

Proposed Bala Falls Hydro-electric Generating Station**Summary of Environmental Screening Report****Sections, Tables and Figures which must be rewritten and redrawn as a result of the proponent's change to cycling operation and their abandoning Option 2****Introduction**

In an advertisement placed in the Gravenhurst Banner and a Letter to the Editor sent to the Bracebridge Examiner, both published October 19, 2011, the proponent for the proposed hydro-electric generating station at the Bala Falls stated they are no longer pursuing Option 2 (which required municipal land) and will instead be pursuing a new proposal *"located entirely on Crown lands"*.

Combined with the proponent's change to cycling operation, the result is that the proponent's new proposal would have a different:

- 1) Site (rather than building the powerhouse, driveway, and retaining wall on municipal land, it would all be built solely on crown land).
- 2) Location (rather than the construction being more than 65' from the north dam, they would need to blast down into the Muskoka bedrock a 60'-deep intake channel directly adjacent to both the north dam – which is over 100 years old – and the support piers for the highway bridge – which have been there for 57 years).
- 3) Orientation (the dangerously fast and turbulent water exiting the tailrace would be directed directly past the recreational area at the bottom of the north falls, and towards the public docks on the Moon River – making marine navigation there difficult or dangerous).
- 4) Technology (while the environmental screening report only analyzed fish mortality and other negative environmental impacts for a single horizontal turbine, the proponent has stated they may instead use two vertical turbines – which would substantially increase fish mortality).
- 5) Operating regime (the proponent would now operate the proposed station in a cycling operation, and they have not analyzed the many public safety, fish and shoreline habitat, and marine navigational impacts of this).

Because of these major changes, as itemized below, there are 133 Sections, Tables, and Figures of the environmental screening report which have now become factually incorrect.

Detail

The section numbers below refer to the proponent's environmental screening report, with detail why each needs to be rewritten as a result of the above changes.

- 1) 1. Introduction
 - a) The proposed facility would not be approximately 25' south of the existing North Bala Dam.
- 2) 1.2 Project Description and Components
 - a) The proposed facility would not be approximately 25' south of the existing North Bala Dam.

- b) No, there *would* need to be structural changes to the north dam as part of the project, since the poured concrete retaining wall is attached to the south pier of the north dam, and this retaining wall would need to be removed as part of the intake excavation for the proposed generating station.
 - c) No, the proponent has stated that the power interconnection to the 44 kV line would not be underground, it would be aerial.
 - d) No, the power line connection point would not be south of Bala Falls Road, it would be on the north side.
- 3) 1.2.2 Water Conveyance and Powerhouse
- a) No, the intake channel from the North Channel would not be approximately 30 m long.
 - b) No, the intake would not be east of Muskoka Road 169, it would be west of Muskoka Road 169.
 - c) No, the approach channel from the intake channel would not cross beneath Muskoka Road 169 and would not be approximately 22 m long.
 - d) No, the powerhouse would not be approximately 30 m south of the North Dam.
 - e) The proponent here notes they may plan to install two smaller turbines of the same total capacity as one larger unit. According to Section 6.2.5.6, two smaller turbines of the same combined capacity as a single unit would have a much higher fish mortality, so the proponent's fish mortality calculations must include an analysis of fish mortality based on two smaller turbines.
 - f) No, the proponent has said the switchgear and transformer would need to be on the roof of the proposed structure. Therefore, the proponent would not be able to eliminate the visual impact of a typical external transformer and switchyard.
 - g) No, the tailrace would not be approximately 20 m.
- 4) 1.2.3 Electrical Interconnection and Distribution
- a) No, the transformer room would not be inside the powerhouse.
 - b) No, the power cable would not be underground.
- 5) 1.3 Project Location and Study Area
- a) No, the project would not occupy adjacent municipal land.
 - b) No, the adjacent municipal land is not owned by the District Municipality of Muskoka.
- 6) 1.3.1 Lake Muskoka
- a) No, the proposed facility would not operate in accordance with the existing water management plan, the proponent states in Section 9. that the Muskoka River Water Management Plan would need to be amended.
- 7) 1.3.4 Burgess Dam and Burgess Generating Station
- a) No, this generating station is not, and never was owned by Algonquin Power.
- 8) 1.4 Purpose and Need
- a) No, power demand in Ontario has not *"increased steadily and substantially over the last decade"*. In fact, as shown by Ontario's Independent Electricity System Operator (for example, at

http://www.ieso.ca/imoweb/media/md_demand.asp) Ontario's demand for electricity in 2011 was less than the demand in 1999.

- b) No, not only does Ontario export more than twice as much as it imports (see http://www.ieso.ca/imoweb/siteShared/imports_exports.asp?sid=md), the proposed power station would have its lowest output during the summer and winter peak demand periods.
- 9) 1.5.1.1 Layout Alternative 1
- a) The proponent here states about their proposed Layout Alternative 1 (emphasis added):
- "The tailrace of the powerhouse would be located in close proximity to the falls which could **cause safety issues** and public concern. Furthermore, the location of the intake would be between the North Bala Dam and the highway bridge. This is **not an optimum location** from a hydraulic standpoint and head losses would be incurred. Approach area excavations near and below the road bridge to improve the hydraulics would be **difficult and could threaten the bridge or dam...***
- Well, this is ridiculous. Here the proponent is specifically saying that their new proposal would be dangerous to the public, would have lower output, and may damage both the highway bridge and the north dam. They must explain this.
- 10) 1.5.2.1 Peaking Operation Option
- a) The proponent here states about peaking operation (emphasis added):
- "This would lead to plant shutdowns and restarts, and **daily fluctuations in flows and levels** along the Bala Reach, and on the Go Home Lake downstream of Bala, during low flow periods. These fluctuations may potentially have had an impact on available flows to downstream generating stations and pose **problems related to boating and other aquatic activities...***
- So for Option 2 peaking was a bad idea, but now the proponent is proposing cycling operation, which would be the same but only up to 1/3 of the capacity of the proposed station. The proponent must explain this.
- 11) Figure 1.2
- a) No, this isn't the proposed project.
- 12) 2.1.3 Existing Sound Levels
- a) No, the project would not be sited in a Class 2 Urban area, in which *"urban hum constitutes much of the background noise..."* – and the proponent has since agreed.
- 13) 2.1.4 Topography, Physiography and Geology
- a) No, the intake would be in a different place, this section must be rewritten.
- 14) 2.1.5 Groundwater Resources
- a) No, the intake would be in a different place, this section must be rewritten.
- 15) 2.1.6.1 Hydrology
- a) The dam safety assessment only considered flood flows, not damage due to the required blasting and excavation directly adjacent to both the north dam and the support piers for the highway bridge (see Section 8.4 below).

b) Risk assessment procedures are now different from that described.

