

**MNR REVIEW COMMENTS: LIZARD CREEK ESR, APPENDIX D AND E, AUGUST 19, 2011**

#	Page #	Ref.	MNR Comment	Proponent Response
1.	8 & 11	1.1 & Fig. 2	<p>Zone of Influence throughout both ESR and Env. Report is described inconsistently and seems to lack confidence and evidence in the upper limit of inundation and water fluctuation. Page 8 states “flooding for the upper portion of Lizard Creek and lower Lizard Lake”. Page 162 states “impacts on hydrology....will generally be limited to the water bodies and flows in the systems between Lillie Lake upstream...”, while other text within ESR and this report indicated inundation will only occur up to upper reach of Lower Lizard Lake. Further detailed analysis is required to understand the ZOI with confidence.</p> <p>Similar to comment above, inundation mapping requires further detail. Upper and lower inundation water levels should be included here.</p>	<p><a href="#">See response to item #79 main body MNR comments</a></p>
2.	8/9	1.2	<p>“The maximum headpond fluctuation will be less than 0.6m.” Require more information here, including daily, seasonal, and annual fluctuation.</p>	<p><a href="#">See response to item #79 main body MNR comments</a></p>
3.	9	1.2	<p>Stated within report that “Both [lakes] are at 234.4m CGD.” Mapping shows 233.4m. Please clarify.</p>	<p><a href="#">233.4 variable to seasonal fluctuation</a></p>
4.	12	Fig. 3	<p>It was indicated that a walleye spawning site is known between Lower and Upper Lizard Lake (Stated in ESR - <i>Current flow regimes in a riffle located at the upstream end of Lower Lizard Lake, where walleye are known to spawn, will be altered.</i> Page 111). This site should be included in the mapping. Also, this known location is not mentioned anywhere within the Natural Environment Report, and is not further addressed within the ESR aside from the sentence provided above. Please describe how this site will be altered, impacted, and mitigation measures to be applied.</p>	<p><a href="#">See attachment “ESR Response Memo for MNR Comments_Aquatics”</a>  <a href="#">See response to item #79 main body MNR comments</a></p>
5.	14	2.1.1	<p>“Site visits are on-going in the fall of 2011, from August to October.” Suggest that “based on preferred spawning temperature ranges for Chinook and Pink salmon” replaces the calendar dates used. Commencement and completion dates for these surveys should be based on water temperatures. It is recommended that this is changed throughout the report wherever “August to October” is used to describe spawning periods.</p>	<p><a href="#">See response to item #17 main body MNR comments</a></p>
6.	20	2.1.2	<p>Do water depths at Hwy 17 on the serpent river allow for effective visual surveys for Lake Sturgeon?</p>	<p><a href="#">See attachment “ESR Response Memo for MNR Comments_Aquatics”</a></p>
7.	27	3.2.1.3 3.2.1.4	<p>These lakes are not provided on any mapping. Suggest they are so the reader can refer to their location and understand the purpose of describing Turtle and Blanche Lakes within this report.</p>	<p><a href="#">See General Location Map in Public Consultation portion of the ESR</a></p>
8.	28	3.2.1.6	<p>As requested in the draft EA comments, please define “plan area.”</p>	<p><a href="#">See response to item #79 main body MNR comments</a></p>
9.	28	3.2.1.6	<p>Many local residents believe that lake sturgeon still exist in the Serpent River. Please remove the statement that suggests otherwise.</p>	<p><a href="#">See attachment “ESR Response Memo for MNR Comments_Aquatics”</a></p>
10.	35	3.3.2.2	<p>Please provide the locations of Serpent River First Nation lake sturgeon surveys.</p>	<p><a href="#">See attachment “ESR Response Memo for MNR Comments_Aquatics”</a></p>
11.	39	Reach 1	<p>Based on natural heritage mapping, historical records show that salmonids can likely ascend the first barrier, as spawning area is indicated below second barrier. Please address.</p>	<p><a href="#">See attachment “ESR Response Memo for MNR Comments_Aquatics”</a></p>
12.	43	Reach 3	<p>“This reach of river has very little habitat or water depth suitable for any fish species during summer flow conditions.” Since the proposed ecological flow will be 0.065cms, extreme summer flow conditions will be mimicked for a longer period of time, therefore providing limited habitat and water depth for fish species for a lengthier period of time outside of “normal” low flow conditions.</p>	<p><a href="#">See attachment “ESR Response Memo for MNR Comments_Aquatics”</a></p>
