 29, 2013, which raised very similar concerns to your PTO request.

We acknowledge your close ties to the Wabagishik area, value your input, and trust the following response will, in addition to the work already done through environmental assessment, address the concerns you have raised. Your original letter is in ***bold italics***, and the Xeneca response is below each point.

Ontario Rivers Alliance (ORA) is a Not-for-Profit grassroots organization acting as a voice for the French River Delta Association, CPAWS-OV, Council of Canadians, Kiishik Community Association, Food & Water First, Whitewater Ontario, Vermilion River Stewardship, 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.

The Vermilion River Stewardship (VRS) is a Not-for-Profit organization acting as a voice for the Vermilion River and its entire Watershed. We are a community working together to build partnerships and strategic alliances with all other interested parties, communities, stewardships, organizations and industry to ensure clean and healthy water quality, and a balanced and sustainable ecosystem and natural habitat.

Xeneca Power Development Inc. (Xeneca) is proposing to build a “modified run-of-river”, 3.4 MW Installed Capacity (IC) hydroelectric generation station at Wabagishik Rapids, on the Vermilion River system. As a result of seasonal flows on the Vermilion River, this project would more realistically actually generate approximately 1 to 1.5 MW of power. The Wabagishik Rapids GS proposal falls short of fulfilling the government’s mandate to produce green, or renewable energy, when several

kilometers of lake and riverine ecosystem will be compromised, and quite possibly destroyed, to generate this small amount of power. Xeneca refers to this proposal as “green energy”, but this is very misleading when this proposal, as set out in the ER, is in fact as dirty as it gets. This proposal hardly fulfills the province’s mandate when during the hottest months of the summer, when power is needed the most, this facility would likely not be able to produce power at all because natural river flows would not be sufficient to turn the turbine.

Xeneca response: These points are addressed throughout Xeneca’s response to the questions in this letter. Very thorough studies and assessment of all aspects of the project have been completed. Project effects are well understood and, where avoidance or mitigation of effects is not possible, compensation is being undertaken (please refer to the Compensation Plan contained in Annex III of the ER.) Operating constraints have been placed on the project to reduce water level fluctuations and to ensure that environmental conditions are maintained during critical life cycle periods such as spawning for fish (please see the Operation Plan in Annex I of the ER.) The expected energy production and economics has been correctly presented in the Class EA process and in the public consultation process. As correctly described in the Operating Plan, there are times when the facility operates at less than full capacity of 3.4 MW and less than maximum powerhouse flow rate of 64 m³/s. This variability in output relates to the natural variability in water flow throughout the year. This aspect was carefully considered in determining the viability of the proposed project and is an inherent aspect of every waterpower facility in Ontario. None-the-less, provincial policy encourages the production of electricity from clean and renewable waterpower. Small waterpower projects such as the Wabagishik GS are identified under the province's long term energy and by the Independent Electricity System Operator (IESO) as highly desirable forms of generation. Small waterpower generally has a small ecological footprint, low life-time costs and is widely supported by the people of Ontario.

VRS and ORA would like to jointly comment on the Wabagishik Rapids Generating Station Environmental Report (ER) as follows:

While the Class EA for Waterpower is a proponent led process, “the objective of the Class EA is to help ensure that projects are planned in an environmentally responsible manner”, and that “proponents take into account the potential impacts and benefits of proposed waterpower projects as well as the interests of individuals, communities, agencies and organizations, as appropriate.” “Common to all of these processes are the themes of “environmental responsibility” and “public accountability”.

This project has not been planned in an environmentally responsible manner, and has not fully taken into account the interests of local stakeholders and the public. Therefore, it is our position that for all the reasons noted herein, Xeneca has not fulfilled its requirements under the Class EA for Waterpower.

Xeneca response: The planning of the Wabagishik Rapids project has closely followed the Waterpower Class EA process, including extensive environmental study and public consultation. Study efforts have included extensive Hec Ras modeling, hydrology analysis, hydraulic assessment, bathymetry mapping, LiDAR topography surveys, geomorphology reviews, temperature assessments, rigorous water quality sampling protocols, thorough ecological biological baseline studies and socio-economic impact analysis. Extensive public consultation has been ongoing since 2010 with Aboriginal Communities, municipalities, government agencies, businesses, residents and stakeholder interest groups like yours. Active engagement and input, including yours, have resulted in many changes and improvements to the project over time as contemplated under the Waterpower Class EA process. We believe that the Waterpower Class EA process and the community involvement have helped to make this a better project.

Care was taken to plan the proposed project in accordance with the various regulatory requirements, including the Waterpower Class EA process. Specifically, great effort has been made to address and mitigate potential impacts of concern to VRS and ORA and to arrive at an environmentally responsible outcome, including re-siting the dam location, minimizing operational impacts and compensating potential habitat alteration. Special consideration was given to various VRS and ORA concerns, including your core concerns on existing lake water quality impairment and sediments contaminated by historic mining activities. Although it is clear that VRS and ORA remain apprehensive about this project, we would like to re-iterate in the following sections how we have tried to address the concerns of your stakeholder interest groups.

Summary of Recommendations:

Recommendation 1: After having carefully reviewed the information as presented in the ER, and considering the potential environmental impacts, the lack of consideration for the cumulative effects of the proponent's planned future waterpower developments, waste water and mining effluent, as well as the substantial impacts that could result from this operation releasing heavy metals into the environment, ORA and VRS are requesting that Minister Bradley issue a Part II Order to elevate the Wabagishik Rapids GS Environmental Assessment to an Individual Environmental Assessment.

Xeneca response:

A) Regarding your concerns over cumulative water quality impacts, an extensive, multi-year water quality study was carried out (see Hutchinson "Baseline Water Quality and Fish Tissue Mercury" report in Annex IV of the final ER). The study establishes a current condition (baseline) water quality assessment and involves future monitoring to measure any changes that may occur. The assessment also looks at potential transient changes to methyl mercury levels, the conditions that may cause those changes to occur, and the long term effects. Erosion studies have been conducted (please see the Parish Geomorphology Report in Annex I of the ER) within the project area including Wabagishik Lake. It should be noted that the scope of some of these studies was specifically defined to address some of the concerns raised by VRS and ORA. The ER contains thorough hydraulic analysis, Hec-Ras model results, bathymetry and flow modeling that clearly assess potential effects of the project, including erosion potential, cumulative impacts on water quality, waste water operations and heavy metal contaminated sediments within the Zone of Influence (including Wabagishik Lake and downstream to the Domtar headpond.) Further, a comprehensive monitoring program and adaptive management strategy is in place to ensure modeling results are confirmed and environmental commitments are met. In summary, cumulative effects relevant to the Wabagishik Rapids project have been considered in the ER and assessments can be found in the Water Quality, Environmental and Geomorphological Reports, as well as in the Operating Plan.

B) Regarding the cumulative impact on three other proposed waterpower facilities that Xeneca has proposed on the Vermilion River, we would note the McPherson Falls project has been deferred indefinitely and the Cascade Falls and At Soo Crossing projects are also on hold pending the outcome of further studies and public consultation. With only Wabagishik Rapids GS moving forward at this time, assessment can only include the effects outlined in the ER. Should any or all of the other three projects move forward, cumulative effects of these possible future projects will be considered at that time.

Recommendation 2: The Wabagishik Rapids GS ER, with all of its promises, must be guaranteed and signed by its author.

Xeneca response: The Class EA process is a formal regulatory process that binds the proponent to the commitments made under the process. In addition, regulatory agencies typically incorporate many of the commitments made in the Class EA process as mandatory conditions in the subsequent permits and approvals process. In this manner, project proponents are firmly tied to the commitments made. With respect to authorship, all documents in the final ER identify either the corporation or the professional that issued the document. It is our understanding that some consulting firms do, and other do not, identify the individuals who worked on the report. In either case, qualified consulting firms and professions with directly applicable experience were used for each aspect of the environmental assessment work. This approach is established and accepted practice in the environmental assessment process.

Recommendation 3: Xeneca must undertake a sediment study both in Wabagishik Lake and downstream in the bay area to determine sediment composition, and then undertake a comprehensive plan to contain and control the sediment, both during construction and operation.

Xeneca response: The technical studies concluded that the proposed project will not disturb sediments in Wabagishik Lake or downstream. Disturbance of sediment related to the construction and operation of the proposed project was extensively considered in the Class EA process. The dam location was moved from its originally proposed location to a location 255 meters upstream. This relocation was made, in part, to address a concern raised by VRS and ORA that rapid variation in flows could cause scour in the river bed in the downstream bay area. The relocation upstream moved the dam site construction to a location where substrate consists of mainly bedrock (and the immediate downstream area is lined with natural cobble hardpan) rather than sediment. This effort helps to ensure that the sediment disturbed during construction is minimal.

Disturbance of sediment related to operation of the project was assessed by considering the potential for fluvial erosion. The Parish geomorphology report (Annex 1 of the ER) notes that the project footprint is located in a very stable area, consisting mainly of bedrock and coarse cobble and boulders. As such, the project operation is not expected to significantly disturb sediments, and neither sedimentation nor sedimentation transport are expected to be exacerbated by the operation of Wabagishik GS or Lorne Falls GS (either individually or cumulatively.) In addition, the Operating Plan (Annex I) limits the maximum rate of flow from powerhouse operation to (64 m³/s.) This rate of flow is below the "channel forming flow rates" typically associated with fluvial erosion. Channel forming flows occur naturally during spring run-off when rates of flow are naturally high, causing natural erosion and re-deposition of sediments. For comparison, the two-year return period spring flood flow is 268 (m³/s.) As a result of these studies, it can be concluded that sediment disturbance related to construction and operation will be minimal.

As you are aware, no direct disturbance of the lake bottom sediments is proposed. The concern appears to arise from the proposed level operations. As outlined in the ER and to avoid sediments from being disturbed in Wabagishik Lake, the proposed project has firmly committed to follow the natural seasonal lake levels and to operate in a manner that will not result in the lake level fluctuations of more than +/- 5 centimeters due to daily facility operation. (Please note, larger natural lake level fluctuations of up to 150 centimeters per year or more will still occur, but not related to facility operations). No change in pore water conditions in the sediment at the lake bottom will occur with these firm operating restrictions in place. Similarly, no change in oxygenation will occur that could alter the nature of existing heavy metal contamination at the lake bottom. A rigorous water quality monitoring program has been proposed in the ER to ensure that these predictions are correct.

The technical studies show that the downstream bay area river environment is subject to extensive flow and level variations under natural conditions. The proposed project has firmly committed to operate in a manner that will limit daily water level fluctuation to +/- 15 centimeters in the embayment area immediately downstream of the facility. This area is subject to natural water level fluctuations of over 150 centimeters throughout the year and

fluctuations during run-off events that regularly exceed +/- 15 centimeters. The proposed daily level operation is not expected to cause contaminants to be released as the resulting changes in pore water pressure are consistent with natural factors.

Based on the above, it can be stated with a high degree of certainty that sediment will containment and avoidance of disturbance of potentially contaminated sediments was carefully addressed in the EA process. We also confident that the comprehensive water quality monitoring plan will address any remaining uncertainty in these determinations.

Recommendation 4: In order to determine the full magnitude of impacts on public health and safety, aquatic life, water quality, and on the North Channel of the Lake Huron, Xeneca must do a risk/benefit analysis, as well as rigorous studies to assess the impacts of daily wetting and drying of sediment and wetlands, and its corresponding release of heavy metals into the environment.

Xeneca response: Please see the answers to the related questions on pages 14-17. These concerns and impacts were raised during the EA process over the past four years and have been fully assessed. Impacts have been fully assessed and the studies suggested are not required. The wetlands in question relate to two small creek tributaries that enter the river several hundred meters downstream of the proposed dam site. The two small wetland areas were specifically studied in the environmental baseline study efforts (Annex III.) The Operating Plan (Annex I of ER) strictly limits the daily water level fluctuations from facility operations to +/- 15 centimeters for this area, well within the range of sediments that is subjected to wetting and drying under natural conditions. The average daily water level in this area will remain unchanged, due to a commitment to release all upstream flow every day. The combination of limiting the daily water level fluctuations, combined with maintaining the average water level within existing conditions will ensure that no significant wetting and drying occurs in these wetland areas, and no release of contaminants is expected. For comparison, the annual seasonal range of water level fluctuations in this area exceeds 150 centimeters under existing conditions. As result, these sediments have been exposed to many years of wetting and drying under natural conditions. A robust long-term water quality monitoring program is in place to validate the study results.

Recommendation 5:

1. Xeneca must recognize Wabagishik Lake as part of the headpond and undertake full erosion, water quality, fish sampling, aquatic, reptile and bird studies on Wabagishik Lake to determine all environmental impacts.

Xeneca response: Significant effort was made to address all potential impacts that could be reasonably associated with the proposed project.

Please refer to the Operating Plan (Annex I), which clearly outlines how the facility will be operated and that the lake will not be used as a headpond. As noted in the Operating Plan, Wabagishik Lake is linked hydraulically to the facility. The lake was determined to fall within the upstream "Zone of Influence" as it is expected that lake level fluctuations of up to +/- 5 centimeters can occur due to daily operation. This aspect is considered in significant detail in the ER and the potential environmental effects were carefully assessed. However, the lake is not formally considered part of the headpond as no new inundation is proposed for the lake bed. The proposed operation will follow the natural lake level throughout the year, subject only to the limited daily operations effect of +/- 5 centimeters.

Extensive study of the lake was carried out as outlined in the ER, including geomorphology, hydrology, water quality, aquatic habitat and other studies. Terrestrial studies, such as bird and reptile, were not carried out around the lake since no change to the natural seasonal lake level conditions is proposed and not terrestrial impacts around the shoreline were derived.

Shoreline erosion was considered as part of the ER. To address concerns on erosion (and other matters) raised during the public consultation process, the formal commitment was made to limit the impact on lake levels as described (i.e. to follow natural seasonal levels and limit daily operational impacts to +/- 5 centimeters.) It was concluded that +/- 5 centimeters of daily variation is less than the average wave fluctuation height and it was determined that such fluctuations would not have an erosional impact on the shoreline

2. Xeneca must inform Hutchinson that Wabagishik Lake will be used to impound water so that all pertinent fish and water quality studies can be accurately assessed.

Xeneca response: Please see answer above. All contributing consultants were provided with the relevant information about project operation and impoundment. Please note that no impoundment is proposed for Wabagishik Lake. While the lake is hydraulically connected to the dam operation, great care was taken to minimize operational impacts on the lake. As proposed, the lake will continue to follow its natural seasonal levels, subject only to +/- 5 centimeter daily variations associated with facility operation.

Recommendation 6: Xeneca must undertake a geomorphic erosion study on all of Wabagishik Lake, as well as the upstream portion of the Vermilion River (W1 and W2) to properly assess the potential for sediment transport and bank erosion.

Xeneca response: Please note that a geomorphology study was included in the ER. For technical reasons explained in various answers above, no potential for notable bank erosion is expected in Wabagishik Lake or in other upstream locations.

In addition to the relatively stable geological setting of the area, the results of the sediment entrainment analysis performed by Parish Geomorphic (2013) support the conclusion that the operations of the proposed Wabagishik GS will not greatly alter channel morphology (e.g. there will not be a significant increase in the occurrence of erosion). The analysis assessed the effects of GS operations on the entrainment potential of sediment in the zone of influence (ZOI). The results indicate that under existing conditions there is relatively little sediment movement in the study area. Upstream of the facility, channel bed erosion will not be increased due to operations. Downstream of the site, it is not anticipated that the existing sediment structure will be notably impacted by flows associated with facility peaking operations.

Recommendation 7:

1. Erosion, shoreline stability and scour concerns have not been adequately addressed in the ER.

Xeneca must do an in-the-field erosion study to determine the potential for erosion and/or disturbing the heavily contaminated sediment located in Wabagishik Lake and in the bay area.

Xeneca response: In-field erosion studies have been completed. The technical studies concluded that the proposed project will not disturb sediments in Wabagishik Lake or downstream. Disturbance of sediment related to the construction and operation of the proposed project was extensively considered in the Class EA process. The dam location was moved from its originally proposed location to a location 255 meters upstream. This relocation was made, in part, to address a concern raised by VRS and ORA that rapid variation in flows could cause scour in the river bed in the downstream bay area. The relocation upstream moved the dam site construction to a location where substrate consists of mainly bedrock (and the immediate downstream area is lined with natural cobble hardpan) rather than sediment. This effort helps to ensure that the sediment disturbed during construction is minimal.

For further information, please refer to the Parish Geomorphology Report in Annex I. Rationalization for erosion study area (excluding Wabagishik Lake) is contained within the report.

2. Xeneca must commit to a Biological Monitoring Plan that includes erosion monitoring both downstream of the dam, as well as upstream – all the way to the base of the Lorne Falls GS.

Xeneca response: Biological and erosion monitoring plans are contained within the ER. Please see monitoring reports contained in Annexes 1 and 3.

Recommendation 8: Xeneca must provide a clear and traceable method by which the average littoral zone width of 5m on Wabagishik Lake was arrived at, and how they arrived at the conclusion that the biota living in the littoral zone could be expected to withstand a 10cm daily fluctuation in water level, or that the impact would be minimal and not significant.

Xeneca response: Water levels affecting littoral zones do fluctuate daily from effects such as wind, boat wakes, climatic events and other operators/infrastructure on the river system. As previously noted plant operation adjusts to natural lake levels and as such effects are not cumulative but responsive to changing conditions. Monitoring equipment will be put in place to measure inflow and to calibrate outflow to ensure that existing conditions are maintained within the lake.

As noted in Section 5.1 of the final ER, the ER commits to strict operating restrictions so that lake levels upstream in Wabagishik Lake do not change by more than +/- 5 centimeters due to daily operation of the facility. In addition, the operation will follow natural lake levels throughout the seasons. The seasonal lake levels change by over 150 centimeters over time. Impacts associated with any lake level fluctuations are anticipated to be limited to the shallower, littoral areas of the lake. These littoral areas, estimated to cover 12.5 ha, already fall within the existing natural zone of fluctuation of Wabagishik Lake subject to the effects of wave action, seasonal level changes and seiche effects. Although there will be an increase in the frequency of small water level fluctuations, impacts to biota in the littoral zone are predicted to be minimal and not significant, as the ± 5 cm water level fluctuations resulting from operations are within the range of naturally-occurring fluctuations on the lake.

Recommendation 9: Xeneca must be required to complete a comprehensive methylmercury study that will examine all of the above identified factors existing within the proposed headpond and zone of influence, including soil and sediment, to provide a quantitative analysis and a projected post-construction estimate of increased mercury levels in fish tissue.

Xeneca response: As noted in the Hutchison Water Quality report, the conditions for creating significant increases in Methyl Mercury are not present at the Wabagishik site. Specifically, the inundation area is small and relatively shallow and does not create anoxic conditions. There is no long term storage of water or large scale inundation of vegetation/ wetlands that would precipitate a release of methyl mercury.

Recommendation 10: Xeneca must refer to this operation as a “peaking” facility to accurately communicate its potential impacts to the public and First Nations.

Xeneca response: "Run-of-river with modified peaking" is defined by the OWA: "Many run-of river plants allow for limited storage of water over the course of the day or days. This allows the plant to produce more electricity during periods of high demand i.e., during the day/work week, and save water during periods of low demand i.e., at night/weekends. This type of plant can provide electricity service to the system, but with limitations imposed by the amount of storage and flexibility available (generally through a headpond.)" As such, the consultation and terms used therein are accurate. Extensive consultation has occurred on the plant operation. This consultation has

included one-on-one consultation with other operators and affected riparian landowners in the ZOI. Special effort has also been made to ensure that all cottagers and adjacent landowners were provided with information on the proposed operation. The proposed operation of this project has been clearly explained to the public and Aboriginal Communities at Public Information Centres and meetings, as well as through e-blasts and website updates. Specific information on the consultation efforts is included in the ER (Appendix D.)

Recommendation 11:

1. Xeneca must provide an approved and final operating plan for public review and comment before any Statement of Completion is issued.

Xeneca response: Operating Plans for Greenfield projects are typically finalized during the Water Management Planning process and permitting under the Lakes and Rivers Improvement Act. It is a regulatory requirement to keep the Operating Plan as a draft document in the ER. However, it should be noted that all commitments made in the ER (including the operating restrictions in the Operating Plan) are binding. Additional stipulations may be added by regulatory agencies during the subsequent regulatory process.

2. Xeneca must undertake a cost/benefit analysis, taking into account the predictions of climate change, impacts on fisheries and the riverine ecosystem to ensure this waterpower project is environmentally, socially and economically sound and sustainable over the long-term.