This section must be rewritten.

16) 2.1.9 Terrestrial Wildlife

a) No, as has been noted by the community (for example, see the letter we wrote to the Minister of the Environment, September 2, 2011), the wildlife habitat at the project site is the same as the other areas downstream where species at risk are present. There is no justification for the proponent's statement.

17) 2.1.10 Aquatic Habitat, Proposed Intake Area

a) No, the intake would be in a different place, this section must be rewritten.

18) 2.1.10 Aquatic Habitat, Offshore Area in Proposed Tailrace

a) No, the tailrace would be in a different place, this information may not be applicable.

19) 2.2.3.3 Resolutions by the Township of Muskoka Lakes

a) This is incomplete. For example, on July 28, 2011 the Township of Muskoka Lakes Council passed a resolution that *"SREL resolve to the Township's satisfaction all of the longstanding concerns of the Township and its residents..."*.

20) 2.2.3.4 Motion Carried by the District of Muskoka

a) This is incomplete. For example, on April 26, 2011, the District Municipality of Muskoka Council passed a motion transferring the land south of the Crown land to the Township of Muskoka Lakes.

21) Figure 2.1.2

a) No, the land adjacent to the proposed project is not owned by the District Municipality of Muskoka.

b) No, the proposed project would not be as shown in the figure.

22) 3.2 Community Engagement and Stakeholder Consultations

a) The proponent has always claimed that their Option 1 was a proposed project that was solely on crown land. But the proponent's public consultations and environmental screening report have **never presented any drawings or renderings showing a project that was solely on crown land**. For example, see Appendix D5 (information presented at the first public information centre) and Appendix A (drawings, showing all layout alternatives considered).

Therefore, there has never been any public consultation on the proponent's new proposal. Public consultation is a fundamental requirement for environmental assessments, and the proponent has not done this for their new proposal.

23) 3.4 Phase One Consultations

a) These consultations are no longer applicable, as the information presented does not apply to the proponent's new proposal.

24) 3.4.1 Phase One Consultations

a) Appendix D5 of the environmental screening report shows the material presented at the first of the only two public information centres, this being

held August 29, 2007. Note the *Plan and General Arrangement* drawing clearly shows; the powerhouse, the driveway, and the retaining wall all occupying the municipal land south of the Crown land.

That is, there has **never** been a public information centre showing a project that would fit on only crown land, as the proponent's new proposal apparently involves.

- 25) 3.4.2 Community Groups and Neighbours Outreach
and
- 26) 3.4.3 Regulatory Agencies Consultation
 - a) Information provided at these meetings would now be incorrect as the proposed project now has a different site, orientation, location, technology, and operating regime. Therefore, there never has been any useful outreach or presentation of the new proposal to the community or these agencies.
- 27) 3.4.4 First Nations
 - a) Information provided to these First Nations would now be incorrect as the proposed project now has a different site, orientation, location, technology, and operating regime.
- 28) 3.4.5 Project Website
 - a) The proponent's website has no drawings for their new proposal. This lack of information from the proponent continues to be source of great frustration.
- 29) 3.5 Phase Two Consultations
 - a) These consultations are no longer applicable, as the information presented does not apply to the proponent's new proposal (whatever it turns out to be).
- 30) 3.5.2 Community-Wide Fact Sheet
 - a) The information in this is no longer applicable.
- 31) 3.5.3 Public Information Centre 2
 - a) The second of the only two public information centres was held August 13, 2008, and the material presented is in Appendix D15. These drawings also show that for Option 2, municipal land would be required. So again, the public has never been presented with drawings showing a project that would fit solely on only Crown land, as the proponent is now proposing as their new proposal.
- 32) 3.5.4 Additional Project Information
 - a) This "factsheet" is not applicable to the proponent's new proposal.
- 33) 3.5.5.1 Neighbours
 - a) The impact on neighbours would be completely different for the proponent's new proposal.
- 34) 3.5.5.2 Community Groups
 - a) Information presented to community groups would not have applied to the proponent's new proposal.
- 35) 3.5.6.1 Agency Consultation, Township of Muskoka Lakes/District of Muskoka

- a) This information no longer applies. For example, it does not appear that *"both levels of government support in principle the 'new plan'..."*
- 36) 3.5.6.1 Agency Consultation, District of Muskoka
- a) The information presented to the District Municipality of Muskoka on October 14, 2008, as shown in Appendix D20 has significant errors, for example:
- The drawing on page 8 claims that the Option 1 presented in August 2007 fit solely on Crown land – there never was such a plan presented (for example, note that not only does this drawing not have a driveway, there's a tree where the driveway would need to be).
 - If deceiving a municipal government is not reprehensible enough, the proponent continues by presenting the drawing for Option 2 on page 7 which simply could not be built (where's the entrance door to the facility, where are the ventilation fan openings, the water in the north channel would only be a trickle ...).
- 37) 3.5.6.1 Applicant of Record Award
- a) Reference is made to Appendix A1, but there is no such Appendix, nor is this document included anywhere in the environmental screening report.
- 38) 5.1.1 Site Preparation Including Staging/Works Yard
- a) This section erroneously assumes municipal land would be available for the settling ponds
- b) Furthermore, it has recently been announced that the weekly Bala Summer Market will be returning to the Precambrian Shield parking lot, so it cannot be assumed this area would be available for construction purposes either.
- 39) 5.1.2 Site Clearing, Overburden Excavation and Rough Grading
- a) As the site has changed, this section would need to be re-written.
- 40) 5.1.3 Local Access Road Construction, Road Maintenance and Drainage
- a) As the site has changed, this section would need to be re-written.
- 41) 5.1.4 Blasting, Rock Excavation and Disposal
- a) Because the site has changed, this section would need to be rewritten. For example, blasting would be directly adjacent to both the north dam and the support piers for the highway bridge. This section requires detail of; the excavation method to ensure there would be no damage to existing infrastructure, a risk assessment, an inspection plan, and details of highway disruptions while inspections are done after blasting (see Section 8.4 below).
- 42) 5.1.5 Upstream Working Platform Installation
- a) The proponent has stated that a sheet pile cofferdam would likely be needed upstream rather than a rock fill cofferdam. So this section would need to be re-written, as the time required to remove the cofferdam is important, as noted below.
- b) Rather than the 40% obstruction of the north channel which the construction of Option 2 would require, the new proposal would require blocking 85% of the flow in the north channel.
- If there was a high-flow event during the months of construction when the cofferdam for the new proposal was in place, flooding of all of Lake Muskoka could occur since this cofferdam could not be quickly removed (both because