13.	62	3.3.7.1	<p>Report states “...there is no suitable spawning habitat in Lizard Lake or upper Lizard Creek for walleye in the project area.” This statement contradicts page 111 of ESR, where it is stated that “Current flow regimes in a riffle located at the upstream</p>	<p><a href="#">See attachment “ESR Response Memo for MNR Comments_Aquatics”</a></p>

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			end of Lower Lizard Lake, where walleye are known to spawn, will be altered.” Please address.	<a href="#">See response to item #17 main body MNR comments</a>
14	67		“Surveys were postponed until May 10 <sup>th</sup> when flows had finally subsided and temperatures had risen.” Please state what this temperature was at when surveys re-commenced.	<a href="#">See attachment “ESR Response Memo for MNR Comments_Aquatics</a>
15	68	3.3.7.2	Within this paragraph, it is stated that “both reaches (1&2) provide poor sturgeon spawning habitat (slow moving water with muck/veg substrate). This habitat description of reach 1 and 2 contradicts previous descriptions of Reach 1&2 – where substrates are described as being boulder/cobble. Please clarify.	<a href="#">See attachment “ESR Response Memo for MNR Comments_Aquatics</a>
16	69	3.3.7.3	No fish surveys were conducted within Reach 3 this spring (2011). It was recommended by DFO that surveys include this reach of river to gain a better understanding of fish utilization within this reach before an ecological flow can be agreed upon. Discussions with DFO are on-going as to survey requirements.	<a href="#">See attachment “ESR Response Memo for MNR Comments_Aquatics</a>
17	83	Invertebrates	Sampling in reach #3 was under represented relative to other reaches, and is insufficient to detect change in invertebrate biomass within the bypass reach. As such, defensible decisions regarding adaptive management in the bypass are not possible and can not be supported. Wetted perimeter, depth and flows at the time of invertebrate sampling would have been helpful.  Requires BACI (Before/After, Control/Impact) experimental sampling design for adaptive management approach. A reference condition on which to base a defensible adaptive management approach must be established.	<a href="#">See response to item #41 main body MNR comments</a>
18	84	3.4.1	“...abundance [of inverts] may be lower than other streams. The reasons for this are not clear, but may be due to the type of substrate and possibly low summer levels.” Therefore, incorporating the extreme low summer level as a base flow, and thereby increasing the time in which flows are this low may contribute to an even lower abundance post-construction. This should be factored into the impact assessment within this appendix and the ESR.	<a href="#">See response to item #41 main body MNR comments</a>
19	86	Table 11	Highest density of invertebrates was observed within Reach 2, which is in the bypass reach. It is important that baseline data can be utilized and replicated through to post-construction monitoring so that changes to populations can be detected. Also important to understand all the changes that will occur within that reach – i.e. wetted width of reach. Same comment for Table 3-16 in ESR.	<a href="#">See response to item #41 main body MNR comments</a>
20	89		There is no mention of how the frequency and rate of change in flow associated with peaking in the tail race will effect the pool downstream where Uhler’s Sundragons were found. Please address.	<a href="#">See response to item #79 main body MNR comments</a> <a href="#">See attachment “ESR Response Memo for MNR Comments_Aquatics</a>
21	90	3.4.3	Should be using SARA and SARO statuses – not COSSARO and COSSEWIC throughout report.	<a href="#">Acknowledged</a>
22	92	3.5.1	Note: A broad winged hawk was observed within this area when MNR conducted a site visit on June 29 <sup>th</sup> . It is recommended that the nest be checked for use prior to construction.	<a href="#">Yes the nest site this pair utilize will be checked prior to construction</a>
23	110	FEC V23	This polygon is not included on Figure 10: Ecosites and Vegetation	<a href="#">Will be added to Figure</a>
24	115	4.2	Should 2.0cms be changed to 2.66cms in line 3?	<a href="#">See response to item #82 main body MNR comments</a>
25	117		Please note that there is a significant difference between beaver dams and concrete dams in terms of permanency of the structure.	<a href="#">Acknowledged</a>
26	118	4.3.3	There is not enough information provided within this report to defensibly agree that the low flow proposed will not alter current life cycles or populations to invertebrates.	<a href="#">See response to item #41 main body MNR comments</a>