Xeneca response: The Operating Plan (Annex I of ER) outlines all aspects of the proposed operation that are needed for the environmental assessment in the remainder of the ER. Specific emphasis was placed on documenting all operating restrictions that are significant to the environment and the public. These restrictions include limiting daily changes in flows and levels related to operations and avoiding daily operation during spawning. The cost/benefit aspects and the social benefit aspects are considered in the socio-economic section of the report. Operating Plans for Greenfield projects are typically finalized during the Water Management Planning process and permitting under the Lakes and Rivers Improvement Act. However, it should be noted that all commitments made in the ER (including the operating restrictions in the Operating Plan) are binding. Additional stipulations may be added by regulatory agencies during the subsequent regulatory process. Climate change has been considered in the assessment of this project. Flow data records dating back to 1939 have been analyzed. Data from the last 30 years of flow records have also been analyzed in order to assess the years believed to be most affected by climate change. In addition, flow records from private operators on the river system have been analyzed and compared to longer term data sets. Comparing recent to more long term records provides inconclusive evidence that there may be subtle changes in climatic patterns, but not sufficient to change the environmental assessment process. Also, Xeneca is designing the facility to the 1:100 year flood which takes into account severe climatic conditions that may be associated with climate change.

Recommendation 12:

Xeneca must undertake a rigorous assessment of the potential cumulative effects over time of all human impacts from all sources, including but not limited to the existing contaminated sediment, existing and future fish consumption restrictions, other existing and planned hydroelectric facilities, upstream and downstream wastewater and mining effluent, water taking, and climate change.

Xeneca response: Facilities and structures already on the Vermilion system are included as part of the "existing conditions." Water quality issue has also been studied thoroughly, and we would refer you to the Hutchinson "Baseline Water Quality and Fish Tissue Mercury" report in Annex IV. The study establishes a current condition

(baseline) water quality assessment and involves future monitoring to measure any changes that may occur. The assessment also looks at potential changes to methyl mercury levels, the conditions that may cause those changes to occur, and the long term effects. Erosion studies have been conducted (please see the Parish Geomorphology Report in Annex I of the ER) within the project area including Wabagishik Lake. The ER contains thorough hydraulic analysis, Hec-Ras model results, bathymetry and flow modeling that clearly assess potential effects of the project, including erosion potential, within the Zone of Influence including Wabagishik Lake and downstream to the Domtar headpond. Further, a comprehensive monitoring program and adaptive management strategy is in place to ensure modeling results are confirmed and environmental commitments are met. In summary, cumulative effects relevant to the Wabagishik Rapids project have been considered in the ER and assessments can be found in the Water Quality, Environmental and Geomorphological Reports, as well as in the Operating Plan.

Recommendation 13:

Xeneca must undertake a comprehensive sediment and water quality study on Wabagishik Lake, complete with a monitoring plan, to provide a quantitative analysis and a projected post construction estimate of increased potential for toxic blue-green algae.

Xeneca response: This is not necessary as blue-green algae occurs under conditions that are usually predicated upon high nutrient (i.e. sewage effluent or fertilizers) levels and stagnant, warm water conditions. The ER shows that none of those conditions will be created or exacerbated by the Wabagishik GS. The Operating Plan commits to pass the entire daily inflow volume each day, even when daily operation is in effect. This flow passing will ensure that no change in stagnation, dissolved oxygen and temperature will occur. Xeneca has committed to long-term water quality monitoring to confirm these predictions and to adaptive management if unexpected conditions arise. Water quality monitoring is outlined in Annex IV (Surface Water Quality) in reports completed by Hutchinson Environmental (the Surface Water Quality and Fish Sampling Guidance report (July 2012) outlines the proposed water quality sampling program.)

Recommendation 14:

1. Xeneca must do a comprehensive study and effective special event plan to indicate how they would deal with public safety issues in the event of ice jams and flooding.

Xeneca response: According to cottagers living near Wabagishik Lake, ice jams occur near the Wabagishik Rapids project site, specifically in the fast-water section just upstream of the proposed dam site. Normally, ice jams occur in a narrow fast-water section of the river. When the project is built, this fast-water section will be submerged and will become part the project headpond. In fact, the dam construction will reduce or eliminate the chances of ice jamming in this particular section of the river. Neither project construction nor its operation will increase the likelihood of ice jam occurrence within the project zone of influence. In the very unlikely event of an ice jam near the project area, Xeneca will work closely with regulatory agencies and address the issue accordingly.

2. Extreme rain events even throughout the winter months have become a normal occurrence, so in the event of flooding as a result of Xeneca's operation there must be a legal and binding commitment to cover any losses or damage to riparian landowners.

Xeneca response: Xeneca has already committed to indemnify Vale and Domtar against losses that occur as a result of operation of the Wabagishik GS. Xeneca carries insurance that would also cover liability in the unlikely event of facility failure.

Recommendation 15:

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.

Xeneca response: Given the expected significant lifespan of hydro assets (many existing facilities have been producing reliable renewable energy for more than a century) and the continued advancement of engineering and ecological science, it is not particularly prudent to predict the details of potential decommissioning. We will comply with the standards of the day (e.g. Canadian Dam Association) should decommissioning become necessary. Should decommissioning occur, advance planning would include dedication of revenues to a decommissioning fund.

Recommendation 16:

1. Lake Sturgeon are listed as an endangered species, therefore, to confirm definitively whether they inhabit Wabagishik Lake it is recommended an extensive telemetry study is carried out over multiple years.

Xeneca response: Xeneca has been in communication with staff from the MNR Sudbury District Office regarding studies for Lake Sturgeon. Past MNR records show that there has been no historic confirmation of the presence of Lake Sturgeon in Wabagishik Lake. The MNR and Xeneca agree that the likelihood of Lake Sturgeon occurring in Wabagishik Lake is low, and the risk of isolating an area of utilized habitat is also low. Studies can never completely eliminate risk of this nature, particularly studies related to a small population of Lake Sturgeon. In addition, the MNR has expressed concern about repeated handling of the individuals that occur downstream of the proposed dam, because capture and tagging of these individuals for a telemetry program poses some risk of negative effect to the known population.

The MNR has indicated that they are willing to accept the level of risk associated with the existing information, with one condition. The MNR has also made it clear that constructing the dam without provision for fish passage is contingent on creating additional spawning habitat for Lake Sturgeon downstream of the proposed dam as part of the fish habitat compensation plan. The spawning habitat will serve the Lake Sturgeon population that is known to exist in the Spanish River and the lower Vermillion River downstream of the proposed dam. A preliminary fish habitat compensation plan has been included as part of the EA. The plan will be further developed and finalized during the detail design and permitting phase of the project. Negotiations with the MNR and DFO will be ongoing as the plan is finalized, and the final plan will ultimately require agency approval.

2. Xeneca must undertake further studies to ensure this sensitive population of Lake Sturgeon is protected and conserved.

Xeneca response: Studies have been carried out as part of the EA, and post-construction monitoring will be conducted to monitor the use of newly created habitat in the Vermillion River downstream of the proposed dam.

3. If this project goes ahead, it could have a very negative impact on water quality, so any Monitoring Plan for Lake Sturgeon should take place over a minimum of 25 years in order to properly assess recruitment, abundance, and any changes.

Xeneca response: Xeneca agrees that monitoring is an important component of the project. The preliminary monitoring plan included with the EA includes monitoring of the lake sturgeon spawning habitat to be created downstream of the proposed dam. This monitoring will also be required by DFO as part of their *Fisheries Act* permit and the associated fish habitat compensation plan. Additional monitoring/studies of Lake Sturgeon may be developed as part of the Overall Benefit plan associated with the *Endangered Species Act* permit. The study

methods and timeframe will be developed based on a wide variety of criteria, with potential for water quality impacts being one of the criteria to consider.

Recommendation 17:

1. We request that Xeneca be required to adhere to the recommendations of the Class EA for Waterpower, and incorporate upstream and downstream fish passage into the project design to allow fish to migrate freely upstream and downstream.

Xeneca response: As documented in the consultation section of the ER (Appendices C and E), fish passage was a topic of significant interest during consultation with regulatory agencies and Aboriginal Communities and received specific follow-up study. The expert consensus was that downstream passage is not significantly reduced. Special analysis work showed the existing amount of upstream fish passage is limited due to steep conditions in Wabagishik Rapids. No Sturgeon were found upstream of Wabagishik Rapids. Agencies and aboriginal representatives appear to have acknowledged the study findings. Hence, a need for upstream passage was not deemed to be significant. Instead, stakeholders requested that Xeneca participate in a fish hatchery initiative at the site, which Xeneca committed to (Section 7.2.) In general, the habitat requirements for aquatic species identified within the zone of influence exist where the species occur, whether upstream or downstream of the proposed dam. The fish habitat compensation plan directs compensation fish habitat downstream of the proposed dam to ensure sufficient spawning habitat is available for Walleye and Lake Sturgeon. Therefore, fish passage is not required to maintain ecological functioning and is not contemplated at this site.

As further explanation, the ER acknowledges the potential for both Walleye and Lake Sturgeon to ascend Wabagishik Rapids under certain existing conditions. This is based on modelled analysis of water velocities and the fish's swimming capabilities, and leaves some uncertainty as to the actual behaviour of the fish. For Lake Sturgeon, past MNR records show no confirmation of the presence of Lake Sturgeon in Wabagishik Lake. The lack of confirmed presence in Wabagishik Lake provides some indication of the behavioural tendencies of Lake Sturgeon. It does not completely eliminate the possibility of their passage through Wabagishik Rapids and their presence in Wabagishik Lake, but it does provide an indication. The MNR and Xeneca agree that the likelihood of Lake Sturgeon occurring in Wabagishik Lake is low, and the risk of isolating an area of utilized habitat is also low. Studies can never completely eliminate risk of this nature, particularly studies related to a small population of Lake Sturgeon. In addition, the MNR has expressed concern about repeated handling of the individuals in the population that occurs downstream of the proposed dam, because capture and tagging of these individuals for a telemetry program poses some risk of negative effect. The MNR has indicated that they are willing to accept the level of risk associated with the existing information, with one condition. The MNR has also made it clear that constructing the dam without provision for fish passage is contingent on creating additional spawning habitat for Lake Sturgeon downstream of the proposed dam as part of the fish habitat compensation plan. The spawning habitat will serve the Lake Sturgeon population that is known to exist in the Spanish River and the lower Vermillion River downstream of the proposed dam.

Walleye are known to reside both upstream and downstream of the proposed dam. Xeneca and the MNR agree that the upstream and downstream Walleye populations can be managed separately, provided fish habitat compensation for Walleye is provided downstream of the proposed dam (Annex III.)

2. We request the use of fish friendly turbines to reduce fish mortality.

Xeneca response: The ER commits to the use of a Kaplan design turbine, which has lower fish mortality than most other designs (Section 3.3.5, Section 7.1.5 (pg 221) & Table 33, "Fish injury or mortality" (pg. 195.)) The design of intakes and trash racks was designed to allow only smaller fish to pass through. Studies have shown that small fish have a much lower mortality rate than large fish when passing through a turbine. The potential fish

mortality impact has been documented in the ER and appears to meet the design and mortality criteria set forth by the federal Department of Fisheries and Oceans.

Recommendation 18: Xeneca must be required to undertake a study to assess public safety issues, and come up with a comprehensive plan to mitigate these risks.

Xeneca response: Public safety is of paramount concern to Xeneca. Xeneca has committed to maintain water flows and levels that will ensure continued navigability and recreational use as it currently exists. In accordance with the federal *Navigable Waters Act*, Xeneca will post warning signs in areas determined to be susceptible to ice instability as a result of the operation of Wabagishik Rapids GS. Water level fluctuations will be gradual, as changes in operating levels will be ramped over time (60 minutes - noted in the Operating Plan, Annex I.) Xeneca's safety plan, which will be prepared during the detailed design phase of the project, will be based on best practices within the Ontario industry and will be audited by a third-party professionally accredited engineering firm.

Recommendation 19: The proponent has issued an incomplete ER and must be required to go back to do the additional studies requested herein, and once completed Xeneca can resubmit their ER for public comment and review.

Xeneca response: Xeneca respectfully disagrees that the ER is incomplete. The technical studies were specifically designed to meet and exceed the requirements of the Class EA technical guide. Extensive effort was made to address comments made and various technical studies were expanded over time to address specific comments from stakeholders, aboriginal communities and regulatory agencies. The consultation timeline was greatly expanded from the 18-month estimated in the Class EA process to over 36 months to provide ample opportunity for engagement and follow up. The consultation effort related to meetings, PICs and information postings on the web has greatly exceeded the requirements of the Class EA process. Diligent effort has been made to address every comment made in the Class EA process. In addition, a draft ER was issued in 2012 to all interested parties for review and comment, thereby greatly expanding review opportunities contemplated in the Class EA process. The technical baseline studies have been extremely extensive, including Hec Ras modeling, hydrology and hydraulic assessment, bathymetry, LiDAR surveys, geomorphology work, temperature assessments, rigorous water quality sampling protocols, thorough aquatic and terrestrial biological studies, archeology and socio-economic analysis.

The effects of the proposed project and its operations are well understood. Where fish habitat is impacted, a compensation plan is in place to maintain ecological function. Robust monitoring programs, detailed operational plans and post-operational monitoring are established to confirm adherence to commitments and ensure modeling is accurate. In addition, if unexpected results occur, an adaptive management plan is in place.

Recommendation 20: Xeneca must follow established policy, process, best management practices, and agency directives, and any interference or non-compliance from the proponent should not be tolerated.

Xeneca response: Xeneca does follow established process, policy and employs best management process.

Recommendation 21:

1. Any B2B relationship, incentives, or funding/payment/partnerships that would include funding from any government source is relevant to this ER and must be transparent, made available to the public for our review, and be part of the Wabagishik Rapids GS Environmental Report.

Xeneca response: Xeneca has not, at this point, applied for any government funds for this project. We have indicated that we would support the application of any government application (like the Aboriginal Loan Guarantee Program or the Aboriginal Renewable Energy Fund.) To date, no application has been made by Xeneca or any of the Communities (to our knowledge.)

The programs and terms of programs available for First Nation participation are available through the Ontario Power Authority (OPA) website and, as such, the process is open and transparent. Any B2B arrangement is a private commercial arrangement between the proponent and those First Nation Communities that wish to participate. The specific B2B arrangements are not subject to public scrutiny.

2. A clear, traceable and transparent accounting of how Xeneca arrived at the conclusion that the Peer Review Group would generally endorse or agree with the idea in principle must be provided for public scrutiny and review.

Xeneca response: Please see the Xeneca response to point 19: Aboriginal Consultation (pg 52.) We may need to clarify exactly which reference you are speaking to.

Recommendation 22: Xeneca must provide all minutes, documentation and correspondence relating to the VSAC, along with any partnerships or funding applications, agreements, or arrangements made with any and all members of the VSAC Committee, to be included in the ER.

Xeneca response: As previously stated to the ORA (emails on October 11 and November 7, 2013) stakeholder advisory committee minutes (both VSAC and PSAC, for the Petawawa River projects) will not be included in the final ER. They were set up to be third-party entities and minutes would only be included in the ER had the committee requested they be, as the committee takes and keeps the minutes.

Recommendation 23: We urge the Minister to reject this Environmental Report on the grounds that this proponent has consistently undermined all trust and confidence through its direct actions, as well as through this sloppy, negligent and inconsistent ER.

Xeneca response: Xeneca would be pleased to review the consultation record with ORA to demonstrate the open, inclusive and fulsome nature of consultation on the Wabagishik Rapids project. A teleconference or in-person meeting may be the best avenue for this review, so please advise of some dates/times of availability.

Recommendation 24: We request that the Minister reject this Environmental Report and send the proponent back to complete all studies, provide all documentation and finalize all agreements and operating strategies.

Xeneca response: Xeneca has met or exceeded all requirements of the OWA Class EA and elevation to a full environmental assessment is not required.

Recommendation 25: Xeneca must undertake a quantitative Socio-economic Impact study to document and assess all anticipated positive and potentially negative impacts.

Xeneca response: Thorough examination and consideration of cultural and recreational values in the area have occurred - please see socio-economic discussion within the ER documentation -- Section 2.11 (Current Land and Water Use) and Section 2.13 (Social and Economic.)

Summary of Supporting Information:

Summary of Recommendations

- 1. Guarantee of Proponent**
 - 2. Contaminated Sediment – Severe Effect Level**
 - 3. Release of Heavy Metals**
 - 4. Headpond & Zone of Influence**
 - 5. Erosion, Shoreline Stability & Scour**
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 - 20. Vermilion Stakeholders Advisory Committee**
 - 21. Trust and Confidence**
 - 22. Water Management Plan – Vale & Domtar**
 - 23. Socio-economic Impacts**
- Conclusion**

Supporting Information:

1. Guarantee of Proponent

On an important document such as this, and for the purposes of validity and assurances, it is critical to include the author's credentials and guarantee that the information and promises contained in the ER along with its studies and reports are accurate and complete. This important guarantee is missing from this ER.

Xeneca response: The Class EA process is a formal regulatory process that binds the proponent to the commitments made under the process. In addition, regulatory agencies typically incorporate many of the commitments made in the Class EA process as mandatory conditions in the subsequent permits and approvals process. In this manner, project proponents are firmly tied to the commitments made. With respect to authorship, all documents in the final ER identify either the corporation or the professional that issued the document. It is our understanding that some consulting firms do, and other do not, identify the individuals who worked on the report. In either case, qualified consulting firms and professions with directly applicable experience were used for each

aspect of the environmental assessment work. This approach is established and accepted practice in the environmental assessment process.

Recommendation 2:

The Wabagishik Rapids GS ER, with all of its promises, must be guaranteed and signed by its author.

Xeneca response: Again, as noted above, Xeneca and its consultants have followed the Class Environmental Assessment for Waterpower Projects (Class EA) and met all requirements. The Class EA process is a formal regulatory process that binds the proponent to the commitments made under the process. In addition, regulatory agencies typically incorporate many of the commitments made in the Class EA process as mandatory conditions in the subsequent permits and approvals process. In this manner, project proponents are firmly tied to the commitments made. With respect to authorship, all documents in the final ER identify either the corporation or the professional that issued the document. It is our understanding that some consulting firms do, and other do not, identify the individuals who worked on the report. In either case, qualified consulting firms and professions with directly applicable experience were used for each aspect of the environmental assessment work. This approach is established and accepted practice in the environmental assessment process.

2. Contaminated Sediment – Severe Effect Level

The Vermilion River system in the Greater District of Sudbury has already been highly compromised by over 100 years of mining waste and effluent, and a long history of 9 upstream wastewater treatment facilities releasing treated, undertreated and untreated effluent into its waters.^{2,3} A 1986 MOE Sediment Study for Wabagishik Lake⁴ underscores this history when it reported contaminated sediment containing heavy metals such as nickel (24 times over the severe effect level (SEL), copper (5 times over the SEL), arsenic (3 times over the SEL); lead (1.5 times over the SEL), iron, and manganese over the SEL, and zinc, chromium and cadmium at elevated levels. On several occasions (both verbally and formally) VRS requested that Xeneca undertake sediment sampling on Wabagishik Lake, and downstream in the bay area where silt and sediment have collected over the years, an area that is very vulnerable to the extremes of flushing, dewatering, erosion and scouring. However, Xeneca refused.

Xeneca response: As we have expressed previously with respect to your concern over disturbance of contaminated sediment, the Parish Geomorphic Report (Annex I) notes that the project footprint is located in a very stable area, consisting mainly of bedrock and coarse cobble and boulders. As such, the physical project or its construction is not expected to release trapped sediments as there are none at the site. Nor are sediments within Wabagishik Lake or downstream of the site expected to be significantly disturbed by the facility as they are largely inert except under very significant channel forming flow conditions that may occur naturally under spring flood or extreme weather events. We would also refer you to the Construction Management Plan included in Annex II of the ER package. Simply put, the operation of Wabagishik GS will not at any time create the channel forming flows that could disturb contaminated sediments that have been trapped for decades within the river system.

Xeneca was made aware of this MOE study in the spring of 2013 in a public forum at the Walleye Club Conference, and yet none of its findings were addressed in this ER, except for a brief dismissal of the “potential presence of contaminated sediment at the bottom of Wabagishik Lake”. This dismissal is

misleading and unacceptable as Xeneca knows full well that the MOE's sediment study revealed several heavy metals that were many times over the severe effect level. If Xeneca were diligent in addressing environmental concerns at Wabagishik, they would have undertaken their own study when they found out about the heavy metal contamination. In neglecting to do so, Xeneca has eroded our confidence by failing to address the potential impacts on water quality, aquatic life and public health and safety.