of its construction, and because the partially excavated works within could not withstand the north channel flowing at full capacity).

This section needs to be rewritten to address this major issue.

43) 5.1.6 Downstream Cofferdam Installation

- a) This section must be rewritten as the rock fill cofferdam suggested would unacceptably overlap with the base of the north falls and the municipal property to the south.

44) 5.1.7 Construction of Intake, Powerhouse and Tailrace

- a) No, there would be no upstream or downstream rock plug, as this area was used for the powerhouse previously at this location.
- b) As noted for Section 5.1.4, this construction would require more time and expense (if it could be done safely at all), as blasting and excavation would be directly adjacent to the north dam and the support piers for the highway bridge.

Therefore, this section must be rewritten.

45) 5.1.8 Installation of Switchyard and Distribution Line

- a) No, as noted for Section 1.2, the proponent has stated that the power line would be aerial rather than buried.
- b) The proponent has stated that the powerhouse substation for their new proposal would need to be on the roof,

Therefore, this section must be rewritten.

46) 5.1.9 Water Management During Construction

- a) So far, the proponent has not received support from the municipality, so it cannot be assumed there would be land on which to construct a settling pond (or to locate the raised steel tank alternative).

This section needs to be rewritten to address this issue.

47) 5.1.11 Site Cleanup and Rehabilitation

- a) The proponent has stated their new proposal would have minimal opportunity for landscaping, so this section needs to be rewritten.

48) 5.2.1 Potential Effects and Mitigation – Natural Environment, Geology

- a) As the site would be smaller, the values presented would need to be changed.
- b) The proponent has stated that rock crushing will not be required.

Therefore, this section must be rewritten.

49) 5.2.2 Potential Effects and Mitigation – Natural Environment, Soils

- a) As the site would be smaller, the values presented would need to be changed.
- b) The site would not have room for stockpiling excavated soils.

Therefore, this section must be rewritten.

50) 5.2.2.1 Sediment and Erosion Control

- a) As the entire site would need to be excavated there would be no opportunity to use erosion control devices.

- b) As noted in Section 5.1.9, the proponent may not have use of land which is close enough to construct a settling pond, so this issue needs to be addressed.
- c) As noted in Section 5.2.2, the site would not have room for stockpiling excavated soils, so this issue needs to be addressed.

Therefore, this section must be rewritten.

51) 5.2.2.2 Effects on Soil Quality due to Stockpiling

- a) As noted in Sections 5.1.1 and 5.2.2, there may be limitations on the land available for stockpiling soil, especially if it cannot be piled higher than 1 m so large areas would be needed.

Therefore, this section must be rewritten.

52) 5.2.4 Groundwater

- a) As noted in Section 5.1.9, the proponent may not have use of land which is close enough to construct a settling pond, so this issue needs to be addressed.

53) 5.2.5 Hydrology

- a) No, as noted for Section 5.1.5, the required cofferdam would need to block much more of the north channel, and as noted for Sections 2.1.6.1 and 5.1.4, the excavation will be much more complex and the north channel cofferdam would therefore need to be in place for a much longer period. This increases the risk of flooding of Lake Muskoka, so this issue needs to be addressed.
- b) The proponent states *"The interior of the cofferdam consists of a low velocity gyre during high flow conditions"*, this needs to be explained.
- c) Given the unusual weather patterns lately, designing for the 1:20 year spring flood is not conservative enough, especially considering that the cofferdam in the north channel would need to be in place longer, and would be more difficult to remove quickly, and due to the sensitive nature of the excavations at the north dam and support piers for the highway bridge, this cofferdam could not be safely removed at some times.

Therefore, this section must be rewritten.

54) 5.2.6.1 Sediment in Watercourses

- a) The proponent notes *"It will be the responsibility of the contractor to monitor local surface water quality conditions during construction and take appropriate actions..."*. The proponent must accept responsibility for their contractor, this section therefore needs to be rewritten.

55) 5.2.7.2 Blasting

- a) The proponent needs to address the difficulties of blasting directly adjacent to the north dam and the support piers for the highway bridge.

56) 5.2.8.2 Temporary Impacts, Intake Approach Channel Working Platform

- a) No, the proponent has stated that the upstream cofferdam would not be a rock fill type.
- b) The proponent has provided information that the intake cofferdam would need to displace a much larger area of the north channel riverbed and fish habitat.

Therefore, this section must be rewritten.

57) 5.2.8.2 Temporary Impacts, Tailrace Channel Cofferdam

- a) The proponent has provided information that the tailrace cofferdam would not be rock fill, so this section needs to be rewritten.

58) 5.2.8.2 Temporary Impacts, Summary of Temporary Impacts

- a) The areas of lost aquatic habitat would be different, so this section needs to be rewritten.

59) 5.2.8.3 Permanent Impacts, Intake Channel

- a) The shape, slope, and aspect ratio of the intake would be different.
- b) It has never been clear how the proponent can consider the intake channel of a generating station to be fish habitat, one would expect that all fish attempting to live in such a location would be sucked into the turbine the next time it starts.
- c) The proponent needs to address the impact of their proposed cycling operation on the fish habitat.

Therefore, this section must be rewritten.