27	118		As 95 % of the water volume will bypass reach # 2 and 3, it is indefensible to say “there isn’t expected to be alteration to the current life cycles or populations to the invertebrates that currently occupy this reach.”	<a href="#">See response to item #79 main body MNR comments</a>

**MNR REVIEW COMMENTS: LIZARD CREEK ESR, APPENDIX D AND E, AUGUST 19, 2011**

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28	119		Throughout this report, the assessment of environmental effects only takes into account the magnitude of low flows. The impacts associated with the changes in the duration, frequency and rate of change in flows needs to be addressed. The report states that the “impacts of the altered flows will not be felt farther than 20 m downstream at which point flows will remain as though they were in a natural state.” It appears as though only magnitude is being considered here. Please address.	See response to item #79 main body MNR comments
29	120		MNR would like to see the calculations for the statement “flows downstream of the tail race may theoretically fluctuate, but will be minimal due to the attenuating effect of Grassy Lake”. What happens for the 16 hours when proposed base flow of 0.065 cms is the only flow available?	See response to item #79 main body MNR comments
30	121		This page is confusing, as the report demonstrates predicted changes to the Serpent River. What distance of the SR will this project impact? Any changes to flows and/or levels resulting from the development and operation of this facility is considered to be within the ZOI. A more detailed account of the ZOI must be provided within the report, as well as the methods used to determine the upper and lower limits of the ZOI.	See response to item #79 main body MNR comments See updated drawing set Jan. 2012
31	121-122		MNR does not agree that the flow from the bypass reach of 0.065 cms will result in an overall increase in water during these other low flow periods . There will be no more or less water on a daily basis but there will be seasonal variability on an hourly basis. Benthic organisms hatch from May through August, and some species may live an aquatic life stage for multiple years. Variable daily flows and reduced bypass flows will reduce organic material available as food, permanency of habitat and space in the bypass reach impacting invertebrate production. The potential for freezing within the bypass reach during the winter period with only 0.065 cms or when the reservoir is being recharged also needs to be addressed within this document, and within the ESR. Impacts to fish should be considered within this assessment.	See response to item #79 main body MNR comments See response to item #117 main body MNR comments
32	122	Last paragraph	Report states that benthic invertebrates and fish are currently performing multiple life cycles based on current flow regimes. MNR does not agree. The current flow regime involves flows higher than the base flow proposed, and seasonal highs. These life functions depend on these higher flows and will likely be reduced with reduced flows. This is repeated in paragraph 3 on page 163, and in the ESR on p. 98. Further rationale is required.	See response to item #79 main body MNR comments See response to item #41 main body MNR comments
33	123		Unless there is thermal stratification and bottom draw is implemented, MNR is not sure how there could be an improvement in water temperatures. Please show the calculations to support the following statement “or improve the current temperature fluctuations.”	See updated drawing set Jan. 2012 w/r to bypass flow duct location
34	125		Please provide a reference to the statement “the maintenance of constant low flow levels in reach #3 will provide stability to a stochastic ecosystem.”	See response to item #41 main body MNR comments
35	125	4.3.10	Impacts on biodiversity. Future operations may need to accommodate recovery efforts for sturgeon and revisions to Lake Huron Fisheries Management Objectives.	To be discussed at Permitting and Approvals
36	130	1 <sup>st</sup> paragraph	Please provide distance of significant wildlife habitat from the project area (moose aquatic and wintering areas, great blue heron nesting site). Depending upon location, assessment of impacts many need to be addressed, including mitigation and monitoring.	Additional mapping will be prepared and included in the Base Line Doc.