Xeneca response: Disturbance of sediment related to the construction and operation of the proposed project was extensively considered in the Class EA process. The dam location was moved from its originally proposed location to a location 255 meters upstream. This relocation was made, in part, to move the dam site construction to a location where substrate consists of mainly bedrock, rather than sediment. This effort helps to ensure that the sediment disturbed during construction is minimal. Disturbance of sediment related to operation of the project was assessed by considering the potential for fluvial erosion. The Parish geomorphology report (Annex 1 of the ER) notes that the project footprint is located in a very stable area, consisting mainly of bedrock and coarse cobble and boulders. As such, the project operation is not expected to significantly disturb sediments, and neither sedimentation nor sedimentation transport are expected to be exacerbated by the operation of Wabagishik GS or Lorne Falls GS (either individually or cumulatively.)

In addition, the Operating Plan (Annex I) limits the maximum rate of flow from powerhouse operation to (64 m³/s.) This rate of flow is below the "channel forming flow rates" typically associated with fluvial erosion. Channel forming flows occur naturally during spring run-off when rates of flow are naturally high, causing natural erosion and re-deposition of sediments. For comparison, the two-year return period spring flood flow is 268 (m³/s.) As a result of these studies, it can be concluded that sediment disturbance related to construction and operation will be minimal. Given the aforementioned points, the need to test sediments for contamination is not required for this project, however, samples taken during geophysical and geotechnical studies will be analyzed and Xeneca would be pleased to share those results with you and any other interested stakeholders. The final ER commits to a long-term water quality monitoring program to validate the study predictions.

Xeneca only subscribes to standard construction best management practices, but the handling of this contaminated sediment would require very high level containment and care in both construction and operation. If this sediment is not properly contained it could be stirred up and ultimately be washed down into the Spanish River, and on into the North Channel of Lake Huron.

Xeneca response: Operating constraints have been placed on the project to reduce water level fluctuations and to ensure that environmental conditions are maintained during critical life cycle periods such as spawning for fish (please see the Operation Plan in Annex I of the ER.) We acknowledge that no science is perfect, and, as such, a robust monitoring program is in place (please see Monitoring Plan in Annex III of the ER) and, if unexpected effects are occurring post-construction, an adaptive management plan is in place. We would also refer you to the Construction Management Plan included in Annex II of the ER. This report outlines plans to minimize or avoid sedimentation issues during construction. To further support our assertions, kindly again refer to the operating parameters of the project in the operating plan (Annex I.)

In consideration of this highly contaminated sediment reported to be several times over severe effect levels, it is doubtful Xeneca can claim it will generate sustainable renewable energy, green energy, or have any kind of net benefit for the people of Ontario – especially with the small amount of power that would be generated.

Xeneca response: The Government of Ontario has recently announced the Long Term Energy Plan will include the end of building nuclear plants and phasing out coal. We know that intermittent power sources (solar, wind) do not sustain a baseload. Small waterpower projects such as the Wabagishik GS are identified under the province's long term energy and by the Independent Electricity System Operator (IESO) as highly desirable forms of generation. Hydropower is the perfect way to balance the system, but run-of-river alone will not meet the energy requirements of the province. Small waterpower generally has a small ecological footprint, low life-time costs and is widely supported by the people of Ontario, and is an important part of our energy future in Ontario.

Recommendation 3:

Xeneca must undertake a sediment study both in Wabagishik Lake and downstream in the bay area to determine sediment composition, and then undertake a comprehensive plan to contain and control the sediment, both during construction and operation.

Xeneca response: The technical studies concluded that the proposed project will not disturb sediments in Wabagishik Lake or downstream. Disturbance of sediment related to the construction and operation of the proposed project was extensively considered in the Class EA process. The dam location was moved from its originally proposed location to a location 255 meters upstream. This relocation was made, in part, to address a concern raised by VRS and ORA that rapid variation in flows could cause scour in the river bed in the downstream bay area. The relocation upstream moved the dam site construction to a location where substrate consists of mainly bedrock (and the immediate downstream area is lined with natural cobble hardpan) rather than sediment. This effort helps to ensure that the sediment disturbed during construction is minimal.

Disturbance of sediment related to operation of the project was assessed by considering the potential for fluvial erosion. The Parish geomorphology report (Annex 1 of the ER) notes that the project footprint is located in a very stable area, consisting mainly of bedrock and coarse cobble and boulders. As such, the project operation is not expected to significantly disturb sediments, and neither sedimentation nor sedimentation transport are expected to be exacerbated by the operation of Wabagishik GS or Lorne Falls GS (either individually or cumulatively.) In addition, the Operating Plan (Annex I) limits the maximum rate of flow from powerhouse operation to (64 m³/s.) This rate of flow is below the "channel forming flow rates" typically associated with fluvial erosion. Channel forming flows occur naturally during spring run-off when rates of flow are naturally high, causing natural erosion and re-deposition of sediments. For comparison, the two-year return period spring flood flow is 268 (m³/s.) As a result of these studies, it can be concluded that sediment disturbance related to construction and operation will be minimal.

As you are aware, no direct disturbance of the lake bottom sediments is proposed. The concern appears to arise from the proposed level operations. As outlined in the ER and to avoid sediments from being disturbed in Wabagishik Lake, the proposed project has firmly committed to follow the natural seasonal lake levels and to operate in a manner that will not result in the lake level fluctuations of more than +/- 5 centimeters due to daily facility operation. (Please note, larger natural lake level fluctuations of up to 150 centimeters per year or more will still occur, but not related to facility operations). No change in pore water conditions in the sediment at the lake bottom will occur with these firm operating restrictions in place. Similarly, no change in oxygenation will occur that could alter the nature of existing heavy metal contamination at the lake bottom. A rigorous water quality monitoring program has been proposed in the ER to ensure that these predictions are correct.

The technical studies show that the downstream bay area river environment is subject to extensive flow and level variations under natural conditions. The proposed project has firmly committed to operate in a manner that will limit daily water level fluctuation to +/- 15 centimeters in the embayment area immediately downstream of the facility. This area is subject to natural water level fluctuations of over 150 centimeters throughout the year and fluctuations during run-off events that regularly exceed +/- 15 centimeters. The proposed daily level operation is

not expected to cause contaminants to be released as the resulting changes in pore water pressure are consistent with natural factors.

Based on the above, it can be stated with a high degree of certainty that sediment will containment and avoidance of disturbance of potentially contaminated sediments was carefully addressed in the EA process. We also confident that the comprehensive water quality monitoring plan will address any remaining uncertainty in these determinations.

3. Release of Heavy Metals

A recently released study reports on the impacts of wetting and drying of peat in wetlands from climate change that "is predicted to cause an increase in frequency and severity of droughts in the boreal ecozone, which can result in the lowering of water tables and subsequent release of acidic, metal contaminated waters from wetlands. We believe that in areas where historical deposition of metals and sulphur was severe, these episodic pulses of metals could reach concentrations sufficiently high to severely affect aquatic communities in receiving waters and cause a delay in biological recovery.

These results are important considerations for water quality of boreal surface waters in general, but this study also has particularly important implications for restoration efforts in smelter-impacted areas like Sudbury. Efforts to restore aquatic ecosystems in such areas and protect freshwater resources elsewhere must take into account biogeochemical processes within the entire watershed, especially within wetlands. In addition, disruptions to biogeochemical cycles are likely to become more prevalent and spatial and temporal variation in water chemistry is likely to increase in a time of changing climate." "This sulphate-release has been documented in wetland soils and riparian sediments in the Sudbury area and elsewhere, and can result in metal release with even small changes in soil moisture content."

This study is very relevant to this peaking facility where water will be held back from downstream flow, and will result in a wetting and drying of sediment and wetlands on a daily basis. The ER reports on the horseshoe-shaped riffle, "(QTL) during the day (25m³/s as per operating plan restriction (Ortech 2013). The daily variation in flow that occurs at these times will result in wetting and drying of channel substrate in this area of habitat. The area affected by drying has been calculated by comparing the area wetted under existing conditions during the average August flow rate of 15.5 m³/s and the proposed minimum flow in August of 5 m³/s. The affected area is 1,000 m² in size (Xeneca 2012b)." "This area was specifically addressed because the Department of Oceans and Fisheries expressed concern for it.

Xeneca response: The Department of Oceans and Fisheries wrote a letter to Xeneca on October 21, 2013 saying that it had no outstanding concerns with the Wabagishik Rapids final Environmental Report. Furthermore, as noted in the final ER, Xeneca has committed to a robust water sampling and monitoring program for the Project. Pre-development sampling establishes a baseline reference of water quality prior to facility development. This, plus upstream-downstream comparison in post-development water quality monitoring, will allow facility-related impacts to be assessed. In addition to the seasonal monitoring regime recommended by MOE, post development monitoring will be conducted during peak flows to establish a worst-case scenario for contaminants related to suspended sediment. Dissolved oxygen monitoring will be conducted in the early morning when it is typically lowest due to overnight oxygen use by plant respiration with no oxygen recharge from aquatic plant photosynthesis. Samples will be collected from 1) upstream of the impoundment, 2) within the impoundment, and

3) in the deep pool immediately downstream of the proposed facility. The following parameters will be measured include: Total Suspended Solids (TSS) and Total Dissolved Solids (TDS); cations (Mg, Na, Ca, K); anions (Cl, SO₄); Total metals; low level total mercury (0.1 ng/L detection limit); and low-level methyl mercury (0.02 ng/L detection limit). Samples will be collected three times a year during the spring freshet, the summer low-flow period and the fall mid-flow periods in years 1, 2 and 3 of facility operation. Should monitoring identify that water quality is impacted, Xeneca will discuss the matter with MOE to determine if additional sampling or investigation into the source of the changes is necessary and develop appropriate mitigation strategies. The monitoring results will be compared to pre-construction condition and reported to MOE annually for each monitoring year.

However, what other areas will be subjected to this wetting and drying?

Xeneca response: As noted in the ER, smaller wetlands are situated in pockets downstream of the bay, associated with tributary stream outlets. A “rapid assessment” of wetlands within 500 m of the proposed roads and lines corridors was conducted in 2013. A predictive model developed by the MNR was then used to identify those wetlands that are likely to be provincially significant, according to the Northern Ontario Wetland Evaluation System (MNR, 1993). In addition, four Mineral Shallow Marsh wetland communities occur at the outlets of tributary streams within the downstream extent of the proposed project were assessed. Xeneca has committed to monitoring the vegetation and wildlife within this Candidate significant wildlife habitat (SWH) will include vegetation monitoring, and surveys of amphibians, waterfowl and marsh birds during the breeding season, as well as turtle nesting activity. Vegetation surveys will be conducted during the spring (June.) As previously noted the plus or minus 5 cm effect on Wabagishik Lake is not expect to affect wetlands as it will not result in any flooding or long term reduction in water levels within those features. In summary, no area will be dried out as a result, nor will any area be permanently inundated.

What about the downstream bay area where it is reported that navigation could be impacted, and how will the wetlands and tributaries be impacted by reduced water flow?

Xeneca response: Xeneca believes the impacts from +/- 15 cm fluctuations in the downstream area have been extensively assessed and addressed throughout the final ER. For example, Table 33 in the final ER details the impact of the +/- 5 cm and +/- 15 cm have on fish and wildlife; water temperature; water quality (both surface and groundwater); water levels, flows and movement; erosion and sediment; land and resource uses; and civil structures and riparian rights.

Of course the figure of 1000 m² does not take into account the drying of the littoral zone of Wabagishik Lake, and whatever wetlands that could be impacted by the constant fluctuations of water levels from this peaking operation.

Xeneca response: As noted in Section 5.1 of the final ER, water levels in the headpond of the Wabagishik Rapids GS will follow natural lake levels, such that fluctuations in water levels in Wabagishik Lake will remain within ± 5 cm of natural levels. Impacts associated with these lake level fluctuations are anticipated to be limited to the shallower, littoral areas of the lake. These littoral areas, estimated to cover 12.5 ha, already fall within the existing natural zone of fluctuation of Wabagishik Lake subject to the effects of wave action and seiche effects. Although there will be an increase in the frequency of water level fluctuations, impacts to biota in the littoral zone are predicted to be minimal and not significant, as the ± 5 cm water level fluctuations resulting from operations are within the range of naturally-occurring fluctuations on the lake.

Erik Szkokan-Emilson very clearly points out the risks, and that the Sudbury basin is a sensitive area because of its historical metal and sulphur deposition. He suggests that it is “particularly critical that we preserve and protect all existing habitat in this area” and “imperative that we preserve the hydrologic cycles of these areas as much as possible so to avoid the recontamination of surface waters with sediment- and soil-bound metals.”

Xeneca response: The pre-development water quality monitoring indicates that the Vermilion River in the project area has relatively good water quality, typical of a northern Canadian Precambrian Shield river with limited impacts from mining activities. Aluminum, copper and nickel concentrations exceeded PWQOs, possibly because of upstream mining activities and natural sources of these parameters in the watershed. The river has low total suspended solids, dissolved organic carbon and nutrient concentrations, with all parameter concentrations well below the PWQOs. The river’s water quality is linked to its seasonal flows, indicated by increased suspended sediments and associated adsorbed metals and nutrients during high spring and fall flows. A list of all analytical parameters for the water quality investigation is provided in the September 2013 document found in Annex IV of the final ER.

ORA and VRS concur with his statement that “the true risks of this “modified run-of-river” project have not been addressed or conveyed to the public or stakeholders”.

Xeneca response: Through a series of Public Information Centres, individual group and person-to-person meetings, emails, website presence, telephone calls, newspaper advertisements and very thorough and comprehensive draft and final Environmental Reports, the effects of the project and its operations have been addressed and communicated to the public. The consultation record can be found in Appendices C, D and E of the final ER.

We go further to suggest that the generation of 1.5 MW of power is not worth the severe environmental and health risks.

Xeneca response: As correctly described in the Operating Plan, there are times when the facility operates at less than full capacity of 3.4 MW and less than maximum powerhouse flow rate of 64 m³/s. This variability in output relates to the natural variability in water flow throughout the year. This aspect was carefully considered in determining the viability of the proposed project and is an inherent aspect of every waterpower facility in Ontario. Nonetheless, provincial policy encourages the production of electricity from clean and renewable waterpower. Small waterpower projects such as the Wabagishik GS are identified under the province's Long Term Energy Plan and by the Independent Electricity System Operator (IESO) as highly desirable forms of generation. Small waterpower generally has a small ecological footprint, low life-time costs and is widely supported by the people of Ontario.

Recommendation 4:

In order to determine the full magnitude of impacts on public health and safety, aquatic life, water quality, and on the North Channel of the Lake Huron, Xeneca must do a risk/benefit analysis, as well as rigorous studies to assess the impacts of daily wetting and drying of sediment and wetlands, and its corresponding release of heavy metals into the environment.

Xeneca response: These concerns and impacts were raised during the EA process over the past four years and have been fully assessed. Impacts have been fully assessed and the studies suggested are not required. The wetlands in question relate to two small creek tributaries that enter the river several hundred meters downstream of the proposed dam site. The two small wetland areas were specifically studied in the environmental baseline

study efforts (Annex III.) The Operating Plan (Annex I of ER) strictly limits the daily water level fluctuations from facility operations to +/- 15 centimeters for this area, well within the range of sediments that is subjected to wetting and drying under natural conditions. The average daily water level in this area will remain unchanged, due to a commitment to release all upstream flow every day. The combination of limiting the daily water level fluctuations, combined with maintaining the average water level within existing conditions will ensure that no significant wetting and drying occurs in these wetland areas, and no release of contaminants is expected. For comparison, the annual seasonal range of water level fluctuations in this area exceeds 150 centimeters under existing conditions. As result, these sediments have been exposed to many years of wetting and drying under natural conditions. A robust long-term water quality monitoring program is in place to validate the study results. For more information, please see the answers to the related questions on pages 14-17.

4. Headpond & Zone of Influence

Xeneca has defined the headpond as only extending to the outflow of the lake, when in fact all of Wabagishik Lake will be used as a headpond. This fact is supported in the ER many times when it is reported that “Wabagishik Lake will function as part of the headpond” and “once operational, any modification of flow that affects the headpond also affects the lake.”

The fact that the area defined in the ER as the headpond is only 4.8 hectares, while the actual headpond area of Wabagishik Lake is reported to be 629 hectares may have created the motivation for declaring this significant exemption in Xeneca’s favor.

Xeneca response: The Operating Plan (Annex I) clearly outlines how the facility will be operated and that the lake will not be used as a headpond. As noted in the Operating Plan, Wabagishik Lake is linked hydraulically to the project headpond and, as such, the lake is included within the project Zone of Influence. Wabagishik Lake water levels will always be within natural level, with maximum daily fluctuations of only +/- 5 cm. The existing condition lake level and lake outlet rating curve have been established, which will be used as the operating curve of the Wabagishik GS.

Xeneca also points out that “Minor fluctuations in lake level will occur on a daily basis in conjunction with dam operations, and some ability to control lake levels during drought conditions may also be realized. The project is therefore considered a lake-coupled project, and the study area includes Wabagishik Lake.”

We have yet to find one study in the entire ER for Wabagishik Lake that addresses environmental impacts.

Xeneca response: Fluctuations of water levels on Wabagishik have, in fact, been assessed with specific focus on potential impact to aquatic and terrestrial habitats. Given the fluctuations are significantly less than what occurs naturally and considering that wetting and drying is temporary and consistent with existing conditions, changes to the lake are not considered significant enough to warrant further studies. Additionally, monitoring programs are in place to ensure that modelling predictions are accurate and an adaptive management plan in place if unexpected effects are encountered.

This lake coupled operation will cause lake water levels to rise and fall daily with a 10 cm operating band. On close examination of the ER it raises the question of whether this was done to avoid having to carry out more extensive erosion, fisheries, wildlife, and water quality studies on Wabagishik Lake.

This is very disturbing as it appears to be an attempt to gloss over, cut corners, and avoid addressing the full environmental impacts of the project.

Xeneca response: Fluctuations of water levels on Wabagishik have, in fact, been assessed with specific focus on potential water quality, erosion and sedimentation effects. Given the fluctuations are significantly less than what occurs naturally and considering that wetting and drying is temporary and consistent with existing conditions, changes to the lake are not considered significant enough to warrant further studies. Additionally, monitoring programs are in place to ensure that modelling predictions are accurate and an adaptive management plan in place if unexpected effects are encountered.

Xeneca's own ER points out that "Impounding rivers for hydroelectric generation can change their water quality through warming due to decreased water flow and increased surface area exposed to sun, changes to water chemistry from water contact with newly flooded soil and changes in flow, increases in oxygen demand and changes in microbial activity in the flooded soil. Typically, water quality has a very rapid response to inundation, changing quickly and then stabilizing within a few years. The potential increase of available mercury in surface water is a particular concern with water impoundment. Mercury and methyl mercury may biomagnify within the food chain and can pose a health concern to humans and wildlife that consume fish. The rate of mercury accumulation in fish depends on a variety of factors including fish size, diet and trophic position, as well as site-specific factors such as the type of terrain flooded, hydraulic residence time and water level fluctuation. This report didn't mention that sediment can also be a major contributing factor in methylmercury production. This report clearly points out that this waterpower development could result in increased mercury concentrations in fish tissue, when there are already "Fish Consumption" restrictions for the Vermilion River below Lorne Falls, including Wabagishik Lake, all the way out to the confluence with the Spanish River.

Xeneca response: This issue has been studied thoroughly and we would refer you to the Hutchinson "Baseline Water Quality and Fish Tissue Mercury" report in Annex IV of the ER. The study establishes a current condition (baseline) water quality assessment and involves future monitoring to measure any changes that may occur. The assessment also looks at potential changes to methyl mercury levels, the conditions that may cause those changes to occur and the long-term effects.

This report goes on to say that "although aluminum, copper and nickel concentrations exceeded the Ontario Provincial Water Quality Objectives (PWQO), the project area has relatively good water quality typical of a northern Canadian Precambrian Shield river with limited impacts from mining activities". How can this be considered good water quality when it exceeded the PWQO in all of these areas?