60) 5.2.8.3 Permanent Impacts, Tailrace Channel
and

61) 5.2.8.4 Walleye Spawning Habitat Enhancement Downstream from South Dam
and

62) 5.2.8.5 Shoal Creation Adjacent to Tailrace
and

63) 5.2.8.6 Summary

- a) The proponent needs to address the impact of their proposed cycling operation on the fish habitat.
- b) The proponent updated the information in this section with additional information (such as their November 30, 2010 *Letter of Intent for Undertakings Affecting Fish Habitat, North Bala Generating Station*). All such subsequent documents need to be reconciled and combined so it is clear what information has precedence and what information has been replaced.

Therefore, the section must be rewritten.

64) 5.2.9 Vegetation

- a) As the site has changed, the dimensions have changed, so this information needs to be updated.

65) 5.2.1.1 Species at Risk

- a) As we and others in the community have noted (for example, in a letter to the Minister of the Environment, dated September 2, 2011), the proponent has not properly surveyed for species at risk.

Therefore, the proponent needs to properly survey for species at risk, and this section must be rewritten.

66) 5.3 Potential Effects and Mitigation – Socioeconomic Environment
through to

5.3.9.2 Economic Benefits

- a) This entire section of 7 pages is completely lacking in factual economic analysis, so much so that on May 14, 2010 the Ministry of the Environment informed the public that the proponent was required to conduct an economic impact study.

This study was completed in November 2010 and the results were so glaringly weak that on January 18, 2011 the Township of Muskoka Lakes Council passed a motion to have the economic impact study peer-reviewed. This peer review report was delivered April 1, 2011 and concluded that the economic impact study *"does not adequately identify and assess the potential economic effects of the proposed project"*.

For example, the economic impact of the proposed project could only be assessed by actually interviewing business owners and tourists (both of which were not done for the economic impact study) to understand why people come to Bala, how much they spend, and how the proposed project may affect this (for example, by; the loss of publically-accessible shoreline, in-water recreational activities that would be restricted, and by the loss of scenic flow in both the north and south channels).

Therefore, the economic impact study must be done properly, and this section must be rewritten.

67) 5.3.1 Effect on Public Use and Access

- a) It should no longer be necessary to close the north portion of Bala Falls Road, so this section requires rewriting.

68) 5.3.2 Public Safety in the Vicinity of the Project

- a) As noted for Sections 2.1.6.1 and 5.1.4, the blasting and excavation would be directly adjacent to both the north dam and the support piers for the highway bridge.

If either of these structures (or the rock below them) were damaged, the results could range from massive (and uninsured) costs to loss of life.

This section needs to be completely rewritten to show how the public's interests would be protected.

69) 5.3.4 Local Traffic

- a) Firstly, the speed limit through any construction site is reduced, and yet the proponent has not accepted this.
- b) But more significantly, the blasting and subsequent inspections of the support piers for the highway bridge would require that traffic be stopped frequently.

The proponent must estimate the resulting delays and queuing, as not only would this be an inconvenience and deterrent for the public to visit Bala, but emergency vehicles would also be delayed.

Note that if the queuing is more than a few hundred metres, then traffic (and the area businesses) on Muskoka Road 38 would also be affected and would contribute to the overall traffic delays.

- c) These delays need to be estimated for each month throughout the proposed construction period, as this would affect emergency vehicles and their corresponding agencies would need to plan for this. This information must

be presented as part of the environmental assessment so these agencies can be sure the result will be acceptable to them.

Therefore, further study is required and this section must be rewritten.

70) 5.3.4.1 Muskoka Road 169

- a) Reference to the temporary Bailey bridge needs to be removed, as there would likely be no need to trench across Muskoka Road 169.
- b) However, the construction would be directly adjacent to Muskoka Road 169, there would frequently be trucks backing up for loading and unloading on the west shoulder, and this would require a reduced speed limit as is common due to any construction adjacent to traffic. As noted above, the resulting traffic disruption and delays must be estimated and included in the environmental assessment.
- c) Due to the steep embankment to the west of Muskoka Road 169, there is a highway guardrail along the highway frontage of the Crown land. During construction, this guardrail would need to be removed to permit construction vehicle access to the construction site.

To provide traffic on Muskoka Road 169 safe passage past the removed guardrail, it may be necessary to install temporary concrete barriers ("Jersey barriers") along the southbound lane.

- This would permit construction vehicles to safely queue and back-up to the west of the barrier, and traffic could continue to the east of the barrier.
- However, this would at least require a significant traffic speed limit reduction, but more likely require limiting traffic to a single shared lane, and this would create major traffic delays.

This is a major area requiring further study and this section must be rewritten.

71) 5.3.4.2 Bala Falls Road

- a) It should no longer be necessary to close the north portion of Bala Falls Road, so this section requires rewriting.

72) 5.3.5 Noise and Vibration

- a) The impact of shock and vibration during construction needs to be included in the risk analysis for the north dam and for the support piers of the highway bridge.

73) 5.3.7 Tourism and Recreation.

- a) Due to the need for construction staging and materials storage, the availability of parking in the area would be reduced for the duration of the proposed construction period. The amount of space so needed for construction purposes needs to be detailed for each month throughout the construction period.
- b) Both Margaret Burgess Park (to the north of the north channel) and Diver's Point are important tourist destinations. However, the proponent has indicated they may need to use these areas for construction staging and materials storage.

Also, fishing and other recreational activities are common for the municipal land to the south of the proposed construction site.

The impact on the public's access to each of these areas throughout the proposed construction period needs to be detailed, and provided in this section.

74) 5.3.7.1 Local Tourism

- a) Reference to the temporary Bailey bridge needs to be removed, as there would likely be no need to trench across Muskoka Road 169.

75) 5.3.7.2 Recreation

- a) The impact on the portage needs to be updated.
- b) The proponent has stated that despite Cross Section A of Figure 5.1 showing there would be a pedestrian sidewalk along the temporary Bailey bridge, there may in fact not be a pedestrian sidewalk. Given the possibility that Muskoka Road 169 would need to be narrowed (as noted for Section 5.3.4.1), the proponent needs to clearly state how pedestrians and snowmobiles will be able to safely travel along Muskoka Road 169 through the proposed construction zone, throughout the proposed construction period.
- c) Reference to the temporary Bailey bridge needs to be removed, as there would likely be no need to trench across Muskoka Road 169.

Therefore, this section must be rewritten.