37	141	4.4.1.2 and Table 23	Leopard frog and wood frog are also listed as amphibians being present (pg. 98 of ESR, Table 16), but they are not included in Table 23.	Have been added to table and included in the Base Line Doc.
38	143		Midland painted turtle is not a species at risk.	Agreed
39	159	5 <sup>th</sup> para-	“NEA has analysed samples from walleye and whitefish...” Is this sentence supposed to read walleye and <i>white sucker</i> ?	Yes

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		graph	This fish species was not listed as being observed or captured in recent studies.	
40	160	Table 26	It is recommended that the fall spawning period for Chinook and pink salmon is included as a potential sensitive spawning period within this table.	Agreed
41	160	5.1.2.2	MNR does not agree that changes in reach 2 upstream of powerhouse will result in “minor” changes to the existing hydrological cycle. MNR requires further information with respect to the existing and post-construction hydrological regimes such as those mentioned within this paragraph. MNR would like to gain a better understanding of the existing and post-construction wetted width within the bypass reach. This will aid in the assessment of habitat loss for benthic invertebrates, which MNR considers to be the Valued Ecosystem Component for this reach of the system.	See response to item #79 main body MNR comments See response to item #41 main body MNR comments
42	163	4 <sup>th</sup> para-graph	As an adaptive management approach is being proposed, a detailed post-construction monitoring plan must be provided to MNR prior to issuance of LRIA approvals. The plan should include detailed methods, agreed-upon indicators with MNR, information requirements, assessment criteria and evaluation.	Acknowledged
43	164	3rd para-graph	“There is not expected to be a significant difference in the community structure post-construction as the overall stream morphology will remain functionally similar to current conditions.” MNR does not agree with this assessment.	See response to item #79 main body MNR comments See response to item #41 main body MNR comments
44	165	7.1	Approval of Water Management Plan under Sec 23.1 of LRIA is missing in this section.	To be added
45	172	5.1.3.5	“If salmon are confirmed as absent from Lizard Creek during the 2011 spawning survey, no post construction monitoring will be conducted.” It should be noted that the fishery, flows, and water levels within this area can change over time. Should fish species utilize the project area for any important and sensitive event in the future during the lifetime of this facility, operations may need to be altered at that time to accommodate flows and levels required for the event.	See response to item #79 main body MNR comments See response to item #17 main body MNR comments
46	174	5.1.3.7	“...spring walleye spawning habitat surveys are recommended in the river below both dams and the new tailrace.” If it is found that there is significant walleye spawning habitat above Lower Lizard Lake, and this habitat will be altered as stated on page 111 of ESR, then pre-construction surveys may need to be implemented so that post-construction monitoring can be undertaken to determine extent of alteration and impact. Pre-construction surveys should be quantifiable and repeatable.	See attachment “ESR Response Memo for MNR Comments_Aquatics
47	159		Benthic samples should be obtained from the same sites as pre-construction.	See response to item #41 main body MNR comments
48	<b>GENERAL</b>		We appreciate the time and effort that were put forth in the EA Report. The report is well written and easy to understand. For future reports, however, MNR would recommend that repetition between the main report and the appendices be limited. For example, a great deal of duplication is apparent between appendix E and the ESR, and resulted in a longer review timeframe than would otherwise have been necessary. It is important that MNR be able to refer to specific sections to get a focussed and comprehensive understanding of specific items.	Agreed
			<b>APPENDIX D</b>	
49			It is not clear that a copy of the Notice of Completion was sent to all FNs. This is a requirement of the Waterpower Class EA. Please clarify.	All IAC’s received propriety post hard copy of NOC prior to public posting