Xeneca response: The pre-development water quality monitoring indicates that the Vermilion River in the project area has relatively good water quality, typical of a northern Canadian Precambrian Shield river with limited impacts from mining activities. Aluminum, copper and nickel concentrations exceeded PWQOs, possibly because of upstream mining activities and natural sources of these parameters in the watershed. The river has low total suspended solids, dissolved organic carbon and nutrient concentrations, with all parameter concentrations well below the PWQOs. The river's water quality is linked to its seasonal flows, indicated by increased suspended sediments and associated adsorbed metals and nutrients during high spring and fall flows. A list of all analytical parameters for the water quality investigation is provided in the September 2013 document found in Annex IV of

the final ER. As noted in the final ER, Xeneca has committed to a robust water sampling and monitoring program for the Project. Pre-development sampling establishes a baseline reference of water quality prior to facility development. This, plus upstream-downstream comparison in post-development water quality monitoring, will allow facility-related impacts to be assessed. In addition to the seasonal monitoring regime recommended by MOE, post development monitoring will be conducted during peak flows to establish a worst-case scenario for contaminants related to suspended sediment. Dissolved oxygen monitoring will be conducted in the early morning when it is typically lowest due to overnight oxygen use by plant respiration with no oxygen recharge from aquatic plant photosynthesis. Samples will be collected from 1) upstream of the impoundment, 2) within the impoundment, and 3) in the deep pool immediately downstream of the proposed facility. The following parameters will be measured include: Total Suspended Solids (TSS) and Total Dissolved Solids (TDS); cations (Mg, Na, Ca, K); anions (Cl, SO₄); Total metals; low level total mercury (0.1 ng/L detection limit); and low level methyl mercury (0.02 ng/L detection limit). Samples will be collected three times a year during the spring freshet, the summer low-flow period and the fall mid-flow periods in years 1, 2 and 3 of facility operation. Should monitoring identify that water quality is impacted, Xeneca will discuss the matter with MOE to determine if additional sampling or investigation into the source of the changes is necessary and develop appropriate mitigation strategies. The monitoring results will be compared to pre-construction condition and reported to MOE annually for each monitoring year.

It appears as though Xeneca feels justified in not doing any erosion, water quality, fish sampling, or study of aquatic life, reptiles, or birds on Wabagishik Lake. This appears to be because Xeneca has confined the headpond to the 600m/800m (varies between 600 and 800m throughout the ER) area immediately above the dam, instead of all of Wabagishik Lake. This becomes apparent when Hutchinson Environmental Solutions Ltd. (HESL) reports, “HESL understands from Xeneca that the facility will not impound water in Wabagishik Lake.” 15 This formed the basis of the Hutchinson study, and is obviously incorrect as Wabagishik Lake will be used to impound water for the hydroelectric facility, and the lake will be utilized within a 10 cm operating band – and more when you include the wave seiche effect.

Xeneca response: Through the professional judgment and technical studies carried out by an independent consultant, Parish Geomorphic Ltd., Xeneca concurs with the conclusion made in the ER, namely that, because the project will operate within the identified water levels, there will be no additional erosion outside of that produced by normal seasonal fluctuations. Erosion studies have been conducted (please see the Parish Geomorphology Report in Annex I of the final ER) within the project area including Wabagishik Lake. The final ER contains thorough hydraulic analysis, Hec-Ras model results, bathymetry and flow modeling that clearly assesses potential effects of the project, including erosion potential, within the Zone of Influence (including Wabagishik Lake) and downstream to the Domtar headpond. We acknowledge that no science is perfect, and, as such, a robust monitoring program is in place (please see Monitoring Plan in Annex III of the ER) to ensure modeling results are confirmed and environmental commitments are met, and, if unexpected effects are occurring post-construction, an adaptive management plan is in place.

Recommendation 5:

1. Xeneca must recognize Wabagishik Lake as part of the headpond and undertake full erosion, water quality, fish sampling, aquatic, reptile and bird studies on Wabagishik Lake to determine all environmental impacts.

Xeneca response: Significant effort was made to address all potential impacts that could be reasonably associated with the proposed project.

Please refer to the Operating Plan (Annex I), which clearly outlines how the facility will be operated and that the lake will not be used as a headpond. As noted in the Operating Plan, Wabagishik Lake is linked hydraulically to the facility. The lake was determined to fall within the upstream “Zone of Influence” as it is expected that lake level fluctuations of up to +/- 5 centimeters can occur due to daily operation. This aspect is considered in significant detail in the ER and the potential environmental effects were carefully assessed. However, the lake is not formally considered part of the headpond as no new inundation is proposed for the lake bed. The proposed operation will follow the natural lake level throughout the year, subject only to the limited daily operations effect of +/- 5 centimeters.

Extensive study of the lake was carried out as outlined in the ER, including geomorphology, hydrology, water quality, aquatic habitat and other studies. Terrestrial studies, such as bird and reptile, were not carried out around the lake since no change to the natural seasonal lake level conditions is proposed and not terrestrial impacts around the shoreline were derived.

Shoreline erosion was considered as part of the ER. To address concerns on erosion (and other matters) raised during the public consultation process, the formal commitment was made to limit the impact on lake levels as described (i.e. to follow natural seasonal levels and limit daily operational impacts to +/- 5 centimeters.) It was concluded that +/- 5 centimeters of daily variation is less than the average wave fluctuation height and it was determined that such fluctuations would not have an erosional impact on the shoreline.

2. Xeneca must inform Hutchinson that Wabagishik Lake will be used to impound water so that all pertinent fish and water quality studies can be accurately assessed.

Xeneca response: Please see above.

5. Erosion, Shoreline Stability & Scour

Upstream of the Dam:

The Vermilion River below Lorne Falls dam, and all of Wabagishik Lake, a distance of 11.5 km (629 hectares), of what is referred to as the “zone of influence” (ZOI) in the ER, were not studied in the Geomorphic Assessment report – even though daily peaking will fluctuate lake water levels within an operating band of 10 cm and will impact the entire lake and upstream portion of the Vermilion River.

Xeneca response: The Parish Geomorphology Report notes that the project footprint is located in a very stable area, consisting mainly of bedrock and coarse cobble and boulders. As such, the physical structure or its construction and operation are not expected to release trapped sediments as there are none at the site. No are sediments within Wabagishik Lake or downstream of the site expected to be significantly disturbed by the facility as they are largely inert except under very significant channel forming flow conditions that may occur naturally under spring flood or extreme weather events.

The ER indicates that this 10 cm fluctuation is less than what might be caused by wave action or siege effect at present. However, as one regulator pointed out, this 10 cm would be in addition to the wind siege effect.

Xeneca response: Please note that operation adjusts to natural lake levels, and as such effects are not cumulative but responsive to changing conditions.

The Report also states that “the fluctuation of daily water levels upstream of the proposed dam can increase the amount of shoreline erosion that would occur without modified operation.” And yet there were no environmental studies completed for this entire area. This is irresponsible and unacceptable.

Xeneca response: Again, as the Parish Geomorphology Report notes, the project footprint is located in a very stable area, consisting mainly of bedrock and coarse cobble and boulders. As such, the physical structure or its construction and operation are not expected to release trapped sediments as there are none at the site. No are sediments within Wabagishik Lake or downstream of the site expected to be significantly disturbed by the facility as they are largely inert except under very significant channel forming flow conditions that may occur naturally under spring flood or extreme weather events.

Xeneca reports “For the Wabagishik Rapids development, fluctuation of daily water levels in the backwatered area upstream of the dam will likely not have an impact on bank stability due to the presence of bedrock lined channel in the backwatered zone.” Agreed - this area is mostly gravel and rock with little vegetation. It is no surprise that Xeneca confined their definition of what constitutes the headpond to this area only – much cheaper and easier to mitigate any problems in this section of the rapids. This seems to have negated their sense of responsibility for any impacts this could have on the lake.

Xeneca response: Please note that operation adjusts to natural lake levels, and as such effects are not cumulative but responsive to changing conditions. Monitoring equipment will be put in place to measure inflow and to calibrate outflow to ensure that existing conditions are maintained within the lake.

Xeneca dismisses all effects on the lake when it reports, “While Wabagishik Lake will function as part of the headpond, it will not be newly inundated and water levels will not change substantially.” In truth, water levels on Wabagishik Lake will change in accordance with the water levels in the headpond area. This analysis makes no mention of the potential erosion impact on Wabagishik Lake and the upstream portion of the Vermilion River with water levels rising and falling within a band of 10 cm on a daily basis for approximately 80% of the year. However, Xeneca reports that there would be “no notable erosion concern”. We request a clear and traceable method of how they arrived at this conclusion.

Xeneca response: Please refer to Parish Geomorphology Report re: sedimentation erosion (Annex I.) Please refer to NRSI Effects Report (Annex III.) Please refer to Hutchinson Environmental Water Quality Report (Annex I.) All conclusions, methodologies etc. are fully traceable and clear.

Xeneca reports that changes in water levels created by the facility are less than half the magnitude of the fluctuations that occur under existing conditions; however, ignores the fact that water fluctuations on the Vermilion River and Wabagishik Lake do not rise and fall daily under existing conditions. In actual fact this entire area - W1 and W2 – was not even studied in the Geomorphic Assessment – this is gross negligence.

Xeneca response: Your assessment is incorrect. Water levels affecting littoral zones do fluctuate daily, from effects such as wind, boat wakes, climatic events and other operators/infrastructure on the river system. As previously noted plant operation adjusts to natural lake levels and as such effects are not cumulative but

responsive to changing conditions. Monitoring equipment will be put in place to measure inflow and to calibrate outflow to ensure that existing conditions are maintained within the lake.

Recommendation 6:

Xeneca must undertake a geomorphic erosion study on all of Wabagishik Lake, as well as the upstream portion of the Vermilion River (W1 and W2) to properly assess the potential for sediment transport and bank erosion.

Xeneca response: In addition to the relatively stable geological setting of the area, the results of the sediment entrainment analysis performed by Parish Geomorphic (2013) support the conclusion that the operations of the proposed Wabagishik GS will not greatly alter channel morphology (e.g. there will not be a significant increase in the occurrence of severe erosion). The analysis assessed the effects of GS operations on the entrainment potential of sand and gravel along the entire zone of influence (ZOI). The results indicate that under existing conditions there is relatively little sediment movement in the study area. Upstream of the facility, channel bed erosion will not be increased due to operations. Quite contrarily, it is possible that sediment that is entrained from Wabagishik Lake or in the channel upstream of the dam will be restricted by the structure from moving downstream, resulting in sediment deposition. Downstream of the site, it is not anticipated that the existing sediment structure will be impacted greatly by flows associated with facility peaking operations. This includes the cobble/small boulder island and bar formations immediately downstream of the rapids, and the sand/gravel/cobble island formations in the on-line lake further downstream of the rapids. In the event that the coarser material (gravel-sized and larger) is entrained downstream of the dam and transported away, it will most likely be attributable to a major, infrequent, storm event(s) at a flow level which would be unaltered by the run-of-river dam operations. In this scenario, while the dam operations will not greatly influence the potential of entrainment and erosion of the coarser material downstream, the presence of the dam structure and its propensity to restrict sediment movement will influence the replacement rate for the larger material that cannot be transported in suspension.

Downstream of the Dam:

Downstream of the dam, this peaking operation will operate within an operating band of 30 cm. On a daily basis large sections of the river would be dewatered only to be flushed with a wall of water when the turbines are turned on at peak demand hours, and flow velocity would instantly jump from the environmental flow of 5, 6.5 or 8 cms to 25, 26.5 or 28 cms. This rush of water flooding out from the turbines would be like turning a fire hose on a garden. Xeneca states that this is within the “natural fluctuations” in flow velocity, but natural fluctuations do not occur daily to this extreme, nor do they create an instant wall of water.

Xeneca response: Any impact from dewatering of critical habitat has been carefully identified, analyzed and addressed in the final ER and the associated Preliminary Fish Habitat Compensation Plan completed by an independent consultant Natural Resources Solutions Inc. The Preliminary Fish Habitat Compensation Plan was developed in consultation with and reviewed by MNR and the Department of Fisheries and Oceans (DFO). You may find it noteworthy that DFO has provided a letter stating that it has no further concerns with the project.

In the downstream bay area identified as W4 and W5 in the geomorphology report is where the greatest potential for erosion exists. W4 is described as a “sediment sink” and W5 was “primarily comprised of fine silts and sands or coarse gravel”²⁰ in this report. This bay area is filled with very fine silt that would very easily be disturbed and churned up with rapid flow velocity changes – Xeneca does

not address this in the ER – nor does it address what that fine silt contains in the way of contaminated sediment.

Xeneca response: The two-year return period flood for Wabagishik Rapids project is 268 (m³/s), whereas the maximum flow fluctuation due to operation of the GS will be about 44 (m³/s) -- significantly lower than the annual flood flows in the river. Simply put, the operation of Wabagishik GS will not create the channel-forming flows that could disturb contaminated sediments that have been trapped for decades within the lake or river system.

It is our position that due to the operation of this peaking facility, with rising and falling water levels and rapid increases in flow velocity, that there is potential for considerable erosion, sedimentation and scouring of the substrate that would send contaminated sediment and soils downstream. This would have serious repercussions for all downstream aquatic life and habitat, as this heavily contaminated sediment would eventually end up in the North Channel of Lake Huron.

Xeneca response: Please refer to the Parish Geomorphology Report (Annex I.) Heavily contaminated sediment will not be transported into the North Channel as a result of operations at the Wabagishik GS.

Xeneca's ER does not adequately identify and mitigate the serious risk to the public and riparian land owners that might be swimming, boating or fishing within the downstream zone of influence.

Xeneca response: Xeneca has committed to maintain water flows and levels that will ensure continued navigability and recreational use as it currently exists. Xeneca will post warning signs in areas determined to be susceptible to ice instability as a result of the operation of Wabagishik Rapids GS. Water level fluctuations will be gradual, as changes in operating levels will be ramped over time (60 minutes.) Xeneca's safety plan, which will be prepared during the detailed design phase of the project, will be based on best practices within the Ontario industry and will be audited by a third-party professionally accredited engineering firm.

Xeneca has not provided a clear and traceable method of how they arrived at the conclusion that there would be "no notable erosion concern" on Wabagishik Lake.

Xeneca response: Parish Geomorphic Ltd conducted studies, and Xeneca concurs with the conclusion made in the ER, namely that, because the project will operate within the identified water levels, there will be no additional erosion outside of that produced by normal seasonal fluctuations.

Recommendation 7:

1. Erosion, shoreline stability and scour concerns have not been adequately addressed in the ER.

Xeneca must do an in-the-field erosion study to determine the potential for erosion and/or disturbing the heavily contaminated sediment located in Wabagishik Lake and in the bay area.

Xeneca response: In-field erosion studies have been completed. The technical studies concluded that the proposed project will not disturb sediments in Wabagishik Lake or downstream. Disturbance of sediment related to the construction and operation of the proposed project was extensively considered in the Class EA process. The dam location was moved from its originally proposed location to a location 255 meters upstream. This relocation was made, in part, to address a concern raised by VRS and ORA that rapid variation in flows could cause scour in the river bed in the downstream bay area. The relocation upstream moved the dam site construction to a location where substrate consists of mainly bedrock (and the immediate downstream area is lined with natural cobble hardpan) rather than sediment. This effort helps to ensure that the sediment disturbed during construction is minimal.

For further information, please refer to the Parish Geomorphology Report in Annex I. Rationalization for erosion study area (excluding Wabagishik Lake) is contained within the report.

2. Xeneca must commit to a Biological Monitoring Plan that includes erosion monitoring both downstream of the dam, as well as upstream – all the way to the base of the Lorne Falls GS.

Xeneca response: Biological and erosion monitoring plans are contained within the ER. Please see monitoring reports contained in Annexes 1 and 3.

6. Littoral Zone of Wabagishik Lake

In the ER Xeneca reports, “a very conservative estimate of total littoral area can be generated by assuming a 5m average width for the littoral zone and multiplying this by the shoreline perimeter of the lake as follows: Shoreline perimeter = 25 km (25,000 m) Average Littoral zone width = 5m Therefore the littoral zone area is estimated at 125,000 m² or 12.5ha. Within this estimated 12.5ha of littoral zone, any impacts on biota in the littoral zone habitat are predicted to be minimal and not significant. There will be an increase in the frequency of water level fluctuation, relative to a natural system. As noted above, a 10cm fluctuation in water level is less than what might be caused by wave action or seiche effect. As a result, the plants and other biota living in the littoral zone can be expected to withstand the 10cm daily fluctuation in water levels.” Xeneca also reports, “Plants and other biota living within the riparian zone can generally be expected to withstand the 10cm daily fluctuation in water levels based on their adaptation to the dynamic riparian environment.” No studies were undertaken to make this determination.

Xeneca response: The ER contains thorough hydraulic analysis, Hec-Ras model results, bathymetry and flow modeling that clearly assess potential effects of the project within the Zone of Influence including Wabagishik Lake and downstream to the Domtar headpond. Further, as noted above, a comprehensive monitoring program and adaptive management strategy is in place to ensure modeling results are confirmed and environmental commitments are met.

The ER also did not report whether the additional 10cm wind and wave seiche effect (as reported by the proponent) was added to the 10cm operating band when calculating the lake stage measurements and effects on littoral zone and biota.

Xeneca response: Water levels affecting littoral zones do fluctuate daily from effects such as wind, boat wakes, climatic events and other operators/infrastructure on the river system. As previously noted plant operation adjusts to natural lake levels and as such effects are not cumulative but responsive to changing conditions. Monitoring equipment will be put in place to measure inflow and to calibrate outflow to ensure that existing conditions are maintained within the lake.

Recommendation 8:

Xeneca must provide a clear and traceable method by which the average littoral zone width of 5m on Wabagishik Lake was arrived at, and how they arrived at the conclusion that the biota living in the littoral zone could be expected to withstand a 10cm daily fluctuation in water level, or that the impact would be minimal and not significant.

Xeneca response: Water levels affecting littoral zones do fluctuate daily from effects such as wind, boat wakes, climatic events and other operators/infrastructure on the river system. As previously noted plant operation adjusts to natural lake levels and as such effects are not cumulative but responsive to changing conditions. Monitoring equipment will be put in place to measure inflow and to calibrate outflow to ensure that existing conditions are maintained within the lake.

As noted in Section 5.1 of the final ER, the ER commits to strict operating restrictions so that lake levels upstream in Wabagishik Lake do not change by more than +/- 5 centimeters due to daily operation of the facility. In addition, the operation will follow natural lake levels throughout the seasons. The seasonal lake levels change by over 150 centimeters over time. Impacts associated with any lake level fluctuations are anticipated to be limited to the shallower, littoral areas of the lake. These littoral areas, estimated to cover 12.5 ha, already fall within the existing natural zone of fluctuation of Wabagishik Lake subject to the effects of wave action, seasonal level changes and seiche effects. Although there will be an increase in the frequency of small water level fluctuations, impacts to biota in the littoral zone are predicted to be minimal and not significant, as the ± 5 cm water level fluctuations resulting from operations are within the range of naturally-occurring fluctuations on the lake.

7. Mercury in Fish Tissue

Ministry of Environment Fish Consumption restrictions are already in place on Wabagishik Lake and posted on-line. These restrictions are in place all the way out to the confluence of the Vermilion River with the Spanish River, and this was not mentioned anywhere in the ER or its study documents. Any additional increase in mercury in fish tissue could make fish totally unavailable for recreational anglers, residents and First Nation communities. The very fact that there are already fish consumption restrictions in place should have necessitated a proper fish tissue sampling study.

Xeneca response: With respect to your concern over disturbance of contaminated sediment, please refer to geomorphology studies in Annex I of the ER. In summary, the report notes that the project footprint is located in a very stable area, consisting mainly of bedrock and coarse cobble and boulders. As such, the physical structure or its construction and operation are not expected to release trapped sediments as there are none at the site. Nor are sediments within Wabagishik Lake or downstream of the site expected to be significantly disturbed by the facility as they are largely inert except under very significant channel forming flow conditions that may occur naturally under spring flood or extreme weather events. The methyl mercury issue has also been studied thoroughly and we would refer you to the Hutchinson water quality report contained with the ER package. The study establishes a current condition (baseline) water quality assessment and involves future monitoring to measure any changes that may occur. The assessment also looks at potential changes to methyl mercury levels, the conditions that may cause those changes to occur and the long term effects.

The ER reports that “MOE (2012) recommended that reference sampling be conducted upstream of barriers to fish migration. There is no barrier to upstream fish migration at the proposed Wabagishik Rapids facility. Therefore, upstream reference sampling will not be conducted for the facility as fish can freely migrate from the project area, upstream, and ‘upstream references’ would not provide an accurate reference of naturally occurring mercury concentrations in fish. If Wabagishik Lake were properly considered as the impoundment for this proposal, the upstream barrier to Wabagishik Lake is the Lorne Falls GS. The ER also states, “The Wabagishik Rapids hydroelectric facility will not impede fish movement through the project area so the study design to assess mercury concentrations in fish

was based on a before/after approach with one site that will be compared between years.” There is no fish passage included in this design, and the gross head of the facility is 6 meters. Therefore, the dam and power house would most definitely be a barrier that would impede fish movement through the project area.

Xeneca response: The Lorne Falls dam is a barrier to upstream fish migration above Wabagishik Lake, but the river above it is not a suitable upstream reference for fish in and below the project area.

Wabagishik Lake has water inputs from the Vermilion River, drainage from wetlands, ponds and overland flow, as well as groundwater inputs, which affect its water quality. The natural dynamics of the lake (e.g., overturn and sediment sink/sources) also affect its water quality, including trace metals such as mercury.