76) 5.3.8 Effect on Local Businesses

- a) The direct effect on these two local businesses would change, for example, because there would be no need to construct the intake directly adjacent to them.

Therefore, this section must be rewritten.

77) 5.3.9.1 Employment and Economy, Employment

- a) As noted for Sections 5.1.4 and 5.1.7, the blasting and excavation would be more difficult, as there would be no upstream and downstream rock plug, and as the excavation would need to be directly adjacent to the north dam and the support piers for the highway bridge.
- b) Furthermore, according to the Option 1 drawings which the proponent posted on their web site in September 2010, the intake would need to be excavated 60' below the level of Muskoka Road 169, and the excavation for the station itself would need to be excavated 70' below the level of Muskoka Road 169. And the structure itself would require poured concrete construction to build the complex shapes and curves required for the interior of the proposed powerhouse.

However:

- The trades in Muskoka are generally carpenters and have related and other general skills as required for house and commercial building construction.
- Much of the electrical work would require skills with high-voltage equipment and cabling which private contractors in the Muskoka area would not have.

Given that the local labour force would generally not have the required skills, the proponent needs to justify their statement *"No mitigation measures are necessary as any effect to the local labour force is determined to be positive."*

78) 5.3.9.2 Economic Benefits

- a) No, the proponent needs to estimate (based on information from area businesses and tourists) and quantify the economic costs during the

disruption caused by their proposed construction (such as reduced tourism) before any claim of a net economic benefit can be justified.

79) 5.3.10.2 Municipal Services

- a) It would no longer be necessary to relocate these utilities.
- b) However, if it is determined that the proposed structure requires potable water and sewer connection (as is typical for industrial and commercial buildings), there would be need to blast across Muskoka Road 169 for this interconnection.

This section therefore must be rewritten.

80) Table 5.4 Summary of Potential Effects, Proposed Mitigation and Residual Effects During Construction Phase

- a) Reference to the temporary Bailey bridge needs to be removed, as there likely would be no need to trench across Muskoka Road 169.
- b) Reference to rock fill cofferdams needs to be updated as the proponent has noted that instead different types of cofferdams would be used.
- c) As a result of the need for blasting and excavation directly adjacent to the north dam and the support piers for the highway bridge, this section must address risk to the public and to public infrastructure, and the methods to assess and mitigate this risk.
- d) As a result of the greater obstruction to the north channel caused by the required cofferdam, the greater period during which the cofferdam would need to be in place, and the increased time required to remove the cofferdam, this section needs to address the resulting greater risk of flooding Lake Muskoka.
- e) This section needs to present details of the expected traffic disruption due to:
 - Traffic being stopped during blasting (as this would be directly adjacent to Muskoka Road 169), and the need to inspect the support piers for the highway bridge before highway traffic can resume safely using the bridge.
 - The need to remove the highway guardrail along the front of the proposed construction site (in order to provide construction vehicle access), and the resulting need to install temporary Jersey barriers (which would constrict Muskoka Road 169).
 - Trucks on the west shoulder of Muskoka Road 169 backing-up and queuing for loading and unloading.
 - If Bala Falls Road would still need to be blocked, the addition of the traffic light at the south intersection of Bala Falls Road and Muskoka Road 169.
- f) This section needs to address:
 - Which parking areas would be unavailable during construction for construction staging and materials storage.
 - The resulting negative impact on tourism and patronizing local businesses.

Therefore, this section must be rewritten.

81) Table 5.6 Assessment of the Significance of Residual Effects During Construction

- a) Proponent needs to state whether during the approximately 18-month construction period the public would have safe and continued access to:

- The municipal land to the south of the proposed construction site (as this is important as a tourist draw to fisherpersons).

- Margaret Burgess Park and Diver's Point, as these are also important draws to tourists (and the proponent has stated that as Crown land, they may be used during construction).

Once people remove trips to Bala from their vacation plans, they may never return, hence these may be residual effects.

82) Figure 5.1 Traffic / Construction Sequence

a) This would be completely changed (for example, there would be no need for a temporary Bailey bridge), so this figure must be completely redrawn.

83) Figure 5.2 Surface Area of Aquatic Habitat Impacts Due to Temporary and Permanent Structures

a) The construction site has changed, earth fill cofferdams would no longer be used, and the location, size, and construction of the upstream working platform would be changed.

Therefore, this figure must be redrawn.

84) Figure 5.3 Aquatic Habitat Enhancements

a) This has been superseded by the proponent's November 30, 2010 *Letter of Intent for Works or Undertakings Affecting Fish Habitat North Bala Generating Station* (which itself has now been superseded by the proponent's change to cycling operation), so this figure must be redrawn.

85) Figure 5.4 Areas Restricted During Construction

a) The proponent has not received permission to use the municipal land south of the Crown land, nor to use the north end of Bala Falls road as a works yard.

b) Furthermore, there would be no intake to the east of Muskoka Road 169.

Therefore, this figure must be redrawn

86) 6. Effects Assessment and Proposed Mitigation and Residual Effects During Operations

a) The proponent has stated they will not operate in run of river operation, so this section must be rewritten.

87) 6.1 Source of Effect

a) Because of the cycling operation now proposed by the proponent, there would be an effect on the; daily water levels of Lake Muskoka and flow in the Moon River.

Therefore, this section must be rewritten.

88) 6.2.2.1 Hydrology, Flow Rates

a) The proponent has stated cycling will be used (up to $\frac{1}{3}$ of the proposed station's capacity, at least during the summer months).

b) The cycling operation would supersede the stated shutting off of the proposed facility.

c) The cycling would need to provide a minimum of $20 \text{ m}^3/\text{s}$ (which, added with the $4 \text{ m}^3/\text{s}$ allocated to the Burgess Creek generating station and the $1 \text{ m}^3/\text{s}$ for each of the north and south falls, would provide the $26 \text{ m}^3/\text{s}$ required by

Ontario Power Generation). So the stated 14 m³/s would need to be changed.

Therefore, this section must be rewritten.