The Vermilion River provides an appreciable amount of water to the lake, but so do the other sources that cannot be monitored individually by fish sampling. Monitoring fish in the river upstream of Lorne Falls (i.e., one source) provides information on one source of natural variation of mercury in the lake, but does not include the others and therefore may not be sufficiently representative of aggregate lake conditions to be a reliable reference. If the fish population dynamics in the river are different from the lake, the reliability decreases further.

The combined effect of all contributors to the lake is measured with the ambient lake water quality samples and the fish sampling in the lake. Water and fish sampling was conducted in the lake in 2013 and will be reported in early 2014. The Lake sampling provides a temporal reference of water quality, and mercury in fish, before development. Because of the various contributors to the lake, an upstream-downstream comparison after development is not an accurate assessment of change – at Wabagishik, the assessment should be conducted relative to the temporal reference, which is how the Hutchinson study is designed.

“HESL understands from Xeneca that the facility will not impound water in Wabagishik Lake”. Wabagishik Lake would most definitely be used to impound water for the proposed facility, for without using the water resources of Wabagishik Lake the facility would have very little capacity to generate power. Wabagishik Lake is clearly part of the headpond and needs to be acknowledged and treated as such.

Xeneca response: The Operating Plan (Annex I) clearly outlines how the facility will be operated and that the lake will not be used as a headpond. As noted in the Operating Plan, Wabagishik Lake is linked hydraulically to the project headpond and, as such, the lake is included within the project Zone of Influence. Wabagishik Lake water level will always be in natural level with only maximum daily fluctuations of +/- 5 cm. The existing condition lake level and lake outlet rating curve has been established, which will be used an operating curve of the Wabagishik generating station.

Mercury levels are already elevated on this section of the river, and any additional increase in mercury in fish tissue could make this main dietary staple for consumption. This is not acceptable.

Xeneca response: Again, please refer to geomorphology studies in Annex I of the ER. In summary, the report notes that the project footprint is located in a very stable area, consisting mainly of bedrock and coarse cobble and boulders. As such, the physical structure or its construction and operation are not expected to release trapped sediments as there are none at the site. Nor are sediments within Wabagishik Lake or downstream of the site

expected to be significantly disturbed by the facility as they are largely inert except under very significant channel forming flow conditions that may occur naturally under spring flood or extreme weather events. The methyl mercury issue has also been studied thoroughly and we would refer you to the Hutchinson water quality report contained with the ER package. The study establishes a current condition (baseline) water quality assessment and involves future monitoring to measure any changes that may occur. The assessment also looks at potential changes to methyl mercury levels, the conditions that may cause those changes to occur and the long term effects.

It is not sufficient to wait for adaptive management strategies, which would be much too late. This is a public health and safety issue that must take precedence over all other considerations.

Xeneca response: Very thorough studies and assessment of the project area's aquatic and terrestrial biology have been undertaken and results contained within the Environmental Effects Report (Annex III) in the Wabagishik Environmental Report (ER.) In the Effects Report, the current (baseline) conditions have been documented. Project effects are well understood and, where avoidance or mitigation of effects is not possible, compensation is being undertaken (please refer to the Compensation Plan contained in Annex III of the ER.) Operating constraints have been placed on the project to reduce water level fluctuations and to ensure that environmental conditions are maintained during critical life cycle periods such as spawning for fish (please see the Operation Plan in Annex I of the ER.) We acknowledge that no science is perfect, and, as such, a robust monitoring program is in place (please see Monitoring Plan in Annex III of the ER) and, if unexpected effects are occurring post-construction, an adaptive management plan is in place.

Recommendation 9:

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

Xeneca response: As noted in the Hutchison Water Quality report, the conditions for creating significant increases in methyl mercury are not present at the Wabagishik site. Specifically, the inundation area is small and relatively shallow and does not create anoxic conditions. There is no long-term storage of water or large-scale inundation of vegetation/ wetlands that would precipitate a release of methyl mercury.

8. Modified Run-of-River

Xeneca is calling this proposal a "modified run-of-river" when it is actually a peaking operation.

Xeneca response: "Run-of-river with modified peaking" is defined by the OWA: "Many run-of river plants allow for limited storage of water over the course of the day or days. This allows the plant to produce more electricity during periods of high demand i.e., during the day/work week, and save water during periods of low demand i.e., at night/weekends. This type of plant can provide electricity service to the system, but with limitations imposed by the amount of storage and flexibility available (generally through a headpond.)" As such, the consultation and terms used therein are accurate. Extensive consultation has occurred on the plant operation. This consultation has included one-on-one consultation with other operators and affected riparian landowners in the ZOI. Special effort has also been made to ensure that all cottagers and adjacent landowners were provided with information on the proposed operation. PICs, meetings and release of draft ER were some of the key consultation platforms used. Specific information on the consultation efforts is included in the ER (Appendix D.)

According to Table 3 26 this operation will be in peaking mode 78% of the time, or for 285 days of the year – which seems very optimistic. According to this Table, it also appears this operation would be shut down for 7 days of the year – which also seems very optimistic.

Xeneca response: Out of the 78% that you quote, 47% of the time the plant will run continuously with more flow in the daytime than nighttime. Only about 31% of the time will the project operate in intermittent operation mode.

Seven (7) days of shutdown is only based on the historical flow data, does not take into other operational emergency shutdowns which are hard to predict.

Recommendation 10:

Xeneca must refer to this operation as a “peaking” facility to accurately reflect its potential impacts to the public and First Nations.

Xeneca response: "Run-of-river with modified peaking" is defined by the OWA: "Many run-of river plants allow for limited storage of water over the course of the day or days. This allows the plant to produce more electricity during periods of high demand i.e., during the day/work week, and save water during periods of low demand i.e., at night/weekends. This type of plant can provide electricity service to the system, but with limitations imposed by the amount of storage and flexibility available (generally through a headpond.)" As such, the consultation and terms used therein are accurate. Extensive consultation has occurred on the plant operation. This consultation has included one-on-one consultation with other operators and affected riparian landowners in the ZOI. Special effort has also been made to ensure that all cottagers and adjacent landowners were provided with information on the proposed operation. The proposed operation of this project has been clearly explained to the public and Aboriginal Communities at Public Information Centres and meetings, as well as through e-blasts and website updates. Specific information on the consultation efforts is included in the ER (Appendix D.)

9. Operating Strategy

The operating strategy filed with this ER sets out possible operating strategies, but is only in draft form, and as such cannot be seriously considered.

Xeneca response: Operating Plans for Greenfield projects are finalized during the Water Management Planning process. It is a regulatory requirement to keep the Operating Plan as a draft document in the ER.

The Installed Capacity (IC) of this proposed generating station is 3.4 MW, and Xeneca’s prediction of actual power to be generated is 1.7 MW. This seems very optimistic when, depending on river flows, there are some periods when the generator will be shut down completely, and several winter and summer months where power would be generated at minimum turbine speed – all because of low flows.

Xeneca response: The installed capacity of the project is determined through the optimization process (cost vs. revenue), and the expected energy production and economics has been correctly presented in the Class EA process and in the public consultation process. As correctly described in the Operating Plan, there are times when the facility operates at less than full capacity of 3.4 MW and less than maximum powerhouse flow rate of 64 m³/s. This variability in output relates to the natural variability in water flow throughout the year. This aspect was carefully considered in determining the viability of the proposed project and is an inherent aspect of every waterpower facility in Ontario. Nonetheless, provincial policy encourages the production of electricity from clean and

renewable waterpower. Small waterpower projects such as the Wabagishik GS are identified under the province's long term energy and by the Independent Electricity System Operator (IESO) as highly desirable forms of generation. Small waterpower generally has a small ecological footprint, low life-time costs and is widely supported by the people of Ontario.

Recommendation 11:

1. Xeneca must provide an approved and final operating plan for public review and comment before any Statement of Completion is issued.

Xeneca response: Operating Plans for Greenfield projects are typically finalized during the Water Management Planning process and permitting under the Lakes and Rivers Improvement Act. It is a regulatory requirement to keep the Operating Plan as a draft document in the ER. However, it should be noted that all commitments made in the ER (including the operating restrictions in the Operating Plan) are binding. Additional stipulations may be added by regulatory agencies during the subsequent regulatory process.

2. Xeneca must undertake a cost/benefit analysis, taking into account the predictions of climate change, impacts on fisheries and the riverine ecosystem to ensure this waterpower project is environmentally, socially and economically sound and sustainable over the long-term.

Xeneca response: The Operating Plan (Annex I of ER) outlines all aspects of the proposed operation that are needed for the environmental assessment in the remainder of the ER. Specific emphasis was placed on documenting all operating restrictions that are significant to the environment and the public. These restrictions include limiting daily changes in flows and levels related to operations and avoiding daily operation during spawning. The cost/benefit aspects and the social benefit aspects are considered in the socio-economic section of the report. Operating Plans for Greenfield projects are typically finalized during the Water Management Planning process and permitting under the Lakes and Rivers Improvement Act. However, it should be noted that all commitments made in the ER (including the operating restrictions in the Operating Plan) are binding. Additional stipulations may be added by regulatory agencies during the subsequent regulatory process. Climate change has been considered in the assessment of this project. Flow data records dating back to 1939 have been analyzed. Data from the last 30 years of flow records have also been analyzed in order to assess the years believed to be most affected by climate change. In addition, flow records from private operators on the river system have been analyzed and compared to longer term data sets. Comparing recent to more long term records provides inconclusive evidence that there may be subtle changes in climatic patterns, but not sufficient to change the environmental assessment process. Also, Xeneca is designing the facility to the 1:100 year flood which takes into account severe climatic conditions that may be associated with climate change.

10. Cumulative Effects

Xeneca reports that as a result of its operating restraints, which have not been finalized, “cumulative impacts downstream of the Domtar dam are anticipated to be minimal.” And yet, “Wabagishik Rapids GS operation (combined with flows from the Nairn Dam) may result in pulses that could have a potential impact on hydroelectricity generation at the Domtar Dam because excess flows may result in an increased need for Domtar to spill water”, and “may increase manpower requirements for operations”. We submit that there is no clear and traceable way to know how Xeneca came to this conclusion.

Xeneca response: Xeneca has conducted numerous hydrological and hydraulic analyses, including several years' worth of hourly flow data at the Domtar facility. This conclusion is based on the extensive flow analysis and modeling work. Please refer Appendix 1 of the ER for detailed information. It is also noteworthy that Xeneca has consulted extensively with Domtar, and has committed to agencies to make best efforts to seek a signed agreement prior to issuance of permits, or, alternatively, to take self-imposed additional operating constraints as outlined in the Operating Plan. To date, Domtar has retained advice from an independent consultant. The consultant has completed a review of the impact information. Xeneca has accepted the results of the review. A Memorandum of Understanding is in draft with Domtar and being negotiated. The MOU is consistent with the Operating Plan presented in the final ER.

Xeneca must also include the effects of the three additional proposed hydroelectric facilities planned for upstream of the Wabagishik Rapids site; the 9 City of Sudbury Wastewater Treatment Facilities releasing treated, undertreated and untreated effluent; the heavily contaminated sediment; as well as the planned and existing mines and other operations taking water and releasing effluent into the Vermilion River Watershed. Cumulative effects refer to the accumulation of human impacts over time, from all sources – including heavily contaminated sediment. If enough impacts accumulate, this can push ecosystems or individual species past ecological “tipping points” from which they may not recover.

Xeneca response: Facilities and structures already on the Vermilion system are included as part of the "existing conditions." Water quality issue has also been studied thoroughly, and we would refer you to the Hutchinson "Baseline Water Quality and Fish Tissue Mercury" report in Annex IV. The study establishes a current condition (baseline) water quality assessment and involves future monitoring to measure any changes that may occur. The assessment also looks at potential changes to methyl mercury levels, the conditions that may cause those changes to occur, and the long term effects. Erosion studies have been conducted (please see the Parish Geomorphology Report in Annex I of the ER) within the project area including Wabagishik Lake. The ER contains thorough hydraulic analysis, Hec-Ras model results, bathymetry and flow modeling that clearly assess potential effects of the project, including erosion potential, within the Zone of Influence including Wabagishik Lake and downstream to the Domtar headpond. Further, a comprehensive monitoring program and adaptive management strategy is in place to ensure modeling results are confirmed and environmental commitments are met. In summary, cumulative effects relevant to the Wabagishik Rapids project have been considered in the ER and assessments can be found in the Water Quality, Environmental and Geomorphological Reports, as well as in the Operating Plan.

Xeneca does not account for the three upstream hydroelectric dams it is proposing upstream of Wabagishik Rapids. It is our understanding that Xeneca is moving forward on at least two of these facilities, and to claim in their ER that they are not is misleading. A Notice of Commencement was issued in 2010, and there has been no notification to the contrary.

Xeneca response: As we have told the ORA previously, the McPherson Falls project has been deferred indefinitely and the Cascade Falls and At Soo Crossing projects are also on holding pending the outcome of further studies and public consultation. With only Wabagishik Rapids GS moving forward at this time, assessment can only include the effects outlined in the ER. Should any or all of the other three projects move forward, cumulative effects would have to be considered at that time.

At the request of government agencies, a public notice was published in the Sudbury Star and Mid-North Monitor in June 2011 with information specific to the Wabagishik Rapids project.

Xeneca also makes no mention of the cumulative effects of the Greater City of Sudbury's 9 upstream wastewater treatment facilities releasing treated, undertreated and untreated effluent into the Vermilion River watershed. Holding water back in headponds containing nutrient rich effluent must be considered in any cumulative effects assessment.

Xeneca response: Again, facilities and structures already on the Vermilion system are included as part of the "existing conditions." Water quality issue has also been studied thoroughly, and we would refer you to the Hutchinson "Baseline Water Quality and Fish Tissue Mercury" report in Annex IV. The study establishes a current condition (baseline) water quality assessment and involves future monitoring to measure any changes that may occur. The assessment also looks at potential changes to methyl mercury levels, the conditions that may cause those changes to occur, and the long term effects. Erosion studies have been conducted (please see the Parish Geomorphology Report in Annex I of the ER) within the project area including Wabagishik Lake. The ER contains thorough hydraulic analysis, Hec-Ras model results, bathymetry and flow modeling that clearly assess potential effects of the project, including erosion potential, within the Zone of Influence including Wabagishik Lake and downstream to the Domtar headpond. Further, a comprehensive monitoring program and adaptive management strategy is in place to ensure modeling results are confirmed and environmental commitments are met. In summary, cumulative effects relevant to the Wabagishik Rapids project have been considered in the ER and assessments can be found in the Water Quality, Environmental and Geomorphological Reports, as well as in the Operating Plan.

Xeneca also makes no mention of the numerous planned and present mining operations releasing effluent into the Vermilion River Watershed either.

Xeneca response: Please see above.

This ER has not even identified all the potential cumulative effects, let alone assessed them. This is totally irresponsible and unacceptable.

Xeneca response: Please see above.

Recommendation 12:

Xeneca must undertake a rigorous assessment of the potential cumulative effects over time of all human impacts from all sources, including but not limited to the existing contaminated sediment, existing and future fish consumption restrictions, other existing and planned hydroelectric facilities, upstream and downstream wastewater and mining effluent, water taking, and climate change.

Xeneca response: Again, facilities and structures already on the Vermilion system are included as part of the "existing conditions." Water quality issue has also been studied thoroughly, and we would refer you to the Hutchinson "Baseline Water Quality and Fish Tissue Mercury" report in Annex IV. The study establishes a current condition (baseline) water quality assessment and involves future monitoring to measure any changes that may occur. The assessment also looks at potential changes to methyl mercury levels, the conditions that may cause those changes to occur, and the long term effects. Erosion studies have been conducted (please see the Parish Geomorphology Report in Annex I of the ER) within the project area including Wabagishik Lake. The ER contains thorough hydraulic analysis, Hec-Ras model results, bathymetry and flow modeling that clearly assess potential effects of the project, including erosion potential, within the Zone of Influence including Wabagishik Lake and downstream to the Domtar headpond. Further, a comprehensive monitoring program and adaptive management strategy is in place to ensure modeling results are confirmed and environmental commitments are met. In summary, cumulative effects relevant to the Wabagishik Rapids project have been considered in the ER and

assessments can be found in the Water Quality, Environmental and Geomorphological Reports, as well as in the Operating Plan.

11. Blue-green Algae

The lower Vermilion River and several of its connecting lakes have had blue-green algae blooms reported for the last 3 years, and most recently Ella Lake had a reported bluegreen algae bloom that lasted from November of 2012, right through the winter months until ice break-up in April.

Ella Lake is part of the impoundment for Lorne Falls hydroelectric dam, which is immediately upstream of Wabagishik Lake. We are concerned that Wabagishik Lake will meet the same fate as Ella Lake, and for good reason.

Xeneca response: Blue-green algae occurs under conditions that are usually predicated upon high nutrient (i.e. sewage effluent or fertilizers) levels and stagnant, warm water conditions. The ER shows that none of those conditions will be created or exacerbated by the Wabagishik GS. The Operating Plan commits to pass the entire daily inflow volume each day, even when daily operation is in effect. This flow passing will ensure that no change in stagnation, dissolved oxygen and temperature will occur. Xeneca has committed to long-term water quality monitoring to confirm these predictions and to adaptive management if unexpected conditions arise. Water quality monitoring is outlined in Annex IV (Surface Water Quality) in reports completed by Hutchinson Environmental (the Surface Water Quality and Fish Sampling Guidance report (July 2012) outlines the proposed water quality sampling program.)

There are numerous studies that associate impoundments with inducing blue-green algae (cyanobacteria) blooms. “The building of dams and regulation of rivers has created more habitats suitable for cyanobacteria. The general opinion now is that “cyanobacterial blooms” are increasing in frequency worldwide.

Xeneca response: Again, blue-green algae occurs under conditions that are usually predicated upon high nutrient (i.e. sewage effluent or fertilizers) levels and stagnant, warm water conditions. The ER shows that none of those conditions will be created or exacerbated by the Wabagishik GS. The Operating Plan commits to pass the entire daily inflow volume each day, even when daily operation is in effect. This flow passing will ensure that no change in stagnation, dissolved oxygen and temperature will occur. Xeneca has committed to long-term water quality monitoring to confirm these predictions and to adaptive management if unexpected conditions arise. Water quality monitoring is outlined in Annex IV (Surface Water Quality) in reports completed by Hutchinson Environmental (the Surface Water Quality and Fish Sampling Guidance report (July 2012) outlines the proposed water quality sampling program.)

Exposure to hepatotoxins (microcystins, nodularins and cylindrospermopsins) has been reported to induce several health disorders depending on the route of exposure, the quantities absorbed and the toxicity of the cyanobacterial strain. Harmfulness ranges from minor disorders (headaches, nausea, diarrheas) to lethal deterioration of hepatic functions. It is also thought that chronic exposure to low concentrations can promote liver cancer. In 1996, 60 patients died in Brazil after haemodialysis with contaminated water (Pouria et al. 1998). WHO considers that freshwater contamination by cyanobacteria, and the toxins they synthesize, constitutes a major worldwide threat that can limit utilization of water resources (Chorus & Bartram 1999).” Xeneca reports, “Following development, the water temperature in the impoundments may warm from increased river surface area, which may

result in lower dissolved oxygen concentrations as the water's capacity to retain oxygen decreases. The magnitude of dissolved oxygen decrease will depend on how much the water warms and other factors such as changes in water turbulent flow, which recharges water with oxygen, changes in aquatic plant growth and oxygen demand from the conversion of inundated soil to sediment." This sounds like the perfect recipe for more blue-green algae.

As a matter of fact, Hutchinson made a report on a recurring blue-green algae problem in Callander Bay, and explains how "this lack of oxygen (anoxia) in bottom waters has important implications for phosphorus cycling in Callander Bay. If periods of stratification are maintained for a sufficiently long period of time, there is a risk of complete oxygen depletion near the sediments. Phosphorus is normally bound to sediments under oxygenated conditions, but can be released into the water column under anoxic conditions. This process is called internal phosphorus loading. In lakes that maintain thermal stratification over the summer and only mix in late fall, phosphorus released by internal loading is confined to the deep cool dense layer of water (the hypolimnion) and remains mostly unavailable for uptake by algae until mixing of the water column in late fall. Callander Bay, however, mixes frequently over the summer months and so phosphorus in bottom waters from internal loading could be introduced into the surface waters at the height of the growing season, promoting aquatic plant growth."

Xeneca response: Again, blue-green algae occurs under conditions that are usually predicated upon high nutrient (i.e. sewage effluent or fertilizers) levels and stagnant, warm water conditions. The ER shows that none of those conditions will be created or exacerbated by the Wabagishik GS. The Operating Plan commits to pass the entire daily inflow volume each day, even when daily operation is in effect. This flow passing will ensure that no change in stagnation, dissolved oxygen and temperature will occur. Xeneca has committed to long-term water quality monitoring to confirm these predictions and to adaptive management if unexpected conditions arise. Water quality monitoring is outlined in Annex IV (Surface Water Quality) in reports completed by Hutchinson Environmental (the Surface Water Quality and Fish Sampling Guidance report (July 2012) outlines the proposed water quality sampling program.)