89) Table 6.1 Summary of Potential Effects and Mitigation During Operation Phase

- a) No, the plant would use a cycling operation (up to ⅓ of the proposed station's capacity, at least during the summer months), rather than be run of river.
- b) No, there wouldn't be a *"park like setting, and associated landscaping"*, as the proponent has stated this would not be possible.
- c) The proponent has since changed the proposed compensation areas for fish habitat.
- d) The method of meeting the flow requirements during walleye spawning has been changed by the proponent's November 30, 2010 *Letter of Intent* (and this has become obsolete due to the proponent's decision that the proposed station be operated in a cycling mode).
- e) No, any landscaping plans would be different.
- f) No, the powerhouse would no longer be moved south from *"its original location"*. The proponent has stated the proposed station would be taller, so even less of the plant equipment would be below grade. Also, the orientation of the plant would result in danger to those recreating at the base of the north falls and would create difficulty for marine navigation at the public docks on the Moon River.
- g) There would not be a *"full-time remote operator"*, the plant's automatic operation would be supervised by existing staff at a remote site.
- h) No, the change to cycled operation means that there would be a change to the downstream flow.

Therefore, this table must be rewritten.

90) Table 6.2 Assessment of the Significance of Residual Effects During Operation

- a) As the water levels and flow velocities would change due to the proponent's decision to change to a cycling operation, and as the flow vectors in the tailrace would change due to the new location and orientation of the proposed powerhouse, this table must be rewritten.

91) 6.2.2.2 Water Levels, Lake Muskoka

- a) As the proposed station would not use run of river operation, this section must be rewritten.

92) 6.2.2.2 Water Levels, Bala Reach

- a) As the proposed station would use a cycled operation, requiring coordination with Ontario Power Generation, but possibly modified as required for public safety (as noted in the signed agreement with OPG), this section must be rewritten.

93) 6.2.2.3 Hydraulics (Flow Velocity and Vectors)

- a) As the tailrace would have a different location and orientation, the River2D hydraulic modeling would need to be repeated with this new site information and this section must be rewritten.

94) 6.2.4.1 Water Management Practices

- a) As the proposed station would not use run of river operation, this section must be rewritten.

95) 6.2.4.2 Storm Water Runoff

- a) Because the facility would cover virtually the entire plot of Crown land with concrete, this section must be rewritten.

96) 6.2.4.3 Hazardous Materials

- a) The proponent's environmental screening report states "*The transformer for the facility will be a dry-type transformer with no oil and will be installed within the powerhouse*", however:

- The transformers installed in the last few months at both the Wilson's Falls and Bracebridge Falls generating stations were not dry-type. Given those are similar situations, would the proposed station instead also not be the dry type.
- The proponent has stated that the transformers may not be able to be installed within the powerhouse. Also, we note that at both the Wilson's Falls and Bracebridge Falls generating stations (which are only 2.9 MW and 2.6 MW, respectively, compared to the 4 MW to 5 MW proposed by the proponent) the high-voltage electrical equipment is indeed not installed within the powerhouses (even though the Wilson's Falls station was completely rebuilt, so presumably could have been built large enough to accommodate this electrical equipment in the station).

Therefore, this section must be rewritten.

97) 6.2.5.2 Altered Flow Hydraulics Downstream from Facility

- a) Due to the change to cycled operation and due the changes proposed by the proponent in their November 30, 2010 *Letter of Intent*, this section must be rewritten.

98) 6.2.5.3 Alterations in Lake Muskoka Water Level

- a) The proponent would require changes to the Muskoka River Water Management Plan to both accommodate changes required by the operation of the proposed station (such as the proposed Best Management Zone) and due to the proposed cycling operation.

Therefore, this section must be rewritten.

99) 6.2.5.4 Alterations in Bala Reach Water Level Due to Operation of the Bala Generating Station

and

6.2.5.5 Moon Falls Walleye Spawning

- a) Due to the change to cycling operation, this section must be rewritten.

100) 6.2.5.6 Fish Impingement, Entrainment and Turbine Mortality, Entrainment and Impingement

- a) Due to the change in location, orientation, and design of the intake, the River2D modeling would need to be repeated using values for the proposed site.
- b) Due to the change to cycling operation, the information in this section needs to be updated.

Therefore, this section must be rewritten.

101) 6.2.5.6 Fish Impingement, Entrainment and Turbine Mortality, Turbine Mortality

- a) This section states there would be a single turbine of approximately 3.9 m diameter operating at a 5.3 m head. However:
- The proponent has stated the proposed station may use two turbines (and these would each have a reduced diameter), and this change would increase fish mortality.
 - The proponent notes in Section 1.2 that the head is 6.2 m, and in Section 1.2.1 of Appendix C1 states the head is 5.86 m. Either of these two other values would increase the fish mortality. The proponent must explain why three different values of the head are provided.

As these changes would increase the fish mortality as predicted by the equation above Table 6.6, this section must be rewritten.

102) 6.2.6 Terrestrial Vegetation/Wildlife

- a) Due to the change to cycling operation, this section must be rewritten.

103) 6.2.7 Species at Risk

- a) No, the proponent has stated the proposed station would use a cycling operation (up to $\frac{1}{3}$ capacity, at least in the summer months).
- b) As noted in a letter we sent to the Minister of the Environment on September 2, 2011, the proponent has not properly surveyed for species at risk,
- c) The Muskoka River Water Management Plan would need to be amended to accommodate the proposed station.

Therefore, this section must be rewritten.

104) 6.3.1 Public Access

- a) As; access to the falls, the site, location, and orientation of the proposed station, the intake, and the landscaping would be changed, this section must be rewritten.

105) 6.3.2 Public Safety during Plant Operation

- a) Here the proponent states *"swimming is not compatible with hydro generating facilities"*, and in Section 1.5.1.1 (which specifically concerns Layout Alternative 1, which would have an intake and tailrace similar to the proponent's new proposal) the proponent states *"The tailrace of the powerhouse would be located in close proximity to the falls which could cause safety issues and public concern"*.

Given that the proponent is now proposing exactly what their environmental screening report stated would be too dangerous, this section must be rewritten to address this issue.

106) 6.3.2.1 Water Velocity in the Vicinity of the Intake and Tailrace

- a) Due to the change to cycling operation, there would be an increase in danger to the public as they wouldn't know whether the proposed station is operating or not, or when it might start.

This needs to be addressed (for example, would warning sirens and strobe lights need to be operated daily), so this section must be rewritten.