Increased retention time in the headpond and Wabagishik Lake, and the potential for internal loading from the sediments has not been adequately addressed in the Environmental Report.

Xeneca response: Please refer to the ORTECH Temperature Report, Geomorphology Report and Operating Plan in Annex I. Water retention is for less than 24 hours. All water stored is released within a 24-hour cycle, and therefore water retention is not expected to be a significant issue on the Wabagishik project.

The 1986 MOE sediment study reports heavily contaminated sediments that are several times over the SEL for heavy metals, and nutrient rich, so there is a strong potential for internal loading when flows are reduced and oxygen levels are depleted. Xeneca's ER has not addressed the issue of contaminated sediments, even though they were made aware of the MOE study months ago.

Blue-green algae can be lethal, and it is unacceptable that local residents, wildlife and fauna would be placed at risk for the sake of "green energy".

Xeneca response: Again, blue-green algae occurs under conditions that are usually predicated upon high nutrient (i.e. sewage effluent or fertilizers) levels and stagnant, warm water conditions. The ER shows that none of those conditions will be created or exacerbated by the Wabagishik GS. The Operating Plan commits to pass the entire daily inflow volume each day, even when daily operation is in effect. This flow passing will ensure that no change in

stagnation, dissolved oxygen and temperature will occur. Xeneca has committed to long-term water quality monitoring to confirm these predictions and to adaptive management if unexpected conditions arise. Water quality monitoring is outlined in Annex IV (Surface Water Quality) in reports completed by Hutchinson Environmental (the Surface Water Quality and Fish Sampling Guidance report (July 2012) outlines the proposed water quality sampling program.)

Recommendation 13:

Xeneca must undertake a comprehensive sediment and water quality study on Wabagishik Lake, complete with a monitoring plan, to provide a quantitative analysis and a projected post-construction estimate of increased potential for toxic blue-green algae.

Xeneca response: This is not necessary as blue-green algae occurs under conditions that are usually predicated upon high nutrient (i.e. sewage effluent or fertilizers) levels and stagnant, warm water conditions. The ER shows that none of those conditions will be created or exacerbated by the Wabagishik GS. The Operating Plan commits to pass the entire daily inflow volume each day, even when daily operation is in effect. This flow passing will ensure that no change in stagnation, dissolved oxygen and temperature will occur. Xeneca has committed to long-term water quality monitoring to confirm these predictions and to adaptive management if unexpected conditions arise. Water quality monitoring is outlined in Annex IV (Surface Water Quality) in reports completed by Hutchinson Environmental (the Surface Water Quality and Fish Sampling Guidance report (July 2012) outlines the proposed water quality sampling program.)

12. Ice and Flooding

The ER reports Xeneca was “asked to provide details on the increase in water levels at the bridge as a result of the project and asked to specify how the bridge piers would be protected from ice and water”; and were asked to confirm “whether they would accept liability for any damage to the bridge as a result of the undertaking”. However, there was no indication in the ER whether an MOU was signed or whether Xeneca agreed to accept liability.

Xeneca response: If you are referring to the snowmobile bridge, Xeneca has an agreement in place with the snowmobiling community (November 2011) which states that "Based on the work and modeling we have done so far, our engineers believe there will be minimal effects on the bridge due the proposed Wabagishik Rapids project operation, even in the extreme flood condition (100 year return period flood.) We will further ensure accuracy by sending an engineering team to the site for additional on-the-ground evaluation. Given the potential for ice buildup and damage to bridge piers, Xeneca will also investigate the need for reinforcement of the structure. If improvement in the structure is required, Xeneca will undertake the work at its own cost." Another letter was sent in July 2012 stating that "Following up on the request from your association, Xeneca is using this letter to formally commit to the integrity maintenance of the snowmobile bridge in the vicinity of including the Wabagishik Rapids project. The commitment is to ensure that, if the bridge is damaged due to construction or operational activities, Xeneca will repair the bridge.

If engineering re-certification of the bridge is ever required, Xeneca will work with the snowmobiling community to ensure that it is completed in a timely, cost effective manner."

It appears the extent of Xeneca’s safety and mitigation plan is summed up in a nutshell when the ER reports, “Extreme cold weather conditions may lead to a build-up of ice at the intake that could necessitate plant shut-down and an interruption to the delivery of electricity to the provincial supply grid. Such an interruption will affect project revenues until the ice is naturally or artificially cleared.”

Xeneca claims it would be “unlikely that the project would result in ice jam formations at the bridge as a result of the project”, but it is unclear how that conclusion was arrived at, how ice jams and flooding would be prevented, and what emergency mitigation measures would be undertaken to protect public safety.

Xeneca response: Public safety is of paramount concern to Xeneca. Xeneca has committed to maintain water flows and levels that will ensure continued navigability and recreational use as it currently exists. In accordance with the federal Navigable Waters Act, Xeneca will post warning signs in areas determined to be susceptible to ice instability as a result of the operation of Wabagishik Rapids GS. Water level fluctuations will be gradual, as changes in operating levels will be ramped over time (60 minutes - noted in the Operating Plan, Annex I.) Xeneca’s safety plan, which will be prepared during the detailed design phase of the project, will be based on best practices within the Ontario industry and will be audited by a third-party professionally accredited engineering firm.

1. Ice jams - According to cottagers living near Wabagishik Lake, ice jams occur naturally near the Wabagishik Rapids project site, specifically in the fast-water section just upstream of the proposed dam site. Ice jams tend to occur in a narrow fast-water section of the river. When the project is built, this fast-water section will be submerged and will become part the project headpond. In fact, the dam construction will reduce or eliminate the chances of ice jamming in this particular section of the river. Neither project construction nor its operation will increase the likelihood of ice jam occurrence within the project zone of influence. In the very unlikely event of an ice jam near the project area, Xeneca will work closely with regulatory agencies and address the issue accordingly.

2. Extreme rain events - Xeneca has already committed to indemnify Vale and Domtar against losses that occur as a result of operation of the Wabagishik GS. Xeneca carries insurance that would also cover liability in the unlikely event of facility failure.

3. Flooding from rain/ice events - As stated in the previous two answers, operations of the Wabagishik Rapids GS will not exacerbate flooding. The facility is built to withstand floods occurring in the 1:100 year range.

Xeneca reports that the potential for spring ice damming and/or flooding on Wabagishik Lake is “high”, magnitude “low”, likelihood of effect “low”, and that the residual effect would be “not significant”. This is the perspective of a developer who does not live on Wabagishik Lake; however, the stakeholder who expressed concerns because of past ice-jams and flooding on Wabagishik Lake will not be reassured by the lack of planning in this ER.

Xeneca response: For information on concerns about ice jams, please see Xeneca’s response to the question above. The plant is being designed to 1:100 year flood standards/levels. Xeneca has proposed operation that will limit water level fluctuations in Wabagishik Lake to +/- 5 centimetres, which is within natural conditions. There is a natural outlet in the lake which acts as the control section – the spillway will not be the control section.

Operational commitments found in Annex I of the ER require that Wabagishik operates within natural lake levels.

Xeneca’s idea of a resolution: “Potential impacts can be mitigated by regular water level monitoring and proper operation of facility”. This is not adequate and does not reassure the public. The extent of Xeneca’s “Special Event Operation” plan is that during floods and safety emergencies the procedure will be to operate as normal for a “high flood operation”, and on the occasion of “extreme flood operation” it appears that the plan is to “evacuate the facility”. This is not a plan – Xeneca’s plan is to leave. Ice jams at the outlet of Wabagishik Lake have happened in the past and have resulted in flooding and damage. Stakeholders must be assured that Xeneca has studied the entire possibility and

scope of an ice jam, and that there is a strategy in place to prevent this from happening, and if it does there must be a plan of action to minimize and control any impacts or damage.

Xeneca response: Xeneca's operations are not expected to exacerbate current conditions. As noted above, according to cottagers living near Wabagishik Lake, ice jams occur naturally near the Wabagishik Rapids project site, specifically in the fast-water section just upstream of the proposed dam site. Ice jams tend to occur in a narrow fast-water section of the river. When the project is built, this fast-water section will be submerged and will become part the project headpond. In fact, the dam construction will reduce or eliminate the chances of ice jamming in this particular section of the river. Neither project construction nor its operation will increase the likelihood of ice jam occurrence within the project zone of influence. In the very unlikely event of an ice jam near the project area, warning systems would identify any potential problem early and Xeneca will work closely with regulatory agencies and address the issue accordingly.

Recommendation 14:

1. Xeneca must do a comprehensive study and effective special event plan to indicate how they would deal with public safety issues in the event of ice jams and flooding.

Xeneca response: According to cottagers living near Wabagishik Lake, ice jam occur near the Wabagishik Rapids project site, specifically in the fast-water section just upstream of the proposed dam site. Normally, ice jam occur in a narrow fast-water section of the river. When the project is built, this fast-water section will be submerged and will become part the project headpond. In fact, the dam construction will reduce or eliminate the chances of ice jamming in this particular section of the river. Neither project construction nor its operation will increase the likelihood of ice jam occurrence within the project zone of influence. In the very unlikely event of an ice jam near the project area, Xeneca will work closely with regulatory agencies and address the issue accordingly.

2. Extreme rain events even throughout the winter months have become a normal occurrence, so in the event of flooding as a result of Xeneca's operation there must be a legal and binding commitment to cover any losses or damage to riparian landowners.

Xeneca response: Xeneca has already committed to indemnify Vale and Domtar against losses that occur as a result of operation of the Wabagishik GS. Xeneca carries insurance that would also cover liability in the unlikely event of facility failure.

13. 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 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.

Xeneca response: The proposed waterpower facility is planned and will be built as permanent structures with no expectation toward eventual decommissioning. This approach is consistent with the industry experience in Ontario, where many facilities are now over 80 years old, including those on the Spanish and Vermilion system.

The Wabagishik GS is under a 40-year contract with the Province of Ontario. The design life of the project is 80 years. However, in the event the need for decommissioning is identified, an environmental assessment will be carried out at that time. If necessary, plant revenues would be placed into a decommissioning fund until amounts needed to meet the standards of that period are acquired and committed to the decommissioning process.

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.

Xeneca response: Again, if in future the need for decommissioning were to be identified, an environmental assessment would be carried out at that time. If necessary, plant revenues would be placed into a decommissioning fund until amounts needed to meet the standards of that period (e.g. Canadian Dam Association) are acquired and committed to the decommissioning process.

Recommendation 15: 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.

Xeneca response: Given the expected significant lifespan of hydro assets (many existing facilities have been producing reliable renewable energy for more than a century) and the continued advancement of engineering and ecological science, it is not particularly prudent to predict the details of potential decommissioning. We will comply with the standards of the day (e.g. Canadian Dam Association) should decommissioning become necessary. Should decommissioning occur, advance planning would include dedication of revenues to a decommissioning fund.

14. Lake Sturgeon & Walleye

Xeneca has decided to compensate for the loss of the best spawning habitat available to the Walleye and Lake Sturgeon population, anywhere on the lower Vermilion-Spanish river system. Xeneca is planning to move the spawning area downstream of the dam to Graveyard Rapids, so without fish passage, Lake Sturgeon and Walleye could not migrate upstream into Wabagishik Lake because of a 6m gross head dam blocking their way.

While the Natural Environmental Characterization Report stated that it is unlikely for sturgeon to pass through the upper reaches of Wabagishik Rapids, it acknowledges that it is physically possible under the right conditions. Suitable spawning conditions do exist at Lorne Falls for Sturgeon, and MNR have said there are anecdotal reports of historic catches of Lake Sturgeon in Wabagishik Lake. This is contrary to Xeneca's response to First nations in the ER, "further information from the district MNR staff and anecdotal data collected during the study period indicate that there are no Lake Sturgeon in the area". Xeneca has also not provided the MNR data indicating that there are no Lake Sturgeon in the area.

In fact it is not revealed in the ER, that none of Xeneca's efforts resulted in finding Lake Sturgeon - it took an independent consultant hired by Vale to discover Lake Sturgeon in the lower reaches of the Vermilion. This indicates that further studies need to be undertaken before Lake Sturgeon can be ruled out in Wabagishik Lake, especially when the ER reports, "it can be concluded

that it is technically feasible for lake sturgeon to pass upstream through Wabagishik Rapids during the 5th percentile and median flow scenarios.”

The ER’s conclusion contradicts its own Natural Environment Characterization and Impact Assessment Report’s statement that “there are no confirmed records of Lake sturgeon in Wabagishik Lake, although there is potential that lake sturgeon can ascend Wabagishik Rapids. The dam will restrict the lake sturgeon population to its current range, which may or may not represent a change from existing conditions”. There is not enough information currently available to know where the Walleye and Lake Sturgeon even come from – upstream or downstream, so the loss of spawning habit has not been adequately assessed, nor have the impacts to the recreational fishery and First Nation subsistence fishery which could be seriously impacted by this habitat loss and blocking of fish migration. There is not enough information in the ER regarding the “compensation plan” (location, area, habitat characteristics, and feasibility) to adequately comment; however, this plan should have been in place before the ER was submitted for comment. We question how effective any compensation plan can be below a peaking operation with the daily extreme variation in flow, the wetting and drying of channel substrate and habitat, and the resulting change in the benthic community.

The public must be consulted on how this valued population of Walleye and Lake Sturgeon will be protected and provided for.

Xeneca response: Extensive public consultation has occurred and among issues raised and responded to are the walleye fisheries and sturgeon population. Very significant commitments have been made to provide flows at critical life cycle stages (i.e. spawning) and habitat protection, replacement, assessment and monitoring programs are included in the ER. It is noteworthy that an agreement is in place with United Walleye Clubs, and clearly outlines how Xeneca will assist in construction of fish hatchery and education centre at the Wabagishik site.

Responses to your specific concerns about Walleye and Lake Sturgeon are as follows:

- Xeneca agrees that Wabagishik Rapids is a productive spawning habitat area for the Walleye and Lake Sturgeon populations downstream of the proposed dam in the lower Vermilion and Spanish Rivers. As noted at Public Information Centres, informed by aquatic studies, stakeholder input and First Nations knowledge, the initial design of the facility was revised to locate the dam 255 meters further upstream, so as to minimize impacts on local spawning beds (i.e. it ensures that over 14,000 m² of local downstream spawning beds remain unaffected.) We must emphasize that the majority of the spawning area will remain in Wabagishik Rapids. A substantial portion of the spawning area in Wabagishik Rapids will remain in a 300m length of Wabagishik rapids downstream of the proposed dam. This area is the most accessible spawning habitat for these fish populations, and the dam and associated operations will not negatively impact the function of this spawning habitat. The operating plan calls for run-of-the-river operation during the spawning periods of both species, and special continuous operations during the Lake Sturgeon larval drift period. These operations are outlined in the operating plan included in Annex I of the ER.
- The spawning habitat that occurs upstream of the proposed dam in Wabagishik Rapids will be moved to locations downstream of the proposed dam. The preliminary fish habitat compensation plan included in the ER indicates three locations in order of priority. The first priority is to enhance the 300m tailwater section of Wabagishik Rapids using 2-dimensional modelling to develop the plan to improve the spawning habitat parameters for Walleye and Lake Sturgeon. The second priority is to add habitat where the water from Wabagishik Rapids extends in the large bay below the rapids. The third and lowest priority is to provide habitat enhancements at Graveyard Rapids. These priorities were requested by the biologists from MNR and DFO. The rationale is based primarily on the tendency of these fish species to migrate

upstream as far as they can to spawn. Therefore, improving the habitat nearest the dam has the greatest likelihood of success.

- Regarding fish passage, the ER acknowledges the potential for both Walleye and Lake Sturgeon to ascend Wabagishik Rapids. This is based on modelled analysis of water velocities and the fish's swimming capabilities, and leaves some uncertainty as to the actual behaviour of the fish. For Lake Sturgeon, the lack of confirmed presence in Wabagishik Lake provides some indication of the behavioural tendencies of Lake Sturgeon. It does not completely eliminate the possibility of their passage through Wabagishik Rapids and their presence in Wabagishik Lake, but it does provide an indication. The conclusion is that there is a low likelihood of their presence in Wabagishik Lake.
- In the habitat in the lower Vermilion downstream of the proposed dam and Spanish River between the Nairn Falls and Domtar Dams, there is a known population of Lake Sturgeon. They were captured by the MNR in the Spanish River prior to studies conducted by Xeneca and Vale. Vale's studies throughout the area generated some good information on the population, including capture in the lower Vermilion River. Xeneca's studies were focused on the lower Vermilion River only, and did not result in the capture of Lake Sturgeon. Consideration of all the available information makes it clear that there is a small population of Lake Sturgeon in the lower Vermilion-Spanish River system, and this population is the focus of management efforts associated with the proposed Wabagishik Rapids facility.
- The ER includes a preliminary fish habitat compensation plan (Annex III.) While it doesn't contain enough detail to actually construct the physical compensation fish habitat, the plan clearly outlines the intended locations and methods for the final design. This includes the three priority locations, the habitat suitability criteria, and consideration for the MNR's management objectives specific to the habitat area. The overall objective is to satisfy the requirements of the *Fisheries Act*, which prohibits causing serious harm to commercial, recreational and Aboriginal fisheries. Regarding the location of the compensation spawning habitat downstream of the facility, the operations will be restricted to run-of-the-river during the spawning period, meaning the flow conditions will be those that are received by the facility. To account for changes in the specific distributions of flows downstream of the dam, the 2-dimensional modelling used in the design will be used to account for these changes and inform the habitat improvements accordingly.

Recommendation 16:

1. Lake Sturgeon are listed as an endangered species, therefore, to confirm definitively whether they inhabit Wabagishik Lake it is recommended an extensive telemetry study is carried out over multiple years.

Xeneca response: Xeneca has been in communication with staff from the MNR Sudbury District Office regarding studies for Lake Sturgeon. Past MNR records show that there has been no historic confirmation of the presence of Lake Sturgeon in Wabagishik Lake. The MNR and Xeneca agree that the likelihood of Lake Sturgeon occurring in Wabagishik Lake is low, and the risk of isolating an area of utilized habitat is also low. Studies can never completely eliminate risk of this nature, particularly studies related to a small population of Lake Sturgeon. In addition, the MNR has expressed concern about repeated handling of the individuals that occur downstream of the proposed dam, because capture and tagging of these individuals for a telemetry program poses some risk of negative effect to the known population.

The MNR has indicated that they are willing to accept the level of risk associated with the existing information, with one condition. The MNR has also made it clear that constructing the dam without provision for fish passage is contingent on creating additional spawning habitat for Lake Sturgeon downstream of the proposed dam as part of the fish habitat compensation plan. The spawning habitat will serve the Lake Sturgeon population that is known to

exist in the Spanish River and the lower Vermillion River downstream of the proposed dam. A preliminary fish habitat compensation plan has been included as part of the EA. The plan will be further developed and finalized during the detail design and permitting phase of the project. Negotiations with the MNR and DFO will be ongoing as the plan is finalized, and the final plan will ultimately require agency approval.

2. Xeneca must undertake further studies to ensure this sensitive population of Lake Sturgeon is protected and conserved.

Xeneca response: Studies have been carried out as part of the EA, and post-construction monitoring will be conducted to monitor the use of newly created habitat in the Vermillion River downstream of the proposed dam.

3. If this project goes ahead, it could have a very negative impact on water quality, so any Monitoring Plan for Lake Sturgeon should take place over a minimum of 25 years in order to properly assess recruitment, abundance, and any changes.

Xeneca response: Xeneca agrees that monitoring is an important component of the project. The preliminary monitoring plan included with the EA includes monitoring of the lake sturgeon spawning habitat to be created downstream of the proposed dam. This monitoring will also be required by DFO as part of their *Fisheries Act* permit and the associated fish habitat compensation plan. Additional monitoring/studies of Lake Sturgeon may be developed as part of the overall benefit plan associated with the *Endangered Species Act* permit. The study methods and timeframe will be developed based on a wide variety of criteria, with potential for water quality impacts being one of the criteria to consider.

15. Fish Friendly Turbines and Fish Passage

No fish passage or fish friendly turbines have 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."

Xeneca response: The ER commits to the use of a Kaplan design turbine, which has lower fish mortality than most other designs (Section 3.3.5, Section 7.1.5 (pg 221) & Table 33, "Fish injury or mortality" (pg. 195.)) The design of intakes and trash racks was designed to allow only smaller fish to pass through. Studies have shown that small fish have a much lower mortality rate than large fish when passing through a turbine. The potential fish mortality impact has been documented in the ER and appears to meet the design and mortality criteria set forth by the federal Department of Fisheries and Oceans.