107) 6.3.3 Local Traffic

- a) Reference to the temporary Bailey bridge needs to be removed, as we expect none would be required.
- b) However, trucks backing out of the proposed station's driveway would obstruct traffic on Muskoka Road 169, and due to safety concerns, would require a flag person.

Therefore, this section must be rewritten.

108) 6.3.4 Sound Levels

- a) The proponent has agreed that this should be considered a Class 3 area, as there is no urban hum.
- b) The proposed station would be substantially closer to the points of reception locations.
- c) There may be two turbines rather than one.

Therefore, this section must be rewritten.

109) 6.3.5.1 Flow Over Bala Falls

- a) The Ministry of Natural Resources representative for this proposed project has stated that the existing leakage flow is up to 3 m³/s at each of the north and south dams.
- b) Table 5.2 of the Muskoka River Water Management Plan states "*Minimum outflow of 3.0 m³/s from each dam is to be maintained by leakage or log removal to maintain downstream water quality*".

Therefore, this section must be rewritten.

110) 6.3.5.3 Powerhouse Aesthetics

- a) The powerhouse would not be moved "*a considerable distance south*".
- b) The proponent has stated the powerhouse would be taller, so would have even fewer "*station facilities below grade*".
- c) The orientation of the powerhouse would therefore have major "*impacts on the scenic falls area*".
- d) The proponent has stated the design would not provide "*the opportunity to create a park-like setting*".

Therefore, this section must be rewritten.

111) 6.3.6.1 Effect on Areas for Public Use

- a) The Ministry of Natural Resources and the drawings provided by the proponent in September 2010 show that the upstream safety boom would be downstream of the CPR bridge.

Therefore, areas of the north channel with increased flow velocities would be outside of the restricted area within the safety boom, so in-water recreational activities outside of the safety boom would actually be endangered by the proposed station.

- b) There would no longer be an "*additional parkland area of approximately 1200 m²*".

Therefore, this section must be rewritten.

112) 6.3.6.2 Effects on Existing Water Levels

- a) Given that:
 - The Muskoka River Water Management Plan would need to be amended to accommodate the proponent's new proposal.
 - The proposed station would use a cycling operation.This section must be rewritten.
- 113) 6.3.8.2 Transmission Line Interconnection
 - a) The proponent has stated that the transmission line interconnection would be aerial, not buried. Therefore, this section must be rewritten.
- 114) 6.5 Accidents and Malfunctions
 - a) The blasting and excavation directly adjacent to the north dam would significantly increase the risk of dam failure. Therefore, this section must be rewritten.
- 115) Figure 6.2b Downstream Reach Post Development Conditions – Power Flow + Bypass Flow
 - a) As the location and orientation of the tailrace would change, this River2D hydraulic modeling is no longer valid and would need to be repeated with the values for the proponent's new proposal.
- 116) Figure 6.2c Upstream Post Development Conditions – Power Flow + Bypass Flow and
- 117) Figure 6.2d Upstream Post Development Conditions – Power Flow + Bypass Flow
 - a) As the location and orientation of the intake would change, this River2D hydraulic modeling is no longer valid and would need to be repeated with the values for the proponent's new proposal.
- 118) Figure 6.3 Spawning Habitat Enhancements
 - a) This figure has been superseded by the proponent's November 30, 2010 *Letter of Intent for Works or Undertakings Affecting Fish Habitat North Bala Generating Station* (which itself has now been superseded by the proponent's change to cycling operation), so this figure must be redrawn.
- 119) Figure 6.5 Areas Restricted During Operation
 - a) As the downstream safety boom would be relocated to correspond to the new tailrace location, and as MNR has stated that the upstream safety boom would be relocated further downstream, this figure must be redrawn.
- 120) Figure 6.6 Artist Rendering of Site Restoration/Landscaping
 - a) As the location and orientation of the proposed powerhouse has changed, this figure must be redrawn.
- 121) Table 7.1 Cumulative Effects Assessment
 - a) The expected sound levels need to be recalculated using the reduced distances to the points of reception and other changes (such as using two turbines – and having a smaller diameter, these may run faster and make more noise).
 - b) The proponent has agreed this is a Class 3 area.
 - c) The proponent has stated their new proposal would;
 - Have a taller powerhouse.

- Have less opportunity for landscaping.
- Would not permit access to the south side of the north falls.

This would result in increased residual effects on both tourism/recreation and local businesses.

- d) There would be increased traffic queuing and delay, due to:
- The need to remove the highway guardrail for construction vehicle access to the construction site and the resulting effect of needing a temporary Jersey barrier there.
 - The disruption of trucks backing-up and being loaded/unloaded on the west shoulder of Muskoka Road 169.
 - The need to stop traffic for blasting and the subsequent inspection of the highway bridge.

Therefore, the impact on tourism and on delays to emergency vehicles needs to be included.

Therefore, this table must be rewritten.

122) Table 7.2 Significance of Residual Adverse Cumulative Effects

- a) As noted for Table 7.1 and above, the magnitude of these impacts would be greater, so this table must be rewritten.

123) 8.1 Precipitation and Flooding

- a) As noted for Section 5.2.5, the upstream cofferdam required would cause a greater constriction of the north channel, for a greater period of time, and in the event of a high flow event (for example, due to excessive precipitation or snow melt), the cofferdam would require more time to remove (due to the sheet pile construction). As a result:
- Flooding of Lake Muskoka could occur, causing significant damage to boats, boathouses and other structures.
 - Removing the cofferdam during the excavation of the intake (or if it was overtopped due to the high flow event) could result in damaging the foundations for the north dam and highway bridge, either or both of which could fail, with catastrophic results.
- b) The design should be more conservative than for only a 1:20 year flood.

Therefore, the section must be rewritten.

124) 8.4 Earthquakes

- a) The excavation of the proponent's new proposal's intake would require blasting directly adjacent to both the north dam and the support piers for the highway bridge.

This walls of this excavation would be almost vertical (the proponent's September 2010 drawings showed them to be less than 6° from vertical) and as noted for Section 5.3.9.1 would be to a depth of 60'.

So picture this. The support piers for the highway bridge (built 57 years ago) and for the north dam (built 103 years ago) would be within an inch of the top edge of a 60'-high rock cliff – where there are workers blasting all down the side of the cliff and heavy trucks driving by!

- Certainly this is already beyond risky, but the added concern of seismic activity shows this to be an extremely precarious situation, and needs further discussion of the risks, and how the public's interests would be protected.

b) Note that a failure of the north dam (which was built in 1909) would result in:

- A 20'-high wall of water (the height of Lake Muskoka over the Moon River, see Section 1.2)

- Emptying the 89 km² of Lake Muskoka (see Section 1.3.1, or 120 km² according to Section 9.4) into the Moon River.

This would cause massive damage to the hundreds of residences, docks and boats along the Moon River, massive damage to the boats and docks in Lake Muskoka, and massive damage to the fish and aquatic habitat in Lake Muskoka.

This is obviously a significant public safety issue and requires much more discussion be added to this section.

125) 9.4 Waterpower Facilities, Water Control Structures, and Current Water Management Strategies, Burgess Dam and Burgess Generating Station

a) As in Section 1.3.4, erroneously states that the Burgess Generation Station is owned by Algonquin Power.

126) 9.7 Option Development and Preferred Option

a) This section needs to be rewritten now that the proponent's new proposal is not one of those presented in the environmental screening report.

b) This section needs to be rewritten now that run-of-river operation is no longer being proposed.

127) 9.8 Environmental Effects of Preferred Option
and

128) 9.9 Operating Plan for the North Bala Generating Station

a) These sections need to be rewritten now that the run-of-river operation is no longer being proposed.

129) 12.1 Screening Conclusion

a) Significant additional study and information is needed before this statement can be justified.

130) Appendix A Drawings

a) Drawings of the new proposal are required.

131) Appendix B MOE Screening Criteria Checklist, Table B1

a) Due to the impact of cycling operation on flows and shoreline erosion,

b) due to the increased noise, as the facility would be moved closer to the points of reception,

c) due to the requirement for the Bailey bridge being removed,

d) due to the proponent's inadequate surveying for species at risk,

e) due to the reduced opportunity for landscaping to reduce the visual impact of the proposed powerhouse,

f) due to elimination of public's access to the south side of the north falls,

g) due to traffic disruption during construction causing delays to emergency vehicles,

- h) due to the increased risk to the north Bala dam and to the highway bridge due to blasting and excavation during construction, and
- i) due to negative impacts on the cultural landscape,

This table must be rewritten.

132) Appendix C1 Acoustic Assessment Report

a) 1.1 Project Background

- No, it would not be a run-of-river facility.
- No, the proponent states that the power cable for the new proposal would not be underground.
- No, the proponent states that the interconnection hydro pole would not be south of the intersection of Muskoka Road 169 and Bala Falls Road.
- No, the power sold would not be under the terms of a Standard Offer Contract.
- As noted in the Ministry of the Environment's document NPC-233 *Information to be Submitted for Approval of Stationary Sources of Sound*, October 1995, the information submitted must be for each source, this was not done for the environmental screening report.

Therefore, this section must be rewritten.

b) 1.2.1 Project Components and Structure

- States the head would be 5.86 m, though Section 6.2.5.6 states the head is 5.3 m, and Section 1.2 states the head is 6.2 m.
- States there would be one turbine, and the calculations provided are for one turbine. However, Section 1.22 of the environmental screening report, and also the proponent's information on their new proposal states there may be two turbines.
- The proponent has stated that the switchgear and transformer may be on the roof of the structure. This is a major change, as:
 - The sound from these devices would no longer be attenuated by the concrete walls of the structure.
 - The appearance of the facility would be even more "industrial".
- Again, it is incorrectly stated that the power cable would be underground.

Therefore, this section must be rewritten.

c) 1.2.4 Sound Characteristics of the Sites and Applicable Sound Level Limits

- The proponent has since agreed it is a Class 3 area, therefore, this section must be rewritten.

d) Figure 2 General Arrangement/Location of the Noise Sources and Noise Measurement Sites

- The proposed powerhouse and noise sources would be located closer to the points of reception, so this figure must be redrawn.

e) 2.2 Noise Sources
and

f) 2.2.2 Transformer

- The proponent has stated that the switchgear and transformer may be on the roof of the structure, so the sound from these devices would no longer be attenuated by the concrete walls of the structure.

Therefore, this section must be rewritten.

g) Table 3.1

- The head would be greater, and the transformer may not be in the powerhouse, therefore, this section must be rewritten.
 - h) 4.2 Points of Reception (POR) List and Description
 - The proponent has agreed this is a Class 3 area, therefore this section must be rewritten.
 - i) 4.3.2 List of Parameters/Assumptions Used in Calculations
 - The proponent has stated that the switchgear and transformer may be on the roof of the structure, so the sound from these devices would no longer be attenuated by the concrete walls of the structure. Therefore, this section must be rewritten.
 - j) Table 4.1 Point of Reception Noise Impact Table
 - The proposed powerhouse and noise sources would be located closer to points of reception R-3, R-4, and R-5, so this table must be rewritten.
 - k) Figure 3 Location of the Points of Reception
 - The proposed powerhouse would be in a different location, so this figure must be redrawn.
 - l) 5.2 Predictable Worst Case Impacts Operating Scenario
 - The proponent has stated that the switchgear and transformer may be on the roof of the structure, so the sound from these devices would no longer be attenuated by the concrete walls of the structure.
 - Drawings provided by the proponent show that the fans and fan openings would in fact direct the sound towards the point of reception residences. Therefore, this section must be rewritten.
 - m) Appendix A Noise Calculations
 - These must be modified with the correct location for each noise source (for example, on the roof of the proposed powerhouse), and including all noise sources, and using the correct distances to the points of reception.
 - n) Appendix B Results of Acoustic Survey
 - These measurements must be repeated allowing for the reduction in background noise due to the expected reduction in scenic flow.
- 133) Appendix D5 Public Information Centre
- a) This is the information presented at the first public information centre, held August 29, 2007.

Note that without any approval, knowledge of, or approval of the municipal governments, as shown in the figure on page 8, the proposed powerhouse, driveway and retaining wall are all shown on municipal land.

That is, there has never been a public information centre where the proposed project would be solely on Crown land, as is the proponent's new proposal.