Also, the Class EA for Waterpower recommends that waterpower structures "incorporate fish passage structures into project design where appropriate." The ER acknowledges that not providing upstream fish passage "carries some risk for fisheries management", but plans to finalize fish passage matters during the permit process with OMNR and DFO".

Recommendation 17:

1. We request that Xeneca be required to adhere to the recommendations of the Class EA for Waterpower, and incorporate upstream and downstream fish passage into the project design to allow fish to migrate freely upstream and downstream.

Xeneca response: As documented in the consultation section of the ER (Appendices C and E), fish passage was a topic of significant interest during consultation with regulatory agencies and Aboriginal Communities and received

specific follow-up study. The expert consensus was that downstream passage is not significantly reduced. Special analysis work showed the existing amount of upstream fish passage is limited due to steep conditions in Wabagishik Rapids. No Sturgeon were found upstream of Wabagishik Rapids. Agencies and Aboriginal representatives appear to have acknowledged the study findings (this has been discussed with the MNR Sudbury District Biologist and DFO's biologist assigned to this project, and they are in agreement that passage is not required for Walleye.) Hence, a need for upstream passage was not deemed to be significant. Instead, stakeholders requested that Xeneca participate in a fish hatchery initiative at the site, which Xeneca committed to (Section 7.2.) In general, the habitat requirements for aquatic species identified within the zone of influence exist where the species occur, whether upstream or downstream of the proposed dam. The fish habitat compensation plan directs compensation fish habitat downstream of the proposed dam to ensure sufficient spawning habitat is available for Walleye and Lake Sturgeon. (Regarding the approach for Lake Sturgeon, see the response above under item 14 - Lake Sturgeon and Walleye.) Therefore, fish passage is not required to maintain ecological functioning and is not contemplated at this site.

As further explanation, the ER acknowledges the potential for both Walleye and Lake Sturgeon to ascend Wabagishik Rapids under certain existing conditions. This is based on modelled analysis of water velocities and the fish's swimming capabilities, and leaves some uncertainty as to the actual behaviour of the fish. For Lake Sturgeon, past MNR records show no confirmation of the presence of Lake Sturgeon in Wabagishik Lake. The lack of confirmed presence in Wabagishik Lake provides some indication of the behavioural tendencies of Lake Sturgeon. It does not completely eliminate the possibility of their passage through Wabagishik Rapids and their presence in Wabagishik Lake, but it does provide an indication. The MNR and Xeneca agree that the likelihood of Lake Sturgeon occurring in Wabagishik Lake is low, and the risk of isolating an area of utilized habitat is also low. Studies can never completely eliminate risk of this nature, particularly studies related to a small population of Lake Sturgeon. In addition, the MNR has expressed concern about repeated handling of the individuals in the population that occurs downstream of the proposed dam, because capture and tagging of these individuals for a telemetry program poses some risk of negative effect. The MNR has indicated that they are willing to accept the level of risk associated with the existing information, with one condition. The MNR has also made it clear that constructing the dam without provision for fish passage is contingent on creating additional spawning habitat for Lake Sturgeon downstream of the proposed dam as part of the fish habitat compensation plan. The spawning habitat will serve the Lake Sturgeon population that is known to exist in the Spanish River and the lower Vermillion River downstream of the proposed dam.

Walleye are known to reside both upstream and downstream of the proposed dam. Xeneca and the MNR agree that the upstream and downstream Walleye populations can be managed separately, provided fish habitat compensation for Walleye is provided downstream of the proposed dam (Annex III.)

2. We request the use of fish friendly turbines to reduce fish mortality.

Xeneca response: Again, The ER commits to the use of a Kaplan design turbine, which has lower fish mortality than most other designs (Section 3.3.5, Section 7.1.5 (pg 221) & Table 33, "Fish injury or mortality" (pg. 195.)) The design of intakes and trash racks was designed to allow only smaller fish to pass through. Studies have shown that small fish have a much lower mortality rate than large fish when passing through a turbine. The potential fish mortality impact has been documented in the ER and appears to meet the design and mortality criteria set forth by the federal Department of Fisheries and Oceans.

16. Public Safety

This proposal poses many risks to public health and safety. The risk of increased methylmercury production and resulting restrictions or loss of edible fish, increased risk of blue-green algae, and the

unaddressed risk of heavy metal contamination and flooding have already been addressed separately. There is also a risk to the potential safety of people swimming, boating and fishing below this peaking dam. Unless access is restricted then peaking will present a risk to public safety. Xeneca has not presented a plan of how this risk has been assessed, and how the public will be protected. This must be done before a Statement of Completion is filed.

Xeneca response: Xeneca has committed to maintain water flows and levels that will ensure continued navigability and recreational use as it currently exists. Xeneca will post warning signs in areas determined to be susceptible to ice instability as a result of the operation of Wabagishik Rapids GS. Water level fluctuations will be gradual, as changes in operating levels will be ramped over time (60 minutes.) Xeneca's safety plan, which will be prepared during the detailed design phase of the project, will be based on best practices within the Ontario industry and will be audited by a third-party professionally accredited engineering firm.

As discussed in pages 33-35, blue-green algae occurs under conditions that are usually predicated upon high nutrient (i.e. sewage effluent or fertilizers) levels and stagnant, warm water conditions. The ER shows that none of those conditions will be created or exacerbated by the Wabagishik GS. The Operating Plan commits to pass the entire daily inflow volume each day, even when daily operation is in effect. This flow passing will ensure that no change in stagnation, dissolved oxygen and temperature will occur. Xeneca has committed to long-term water quality monitoring to confirm these predictions and to adaptive management if unexpected conditions arise. Water quality monitoring is outlined in Annex IV (Surface Water Quality) in reports completed by Hutchinson Environmental (the Surface Water Quality and Fish Sampling Guidance report (July 2012) outlines the proposed water quality sampling program.)

This issue of methyl mercury due to inundation of previously non-inundated areas has been studied thoroughly and we would refer you to the Hutchinson "Baseline Water Quality and Fish Tissue Mercury" report in Annex IV. The study establishes a current condition (baseline) water quality assessment and involves future monitoring to measure any changes that may occur. The assessment also looks at potential changes to methyl mercury levels, the conditions that may cause those changes to occur and the long-term effects. The generation of methyl mercury requires anaerobic conditions, a source of organic material and a source of mercury. The proposed new inundation related to the proposed Project is very small (0.4 hectares) in relation to the size of the existing aquatic habitat in the ZOI. The proposed inundation is shallow and channel-like, ensuring that stagnation and anaerobic conditions are not likely to occur. The ER further commits to removing the shrubs and vegetation in the proposed inundation area so as to minimize the available organic material. In the context of these circumstances, the potential for transient changes in mercury are exceedingly small. However, mercury monitoring has been included in the Monitoring Plan (Annex III of ER) to confirm these projections over time.

Recommendation 18:

Xeneca must be required to undertake a study to assess public safety issues, and come up with a comprehensive plan to mitigate these risks.

Xeneca response: Public safety is of paramount concern to Xeneca. Xeneca has committed to maintain water flows and levels that will ensure continued navigability and recreational use as it currently exists. In accordance with the federal *Navigable Waters Act*, Xeneca will post warning signs in areas determined to be susceptible to ice instability as a result of the operation of Wabagishik Rapids GS. Water level fluctuations will be gradual, as changes in operating levels will be ramped over time (60 minutes - noted in the Operating Plan, Annex I.) Xeneca's safety plan, which will be prepared during the detailed design phase of the project, will be based on best practices within the Ontario industry and will be audited by a third-party professionally accredited engineering firm.

17. Public Consultation

There are many aspects of this ER that are insufficient, incomplete or undecided, and therefore the public must have an opportunity to be consulted and offer input before a Statement of Completion can be issued. The approach taken by the proponent is we will address it in the permitting stage, but we the public must have an opportunity to have our input. Proper erosion studies, or any other kind of study, were not even attempted on Wabagishik Lake, which Xeneca has termed the upstream zone of influence. Also, the critical operating parameters are still in draft form, and consequently mitigation measures cannot be properly addressed.

Xeneca response: Extensive stakeholder and Aboriginal consultation has been ongoing since 2010. The duration and extent of the consultation effort has greatly exceeded the requirements under the Class EA process and is documented in Appendix D. Three Public Information Centres (PICs) have been advertised in local media (Espanola Mid-North Monitor and Sudbury Star), on the Xeneca website and through email notification. Notifications for all PICs were also provided to Aboriginal Communities.

In addition, invitations were extended to Aboriginal Communities to hold PICs in the Aboriginal Communities. Specific meetings with individuals, representatives from Aboriginal Communities and stakeholder interest groups have been organized. Website postings, emails, phone calls and print and radio media have also been used as outreach to interested stakeholders, Aboriginal Communities and community bodies, such as the City of Greater Sudbury, Township of Nairn, Township of Spanish Sables, Town of Espanola and Township of Foster Truman. Numerous requests for one-on-one meetings/presentations have made, and have all been met.

Throughout the past four years, Xeneca has encouraged questions, engagement and comments. In addition, a Memorandum of Understanding has been signed with the Sagamok Anishnawbek Community. Aboriginal Community representatives have participated in archeology studies. On request of Aboriginal Communities a traditional ceremony was held with Community members and Elders at the project site.

Also, an equity partnership offer has been put forward to Aboriginal Communities for consideration.

Further, the ER was released as draft ER in 2012 for all interested parties to review and comment on before the release of the final ER, thereby greatly expanding review opportunities contemplated in the Class EA process. A group of local Aboriginal Communities retained a qualified third-party consulting firm to review and comment on the draft ER. Outcomes of this special consultation effort have been incorporated into the final ER in 2013. No further comments were received from Aboriginal Communities after the release of the final ER.

When the final ER was released, all stakeholders were notified and there was a 33-day review period (from September 30 - November 1, 2013.) This review period gave stakeholders the opportunity to ask questions, make comments and offer their input.

Xeneca respectfully disagrees that further studies are required. The technical studies were specifically designed to meet and exceed the requirements of the Class EA technical guide. Extensive effort was made to address comments made and various technical studies were expanded over time to address specific comments from stakeholders, Aboriginal Communities and regulatory agencies. The consultation timeline was greatly expanded from the 18-month estimated in the Class EA process to over 36 months to provide ample opportunity for engagement and follow-up.

The technical baseline studies have been extremely extensive, including Hec Ras modeling, hydrology and hydraulic assessment, bathymetry, LiDAR surveys, geomorphology work, temperature assessments, rigorous water quality sampling protocols, thorough aquatic and terrestrial biological studies, archaeology and socio-economic analysis.

The effects of the proposed project and its operations are well understood. Where fish habitat is impacted, a compensation plan is in place to maintain ecological function. Robust monitoring programs, detailed operational

plans and post-operational monitoring are established to confirm adherence to commitments and ensure modeling is accurate. In addition, if unexpected results occur, an adaptive management plan is in place. Finally, for Greenfield projects, Operating Plans are typically finalized during the Water Management Planning process and permitting under the Lakes and Rivers Improvement Act (LRIA.) However, it should be noted that all commitments made in the ER (including the operating restrictions in the Operating Plan) are binding. Additional stipulations may be added by regulatory agencies during the subsequent regulatory process.

Recommendation 19:

The proponent has issued an incomplete ER and must be required to go back to do the additional studies requested herein, and once completed Xeneca can resubmit their ER for public comment and review.

Xeneca response: Xeneca respectfully disagrees that the ER is incomplete. The technical studies were specifically designed to meet and exceed the requirements of the Class EA technical guide. Extensive effort was made to address comments made and various technical studies were expanded over time to address specific comments from stakeholders, aboriginal communities and regulatory agencies. The consultation timeline was greatly expanded from the 18-month estimated in the Class EA process to over 36 months to provide ample opportunity for engagement and follow up. The consultation effort related to meetings, PICs and information postings on the web has greatly exceeded the requirements of the Class EA process. Diligent effort has been made to address every comment made in the Class EA process. In addition, a draft ER was issued in 2012 to all interested parties for review and comment, thereby greatly expanding review opportunities contemplated in the Class EA process. The technical baseline studies have been extremely extensive, including Hec Ras modeling, hydrology and hydraulic assessment, bathymetry, LiDAR surveys, geomorphology work, temperature assessments, rigorous water quality sampling protocols, thorough aquatic and terrestrial biological studies, archeology and socio-economic analysis.

The effects of the proposed project and its operations are well understood. Where fish habitat is impacted, a compensation plan is in place to maintain ecological function. Robust monitoring programs, detailed operational plans and post-operational monitoring are established to confirm adherence to commitments and ensure modeling is accurate. In addition, if unexpected results occur, an adaptive management plan is in place.

18. Site Release

Xeneca states in the ER that they have been engaged in the aboriginal consultation process as a component of the Crown Land Site Release Process in parallel with the Class EA process and where possible completed in parallel. However “a separate report updating MNR on the status of the consultation process will be completed independently of this Class EA”. However, in another ER for a proposal on the Serpent River, there was evidence that MNR and MOE representatives both made clear recommendations in writing to Xeneca, recommending that they wait until the Site Release process was completed before formally commencing with the Waterpower Class EA process. MNR and MOE staff made a valiant attempt to follow their policy and procedure, and their legal obligations to the public, by protesting Xeneca commencing through the EA process, and attempted to protect the environment and natural resources. However, Xeneca pressed on in spite of their warnings. It is noted that in an ER on another of their proposals, pressure tactics were applied on by Xeneca in their letter dated 27 May 2011, from P. Gillette to Richard Linley, MNR, where two MNR staff were reported, “This is most obvious at the Serpent River sites, but Fishery Management Plans seem to be issued in a

***negative manner at all our FIT sites. The two key individuals raising these issues are and”
44 (names are removed for privacy reasons). It is very disturbing to see MOE and MNR staff make numerous recommendations on the Draft ER that were totally ignored by Xeneca. This shows contempt for the process and best practices advice of our regulators.***

Xeneca response: Xeneca has responded to all agency comments and has, through ongoing dialogue worked to come to consensus on issues that have been raised. Where full consensus has not been achieved, Xeneca has followed MNR/MOE advice and provided a sound, science-based rationale in addressing the issues being raised. In cases where direction has been provided in the absence of policy, policy clarity or guidance, Xeneca has worked with the agencies to reach agreement, but in the absence of agreement, a sound science-based rationale is provided.

Xeneca has not yet been awarded Site Release at Wabagishik Rapids, and as previously communicated to Xeneca, “any environmental assessment work undertaken before Site Release is completely at the proponent’s risk”.

Xeneca response: Site release is a-post ER process and the ER will better inform that process.

Agency staff must be left to do their jobs, and not be pressured by upper management or Xeneca to do anything other than act in the best interests of the natural environment and riverine ecosystem.

Xeneca response: Xeneca is not responsible for agency management and therefore cannot comment on this point.

Xeneca’s timelines and interests must not take precedence over policy, procedure, provincial regulations, the public, and most of all the health and well-being of the community, the environment, and the riverine ecosystem.

Xeneca response: The timelines that Xeneca is following were set out by FIT guidelines, not Xeneca's agenda.

Recommendation 20: Xeneca must follow established policy, process, best management practices, and agency directives, and any interference or non-compliance from the proponent should not be tolerated.

Xeneca response: Xeneca does follow established process, policy and employs best management process.

19. Aboriginal Consultation

The Wabagishik ER contains the following statements, “In November 2012, Xeneca, with the assistance of several Aboriginal Communities convened an EA Peer Review Group which would assist the various communities in reviewing aspects of the Project development. In addition to reviewing the Environmental Assessment, this group would also take on review of business to business (B2B) items. The B2B discussion between Xeneca and Aboriginal Communities are not part of the EA process and are for the most part confidential, therefore they will not be discussed further in this document. For the purposes of the Class EA Sagamok Anishnawbek was appointed the lead for the Environmental Assessment review. The members of the EA Peer Review group agreed that within reason, and in some cases with Elder approval, what the lead group (Sagamok) concluded from their review, they would also generally endorse.” And that, “Whitefish Lake First Nation (Atikameksheng Anishnawbek) was

present at the November 5, 2012 coordination meeting for the EA Peer review group and have agreed with the idea in principle; however, they have remained independent from the group to date.” There was no information contained anywhere in the Environmental Report (ER) that would support Xeneca’s claim that the members of the EA Peer Review Group or Sagamok First Nation agreed to endorse this project, or that Whitefish Lake First Nation or any other First Nation community agreed with the idea in principle, and there is also no explanation or description of what that “idea” is.

Xeneca response: We believe the VRS/ORR is referring to a statement on page 157 of the final ER, but if we are mistaken, please clarify exactly which reference you are speaking to.

The statement that we believe the VRS/ORR is referring to is as follows. The statement is not saying that Sagamok agreed to endorse the project:

“For the purposes of the Class EA Sagamok Anishnawbek was appointed the lead for the Environmental Assessment review. The members of the EA Peer Review group agreed that within reason, and in some cases with Elder approval, what the lead group (Sagamok) concluded from their review, they would also generally endorse” (final ER, section 6.6.15, pg. 157.) Xeneca would note that no Part II Order requests were submitted on the Wabagishik Rapids ER by members of Aboriginal Communities. For clarity, Sagamok’s main responsibility to the group of identified Aboriginal Communities was to facilitate the contracting of a third-party environmental consultant group to complete an independent review of the draft and final ERs, and associated study reports. With respect to the consultant’s final report and identification of any outstanding concerns, Xeneca has duly consulted with the Communities that now understand the project, project impacts and mitigation and avoidance strategies. As Xeneca proceeds toward B2B agreements and site release under LRIA, Xeneca and the Communities, as well as their consultants, will meet to manage and mitigate and remaining concerns.

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.

Xeneca response: The programs and terms of programs available for First Nation participation are available through the Ontario Power Authority (OPA) website and, as such, the process is open and transparent. Any B2B arrangement is a private commercial arrangement between the proponent and those First Nation Communities that wish to participate. The specific B2B arrangements are not subject to public scrutiny.

A 19 September 2013 letter from Sagamok Anishnawbek was included in the Final ER. However, it did not reflect an endorsement of the project, but did report some of their asks had been met, and stated a desire to receive and review the Final ER and to continue discussions and engagement.

Xeneca response: As requested, Sagamok received a copy of the final ER to review. Xeneca has a progressive relationship with Sagamok and will continue to engage with the Community throughout the post-EA period.

As a matter of fact, in spite of MOE’s request to include all aboriginal correspondence and documentation in the final ER, there was very little correspondence from First Nations included, except those that shone a favourable light on the project. In fact, many letters which appeared in the Draft ER did not make it into the Final ER. This is not congruent with the transparent requirements of the Class EA process.

Xeneca response: Again, the programs and terms of programs available for First Nation participation are available through the Ontario Power Authority (OPA) website and, as such, the process is open and transparent.

Any B2B arrangement is a private commercial arrangement between the proponent and those First Nation Communities that wish to participate. The specific B2B arrangements are not subject to public scrutiny.

By ignoring the advice of MOE staff, and going even further to remove important documentation, Xeneca has shown contempt for the regulators, and the entire process.

Xeneca response: Please specify what documents the ORA feels have been removed so that Xeneca can comment. B2B discussions are not part of the EA process.

Recommendation 21:

1. Any B2B relationship, incentives, or funding/payment/partnership that would include funding from any government source is relevant to this ER and must be transparent, made available to the public for our review, and be part of the Wabagishik Rapids GS Environmental Report.

Xeneca response: Xeneca has not, at this point, applied for any government funds for this project. We have indicated that we would support the application of any government application (like the Aboriginal Loan Guarantee Program or the Aboriginal Renewable Energy Fund.) To date, no application has been made by Xeneca or any of the Communities (to our knowledge.)

The programs and terms of programs available for First Nation participation are available through the Ontario Power Authority (OPA) website and, as such, the process is open and transparent. Any B2B arrangement is a private commercial arrangement between the proponent and those First Nation Communities that wish to participate. The specific B2B arrangements are not subject to public scrutiny.

2. A clear, traceable and transparent accounting of how Xeneca arrived at the conclusion that the Peer Review Group would generally endorse or agree with the idea in principle must be provided for public scrutiny and review.

Xeneca response: Please see the Xeneca response to point 19: Aboriginal Consultation (pg 52.) We may need to clarify exactly which reference you are speaking to.

20. Vermilion Stakeholders' Advisory Committee (VSAC)

It is also interesting to note that there is no information contained in the ER pertaining to the VSAC. This is a committee that was established by Xeneca to advise and deliberate on the pros and cons of all four of the Vermilion River hydroelectric proposals, and certainly would have been referred to if there were favourable reports regarding the Wabagishik Rapids proposal.

Recommendation 22:

Xeneca must provide all minutes, documentation and correspondence relating to the VSAC, along with any partnerships or funding applications, agreements, or arrangements made with any and all members of the VSAC Committee, to be included in the ER.

Xeneca response: As previously stated to the VRS/ORR (in emails on October 11 and November 7, 2013), the Vermilion River Stakeholder Advisory Committee (VSAC) was established as an independent, third-party stakeholder advisory body. As such, they keep their own minutes for their own use, and, ultimately, it would be their decision to request inclusion of their material in Xeneca's ER. Xeneca was never requested to include VSAC

meeting minutes in our Environmental Report. Should any stakeholder wish copies of VSAC meeting minutes, we would ask that they please contact Erin Calder, Chair of VSAC.

Linda Heron's July 10, 2012 and July 25, 2012 letters were not included in the ER for the same reason - stakeholder advisory committee correspondence is not included in Xeneca's ER unless requested by VSAC.

21. Trust and Confidence

Over the almost three years since first becoming aware of this Proposal in November of 2011, there has been a continual undermining of trust and confidence in Xeneca and that this “modified run-of-river” proposal would be good for the Vermilion River Watershed, its local communities, or the citizens of Ontario. What follows is an outline of the many reasons why trust and confidence have been broken.

1. Vermilion River Stewardship (VRS) registered as a stakeholder on 8 December 2010, and asked several questions of Xeneca. There was no response until France Gelinias, NDP MPP intervened and reminded Xeneca of their obligations to consult. Xeneca then responded on January 15th, 2011, offering to share information when available.

Xeneca response: Xeneca acknowledges emails as soon as possible upon receipt and responds more fulsomely to letters/questions/comments in the timeliest manner possible.

2. VRS requested the PowerPoint presentation Xeneca made to City Council in March of 2010, and Mark Holmes responded by emailing only part of the presentation because he said the file was too large to email. When I informed him that I could receive a large file and was requesting the entire file, the full presentation was sent, and the only page that had been missing was the corporate and financial structure of the company which revealed this proposal was funded by OP Trust – our government pension fund.

Xeneca response: Thank you for your observation.

3. After the first PIC I attended for the proposed Wabagishik Rapids GS, I received a call from a North Bay OPP Special Operations police officer who informed me he was present at the PIC and watched me the entire night, looking for an opportunity to talk to me, but couldn't because I was constantly surrounded by people. He informed me he was accompanied by an Espanola Police Department officer. I asked him if Xeneca requested he attend and he told me “no”. A few days later I received an anonymous email with a picture attached of an email from the OPP to Mark Holmes asking whether their presence would be required at the PIC the next night. (This document is available upon request.)

Xeneca response: Thank you for your observation. Xeneca's public meetings are open to all members of the public including members of our community and provincial police services. If you have further questions regarding the activities of Espanola or the OPP we would respectfully suggest you contact them directly.

4. VRS made a formal request in writing to Xeneca for documentation pertaining to the Vermilion River proposals on 8 February 2011, and was informed by Xeneca that “all the information that you have requested regarding the PICs will be available in the Waterpower Class EA when it is finalized.”

Xeneca response: All PIC materials have been posted on the Xeneca website, and all stakeholders have received e-blasts notifying them of this. PIC materials and all project documentation is contained within the final ER. If there are specific documents you are looking for, please let Stephanie Hodsoll know and she can help you locate them or send them to you separately.

5. VRS sent an email to Xeneca restating the request contained in the 8 February letter, and admonishing Xeneca for not notifying the VRS of the 22 March Public Information Centre (PIC), and of continuing to erode confidence and trust in Xeneca and in the EA process.

Xeneca response: All stakeholders were notified of all PICs. PIC notices were also advertised in local media (Sudbury Star and Espanola Mid-North Monitor) and posted on the Xeneca website.

6. VRS filed a Freedom of Information Application (FIPPA) with MNR to gain access to several documents in April of 2011. In August VRS was granted permission. But before we could receive the documents Xeneca appealed the decision. At which time VRS decided to abandon the application because the documents had become available through the Canadian Environmental Assessment Act when it was triggered.

Xeneca response: Xeneca has always been open and transparent regarding its project development and the information generated through project related studies and assessments. As explained at the time of the FOI request, Xeneca does not release partially completed studies or reports as it can lead to confusion or misunderstanding if subsequent changes are required for those studies or reports. This approach better enables all stakeholders to understand the project and its effects and draw a more complete picture of how the project may impact or benefit their respective interests.

7. Mark Holmes negotiated with me for several months to talk me into joining the Vermilion Stakeholder Advisory Committee (VSAC). In a 4 March 2011 email to me he offered, "further to your question on the "power" of the committee, if the committee brings forward an issue that is a show stopper, then it will have done its job and the project will either be abandoned or modified to avoid the problem." He asked me to recommend some local representatives to be part of VSAC, so one of the people I recommended was Charles Ramcharan, a local Laurentian University professor. I soon regretted this recommendation, because at the very first meeting "Charles discussed research ideas with Graeme and potential research projects with Xeneca. Charles is also asking Xeneca for sponsorship for a seminar series and scholarships for a new Environmental Science Program." (VSAC Minutes not made available in the ER) Ramcharan informed me by telephone he was vying for as much as \$400,000 in funding from Xeneca. I objected to Xeneca funding any study or course for him on the grounds that it was a conflict of interest because Ramcharan would stand to benefit from the project going forward. VRS subsequently wrote a letter to Xeneca, dated 10 July 2012 (not included in the ER) informing that a VRS Board Motion had been passed that if meeting protocols were not followed and if Charles Ramcharan did not resign from the VSAC that I would resign. Erin Calder responded on behalf of VSAC on 18 July 2012 (not included in the ER) refusing VRS's requests. On 25 July 2012 (not included in the ER) VRS wrote to Xeneca and Erin Calder submitting my resignation from the VSAC. These documents are available by clicking [here](#).

Xeneca response: As previously communicated to VRS and ORA, VSAC minutes/letters are not included in the final ER as they belong to the independent, third-party stakeholder advisory body and not to Xeneca. VSAC keeps its own minutes for its own use, and, ultimately, it would be their decision to request inclusion of their material in Xeneca's ER. Should any stakeholder wish copies of VSAC meeting minutes, we would ask that they please contact Erin Calder, Chair of VSAC.

With respect to the funding of research that would increase the base of knowledge on this and other waterpower projects and thus better inform the decision making process, partnerships between business and universities, government agencies and other private sector partners is common and highly ethical practice. In the case of the studies being contemplated for the Wabagishik GS and other waterpower facilities, the program would be overseen by an independent university partner as well as the government funding agencies themselves. This is an open and transparent process and not unlike the program funding received by Ontario Rivers Alliance for the study of contaminated sediments and soils.

8. Uwe Roeper on several occasions promised to provide me with unsecured documents in the ER that could be searched, copied, highlighted, etc. However, as per my 4 October 2013 letter to Xeneca, this was not done – all but one document had been scanned which made it impossible to search, copy, highlight, etc. Xeneca did provide unsecured documents, but not until the 11th of October – 11 days after commencement of the comment period, and valuable time was lost.

Xeneca response: Stephanie Hodsoll of Xeneca sent an email to Linda Heron on October 11, 2013 apologizing if there had been some misunderstanding regarding the format in which Linda wanted to review the ER. Based on our previous discussion and correspondence, Xeneca staff hand-delivered to Linda a CD on September 30, 2013 (the day that the review period started) that had the 'search' function enabled. It was only after that that Xeneca staff became aware that Linda wished to have highlighting capabilities, and went back to its consultants to provide the document with the additional function. This was uploaded to a Dropbox (sharing) account.

9. In a 16 November 2012 meeting with Uwe Roeper and Mark Holmes, the Meeting Notes prepared by Xeneca noted, "MH asked if LH had received Xeneca's September 2012 letter responding to questions on siltation and sediment concerns. Responding affirmatively, LH said it was a thorough answer. LH also noted that recent correspondence sent to Al Hepburn regarding concerns over the Big Eddy Project in Pembroke had been received. She also noted Mr. Hepburn had complemented the thoroughness of the response" These Meeting Notes had not been sent to me for approval – I saw them for the first time in the final ER. These comments that were purported to have come from me did not. In fact I remember referring to Al Hepburn's letter as thorough, and I never would have referred to any of Xeneca's reports as being thorough.

Xeneca response: As per Uwe Roeper's October 7, 2013 email to Linda Heron, those were informal meeting notes. Please provide us any corrections or additions that you would like to make and we will keep them on file for the record.

There have been many other occurrences that have continued to undermine our trust and confidence in Xeneca as a company, and in the fate of the riverine ecosystem and public health and safety if they are allowed to build this hydroelectric facility. Xeneca has shown us that they cannot be trusted and will do whatever it takes to get their way.

Xeneca response: Xeneca has made every attempt to work with all stakeholders and stakeholder groups,

including the ORA. Xeneca has held many meetings and teleconferences with ORA members. Xeneca has always strived to work in good faith and to consider all comments from concerned stakeholders. The record of consultation, inclusiveness and responsiveness is included in the record of consultation contained within the ER (Appendix D.)

Recommendation 23:

We urge the Minister to reject this Environmental Report on the grounds that this proponent has consistently undermined all trust and confidence through its direct actions, as well as through this sloppy, negligent and inconsistent ER.

Xeneca response: Xeneca would be pleased to review the consultation record with ORA to demonstrate the open, inclusive and fulsome nature of consultation on the Wabagishik Rapids project. A teleconference or in-person meeting may be the best avenue for this review, so please advise of some dates/times of availability.

22. Water Management Plan - Domtar & Vale

The ER points out that the downstream zone of influence only extends to the confluence of the Vermilion River with the Spanish River, when concerns have been expressed by the regulators and Domtar, that Xeneca's operation could have serious negative impacts on Domtar's ability to operate their hydroelectric facility and to dilute their effluent, and this could have serious repercussions further downstream.

Xeneca response: Extensive consultation has occurred with Domtar, and bilateral negotiation has occurred on avoidance of potential negative impacts and indemnification against any unexpected effects. Xeneca has committed to agencies to make best efforts to seek a signed agreement prior to issuance of permits, or, alternatively, to take self-imposed additional operating constraints as outlined in the Operating Plan. To date, Domtar has retained advice from an independent consultant. The consultant has completed a review of the impact information. Xeneca has accepted the results of the review. A Memorandum of Understanding is in final draft with Domtar and being negotiated. The memorandum is consistent with the Operating Plan presented in the final ER.

There appears to be no Memorandum of Understanding (MOU) between Xeneca and Domtar at this time. This should have been completed before the ER was issued for comment. Xeneca must ensure it will not have a negative impact on other established operators.

Xeneca response: As mentioned above, a Memorandum of Understanding is in final draft with Domtar and being negotiated. The memorandum is consistent with the Operating Plan presented in the final ER.

It also appears that the residents living in the Bay area directly below the dam could be seriously at risk from the rapid fluctuations in water levels and flow velocity when the turbines are turned on and flows instantly increase from 5, 6.5 or 8 cms to the minimum turbine speed of 20 cms, increasing flows to 25, 26.5 or 28 cms. This is not adequately addressed in the ER, and there appears to be no MOU in place to protect this family and their interests.

Xeneca response: There will be no rapid fluctuations in water levels. Ramping time is 60 minutes and fluctuation limits are +/- 5 centimetres, which are within natural limits.

Again, it appears this operation could seriously impact on Vale's ability to operate its Lorne Falls hydroelectric facility, and yet no MOU is in place to secure its interests or to finalize Xeneca's operating plan.

Xeneca response: Extensive consultation has occurred with Vale, and bilateral negotiation has occurred on avoidance of potential negative impacts and indemnification against any unexpected effects. Xeneca has committed to agencies to make best efforts to seek a signed agreement prior to issuance of permits, or, alternatively, to take self-imposed additional operating constraints as outlined in the Operating Plan. Vale has accepted the agreement letter from Xeneca.

Recommendation 24:

We request that the Minister reject this Environmental Report and send the proponent back to complete all studies, provide all documentation and finalize all agreements and operating strategies.

Xeneca response: Xeneca has met or exceeded all requirements of the Class EA and elevation to a full environmental assessment is not required.

23. Socio-economic Impacts

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. The dams would be operated remotely so it is unclear and doubtful whether there would actually be any long-term benefits due to employment.

Xeneca response: Xeneca has always been clear that, while significant economic activity occurs during construction, these highly automated plants do not require staffing by more than one or two persons during operation. Benefits in the form of clean, cost-effective, safe power generation with long-term royalties and fees paid to the people of Ontario are accrued by the public over the 40-year lifespan of the Feed-in-Tariff (FIT) contract and beyond.

However, this project could have a severe impact on the local economy if water quality, recreational fishing, snowmobiling, and travel over Wabagishik Lake is hampered, or if blue-green algae and mercury levels in fish tissue increase because of this operation.

Xeneca response: Thorough examination and consideration of cultural and recreational values in the area have occurred - please see socio-economic discussion within the ER documentation -- Section 2.11 (Current Land and Water Use) and Section 2.13 (Social and Economic.)

Your questions about algae and mercury levels are answered on pages 33-35.

Generating clean and environmentally friendly waterpower requires a delicate balancing act to ensure the least amount of damage. This balancing act requires careful consideration of the ecological limits to development as well as the potential impacts to social and cultural values. Such impacts can have profound social and economic consequences. Identifying these tipping points and not going past them should be the goal of any cumulative effects assessment.

Xeneca response: We agree that balance is important and, through the EA process, we believe we have achieved a balance between environmental, social and economic needs.

Recommendation 25:

Xeneca must undertake a quantitative Socio-economic Impact study to document and assess all anticipated positive and potentially negative impacts.

Xeneca response: Thorough examination and consideration of cultural and recreational values in the area have occurred - please see socio-economic discussion within the ER documentation -- Section 2.11 (Current Land and Water Use) and Section 2.13 (Social and Economic.)

On behalf of VRS and ORA, I have met with Xeneca representatives on at least three occasions, other than PICS, with regard to the Vermilion River proposals, and sent additional letters to Xeneca setting out our many concerns and requesting answers as follows:

2011, 26 October – Wabagishik PIC Questions – 20 October

2012, August 3 – Wabagishik PIC Questions – 25 July

2012, August 7 – Wabagishik PIC Comments – 25 July

2012, August 9 – Requesting Xeneca do Silt Sampling

Xeneca response: Yes, we have received your letters and responded to them either in response letters or in the final ER. Xeneca is open to an ongoing dialogue with stakeholders, including the ORA/VRS, and would be happy to meet with you in person or via teleconference at any time.

The nature of private sector-led development is of great concern when waterpower proposals proceed to this stage in the process, and so little attention has been paid to the risks to the environment and public health and safety.

Xeneca response: Xeneca has committed to maintain water flows and levels that will ensure continued navigability and recreational use as it currently exists. Xeneca will post warning signs in areas determined to be susceptible to ice instability as a result of the operation of Wabagishik Rapids GS. Water level fluctuations will be gradual, as changes in operating levels will be ramped over time (60 minutes.) Xeneca's safety plan, which will be prepared during the detailed design phase of the project, will be based on best practices within the Ontario industry and will be audited by a third-party professionally accredited engineering firm.

We also have further serious concerns regarding Xeneca's responsibility to monitor and manage any resulting environmental and socio-economic impacts, particularly given the dwindling capacities of the agencies involved.

Xeneca response: The ER is a legally binding document. As stated in response to Recommendation #2, the Class EA process is a formal regulatory process that binds the proponent to the commitments made under the process. In addition, regulatory agencies typically incorporate many of the commitments made in the Class EA process as mandatory conditions in the subsequent permits and approvals process. In this manner, project proponents are firmly tied to the commitments made.

Conclusion

The Wabagishik Rapids GS would have at least a 40 year impact, with effects accumulating and building on species and ecosystems every year if not properly planned and effective mitigation procedures implemented at the outset. The effects of waterpower facilities can be highly significant and are notoriously hard to mitigate after the facility has been constructed.

Xeneca response: Again, very thorough studies and assessment of the project area's aquatic and terrestrial biology have been undertaken and results contained within the Environmental Effects Report (Annex III) in the Wabagishik Environmental Report (ER.) In the Effects Report, the current (baseline) conditions have been documented. Project effects are well understood and, where avoidance or mitigation of effects is not possible, compensation is being undertaken (please refer to the Compensation Plan contained in Annex III of the ER.) Operating constraints have been placed on the project to reduce water level fluctuations and to ensure that environmental conditions are maintained during critical life cycle periods such as spawning for fish (please see the Operation Plan in Annex I of the ER.) We acknowledge that no science is perfect, and, as such, a robust monitoring program is in place (please see Monitoring Plan in Annex III of the ER) and, if unexpected effects are occurring post-construction, an adaptive management plan is in place.

Also, no provision has been made for decommissioning, so that impacts will likely continue long after the facility has reached the end of its useful lifespan.

Xeneca response: Given the expected significant lifespan of hydro assets (many existing facilities have been producing reliable renewable energy for more than a century) and the continued advancement of engineering and ecological science, it is not particularly prudent to predict the details of potential decommissioning. We will comply with the standards of the day (e.g. Canadian Dam Association) should decommissioning become necessary. Should decommissioning occur, advance planning would include dedication of revenues to a decommissioning fund.

This project cannot be taken lightly - there is great potential for serious negative impacts. This causes great concern when it is obvious many important aspects of the proposal have not been recognized, let alone studied.

Xeneca response: As stated many times and in the final ER, very significant work has been done to assess the current (baseline) condition of the Vermilion River within the zone of influence of Wabagishik Rapids. The environmental reporting on the Ivanhoe projects is unprecedented with Hec Ras, hydrology and hydraulic assessment, bathymetry, LiDAR surveys, geomorphology and temperature assessments, rigorous water quality sampling protocols, thorough aquatic and terrestrial biological studies and socio-economic analysis.

The effects of the project and its operations are well understood. Where habitat is lost, compensation plans are in place to restore ecological function. Robust monitoring programs, detailed operational plans and post operational monitoring are established to confirm adherence to commitments and ensure modeling is accurate. In addition, if unexpected results occur, an adaptive management plan is in place. Xeneca is not taking this project lightly and all aspects of the project have been studied.

Finally, the very short comment period that has been allowed the public and stakeholders with an ER containing secured and scanned documents that cannot be searched, copied or highlighted, have made it difficult to properly review the thousands of pages of technical documentation and still have time for any meaningful exchange of dialogue.

Xeneca response: Respectfully, there was a 33-day review period. The draft ER was available to stakeholders in advance of the release of the final ER. Xeneca has been consulting with the public for several years, and has presented most of the information at Public Information Centres and on the Xeneca website. If there is something that you would like to discuss, we would be happy to set up a meeting between the ORA and Xeneca's consultants.

Xeneca has also removed essential documentation from the ER, and left important documentation out even against the best advice from MOE and MNR staff. This is not acceptable.

Xeneca response: Please advise what essential documentation has been removed from the ER.

It is essential to have an environment of trust and confidence in matters such as this, but it is only possible if Xeneca meets stakeholders halfway, by being open, transparent, and cooperative in providing essential information and documentation in a user-friendly format.

Xeneca response: As previously stated, Xeneca has made every attempt to work with all stakeholders, including the ORA, and has held many meetings and teleconferences with its members. Xeneca has always strived to work in good faith and to consider all comments from concerned stakeholders. The record of consultation, inclusiveness and responsiveness is included in the record of consultation contained within the ER

This proposed Wabagishik Rapids GS ER as written does not meet the criteria of “Sustainable Development”, or contribute to “the betterment of the people of the whole or any part of Ontario by providing for the protection, conservation and wise management in Ontario of the environment.” For all the reasons noted above, this project could compromise ecosystems for decades into the future as well as the ability of our future generations to meet their own needs.

Clean water is essential to life.

In all the years that Part II Order requests have been available to the public as a way to initiate a more rigorous Independent Environmental Assessment, there has never been one granted for a waterpower project. VRS and ORA submit that because of all the serious potential environmental impacts, the lack of attention to crucial components of the proposal, and the seeming inability of Xeneca to step up to the plate and do its due diligence for the environment and the people of Ontario, if ever there was an instance where an elevation is warranted – this would be it. Consequently, VRS and ORA, after having carefully reviewed the Class Environmental Assessment Report and supporting documentation for the proposed Wabagishik Rapids GS, is requesting a Part II Order be issued to elevate this proposal to an Individual Environmental Assessment.

VRS and ORA thank you for your consideration and await your response.

As always, we thank the Vermilion River Stewardship and Ontario Rivers Alliance for their ongoing input and interest in Xeneca’s projects. If you would like Xeneca representatives to walk you through this response, or if you have any further questions or concerns, we would be pleased to set up a teleconference or in-person meeting. If that is of interest to the VRS/ORR, please suggest some dates and times of availability.

Yours truly,

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